

## Part 2. Proteins

## Proteins

### 4-IBBL

**PeproTech 310-11** Human recombinant, expressed in *E. coli* MW 19.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the emerging family of ligands with structural homology to tumor necrosis factor; 185 AA; ED<sub>50</sub> ≤ 10ng/mL; SA determined by the dose-dependent stimulation of IL-8 production by human PBMC

### 6CKINE

**Synonyms:** Exodus II; SLC; T-Cell Activation Gene IV

**Biodesign A52013M** *E. coli* Purified | Species specificity: mouse

**Biodesign A52035H** *E. coli* Purified

**Chemicon GF086** Human ≥95%

**Biogenesis 4396-0150** Human r-DNA Lyophilized

**BioSource International PHC1474** Human recombinant

**PeproTech 300-35** Human recombinant, expressed in *E. coli* MW 12.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | In the CC chemokine family; similar to Exodus-1 (aka MIP-3α & LARC); inhibits hemopoiesis & stimulating chemotaxis; 111 AA; SA determined by its ability to chemoattract total lymphocyte population

**Sigma C 0720** Human recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 1.25 BSA

**Biogenesis 4396-0350** Mouse r-DNA Lyophilized

**Sigma C 0845** Mouse recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 1.25 BSA | Endotoxin tested; cell culture tested; long-term growth & metabolism of most mammalian cells in culture require that growth factors, hormones & other factors be present in the basal medium; these factors are provided by fetal bovine serum &/or other sera routinely used in cell culture protocols; endotoxin tested; cell culture tested

**PeproTech 250-13** Murine recombinant, expressed in *E. coli* MW 12.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | In the CC chemokine family; similar to Exodus-1 (MIP-3α/LARC); inhibits hemopoiesis & stimulating chemotaxis 110 AA; SA determined by its ability to chemoattract total murine T cell population

### Abrin Toxin A

**Sigma L 2017** *Abrus precatorius* (Jequirity bean) Highly purified by affinity & ion exchange chromatography; solution in 0.01 M potassium phosphate, pH 7.2, containing 0.15 M NaCl & 0.1% sodium azide; activity: >50 µg/mL (the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C) | Lectin

### Abrin Toxin A & C

**Sigma L 9633** *Abrus precatorius* (Jequirity bean) Highly purified by affinity chromatography according to the method of Wei, CH et al, *J Biol Chem*, 249: 3061, 1974; solution in 0.01 M potassium phosphate, pH 7.2, containing 0.15 M NaCl & 0.1% sodium azide; activity: <60 µg/mL (the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C) | Lectin

### Abrin Toxin C

**Sigma L 1892** *Abrus precatorius* (Jequirity bean) Highly purified by affinity & ion exchange chromatography; solution in 0.01 M potassium phosphate, pH 7.2, containing 0.15 M NaCl & 0.1% sodium azide; activity: <60 µg/mL (the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C) | Lectin; this is a further purification of Sigma L 9633 to eliminate the abrin A content

### Acetylcholine Transporter Protein

**Biotrend 0030-5059** Rat, synthetic >80% | Antigen

### Acid Glycoprotein VI, α<sub>1</sub>-

**Synonyms:** Orosomucoid

**Fluka 50646** Human plasma MW 45k ≥98% (GE); 60% protein; 6% water | Arnaud, P et al, *Meth Enzymol*, 163: 418, 1988; Eap, CB & Baumann, P, *Electrophoresis*, 9: 650, 1988

### Acid Glycoprotein, α<sub>1</sub>-

**Synonyms:** Orosomucoid; Seromucoid, α<sub>1</sub>-

**Fluka 50647** Bovine serum ≥99% (gel electrophoresis); ≤5% water; ~70% protein

**Biodesign A50106H** Human Purified

**Fitzgerald 30-AA01** Human plasma High purity | Orosomucoid

**ICN 153905** Human plasma MW 44.1k Lyophilized, salt free, >99%

**ICN 191348** Human plasma MW 44.1k Lyophilized, salt free, >99% (SDS-PAGE) | Negative for HBs Ag & HIV antibodies; Schmid, K et al, *Biochemistry*, 12:2711, 1973

**Scipac P153-0** Orosomucoid, from serum/plasma >99%; lyophilized | Acute phase serum protein

**Scipac P153-1** Orosomucoid, from serum/plasma >96%; lyophilized | Acute phase serum protein

**Scipac P153-2** Serum/plasma 40-90%; lyophilized | Serum protein

### Actibind™ K

**ICN 797091/797092** *Streptococcus* Protein from a variant of *Streptococcal* protein L that binds κ light chains &/or the F<sub>ab</sub> portion of immunoglobulins of all types; useful in the purification of monoclonal Ab & F<sub>ab</sub> Ab fragments

### Actin

**ICN 771012** MW 43k Purified | Suitable for use as a high MW marker or as a standard; may be used as an antigen for Ab development

**Fluka 01813** Bovine muscle ≥90% (gel electrophoresis); ≥99% protein; white powder

**Cortex CP1110** Rabbit >95%

**Biodesign A08001R** Rabbit muscle Purified

**Biogenesis 0070-2504** Rabbit muscle MW 46k Purified; 50% glycerol; liquid | Stimulates myosin ATPase activity if first polymerized

**Fluka 01812** Rabbit muscle MW ~43k ~96% (gel electrophoresis) | One of the major proteins of muscle & an important component of all eukaryotic cells; useful as a reference standard for SDS-PAGE & 2D-electrophoresis; role in muscle contraction & relaxation, also involved in a variety of cellular events: cell movement, cytokinesis, chromosome movement, phagocytosis & exocytosis; Pudich, J, Watt, S, *JBC*, 246: 4866, 1971; Vandekerckhove, J & Weber, K, *Eur J Biochem*, 90: 451, 1978; Korn, ED, *Physiol Rev*, 62: 672, 1982; Korn, ED, *PNAS*, 75: 588, 1978

**ICN 159848** Rabbit muscle 3µg/g inhibits 1 µg of DNase I; >90% | Prepared by a slightly different procedure (reference below); can be used in cell transport & motion studies; inhibits DNase I & possibly controls DNase I nucleolytic activity during the cell cycle; Spudich, JA & S Watt, *J Biol Chem*, 246:4866, 1971

### Actinin

**Biodesign A08002C** Chicken gizzard Purified

### Actinin, α-

**Sigma A 9776** Chicken Gizzard MW ~100k ~80% (SDS-PAGE); suspension in 2 M (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> containing 20 mM Tris acetate, pH 7.6, 20 mM sodium chloride, 0.1 mM EDTA, 15 mM β-mercaptoethanol & 1 mM phenylmethylsulfonyl fluoride | Prepared using a modification of the procedure of Neidel, JE & Cuatrecasas, P, *Biochem Biophys Res Commun*, 91: 152, 1979

**Actinomycin C**

**Synonyms:** Actinomycin C<sub>1</sub>; Actinomycin C<sub>2</sub>; Actinomycin C<sub>3</sub>

**Sigma A 4639** *Streptomyces chrysomallus* ~95% (HPLC) | Mixture of actinomycins C<sub>1</sub>, C<sub>2</sub>, & C<sub>3</sub>

**Actinomycin D**

**Synonyms:** Actinomycin IV; Actinomycin C<sub>1</sub>

**Sigma A 1410** *Streptomyces* species FW 1255.4 ~98% (HPLC); | Protein antibiotic that inhibits cell proliferation by forming a stable complex with double-stranded DNA & inhibiting RNA synthesis

**Sigma A 4262** *Streptomyces* species FW 1255.4 ~95% (HPLC);

**Actinomycin D, Mannitol**

**Sigma A 5156** Lyophilized powder; each vial contains 1 mg actinomycin D & 49 mg of mannitol | Soluble at 20 mg/mL in water

**Actinomycin I**

**Sigma A 3012** *Streptomyces antibioticus* FW 1263.5 ~80% (HPLC)

**Actinomycin V**

**Sigma A 2887** *Streptomyces antibioticus* FW 1269.4 ~95% (HPLC)

**Activin A**

**Sigma A 4839** Bovine recombinant, expressed in *E. coli* Lyophilized from 40% acetonitrile/0.1% TFA | Endotoxin tested; cell culture tested; see Sigma C 0720

**Acyl Carrier Protein**

**Sigma A 7303** *Escherichia coli* ≥60% pure by electrophoresis in 1% 2-β-MSH; lyophilized

**Adenovirus Type VI**

**USBio A0880-02** Single peak by HPLC; 5 mg/mL protein; in MEM buffer | Suitable for antigenic applications in immunological protocols

**Adenylate Cyclase Toxin**

**Alexis 630-088** *Bordetella pertussis* recombinant, expressed in *E. coli* MW ~177k ≥90%; lyophilized powder; soluble in water; reconstitute in 50 μL of sterile distilled water | Important virulence factor of *Bordetella pertussis* & a novel research tool for manipulation of cAMP levels in mammalian cells; ability to interact with target cells, insert into the cytoplasmic membrane & deliver its adenylate cyclase enzymatic domain to the cell interior; a calcium-binding protein & its ability to intoxicate target cells is calcium dependent; the cell entry process, unlike that of many other toxins, does not involve receptor-mediated endocytosis; Wolff, J et al, *PNAS*, 77: 3841, 1980; Confer, DL & Eaton, JW, *Science*, 217: 948, 1982; Weiss, A & Hewlett, EL, *Ann Rev Microbiol*, 40: 661, 1986; Glaser, P et al, *Mol Microbiol*, 2: 19, 1988; Sakamoto, H et al, *J Biol Chem*, 267: 13598, 1992; Mock, M & Ullmann, A, *Trends in Microbiol*, 1: 187, 1993; Hewlett, EL et al, *J Biol Chem*, 268: 7842, 1993; Szabo, G et al, *J Biol Chem*, 269: 22496, 1994; Benz, R et al, *J Biol Chem*, 269: 27231, 1994; Hackett, M et al, *Science*, 266: 433, 1994; Hackett, M et al, *J Biol Chem*, 270: 20250, 1995

**ICN 195877** Recombinant, expressed in *E. coli* MW 177k 400 μmol cAMP/min/mg protein

**Adhesive Protein**

**Synonyms:** BioGlue

**Sigma A 2707** *Mytilus edulis* (blue mussel) ~1 mg/mL in 5% acetic acid | On neutralization, forms very strong bonds to any surface

**Aequorin**

**ICN 194084** Jellyfish (*Aequorea* sp.) Purified powder | A bioluminescent protein used in immunoassay procedures; reported to measure calcium serum & subcellular organelle levels <10 μM; Izutsu, KT & SP Felton, *Clin Chem*, 18:77, 1972

**Aequorin Type III**

**Sigma A 4140** *Aequorea* species (jellyfish) ~0.5% protein (Bradford) in buffer salts consisting mainly of sodium EDTA, pH 7.5 | A bioluminescent protein; used to measure physiological levels of calcium in serum & subcellular organelles down to 10 μM; 1 mg solid will yield ~200 calcium assays; Izutsu, KT & Felton, SP, *Clin Chem*, 18: 77 (1972); Azzi, A & Chance, B, *Biochim Biophys Acta*, 189: 141 (1969)

**Aflatoxin B<sub>1</sub>, (<sup>3</sup>H(G))-**

**ARC ART-247** MW 312.3 15-30 Ci/mmol; 0.55-1.11 TBq/mmol; in methanol | Radiochemical

**Aflatoxin B<sub>2</sub>, (8,9-<sup>3</sup>H)-**

**ARC ART-617** MW 314.3 20-50 Ci/mmol; 0.74-1.85 TBq/mmol; in methanol | Radiochemical

**Aflatoxin M<sub>1</sub>, (<sup>3</sup>H(G))-**

**ARC ART-616** MW 328.3 1-5 Ci/mmol; 37-185 GBq/mmol; in methanol | Radiochemical

**Agglutinin, *Abrus precatorius***

**Synonyms:** Abrin; Lectin

**Sigma L 9758** *Abrus precatorius* (Jequirity bean) Highly purified by affinity chromatography according to the method of Lin, J-Y et al, *Toxicon*, 19: 41, 1981; solution in 0.01 M potassium phosphate, pH 7.2, containing 0.15 M NaCl & 0.1% sodium azide; activity: <2 μg/mL (the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C) | Extremely hazardous! Be aware of the risks & familiar with safety procedures before you use this product; not blood group specific but has an affinity for D-galactose; seeds of *Abrus precatorius* contain a nontoxic agglutinin together with 2 major toxic proteins, Abrin A<sup>2</sup> also referred to as Abrin b+c & Abrin C<sup>2</sup> also referred to as Abrin a; conjugates are prepared from affinity purified lectin; activity is expressed in μg/mL & is determined from serial dilutions in phosphate buffered saline, pH 7.2 of a 1 mg/mL solution; Tomita, M et al, *Experientia*, 28: 84, 1972; Wei, CH et al, *J Biol Chem*, 249: 3061, 1974; Lin, J-Y et al, *Toxicon*, 19: 41, 1981; Olsnes, S et al, *J Biol Chem*, 249: 803, 1974

**Agglutinin, *Abrus precatorius*, Biotin Conjugated**

**Synonyms:** Abrin; Lectin

**Sigma L 2266** *Abrus precatorius* (Jequirity bean) Solution in 0.01 M potassium phosphate, pH 7.3, containing 0.15 M NaCl & 0.1% sodium azide; contains ~3 moles biotin/mole protein | Extremely hazardous! Be aware of the risks & familiar with safety procedures before you use this product; not blood group specific but has an affinity for D-galactose; seeds of *Abrus precatorius* contain a nontoxic agglutinin together with 2 major toxic proteins, Abrin A<sup>2</sup> also referred to as Abrin b+c & Abrin C<sup>2</sup> also referred to as Abrin a; conjugates are prepared from affinity purified lectin; activity is expressed in μg/mL & is determined from serial dilutions in phosphate buffered saline, pH 7.2 of a 1 mg/mL solution; Tomita, M et al, *Experientia*, 28: 84, 1972; Wei, CH et al, *J Biol Chem*, 249: 3061, 1974; Lin, J-Y et al, *Toxicon*, 19: 41, 1981; Olsnes, S et al, *J Biol Chem*, 249: 803, 1974

## Agglutinin, *Abrus precatorius*, FITC Conjugated

**Synonyms:** Abrin; Lectin

**Sigma L 9883** *Abrus precatorius* (Jequirity bean) Solution in 0.01 M potassium phosphate, pH 7.2, containing 0.15 M NaCl & 0.1% sodium azide; contains 1-2 moles FITC/mole protein | Extremely hazardous! Be aware of the risks & familiar with safety procedures before you use this product; not blood group specific but has an affinity for D-galactose; seeds of *Abrus precatorius* contain a nontoxic agglutinin together with 2 major toxic proteins, Abrin A<sup>2</sup> also referred to as Abrin b+c & Abrin C<sup>2</sup> also referred to as Abrin a; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 7.2 of a 1 mg/mL solution; Tomita, M et al, *Experientia*, 28: 84, 1972; Wei, CH et al, *J Biol Chem*, 249: 3061, 1974; Lin, J-Y et al, *Toxicon*, 19: 41, 1981; Olsnes, S et al, *J Biol Chem*, 249: 803, 1974

## Agglutinin, *Abrus precatorius*, Immobilized

**Synonyms:** Abrin; Lectin

**Sigma L 0518** *Abrus precatorius* (Jequirity bean) Immobilized on 4% cross-linked beaded agarose; suspension in 1.0 M NaCl containing 0.01% thimerosal; contains 2-4 mg lectin/mL packed gel | Extremely hazardous! Be aware of the risks & familiar with safety procedures before you use this product; not blood group specific but has an affinity for D-galactose; seeds of *Abrus precatorius* contain a nontoxic agglutinin together with 2 major toxic proteins, Abrin A<sup>2</sup> also referred to as Abrin b+c & Abrin C<sup>2</sup> also referred to as Abrin a; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 7.2 of a 1 mg/mL solution; Tomita, M et al, *Experientia*, 28: 84, 1972; Wei, CH et al, *J Biol Chem*, 249: 3061, 1974; Lin, J-Y et al, *Toxicon*, 19: 41, 1981; Olsnes, S et al, *J Biol Chem*, 249: 803, 1974

## Agglutinin, *Agaricus bisporus*

**Synonyms:** Lectin

**Sigma L 5640** *Agaricus bisporus* (Mushroom) Highly purified by affinity chromatography; lyophilized powder containing ~10% protein (Biuret), balance primarily NaCl; activity: <16 µg protein/mL (the lowest concentration to agglutinate a 2% suspension of human blood group O erythrocytes after 1 hr at 25°C) | Lectin; not blood group specific but has an affinity for fetuin; ABA is a mixture of 2 phytohemagglutinins with similar specificities for carbohydrate receptors; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Presant, CA & Kornfeld, S, *J Biol Chem*, 247: 6937, 1972

## Agglutinin, *Anguilla anguilla*

**Synonyms:** Lectin

**Sigma L 4141** *Anguilla anguilla* (Fresh water eel) Highly purified by affinity chromatography; lyophilized powder containing ~30% protein (Biuret), balance primarily NaCl; activity: <20 µg/mL (the lowest concentration to agglutinate a 2% suspension of human blood group O erythrocytes after 1 hr at 25°C) | Anti-H blood group specific & has an affinity for α-L-fucosyl residues; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 7.3 of a 1 mg/mL solution; Horejsi, V & Kocourek, J, *J Biochim Biophys Acta*, 538: 299, 1978; Kelly, C, *Biochem J*, 220: 221, 1984

## Agglutinin, *Anguilla anguilla*, Biotin Conjugated

**Synonyms:** Lectin

**ICN 153235** *Anguilla anguilla* Purified by affinity chromatography | Specificity for α-L-Fuc

## Agglutinin, *Anguilla anguilla*, FITC Conjugated

**Synonyms:** Lectin

**ICN 153236** *Anguilla anguilla* Purified by affinity chromatography | Specificity for α-L-Fuc

## Agglutinin, *Arachis hypogaea*

**Synonyms:** Peanut Agglutinin; Lectin

**Sigma L 0881** *Arachis hypogaea* (Peanut) Affinity-purified; salt-free, lyophilized powder; activity: <0.1 µg/mL (the lowest concentration to agglutinate a 2% suspension of neuraminidase treated human blood group O erythrocytes after 1 hr at 25°C) | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

## Agglutinin, *Arachis hypogaea*, 10 nm Colloidal Gold Conjugated

**Synonyms:** PEANUT AGGLUTININ; LECTIN

**Sigma L 1644** *Arachis hypogaea* (Peanut) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.02% PEG 20 & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

## Agglutinin, *Arachis hypogaea*, Biotin Conjugated

**Synonyms:** Peanut Agglutinin; Lectin

**Sigma L 6135** *Arachis hypogaea* (Peanut) Lyophilized powder containing ~85% protein (Lowry), balance sodium citrate; contains ~3 moles biotin/mole protein | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

## Agglutinin, *Arachis hypogaea*, Ferritin Conjugated

**Synonyms:** Peanut Agglutinin; Lectin

**Sigma L 1513** *Arachis hypogaea* (Peanut) Sterile-filtered solution in 0.01 M potassium phosphate buffered saline, pH 7.0; contains 10-20 moles lectin bound/mole ferritin | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in µg/mL & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Agglutinin, *Arachis hypogaea*, FITC Conjugated**

*Synonyms:* Peanut Agglutinin; Lectin

**Sigma L 7381** *Arachis hypogaea* (Peanut) Lyophilized powder containing ~10% protein (Lowry), balance phosphate buffer salts & NaCl; contains 4-8 moles FITC/mole protein | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Agglutinin, *Arachis hypogaea*, Immobilized**

*Synonyms:* Peanut Agglutinin; Lectin

**Sigma L 2507** *Arachis hypogaea* (Peanut) Immobilized on cross-linked 4% beaded agarose; suspension in 1.0 M NaCl containing 0.01% thimerosal; contains 2-4 mg lectin/mL packed gel; 1 mL suspension yields ~0.5 mL packed gel | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Sigma L 6646** *Arachis hypogaea* (Peanut) Immobilized on 6% agarose macrobeads, particle size 200-300  $\mu\text{m}$ ; suspension in 1.0 M NaCl containing 0.01% thimerosal; contains 2-4 mg lectin/mL packed gel | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Agglutinin, *Arachis hypogaea*, Peroxidase Conjugated**

*Synonyms:* Peanut Agglutinin; Lectin

**Sigma L 7759** *Arachis hypogaea* (Peanut) Lyophilized powder containing ~90% protein (Modified Warburg-Christian), balance primarily sodium citrate; repurified after conjugation by affinity chromatography; peroxidase activity: 20-40 purpurogallin units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | Prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low MW conjugates; does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Agglutinin, *Arachis hypogaea*, TRITC Conjugated**

*Synonyms:* Peanut Agglutinin; Lectin

**Sigma L 3766** *Arachis hypogaea* (Peanut) Lyophilized powder containing ~10% protein (Lowry), balance phosphate buffer salts & NaCl; contains 1.5-3 moles TRITC/mole protein | Does not agglutinate normal human erythrocytes but strongly agglutinates neuraminidase treated erythrocytes; potent anti-T activity similar to anti-T Ab in human sera; can be used to distinguish between human lymphocyte subsets; conjugates are prepared from affinity purified lectin; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Bird, GWG, *Vox Sang*, 9: 748, 1964; Lotan, R et al, *J Biol Chem*, 250: 8518, 1975; London, J et al, *J Immunol*, 121: 438, 1978

**Agglutinin, *Artocarpus integrifolia***

*Synonyms:* Lectin

**Sigma L 3515** *Artocarpus integrifolia* (Jacalin, Jack fruit) Highly purified by affinity chromatography; lyophilized powder containing ~70% protein (Biuret), balance primarily phosphate buffer salts; activity: <10  $\mu\text{g/mL}$  (the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C) | Extracted from Jack fruit seeds; glycoprotein reported to bind human serum & secretory IgA; not blood group specific; the most effective inhibitor of hemagglutination is methyl  $\alpha$ -D-galactopyranoside; specific toward the Thomsen-Friedenreich (T) antigen but has subtle differences in its combining site when compared to the site of *Arachis hypogaea* agglutinin; also demonstrated to be a mitogen of T-lymphocytes; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Roque-Barreira, MC & Campo-Neto, A, *J Immunol*, 134: 1740, 1985; Ahmed, H & Chatterjee, BP, in *Lectins, Biology, Biochemistry, Clinical Biochemistry*, Vol 5, Bog-Hansen, TC & van Driessche, E, eds, p125, de Gruyter & Co, Berlin, NY, 1986; Krishna Sastry, MV et al, *J Biol Chem*, 261: 11726, 1986

**Agglutinin, *Artocarpus integrifolia*, Immobilized**

*Synonyms:* Lectin

**Sigma L 5147** *Artocarpus integrifolia* (Jacalin, Jack fruit) Immobilized on cross-linked 4% beaded agarose; suspension in 1.0 M NaCl containing 0.01% thimerosal; contains ~5 mg lectin/mL packed gel; binding capacity: 1 mL gel binds 1-2 mg human IgA | Extracted from Jack fruit seeds; glycoprotein reported to bind human serum & secretory IgA; not blood group specific; the most effective inhibitor of hemagglutination is methyl  $\alpha$ -D-galactopyranoside; specific toward the Thomsen-Friedenreich (T) antigen but has subtle differences in its combining site when compared to the site of *Arachis hypogaea* agglutinin; also demonstrated to be a mitogen of T-lymphocytes; activity is expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions in phosphate buffered saline, pH 6.8 of a 1 mg/mL solution; Roque-Barreira, MC & Campo-Neto, A, *J Immunol*, 134: 1740, 1985; Ahmed, H & Chatterjee, BP, in *Lectins, Biology, Biochemistry, Clinical Biochemistry*, Vol 5, Bog-Hansen, TC & van Driessche, E, eds, p125, de Gruyter & Co, Berlin, NY, 1986; Krishna Sastry, MV et al, *J Biol Chem*, 261: 11726, 1986

**Agglutinin, *Artocarpus integrifolia*, Peroxidase Conjugated**

*Synonyms:* Lectin

**Sigma L 4650** *Artocarpus integrifolia* (Jacalin, Jack fruit) Lyophilized powder containing ~75% protein (Modified Warburg-Christian), balance primarily sodium citrate; repurified after conjugation by affinity chromatography; peroxidase activity: 50-100 purpurogallin units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | Prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates

**Agglutinin, *Bandeiraea simplicifolia* I**

Synonyms: Lectin

**Sigma L 2380** *Bandeiraea simplicifolia* Salt-free; lyophilized; purified by affinity chromatography using the method of Hayes, CE & Goldstein, IJ, *J Biol Chem*, 249: 1904, 1974; activity: <20 µg/mL using human blood group A or B erythrocytes | Major affinity for terminal α-D-galactosyl residues with a secondary affinity for terminal N-acetyl-α-D-galactosaminyl residues; BS-I is a tetrameric lectin consisting of 2 types of subunits designated A & B; five BS-I isolectins with different subunit composition: BSI-B<sub>4</sub>, BSI-AB<sub>3</sub>, BSI-A<sub>2</sub>B<sub>2</sub>, BSI-A<sub>3</sub>B & BSI-A<sub>4</sub>; BSI-B<sub>4</sub> is blood group B specific & has an exclusive affinity for terminal α-D-galactosyl residues, whereas BSI-A<sub>4</sub> has blood group A specificity & has a major affinity for terminal N-acetyl-α-D-galactosaminyl residues; conjugates are prepared from the corresponding affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8, containing calcium, magnesium & manganese as indicated on the data sheet accompanying the product; activity is the lowest concentration to agglutinate a 2% suspension of appropriate erythrocytes after 1 hr at 25°C; Hayes CE & Goldstein, IJ, *J Biol Chem*, 249: 1904, 1974; Wood, C et al, *Arch Biochem Biophys*, 198: 1, 1979; Murphy, LA & Goldstein, IJ, *J Biol Chem*, 252: 4739, 1977

**Agglutinin, *Bandeiraea simplicifolia* I, Biotin Conjugated**

Synonyms: Lectin

**Sigma L 3759** *Bandeiraea simplicifolia* Lyophilized containing ~85% protein (E<sub>280</sub><sup>1%</sup>); balance primarily sodium citrate; contains 5 moles biotin/mole protein | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* I, FITC Conjugated**

Synonyms: Lectin

**Sigma L 9381** *Bandeiraea simplicifolia* Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 1-2 moles FITC/mole protein | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* I, Peroxidase Conjugated**

Synonyms: Lectin

**Sigma L 3383** *Bandeiraea simplicifolia* Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: 10-30 purpurogallin units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | Prepared from peroxidase type VI using a modification of the method of Wilson, MB & Nakane, PK, *immunofluorescence & Related Staining Techniques*, ed, Knapp, P et al, Elsevier, North Holland, Biomedical Press 215, 1978 See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* I, TRITC Conjugated**

Synonyms: Lectin

**Sigma L 5264** *Bandeiraea simplicifolia* Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 3 moles TRITC/mole protein | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* II**

Synonyms: Lectin

**Sigma L 7508** *Bandeiraea simplicifolia* Lyophilized containing ~95% protein (E<sub>280</sub><sup>1%</sup>); balance primarily sodium citrate plus trace calcium & magnesium chloride; activity: <20 µg/mL; highly purified by affinity chromatography using a modification of the method of Iyer, PN et al, *Arch Biochem Biophys*, 177: 330, 1976; | BS-II does not agglutinate human erythrocytes of blood groups A, B or O but will agglutinate acquired B, T-activated or Tk polyagglutinable cells; has an affinity for N-acetyl-D-glucosamine; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8, containing calcium, magnesium & manganese; activity is the lowest concentration to agglutinate a 2% suspension of *Bacteroides fragilis* treated human blood group O erythrocytes after 1 hr at 25°C; Judd, WJ et al, *Vox Sang*, 33: 246, 1977; Ebisu S et al, *carbohydrate Res*, 61: 129, 1978; Wood, C et al, *Arch Biochem Biophys*, 198: 1, 1979; Ebisu, S & Goldstein, IJ, *Meth Enzymol*, 50: 350, 1978

**Agglutinin, *Bandeiraea simplicifolia* II, FITC Conjugated**

Synonyms: Lectin

**Sigma L 1259** *Bandeiraea simplicifolia* Lyophilized containing ~95% protein (E<sub>280</sub><sup>1%</sup>); balance primarily sodium citrate; contains 1-2 moles FITC/mole protein | See Sigma L 7508

**Agglutinin, *Bandeiraea simplicifolia* II, Immobilized**

Synonyms: Lectin

**Sigma L 1889** *Bandeiraea simplicifolia* Immobilized on 4% beaded agarose; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate & 0.02% sodium azide; 1 mL suspension yields ~0.5 mL packed gel; spacer: 16 atoms; contains 3-5 mg protein (Biuret)/mL packed gel; binding capacity: 1 mL packed gel binds 0.5-1.5 mg albumin, bovine p-aminophenyl-N-acetyl-β-D-glucosaminide; attached through the carbohydrate portion of the glycoprotein by reductive amination to aminoethylamino epoxy-activated 4% beaded agarose | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* II, Peroxidase Conjugated**

Synonyms: Lectin

**Sigma L 6650** *Bandeiraea simplicifolia* Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily sodium citrate buffer salts & CaCl<sub>2</sub>; peroxidase activity: ~70 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978; repurified by affinity chromatography after conjugation; see Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* Isolectin A<sub>4</sub>**

Synonyms: Lectin

**Sigma L 1509** *Bandeiraea simplicifolia* Highly purified; lyophilized containing ~95% protein (E<sub>280</sub><sup>1%</sup>); balance primarily sodium citrate; activity: <16 µg/mL with human blood group A erythrocytes; >32 µg/mL with blood human blood group B erythrocytes | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* Isolectin A<sub>4</sub>, FITC Conjugated**

Synonyms: Lectin

**Sigma L 0890** *Bandeiraea simplicifolia* Lyophilized containing ~95% protein (E<sub>280</sub><sup>1%</sup>); balance citrate buffer salts & CaCl<sub>2</sub>; contains 2-4 moles FITC/mole protein isolectin A<sub>4</sub> | See Sigma L 2380

**Agglutinin, *Bandeiraea simplicifolia* Isolectin B<sub>4</sub>***Synonyms:* Lectin**Sigma L 2140** *Bandeiraea simplicifolia* Lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance citrate buffer salts & CaCl<sub>2</sub>; contains 2-4 moles biotin/mole isolectin B<sub>4</sub> | See Sigma L 2380**Sigma L 3019** *Bandeiraea simplicifolia* Highly purified; lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; activity: <8 µg/mL using human blood group B erythrocytes; does not agglutinate blood group A erythrocytes at 125 µg/mL | See Sigma L 2380**Agglutinin, *Bandeiraea simplicifolia* Isolectin B<sub>4</sub>, FITC Conjugated***Synonyms:* Lectin**Sigma L 2895** *Bandeiraea simplicifolia* Lyophilized containing ≥70% protein (Lowry); balance primarily sodium citrate; contains ~2 moles FITC/mole protein | See Sigma L 2380**Agglutinin, *Bandeiraea simplicifolia* Isolectin B<sub>4</sub>, Peroxidase Conjugated***Synonyms:* Lectin**Sigma L 5391** *Bandeiraea simplicifolia* Lyophilized containing ~95% protein (Modified Warburg-Christian); balance primarily sodium citrate buffer salts & CaCl<sub>2</sub>; peroxidase activity: 40-160 units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978; repurified by affinity chromatography after conjugation See Sigma L 2380**Agglutinin, *Bauhinia purpurea****Synonyms:* Lectin**ICN 153240** *Bauhinia purpurea* (Camels Foot Tree) Purified by affinity chromatography | Extracts of seeds are reported to contain an anti-N blood group specific lectin but after purification, BPA is not blood group specific; specificity for β-D-gal(1→3)-D-galNAc**Sigma L 6013** *Bauhinia purpurea* (Camels foot tree) Salt-free; lyophilized; highly purified by affinity chromatography using the method of Osawa, T et al, *Meth Enzymology*, 50: 367, 1978; activity: <8 µg/mL | Has an affinity for N-acetyl-D-galactosamine & D-galactose; extracts of *B. purpurea* seeds are reported to contain an anti-N blood group specific lectin but after purification BPA is not blood group specific; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Makela O & Makela, P, *Ann Med Exp Fenn*, 84: 402, 1956; Osawa, T et al, *Meth Enzymology*, 50: 367, 1978**Agglutinin, *Bauhinia purpurea*, Biotin Conjugated***Synonyms:* Lectin**ICN 153241** *Bauhinia purpurea* (Camels Foot Tree) Purified by affinity chromatography | Specificity for β-D-gal(1→3)-D-galNAc**Sigma L 0768** *Bauhinia purpurea* (Camels foot tree) Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains ~4 moles biotin/mole protein | See Sigma L 6013**Agglutinin, *Bauhinia purpurea*, FITC Conjugated***Synonyms:* LECTIN**ICN 153242** *Bauhinia purpurea* (Camels Foot Tree) Purified by affinity chromatography | Specificity for β-D-gal(1→3)-D-galNAc**Agglutinin, *Bauhinia purpurea*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin**ICN 153243** *Bauhinia purpurea* (Camels Foot Tree) Purified by affinity chromatography | Specificity for β-D-gal(1→3)-D-galNAc**Agglutinin, *Canavalia ensiformis****Synonyms:* Lectin; Concanavalin A**ICN 150710** *Canavalia ensiformis* (jack bean) Lyophilized; essentially salt- & CHO-free; isolated by affinity chromatography; mitogenic properties | Specificity for terminal α-D-man & α-D-glc residues; agglutinates red blood cells; Bittiges, H & HP Schnebli, Eds, Concanavalin A as a tool, J Wiley & Sons, London, 1976**ICN 194069** *Canavalia ensiformis* (jack bean) Lyophilized powder of 15% protein & the balance primarily NaCl | Specificity for terminal α-D-man & α-D-glc residues; agglutinates red blood cells; caution: mitogenic properties; Bittiges, H & HP Schnebli, Eds, Concanavalin A as a tool, J Wiley & Sons, London, 1976**ICN 195283** *Canavalia ensiformis* (jack bean) Highly purified; essentially salt free; mitogenic properties | Specificity for terminal α-D-man & α-D-glc residues; agglutinates red blood cells; Bittiges, H & HP Schnebli, Eds, Concanavalin A as a tool, J Wiley & Sons, London, 1976**Agglutinin, *Canavalia ensiformis* (<sup>14</sup>C-Me)-***Synonyms:* Lectin; Concanavalin A**Sigma C 8665** *Canavalia ensiformis* MW ~102k 5-50 µCi/mg protein; solution in 10 mM sodium phosphate, pH 7.0, containing 2% NaCl in serum bottle | Radiochemical prepared from Sigma C 2010**Agglutinin, *Canavalia ensiformis* 10 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Concanavalin A**ICN 154017** Purified by affinity chromatography | Specificity for terminal α-D-man & α-D-glc residues**Agglutinin, *Canavalia ensiformis* 20 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Concanavalin A**ICN 154018** Purified by affinity chromatography | Specificity for terminal α-D-man & α-D-glc residues**Agglutinin, *Canavalia ensiformis* Agarose***Synonyms:* Lectin; Concanavalin A**ICN 191474** *Canavalia ensiformis* 5 atoms hydrophilic spacer arm; 10 mg lectin/mL gel; suspension in 0.5 M acetate buffer, pH 6.0, 1 M NaCl, 4 mM MnCl<sub>2</sub>, 0.02% NaN<sub>3</sub> | Specificity for terminal α-D-man & α-D-glc residues; used for purification of membrane glycoproteins hormones & receptors, IgM, α-fetoprotein, glycoprotein enzymes**Agglutinin, *Canavalia ensiformis* Biotin Conjugated***Synonyms:* Lectin; Concanavalin A**ICN 154016** Purified by affinity chromatography | Specificity for terminal α-D-man & α-D-glc residues**Biogenesis 2250-1404** *Canavalia ensiformis* MW 104k 25 mM sodium borate-bicarbonate buffer, 1.0 M NaCl, 0.05% NaN<sub>3</sub>, pH 8.0; liquid | Useful in chromosome analysis, cell separation, cell toxicity and migration, blood grouping; most purified Con A preparations contain a small percentage of aggregates; high Con A concentrations are not stable in buffer solutions for long term**Agglutinin, *Canavalia ensiformis* FITC Conjugated***Synonyms:* Lectin; Concanavalin A**ICN 153245** Purified by affinity chromatography | Specificity for terminal α-D-man & α-D-glc residues

## Proteins

**Biogenesis 2250-1304** *Canavalia ensiformis* MW 425.8 >95%; FITC isomer I; 25 mM sodium Borate, 0.9% NaCl, 0.01% NaN<sub>3</sub>, pH 7.8; liquid

### Agglutinin, *Canavalia ensiformis* Horse Radish Peroxidase Conjugated

**Synonyms:** Lectin; Concanavalin A

**ICN 153246** Purified by affinity chromatography | Specificity for terminal  $\alpha$ -D-man &  $\alpha$ -D-glc residues

### Agglutinin, *Canavalia ensiformis* Phycoerythrin Conjugated

**Synonyms:** Lectin; Concanavalin A

**Biogenesis 2250-1204** Suspension

### Agglutinin, *Canavalia ensiformis* Sodium Salt

**Synonyms:** Lectin; Concanavalin A

**ICN 790016** 2X crystallized | Not blood group specific, but demonstrates an affinity for terminal  $\alpha$ -D-man &  $\alpha$ -D-glc residues

### Agglutinin, *Canavalia ensiformis* Type III

**Synonyms:** Lectin; Concanavalin A

**Sigma C 2631** *Canavalia ensiformis* (Jack bean) Purified by affinity chromatography; lyophilized containing ~15% protein (Biuret); balance primarily NaCl; substantially free of carbohydrate; activity: <500  $\mu$ g solid/mL | Not blood group specific, but has affinity for terminal  $\alpha$ -D-glucosyl &  $\alpha$ -D-mannosyl residues; Ca<sup>2+</sup> & Mn<sup>2+</sup> ions are required for activity; Con A dissociates into dimers at pH 5.6 or below; between pH 5.8 & pH 7.0 it exists as a tetramer; above pH 7.0 higher aggregates are formed; exhibits mitogenic activity which is dependent on its degree of aggregation; succinylation results in an active dimer form which remains a dimer above pH 5.6; conjugates are prepared from affinity purified lectin type IV; immobilized Con A is prepared from affinity purified lectin type III; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8 containing Ca<sup>2+</sup> & Mn<sup>2+</sup>; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Reeke, GN et al, *Ann NY Acad Sci*, 234: 369, 1974; Kalb, AJ & Lustig, A, *Biochim Biophys Acta*, 168: 366, 1968; Gunther, GR et al, *Proc Natl Acad Sci USA*, 70: 1012, 1973; *Concanavalin A as a Tool*, ed Bittiges, H & Schnebli, HP, J Wiley & Sons, London, 1976

### Agglutinin, *Canavalia ensiformis* Type III-ASCL, Immobilized

**Synonyms:** Lectin; Concanavalin A

**Sigma C 7911** *Canavalia ensiformis* (Jack bean) Immobilized on 4% cross-linked beaded agarose; contains ~10 mg lectin/mL gel; binding capacity: 1 mL gel binds ~6 mg yeast mannan at pH 7.2 at 25°C; suspension in 1.0 M NaCl, containing 1 mM each CaCl<sub>2</sub>, MgCl<sub>2</sub> & MnCl<sub>2</sub> & 0.02% thimerosal; 1 mL suspension yields ~0.5 mL gel | See Sigma C 2631

### Agglutinin, *Canavalia ensiformis* Type IV

**Synonyms:** Lectin; Concanavalin A

**Sigma C 2010** *Canavalia ensiformis* (Jack bean) Lyophilized; essentially salt-free; highly purified; produced from Type III using acetic acid by the method of Olson, MOJ & Liener, IE, *Biochemistry*, 6: 105, 1967; activity: <64  $\mu$ g/mL | See Sigma C 2631

### Agglutinin, *Canavalia ensiformis* Type IV Salt Free

**Synonyms:** Lectin; Concanavalin A

**Sigma C 0412** *Canavalia ensiformis* Purified; lyophilized; sterilized by  $\gamma$ -irradiation; cell culture tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

**Sigma C 5275** *Canavalia ensiformis* Purified; lyophilized; filter-sterilized; cell culture tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

### Agglutinin, *Canavalia ensiformis* Type IV, Biotin Conjugated

**Synonyms:** Lectin; Concanavalin A

**Sigma C 2272** Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains 4-8 moles biotin/mole protein

### Agglutinin, *Canavalia ensiformis* Type IV, Ferritin Conjugated

**Synonyms:** Lectin; Concanavalin A

**Sigma C 7898** *Canavalia ensiformis* (Jack bean) Solution in 50% glycerol containing 0.3 M NaCl, 0.01 M sodium phosphate, 0.06 M CaCl<sub>2</sub>, 0.06 mM MnCl<sub>2</sub> & 0.02% sodium azide as preservative; protein: 5-10 mg/mL (Biuret); contains ~1 mole ferritin/mole lectin | See Sigma C 2631

### Agglutinin, *Canavalia ensiformis* Type IV, FITC Conjugated

**Synonyms:** Lectin; Concanavalin A

**Sigma C 7642** *Canavalia ensiformis* (Jack bean) Lyophilized containing ~10% protein (Biuret); balance phosphate buffer salts & NaCl; contains 3-6 moles FITC/mole protein | See Sigma C 2631

### Agglutinin, *Canavalia ensiformis* Type IV, TRITC Conjugated

**Synonyms:** Lectin; Concanavalin A

**Sigma C 3636** *Canavalia ensiformis* (Jack bean) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 0.5 mole TRITC/mole protein | See Sigma C 2631

### Agglutinin, *Canavalia ensiformis* Type V

**Synonyms:** Lectin; Concanavalin A

**Sigma C 7275** *Canavalia ensiformis* (Jack bean) Lyophilized; essentially salt-free; highly purified; contains trace CaCl<sub>2</sub> & MnCl<sub>2</sub> (<0.1 wt%); yields a substantially clear solution in water at 1% (w/v); produced from Type III using the method of Sophianopoulos, AJ & Sophianopoulos, JA, *Prep Biochem*, 11: 413, 1981; activity: <64  $\mu$ g/mL | See Sigma C 2631



**Agglutinin, *Canavalia ensiformis* Type V-A, Immobilized***Synonyms:* Lectin; Concanavalin A

**Sigma C 6904** *Canavalia ensiformis* (Jack bean) Immobilized on beaded agarose; spacer: hydrophilic 6 atoms (5 carbon atoms); contains ~10 mg lectin/mL gel; binding capacity: 1 mL gel binds 3-6 mg yeast mannan; suspension in 0.1 M acetate buffer, pH 6.0, containing 1 M NaCl, 1 M Mg<sup>2+</sup>, 1 mM Ca<sup>2+</sup>, 1 mM Mn<sup>2+</sup>, 0.01% thimerosal | prepared by activation with p-nitrophenyl chloroformate which reduces ligand leakage & charge problems associated with cyanogen bromide activation; Wilchek, M & Miron, T, *Biochem Int*, 4: 629, 1982; see Sigma C 2631

**Agglutinin, *Canavalia ensiformis* Type V-B, Immobilized***Synonyms:* Lectin; Concanavalin A

**Sigma C 6170** *Canavalia ensiformis* (Jack bean) Immobilized on 4% beaded agarose; contains ~15 mg lectin/mL gel; binding capacity: 1 mL gel binds ~6 mg yeast mannan; suspension in 0.1 M acetate buffer, pH 6.0, containing 1 M NaCl, 1 M Mg<sup>2+</sup>, 1 mM Ca<sup>2+</sup>, 1 mM Mn<sup>2+</sup>, 0.02% thimerosal | prepared by activation with p-nitrophenyl chloroformate which reduces ligand leakage & charge problems associated with cyanogen bromide activation; Wilchek, M & Miron, T, *Biochem Int*, 4: 629, 1982; see Sigma C 2631

**Agglutinin, *Canavalia ensiformis* Type V-B, Sepharose 4B***Synonyms:* Lectin; Concanavalin A

**Sigma C 9017** *Canavalia ensiformis* (Jack bean) Attached to Sepharose 4B; contains 10-16 mg lectin/mL gel; binding capacity: 1 mL gel binds ~6 mg yeast mannan; suspension in 0.1 M acetate buffer, pH 6.0, containing 1 M NaCl, & 1 mM each CaCl<sub>2</sub>, MgCl<sub>2</sub> & MnCl<sub>2</sub> + 20% ethanol | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis* Type VI***Synonyms:* Lectin; Concanavalin A

**Sigma C 7647** *Canavalia ensiformis* (Jack bean) Lyophilized; essentially salt-free; highly purified by affinity chromatography; soluble in PBS at 4% (w/v); purified by modification of the method of Matsumoto et al, *Anal Biochem*, 116: 103, 1981; activity: <20 µg/mL | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis* Type VI, Immobilized***Synonyms:* Lectin; Concanavalin A

**Sigma C 7555** *Canavalia ensiformis* (Jack bean) Immobilized on 4% cross-linked beaded agarose; contains 15-30 mg lectin/mL gel; binding capacity: 1 mL gel binds 5-15 mg yeast mannan & 15-30 mg thyroglobulin protein/mL in 0.01 M phosphate buffered saline, pH 6.8, containing 1 mM each CaCl<sub>2</sub>, MgCl<sub>2</sub> & MnCl<sub>2</sub>; suspension in 0.1 M potassium phosphate, 1.0 M NaCl, pH 6.0, containing 1 mM each CaCl<sub>2</sub>, MgCl<sub>2</sub> & MnCl<sub>2</sub> & 0.02% thimerosal | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, 10 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Concanavalin A

**Sigma L 5021** *Canavalia ensiformis* (Jack bean) Lectin (Sigma C 7275) adsorbed to colloidal gold; mean particle size 8-12 nm; monodisperse; suspension in 0.02 M Tris buffered saline, pH 8.0, containing 20% glycerol, 1% PEG & 0.05% sodium azide; concentration: A<sub>520</sub> ~5.0; Benhamou, N & Ouellette, GB, *J Histochem Cytochem*, 34: 855, 1986 | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, 20 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Concanavalin A

**Sigma L 3642** *Canavalia ensiformis* (Jack bean) Lectin (Sigma C 7275) adsorbed to colloidal gold; mean particle size 17-23 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 6.8, 0.1 mM Ca<sup>2+</sup>, 0.1 mM Mn<sup>2+</sup>, 0.02% PEG & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; Benhamou, N & Ouellette, GB, *J Histochem Cytochem*, 34: 855, 1986 | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, 5 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Concanavalin A

**Sigma L 8529** *Canavalia ensiformis* (Jack bean) Lectin (Sigma C 7275) adsorbed to colloidal gold; mean particle size 3.5-6.5 nm; monodisperse; solution in 20% glycerol containing 0.15 M NaCl, 0.02 M Tris-HCl, pH 6.8, 1% PEG & 0.05% sodium azide; concentration: A<sub>520</sub> ~5.0; Benhamou, N & Ouellette, GB, *J Histochem Cytochem*, 34: 855, 1986 | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Acrylic Beads Immobilized***Synonyms:* Lectin; Concanavalin A

**Sigma C 6160** *Canavalia ensiformis* (Jack bean) Attached through a covalent bond to macroporous acrylic beads (oxirane acrylic beads, Sigma O 7628); spacer: hydrophilic 6 atoms (5 carbon atoms); contains ~10 mg lectin (Lowry)/g beads; binding capacity: 1 mL gel binds 1-2 mg yeast mannan; 1 g beads will swell to ~4 mL gel | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Macroagarose Immobilized***Synonyms:* Lectin; Concanavalin A

**Sigma C 7044** *Canavalia ensiformis* (Jack bean) Immobilized on 6% agarose macrobeads; contains ~10 mg lectin/mL packed gel; binding capacity: 1 mL gel binds ~3.5 mg yeast mannan at pH 7.2 at 25°C; suspension in 1.0 M NaCl, containing 1 mM each CaCl<sub>2</sub>, MgCl<sub>2</sub> & MnCl<sub>2</sub> & 0.02% thimerosal | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Peroxidase Conjugated***Synonyms:* Lectin; Concanavalin A

**Sigma C 6397** *Canavalia ensiformis* (Jack bean) Lyophilized containing ~85% protein (Modified Warburg-Christian); balance primarily Tris-citrate buffer salts & trace calcium & manganese; peroxidase activity: 30-60 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using the method of Wilson, MB & Nakane, PK, *Immunofluorescence & Related Staining Techniques*, Knapp, P, ed Elsevier, North Holland Biomedical Press, p. 215, 1978, which promotes conjugation but prevents the interaction between Con A & peroxidase sugar residues | See Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Succinyl***Synonyms:* Lectin; Concanavalin A

**ICN 153350** Purified by affinity chromatography | Specificity for α-D-Man, α-D-Glc residues

**Sigma L 3885** *Canavalia ensiformis* (Jack bean) Highly purified; lyophilized containing ~95% protein (E<sub>1%<sup>280</sup></sub>); balance primarily sodium phosphate | Active dimeric (divalent) form which does not re-aggregate to form tetramers above pH 5.6; agglutination activity is greatly reduced by the succinylation procedure but reactivity with mannose or glucose residues is retained; conjugates are prepared from affinity purified lectin before succinylation; Gunther, GR et al, *Proc Natl Acad Sci USA*, 70: 1012, 1973; see Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Succinyl Biotin Conjugated**

**Synonyms:** Lectin; Concanavalin A

**ICN 153351** Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man, $\alpha$ -D-Glc residues

**Sigma L 0767** *Canavalia ensiformis* (Jack bean) Lyophilized containing ~95% protein (Biuret); balance primarily sodium phosphate; biotinylated utilizing an aminocaproyl spacer; contains 1-3 moles biotin/mole protein | See Sigma L 3885 & Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Succinyl FITC Conjugated**

**Synonyms:** Lectin; Concanavalin A

**ICN 153352** Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man, $\alpha$ -D-Glc residues

**Sigma L 9385** *Canavalia ensiformis* (Jack bean) Lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance primarily sodium phosphate; contains 1.5 moles FITC/mole protein | See Sigma L 3885 & Sigma C 2631

**Agglutinin, *Canavalia ensiformis*, Succinyl Horse Radish Peroxidase Conjugated**

**Synonyms:** Lectin; Concanavalin A

**ICN 153353** Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man, $\alpha$ -D-Glc residues

**Agglutinin, *Caragana arborescens***

**Synonyms:** Lectin

**Sigma L 4503** *Caragana arborescens* (Siberian pea tree) Lyophilized; highly purified (affinity chromatography) containing ~15% protein; balance phosphate buffer salts & NaCl; activity: <10  $\mu$ g/mL | Not blood group specific, but has an affinity for *N*-acetyl-D-galactosamine; conjugates are prepared from affinity purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Bloch, R et al, *J Biol Chem*, 251: 5929, 1976

**Agglutinin, *Caragana arborescens*, Biotin Conjugated**

**Synonyms:** Lectin

**Sigma L 9637** *Caragana arborescens* (Siberian pea tree) Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains 3-6 moles biotin/mole protein | See Sigma L 4503

**Agglutinin, *Caragana arborescens*, FITC Conjugated**

**Synonyms:** Lectin

**Sigma L 9512** *Caragana arborescens* (Siberian pea tree) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 2-5 moles FITC/mole protein | See Sigma L 4503

**Agglutinin, *Cicer arietinum***

**Synonyms:** Lectin

**Sigma L 3141** *Cicer arietinum* (Chick pea) Purified; lyophilized containing ~80% protein (Biuret); balance primarily sodium acetate & NaCl; contains <20  $\mu$ g/mL | Not blood group specific, but agglutinates human erythrocytes that have undergone treatment with papain; also it has an affinity for glycoproteins like fetuin & IgM; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of papain treated human erythrocytes after 1 hr at 25°C; Kolberg, J et al, *Hoppe-Seyler's Z Physiol Chem*, 364: 655, 1983

**Agglutinin, *Codium fragile* (subspecies *tomentosoides*)**

**Synonyms:** Lectin

**Sigma L 2638** *Codium fragile* (Green marine algae) Highly purified (affinity chromatography); lyophilized; salt-free; activity: <2  $\mu$ g/mL | Not blood group specific, but has an affinity for *N*-acetyl-D-galactosamine; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using saline (0.9% NaCl), pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Rogers, DJ et al, *Lectins, Biology, Biochemistry, Clinical Biochemistry*, eds TC Bog-Hansen, E Van Driessche, Vol 5, p. 155, 1986

**Sigma L 6510** *Codium fragile* (Green marine algae) Partially purified; lyophilized; activity: <30  $\mu$ g/mL | See Sigma L 2638

**Agglutinin, *Cytisus scoparius***

**Synonyms:** Lectin

**Sigma L 4891** *Cytisus scoparius* (Scotch broom) Highly purified (affinity chromatography); lyophilized containing ~20% protein (Biuret); balance NaCl & sodium phosphate buffer salts; activity: 6  $\mu$ g/mL | Not blood group specific; 2 lectins have been reported in the seeds, both having an affinity for *N*-acetyl-D-galactosamine & D-galactose; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of neuraminidase-treated human type A RBC after 1 hr at 25°C; Young, NM et al, *Biochem J*, 222: 41, 1984

**Agglutinin, *Datura stramonium***

**Synonyms:** Lectin

**Sigma L 2766** *Datura stramonium* (Jimson weed, Thorn apple) Highly purified (affinity chromatography); essentially salt-free; lyophilized; activity:  $\leq$ 10  $\mu$ g/mL | Not blood group specific; 2 lectins but has an affinity for oligomers of *N*-acetyl-glucosamine & *N*-acetylactosamine; a glycoprotein containing ~35% carbohydrate; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Young, NM et al, *Biochem J*, 222: 41, 1984; Crowley, JI et al, *Arch Biochem Biophys*, 231: 524, 1984

**Agglutinin, *Dolichos biflorus***

**Synonyms:** Lectin

**ICN 151015** *Dolichos biflorus* 1 mg/mL solution | Isolated by affinity chromatography; has affinity for terminal *N*-acetyl- $\alpha$ -D-galactosaminyl residues; also has anti-A<sub>1</sub> human blood group specificity & is useful in distinguishing between A<sub>1</sub> & A<sub>2</sub> blood types; Etzler, MW & EA Kabat, *Biochem*, 9:869, 1970; Bird, GWG, *Blut*, 21:366, 1970

**Sigma L 1135** *Dolichos biflorus* (Horse gram) Purified (affinity chromatography); lyophilized containing ~90% protein (Biuret); balance primarily Tris-succinate buffer salts; activity: <10  $\mu$ g/mL | Anti-A<sub>1</sub> human blood group specificity, useful for distinguishing between A<sub>1</sub> & A<sub>2</sub> blood types; strong anti-Cad activity & has an affinity for terminal *N*-acetyl- $\alpha$ -D-galactosaminyl residues; conjugates are prepared from affinity purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Bird, GWG, *Blut*, 21: 366, 1970; Etzler, ME & Kabat, EA, *Biochemistry*, 9: 869, 1970; Etzler, ME, *Meth Enzymol*, 28: 340, 1972

**Sigma L 6887** *Dolichos biflorus* (Horse gram) Partially purified; salt-free; lyophilized; activity: <100  $\mu$ g/mL | See Sigma L 1135

**Sigma L 7762** *Dolichos biflorus* (Horse gram) Lyophilized powder in 5 mL reagent vial; reconstitute with 5.0 mL of 0.9% saline solution or 0.01 M phosphate buffered saline for a working strength reagent for determining human Type A<sub>1</sub> blood in tube or tile tests | See Sigma L 1135

**Agglutinin, *Dolichos biflorus*, 10 nm Colloidal Gold Conjugated***Synonyms:* Lectin**ICN 154026** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Sigma L 4643** *Dolichos biflorus* (Horse gram) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Lucocq, JM & Roth, J, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 203, 1985 | See Sigma L 1135**Agglutinin, *Dolichos biflorus*, 20 nm Colloidal Gold Conjugated***Synonyms:* LECTIN**ICN 154027** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Agglutinin, *Dolichos biflorus*, 5 nm Colloidal Gold Conjugated***Synonyms:* Lectin**ICN 154025** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Agglutinin, *Dolichos biflorus*, Biotin conjugated***Synonyms:* Lectin**ICN 153255** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Sigma L 6533** *Dolichos biflorus* (Horse gram) Lyophilized containing ~25% protein (Biuret); balance primarily HEPPS buffer salts & NaCl; contains 6-10 moles biotin/mole protein | See Sigma L 1135**Agglutinin, *Dolichos biflorus*, FITC Conjugated***Synonyms:* Lectin**ICN 153256** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Agglutinin, *Dolichos biflorus*, FTIC Conjugated***Synonyms:* LECTIN**Sigma L 9142** *Dolichos biflorus* (Horse gram) Salt-free; lyophilized; may contain residual Tris-succinate buffer salts; contains 3-8 moles FITC/mole protein | See Sigma L 1135**Sigma L 9533** *Dolichos biflorus* (Horse gram) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 3-6 moles FITC/mole protein | See Sigma L 1135**Agglutinin, *Dolichos biflorus*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin**ICN 153257** *Dolichos biflorus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-galNAc**Agglutinin, *Dolichos biflorus*, Immobilized***Synonyms:* Lectin**Sigma L 9894** *Dolichos biflorus* (Horse gram) Immobilized on 4% beaded agarose; contains 2-4 mg protein (Lowry)/mL gel; suspension in 0.01 M potassium phosphate, pH 6.8, containing 0.5 M NaCl & 0.02% sodium azide | See Sigma L 1135**Agglutinin, *Dolichos biflorus*, Peroxidase Conjugated***Synonyms:* Lectin**Sigma L 4258** *Dolichos biflorus* (Horse gram) Lyophilized containing ~90% protein (Biuret); balance primarily sodium citrate; peroxidase activity: ~60 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates | See Sigma L 1135**Agglutinin, *Dolichos biflorus*, TRITC Conjugated***Synonyms:* Lectin**Sigma L 9658** *Dolichos biflorus* (Horse gram) Lyophilized containing ~15% protein (Lowry); balance phosphate buffer salts & NaCl; contains 1-3 moles TRITC/mole protein | See Sigma L 1135**Agglutinin, *Erythrina christagalli****Synonyms:* Lectin**ICN 153258** *Erythrina christagalli* Purified by affinity chromatography; | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, 10 nm Colloidal Gold Conjugated***Synonyms:* Lectin**ICN 154029** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, 20 nm Colloidal Gold Conjugated***Synonyms:* Lectin**ICN 154030** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, 5 nm Colloidal Gold Conjugated***Synonyms:* Lectin**ICN 154028** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, Biotin Conjugated***Synonyms:* Lectin**ICN 153259** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, FITC Conjugated***Synonyms:* Lectin**ICN 153260** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc**Agglutinin, *Erythrina christagalli*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin**ICN 153261** *Erythrina christagalli* Purified by affinity chromatography | Specificity for  $\beta$ -D-gal(1→4)-D-GlcNAc

### Agglutinin, *Erythrina corallodendron*

Synonyms: Lectin

**Sigma L 2142** *Erythrina corallodendron* (Coral tree) Lyophilized; highly purified by affinity chromatography; salt-free; activity: <10 µg/mL | Not blood group specific but has an affinity for *N*-acetylglucosamine, *N*-acetyl- $\alpha$ -D-galactosamine, lactose &  $\alpha$ -D-galactose; mitogenic activity for human peripheral blood lymphocytes, predominantly T cells; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes; Gilboa-Garber, N & Mizrahi, L, *Can J Biochem*, 59: 315, 1981; Lis, H et al, *Phytochemistry*, 24: 2803, 1985; Sharon, N et al, *Phytochemistry*, 24: 2803, 1985

### Agglutinin, *Erythrina corallodendron*, Biotin Conjugated

Synonyms: Lectin

**Sigma L 0893** *Erythrina corallodendron* (Coral tree) Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains ~5 moles biotin/mole protein | See Sigma L 2142

### Agglutinin, *Erythrina cristagalli*

Synonyms: Lectin

**Sigma L 5390** *Erythrina cristagalli* (Coral tree) Lyophilized; highly purified by affinity chromatography; salt-free; activity: <0.5 µg/mL | Not blood group specific but has an affinity  $\alpha$ -D-galactose &  $\alpha$ -D-galactosides; reported to be mitogenic for human peripheral blood T lymphocytes; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of trypsinized human blood group O erythrocytes after 1 hr at 25°C; Iglesias, JL, *Eur J Biochem*, 123: 247, 1982

### Agglutinin, *Erythrina cristagalli*, Biotin Conjugated

Synonyms: Lectin

**Sigma L 3266** *Erythrina cristagalli* (Coral tree) Lyophilized containing ~60% protein (Lowry); balance primarily citrate buffer salts; contains ~2 moles biotin/mole protein | See Sigma L 5390

### Agglutinin, *Erythrina cristagalli*, FITC Conjugated

Synonyms: Lectin

**Sigma L 3391** *Erythrina cristagalli* (Coral tree) Lyophilized containing ~5% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains ~5 moles FITC/mole protein | See Sigma L 5390

### Agglutinin, *Erythrina cristagalli*, Peroxidase Conjugated

Synonyms: Lectin

**Sigma L 9015** *Erythrina cristagalli* (Coral tree) Lyophilized containing ~60% protein (Lowry); balance phosphate buffer salts; peroxidase activity: ~15-60 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | See Sigma L 5390

### Agglutinin, *Euonymus europaeus*

Synonyms: Lectin

**ICN 153262** *Euonymus europaeus* Purified by affinity chromatography

### Sigma L 7400 *Euonymus europaeus* (Spindle tree)

Lyophilized containing ~5% protein (Lowry); balance primarily NaCl & phosphate buffer salts; activity: <1 µg/mL using neuraminidase-treated type B red blood cells | Has anti-B+H blood group specificity & is reported to be most specific for blood group B oligosaccharides having the structure  $\alpha$ -D-Gal(1→3)( $\alpha$ -L-Fuc(1→20)- $\beta$ -D-Gal(1→3/4)- $\beta$ -D-GlcNAc; the B+H specificity is an intrinsic property of a single lectin binding site; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of neuraminidase-treated human blood group type B erythrocytes after 1 hr at 25°C; Petryniak, J et al, *Arch Biochem Biophys*, 178: 118, 1977

### Agglutinin, *Euonymus europaeus*, Biotin Conjugated

Synonyms: Lectin

**ICN 153263** *Euonymus europaeus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal(1→3)-D-gal

### Agglutinin, *Euonymus europaeus*, FITC Conjugated

Synonyms: Lectin

**ICN 153264** *Euonymus europaeus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal(1→3)-D-gal

### Agglutinin, *Euonymus europaeus*, Horse Radish Peroxidase Conjugated

Synonyms: Lectin

**ICN 153265** *Euonymus europaeus* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal(1→3)-D-gal

### Agglutinin, *Galanthus nivalis*

Synonyms: Lectin

**Sigma L 8275** *Galanthus nivalis* (Snowdrop) Lyophilized; salt-free; highly purified by affinity chromatography using the method of Kaku, H & Goldstein, IJ, *Meth Enzymol*, 179: 327, 1989; activity: <20 µg/mL | Agglutinates rabbit erythrocytes; human erythrocytes are not agglutinated; GNL sugar specificity is directed to the nonreducing end of the terminal  $\alpha$ -D-mannosyl residue of glycoconjugates; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of rabbit erythrocytes after 1 hr at 25°C; Kaku, H & Goldstein, IJ, *Meth Enzymol*, 179: 327, 1989; Shibuya, M et al, *Arch Biochem Biophys*, 267: 676, 1988

### Agglutinin, *Galanthus nivalis*, Immobilized

Synonyms: Lectin

**Sigma L 8775** *Galanthus nivalis* (Snowdrop) Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg protein/mL packed gel; suspension in 1.0 M NaCl containing 0.01% thimerosal; binding capacity: 1 mL gel binds 5-10 mg yeast mannan at pH 7.2 at 25°C; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 8275

### Agglutinin, *Glycine max*

Synonyms: Lectin

**ICN 152066** *Glycine max* (Soybean) Purified by affinity chromatography; mitogenic properties | Affinity for *N*-acetyl- $\alpha$ -D-galactosamine; useful in separation of blood cell populations; agglutinates mouse B-cells but not T-cells; Reisner, Y, A Ravid & N Sharon, *BBRC*, 72:1585, 1976; Reisner, Y et al, *PNAS*, 75:2933; 1978

**Sigma L 1395** *Glycine max* (Soybean) Purified by affinity chromatography; essentially salt-free; lyophilized; activity: <80 µg/mL | Not blood group specific, but has an affinity for *N*-acetyl- $\beta$ -galactosamine; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Lis, H et al, *Biochim Biophys Acta*, 211: 582, 1970; Lotan, R et al, *J Biol Chem*, 249: 1219, 1974

#### Agglutinin, *Glycine max*, 10 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154049** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

**Sigma L 4768** *Glycine max* (Soybean) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Horisberger, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 155, 1985 | See Sigma L 1395 & Sigma L 2650

#### Agglutinin, *Glycine max*, 20 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154050** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

#### Agglutinin, *Glycine max*, 5 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154048** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

#### Agglutinin, *Glycine max*, Biotin Conjugated

Synonyms: Lectin

**ICN 153266** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

**Sigma L 3395** *Glycine max* (Soybean) Lyophilized containing ~75% protein (Biuret); balance sodium citrate; contains 2-4 moles biotin/mole protein | See Sigma L 1395

#### Agglutinin, *Glycine max*, FITC Conjugated

Synonyms: Lectin

**ICN 153267** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

**Sigma L 1020** *Glycine max* (Soybean) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 1-2 moles FITC/mole protein | See Sigma L 1395

#### Agglutinin, *Glycine max*, Horse Radish Peroxidase Conjugated

Synonyms: Lectin

**ICN 153268** *Glycine max* (Soybean) Purified by affinity chromatography | Specificity for  $\beta$ -galNAc

#### Agglutinin, *Glycine max*, Immobilized

Synonyms: Lectin

**Sigma L 1145** *Glycine max* (Soybean) Immobilized on 4% cross-linked beaded agarose; spacer: ~20 atoms; contains 2-4 mg protein (Biuret)/mL gel; suspension in 0.01 M phosphate buffered saline containing 50% glycerol, 0.01 M *N*-acetyl- $\beta$ -galactosamine & 0.02% sodium azide | See Sigma L 1395 & Sigma L 2650

#### Agglutinin, *Glycine max*, Peroxidase Conjugated

Synonyms: Lectin

**Sigma L 1270** *Glycine max* (Soybean) Packaged in microcone vials for ease of reconstitution & recovery at microliter volumes | See Sigma L 1395 & Sigma L 2650

**Sigma L 2650** *Glycine max* (Soybean) Lyophilized containing ~95% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: ~50 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified after conjugation by affinity chromatography | See Sigma L 1395

#### Agglutinin, *Glycine max*, TRITC Conjugated

Synonyms: Lectin

**Sigma L 4511** *Glycine max* (Soybean) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains ~1 mole TRITC/mole protein | See Sigma L 1395

#### Agglutinin, *Griffonia simplicifolia* GS-I

Synonyms: Lectin

**ICN 153269** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GluNAc

**ICN 153270** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GluNAc

#### Agglutinin, *Griffonia simplicifolia* GS-I B4

Synonyms: Lectin

**ICN 153273** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GalNAc,  $\alpha$ -D-Gal

#### Agglutinin, *Griffonia simplicifolia* GS-I B4, Biotin Conjugated

Synonyms: Lectin

**ICN 153274** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GalNAc,  $\alpha$ -D-Gal

#### Agglutinin, *Griffonia simplicifolia* GS-I B4, FITC Conjugated

Synonyms: Lectin

**ICN 153275** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GalNAc,  $\alpha$ -D-Gal

#### Agglutinin, *Griffonia simplicifolia* GS-I B4, Horse Radish Peroxidase Conjugated

Synonyms: Lectin

**ICN 153276** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GalNAc,  $\alpha$ -D-Gal

#### Agglutinin, *Griffonia simplicifolia* GS-I, 10 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154052** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GluNAc

#### Agglutinin, *Griffonia simplicifolia* GS-I, 20 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154053** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\beta$ -GluNAc

**Agglutinin, *Griffonia simplicifolia* GS-I, 5 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154051** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for D-GluNAc

**Agglutinin, *Griffonia simplicifolia* GS-I, FITC Conjugated**

Synonyms: Lectin

**ICN 153271** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for D-GluNAc

**Agglutinin, *Griffonia simplicifolia* GS-I, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153272** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for D-GluNAc

**Agglutinin, *Griffonia simplicifolia* GS-II**

Synonyms: Lectin

**ICN 150422** *Bandeiraea simplicifolia* 1 mg/mL solution; purified by affinity chromatography | The second *Bandeiraea simplicifolia* lectin GS-II; affinity for *N*-acetyl-D-glucosamine; agglutinates "acquired  $\beta$ -cells", activated T-cells & T<sub>k</sub> polyagglutinable cells

**Agglutinin, *Griffonia simplicifolia* GS-II, 20 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154055** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\alpha$ -D-Gal

**Agglutinin, *Griffonia simplicifolia* GS-II, 5 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154054** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\alpha$ -D-Gal

**Agglutinin, *Griffonia simplicifolia* GS-II, Biotin Conjugated**

Synonyms: Lectin

**ICN 153277** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\alpha$ -D-Gal

**Agglutinin, *Griffonia simplicifolia* GS-II, FITC Conjugated**

Synonyms: Lectin

**ICN 153278** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\alpha$ -D-Gal

**Agglutinin, *Griffonia simplicifolia* GS-II, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153279** *Bandeiraea simplicifolia* Purified by affinity chromatography | Specificity for  $\alpha$ -D-Gal

**Agglutinin, *Helix aspersa***

Synonyms: Lectin

**ICN 153280** *Helix aspersa* Purified by affinity chromatography | Specificity for D-GalNAc

**Sigma L 6635** *Helix aspersa* (Garden snail) Lyophilized; salt-free; highly purified by affinity chromatography using a modified method of Hammarstrom, S & Kabat, EA, *Biochemistry*, 8: 2969, 1969; activity: <2  $\mu$ g/mL | Anti-A human blood group specificity & an affinity for terminal *N*-acetyl- $\alpha$ -D-galactosaminy residues; conjugates are prepared from affinity purified lectins; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Pemberton, RT, *Vox Sang*, 16: 457, 1969; Uhlenbruck, G et al, *Anim Bld Gps Biochem Genet*, 3: 125, 1972; Hammarstrom, S et al, *Scand J Immuno*, 1: 295, 1972

**Agglutinin, *Helix aspersa*, Biotin Conjugated**

Synonyms: Lectin

**ICN 153281** *Helix aspersa* Purified by affinity chromatography | Specificity for D-GalNAc

**Sigma L 8764** *Helix aspersa* (Garden snail) Salt-free lyophilized powder; contains ~2 moles biotin/mole lectin | See Sigma L 6635

**Agglutinin, *Helix aspersa*, FITC Conjugated**

Synonyms: Lectin

**ICN 153282** *Helix aspersa* Purified by affinity chromatography | Specificity for D-GalNAc

**Sigma L 3764** *Helix aspersa* (Garden snail) Salt-free lyophilized powder; contains ~2 moles FITC/mole protein | See Sigma L 6635

**Agglutinin, *Helix aspersa*, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153283** *Helix aspersa* Purified by affinity chromatography | Specificity for D-GalNAc

**Agglutinin, *Helix aspersa*, Sulforhodamine 101 Acid Chloride (Texas Red) Conjugated**

Synonyms: Lectin

**Sigma L 3889** *Helix aspersa* (Garden snail) Salt-free lyophilized powder; contains ~1.5 moles Texas Red/mole protein | See Sigma L 6635

**Agglutinin, *Helix aspersa*, TRITC Conjugated**

Synonyms: Lectin

**Sigma L 4014** *Helix aspersa* (Garden snail) Salt-free lyophilized powder; contains ~1 mole TRITC/mole protein | See Sigma L 6635

**Agglutinin, *Helix pomatia***

Synonyms: Lectin

**ICN 151229** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography; 1 mg/mL solution | Specific for the anti-A human blood group; affinity for terminal *N*-acetyl- $\beta$ -D-galactosaminy residues

**Sigma L 3382** *Helix pomatia* (Roman or edible snail) Salt-free; lyophilized; highly purified by affinity chromatography by a modification of the method of Hammarstrom, S & Kabat, EA, *Biochemistry*, 8: 2696, 1969; activity: <4  $\mu$ g/mL | Anti-A human blood group specificity & has an affinity for terminal *N*-acetyl- $\alpha$ -D-galactosaminy residues; conjugates are prepared from affinity purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Hammarstrom, S et al, *Scand J Immunol*, 1: 295, 1972; Hammarstrom, S & Kabat, EA, *Biochemistry*, 10: 1684, 1971

**Sigma L 7760** *Helix pomatia* (Roman or edible snail) Salt-free; lyophilized; partially purified; activity: <10  $\mu$ g/mL | See Sigma L 3382

**Agglutinin, *Helix pomatia*, 10 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154057** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Sigma L 4770** *Helix pomatia* (Roman or edible snail) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 6.8, 0.1 mM Ca<sup>2+</sup>, 0.1 mM Mn<sup>2+</sup>, 0.02% PEG 20 & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; Brown, D & Orci, L, *J Histochem Cytochem*, 34: 1057, 1986 | See Sigma L 3382**Agglutinin, *Helix pomatia*, 20 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154058** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Agglutinin, *Helix pomatia*, 5 nm Colloidal Gold Conjugated**

Synonyms: Lectin

**ICN 154056** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Sigma L 2765** *Helix pomatia* (Roman or edible snail) Mean particle size 3.5-6.5 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 6.8, 0.1 mM Ca<sup>2+</sup>, 0.1 mM Mn<sup>2+</sup>, 0.02% PEG 20 & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; Brown, D & Orci, L, *J Histochem Cytochem*, 34: 1057, 1986 | See Sigma L 3382**Agglutinin, *Helix pomatia*, Biotin Conjugated**

Synonyms: Lectin

**ICN 153284** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Sigma L 6512** *Helix pomatia* (Roman or edible snail) Salt-free; lyophilized; contains 2-4 moles biotin/mole protein | See Sigma L 3382**Agglutinin, *Helix pomatia*, FITC Conjugated**

Synonyms: Lectin

**ICN 153285** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Sigma L 1034** *Helix pomatia* (Roman or edible snail) Solution in 0.01 M Tris, pH 8.0, containing 0.15 M NaCl & 0.1% sodium azide; contains 5-8 moles FITC/mole protein & ≥0.5 mg protein/mL; activity: <1 µg/mL | See Sigma L 3382**Agglutinin, *Helix pomatia*, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153286** *Helix pomatia* (Roman or edible snail) Purified by affinity chromatography | Specificity for D-GalNAc**Agglutinin, *Helix pomatia*, Immobilized**

Synonyms: Lectin

**Sigma L 8639** *Helix pomatia* (Roman or edible snail) Immobilized on 4% cross-linked beaded agarose; contains 1.5 mg lectin/mL packed gel; suspension in 0.5 M NaCl, 10 mM phosphate buffer, pH 7.3, 0.02% sodium azide | See Sigma L 3382**Agglutinin, *Helix pomatia*, Peroxidase Conjugated**

Synonyms: Lectin

**Sigma L 6387** *Helix pomatia* (Roman or edible snail) Lyophilized containing ~95% protein (Lowry); balance primarily sodium citrate; peroxidase activity: 50-120 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified after conjugation by affinity chromatography | See Sigma L 3382**Agglutinin, *Helix pomatia*, Sulforhodamine 101 Acid Chloride (Texas Red) Conjugated**

Synonyms: Lectin

**Sigma L 9136** *Helix pomatia* (Roman or edible snail) Salt-free; lyophilized; contains ~1.5 moles Texas Red/mole protein | See Sigma L 3382**Agglutinin, *Helix pomatia*, TRITC Conjugated**

Synonyms: Lectin

**Sigma L 1261** *Helix pomatia* (Roman or edible snail) Salt-free; lyophilized; contains ~1 mole TRITC/mole protein | See Sigma L 3382**Agglutinin, *Laburnum alpinum***

Synonyms: Lectin

**ICN 153287** *Laburnum alpinum* Purified by affinity chromatography**Agglutinin, *Laburnum alpinum*, Biotin Conjugated**

Synonyms: Lectin

**ICN 153288** *Laburnum alpinum* Purified by affinity chromatography**Agglutinin, *Laburnum alpinum*, FITC Conjugated**

Synonyms: Lectin

**ICN 153289** *Laburnum alpinum* Purified by affinity chromatography**Agglutinin, *Laburnum alpinum*, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153290** *Laburnum alpinum* Purified by affinity chromatography**Agglutinin, *Lathyrus odoratus***

Synonyms: Lectin

**Sigma L 4651** *Lathyrus odoratus* (Sweet pea) Lyophilized containing ~50% protein (Biuret); balance NaCl; highly purified by affinity chromatography using the method of Kolberg, J et al, *FEBS Lett*, 117: 281, 1980; activity: <20 µg/mL | Not blood group specific; specific for α-mannosyl end-groups, D-glucose & N-acetyl glucosamine; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Ticha, M et al, *Acta Biol Med Germ*, 39: 649, 1980**Agglutinin, *Lens culinaris***

Synonyms: Lectin

**ICN 151542** *Lens culinaris* (Lentil) Purified by affinity chromatography; lyophilized; electrophoretically pure | Specificity for terminal α-D-Man & α-D-Gluc residues; stimulates human lymphocytes in culture to incorporate <sup>3</sup>H-thymidine; comprised of 2 isomers differing in AA content & electrophoretic mobility: hemagglutinins A (LCH-A) & B (LCH-B)

**ICN 153294** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

**Sigma L 9267** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Salt-free; lyophilized; highly purified by affinity chromatography; activity: <16  $\mu$ g/mL; contains two major bands on electrophoresis corresponding to isolectins LcH-A & LcH-B | Not blood group specific but has an affinity for  $\alpha$ -D-mannosyl &  $\alpha$ -D-glucosyl residues; LcH is comprised of two isomers: LcH-A (MW 49,000) & LcH-B (MW 49,000); LcH-A is mitogenic; conjugates are prepared from purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Howard, IK et al, *J Biol Chem*, 246: 1590, 1971

## Agglutinin, *Lens culinaris*, 10 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154063** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

**Sigma L 2144** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.1 mM  $\text{Ca}^{2+}$ , 0.1 mM  $\text{Mn}^{2+}$ , 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Horisberger, M, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 155, 1985 | See Sigma L 9267

## Agglutinin, *Lens culinaris*, 20 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154064** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

## Agglutinin, *Lens culinaris*, 5 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154062** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

**Sigma L 1769** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Mean particle size 3.5-6.5 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.1 mM  $\text{Ca}^{2+}$ , 0.1 mM  $\text{Mn}^{2+}$ , 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Horisberger, M, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 155, 1985 | See Sigma L 9267

## Agglutinin, *Lens culinaris*, Agarose

Synonyms: Lectin

**ICN 191473** *Lens culinaris* (Lentil) Prepacked column; 5 atoms hydrophilic spacer arm; 2 mg lectin/mL gel; suspension in PBS, 0.02%  $\text{Na}_3\text{N}$  | Specificity for  $\alpha$ -D-man; useful for purification of detergent solubilized membrane glycoproteins, cell surface Ag, glycoproteins, viral glycoproteins

## Agglutinin, *Lens culinaris*, Biotin Conjugated

Synonyms: Lectin

**ICN 153291** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

**Sigma L 4143** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Lyophilized containing ~85% protein (Lowry); balance primarily sodium citrate; contains 2-5 moles biotin/mole lectin | See Sigma L 9267

## Agglutinin, *Lens culinaris*, FITC Conjugated

Synonyms: Lectin

**ICN 153293** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

**Sigma L 9262** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Lyophilized containing ~40% protein (Lowry); balance primarily HEPES buffer salts & NaCl; contains ~2 moles FITC/mole protein | See Sigma L 9267

## Agglutinin, *Lens culinaris*, Horse Radish Peroxidase Conjugated

Synonyms: Lectin

**ICN 153292** *Lens culinaris* (Lentil) Purified by affinity chromatography | Specificity for  $\alpha$ -D-Man

## Agglutinin, *Lens culinaris*, Immobilized

Synonyms: Lectin

**Sigma L 4018** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Immobilized on 4% beaded agarose; contains 2-4 mg lentil lectin/mL gel; suspension in 0.9% NaCl, 1 mM  $\text{CaCl}_2$ , 1 mM  $\text{MnCl}_2$  & 0.01% thimerosal; similar to Sigma L 0511 but produced by Sigma | See Sigma L 9267

## Agglutinin, *Lens culinaris*, Sepharose 4B

Synonyms: Lectin

**Sigma L 0511** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Attached to Sepharose 4B; contains ~2 mg lentil lectin/mL packed gel; suspension in 20% ethanol containing 0.9% NaCl, 1 mM  $\text{CaCl}_2$ , 1 mM  $\text{MnCl}_2$  | See Sigma L 9267

## Agglutinin, *Lens culinaris*, TRITC Conjugated

Synonyms: Lectin

**Sigma L 5764** *Lens culinaris* (Lentil) MW 49k (LcH-A), MW 49k (LcH-B) Lyophilized containing ~10% protein (Lowry); balance primarily phosphate buffer salts & NaCl; contains ~0.5 mole TRITC/mole protein | See Sigma L 9267

## Agglutinin, *Limax flavus*

Synonyms: Lectin

**ICN 153295** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, 10 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154066** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, 20 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154067** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, 5 nm Colloidal Gold Conjugated

Synonyms: Lectin

**ICN 154065** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, Biotin Conjugated

Synonyms: Lectin

**ICN 153296** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, FITC conjugated

Synonyms: Lectin

**ICN 153297** *Limax flavus* Purified by affinity chromatography

## Agglutinin, *Limax flavus*, Horse Radish Peroxidase Conjugated

Synonyms: Lectin

**ICN 153298** *Limax flavus* Purified by affinity chromatography



**Agglutinin, *Limulus polyphemus***

*Synonyms:* Bacterial Agglutinin; Lectin; Limulin III

**ICN 153299** *Limulus polyphemus* Purified by affinity chromatography | Specificity for NeuNAc

**Sigma L 7908** *Limulus polyphemus* (Horseshoe crab) Affinity purified; lyophilized containing ~50% protein (Bradford); balance primarily NaCl, Tris succinate & calcium acetate | Not human blood group specific; affinity for sialic acid (*N*-acetylneuraminic acid), glucuronic acid & phosphorylcholine analogs; horse erythrocytes are most strongly agglutinated; requires  $\text{Ca}^{2+}$  for activity; agglutination activity expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions of a 1 mg/mL solution using 50 mM Tris buffered saline, pH 7.2, containing 0.1 M  $\text{CaCl}_2$ ; activity is the lowest concentration to agglutinate a 1.5% suspension of horse erythrocytes after 1 hr at 25°C; Marchelonis, JJ & Edelman, GM, *J Mol Biol*, 32: 453, 1968; Fernandez-Moran, H et al, *J Mol Biol*, 32: 467, 1968

**Sigma L 2263** *Limulus polyphemus* (Limulin) Lyophilized containing ~25% protein (Modified Warburg-Christian); balance primarily Tris succinate, NaCl & calcium acetate; purified by affinity chromatography; salt-free; activity: <16  $\mu\text{g/mL}$  with blood group B erythrocytes & <8  $\mu\text{g/mL}$  with *S. aureus* cells | Agglutinates *Staphylococcus aureus* cells, as well as human & horse erythrocytes; major affinity is for *N*-acetylated D-hexosamines, but is reported to have anti-galactan specificity; agglutination activity expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.4 containing 0.1 mM  $\text{CaCl}_2$ ; activity is the lowest concentration to agglutinate a 2% suspension of human blood group B erythrocytes; bacterial agglutination activity is determined from serial dilutions in 0.01 M Tris, 0.15 M NaCl, pH 7.4, containing 0.01 M  $\text{CaCl}_2$  of a 1 mg/mL solution; activity is the lowest concentration to agglutinate a 0.083% suspension of *S. aureus* cells; Gilbride, KJ & Pistole, TG, *Prog Clin Biol Res*, 29: 525, 1979

**Agglutinin, *Limulus polyphemus*, Biotin Conjugated**

*Synonyms:* Lectin; Limulin III

**ICN 153300** *Limulus polyphemus* Purified by affinity chromatography | Specificity for NeuNAc

**Agglutinin, *Limulus polyphemus*, FITC Conjugated**

*Synonyms:* Lectin; Limulin III

**ICN 153301** *Limulus polyphemus* Purified by affinity chromatography | Specificity for NeuNAc

**Sigma L 8520** *Limulus polyphemus* (Horseshoe crab) Lyophilized containing ~90% protein (Biuret); balance Tris buffer salts & calcium acetate; contains >15 moles FITC/mole protein | See Sigma L 7908

**Agglutinin, *Limulus polyphemus*, Horse Radish Peroxidase Conjugated**

*Synonyms:* Lectin; Limulin III

**ICN 153302** *Limulus polyphemus* Purified by affinity chromatography | Specificity for NeuNAc

**Agglutinin, *Lotus tetragonolobus***

*Synonyms:* Lectin

**ICN 153303** *Lotus tetragonolobus* Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Lotus tetragonolobus*, Biotin Conjugated**

*Synonyms:* Lectin

**ICN 153304** *Lotus tetragonolobus* Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Lotus tetragonolobus*, FITC Conjugated**

*Synonyms:* Lectin

**ICN 153305** *Lotus tetragonolobus* Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Lotus tetragonolobus*, Horse Radish Peroxidase Conjugated**

*Synonyms:* Lectin

**ICN 153306** *Lotus tetragonolobus* Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Lycopersicon esculentum***

*Synonyms:* Lectin

**Sigma L 2886** *Lycopersicon esculentum* (Tomato) Highly purified by affinity chromatography; lyophilized containing  $\geq 40\%$  lectin; balance NaCl; activity: <2  $\mu\text{g/mL}$  | Not blood group specific; affinity for *N*-acetyl- $\beta$ -D-glucosamine oligomers; glycoprotein containing approx. equal amounts of protein & carbohydrate & is reported to inhibit the mitogenic activity of phytohemagglutinin from *Phaseolus vulgaris*; conjugates are prepared from affinity purified lectin; agglutination activity expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.3; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Nachbar, MA et al, *J Biol Chem*, 255: 2056, 1980

**Agglutinin, *Lycopersicon esculentum*, Biotin Conjugated**

*Synonyms:* Lectin

**Sigma L 0651** *Lycopersicon esculentum* (Tomato) Lyophilized containing ~25% lectin; balance primarily sodium citrate; contains 3-5 moles biotin/mole lectin | See Sigma L 2886

**Agglutinin, *Lycopersicon esculentum*, FITC Conjugated**

*Synonyms:* Lectin

**Sigma L 0401** *Lycopersicon esculentum* (Tomato) Solution in 10 mM HEPES, 0.15 M NaCl, pH 7.5, containing 0.1 mM  $\text{Ca}^{2+}$  & 0.08% sodium azide; contains 3-6 moles FITC/mole lectin | See Sigma L 2886

**Agglutinin, *Lycopersicon esculentum*, Sulforhodamine 101 Acid Chloride (Texas Red) Conjugated**

*Synonyms:* Lectin

**Sigma L 9139** *Lycopersicon esculentum* (Tomato) Lyophilized containing ~50% lectin; balance primarily NaCl; contains ~1 mole Texas Red/mole lectin | See Sigma L 2886

**Agglutinin, *Lycopersicon esculentum*, TRITC Conjugated**

*Synonyms:* Lectin

**Sigma L 9511** *Lycopersicon esculentum* (Tomato) Lyophilized containing ~50% lectin; balance primarily NaCl; contains 1-2 moles TRITC/mole lectin | See Sigma L 2886

**Agglutinin, *Maackia amurensis***

*Synonyms:* Lectin

**Sigma L 8025** *Maackia amurensis* Lyophilized; essentially salt-free; highly purified by affinity chromatography using a modification of the method of Wang, W-C & Cummings, RD, *J Biol Chem*, 263: 4576, 1988; activity: <10  $\mu\text{g/mL}$  | Interacts with sialic acid-containing glycoconjugates; consists of 2 molecular species, a strongly hemagglutinating hemagglutinin (MAH) & a strongly mitogenic hemagglutinin (MAL); mitogenic activity of the latter is inhibited by  $\alpha$ -sialyl-(2 $\rightarrow$ 3)-lactose; MAA could be useful for fractionation of sialylated oligosaccharides; agglutination activity expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of fresh human erythrocytes, type O, after 1 hr incubation at 25°C; Knibbs, RN et al, *J Biol Chem*, 266: 83, 1991; Kawaguchi, T et al, *J Biol Chem*, 249: 2786, 1974

**Agglutinin, *Maclura pomifera***

*Synonyms:* Lectin

**ICN 153307** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Sigma L 6141** *Maclura pomifera* (Osage orange) Lyophilized; salt-free; highly purified by affinity chromatography using the method of Bausch, NJ & Poretz, RD, *Biochemistry*, 16: 5790, 1977; activity: <1  $\mu$ g/mL | Not human blood group specific, but is reported to bind specifically to T lymphocytes; affinity for terminal  $\alpha$ -D-galactosyl & N-acetyl-D-galactosaminyl residues; conjugates are prepared from affinity purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Jones, JM & Feldman, JD, *J Immunol*, 3: 1765, 1973; Bausch, NJ & Poretz, RD, *Biochemistry*, 16: 5790, 1977

**Agglutinin, *Maclura pomifera*, 10 nm Colloidal Gold Conjugated**

*Synonyms:* Lectin

**ICN 154069** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Agglutinin, *Maclura pomifera*, 20 nm Colloidal Gold Conjugated**

*Synonyms:* Lectin

**ICN 154070** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Agglutinin, *Maclura pomifera*, 5 nm Colloidal Gold Conjugated**

*Synonyms:* Lectin

**ICN 154068** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Agglutinin, *Maclura pomifera*, Biotin Conjugated**

*Synonyms:* Lectin

**ICN 153308** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Sigma L 2013** *Maclura pomifera* (Osage orange) Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains ~2 moles biotin/mole protein | See Sigma L 6141

**Agglutinin, *Maclura pomifera*, FITC Conjugated**

*Synonyms:* Lectin

**ICN 153309** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Sigma L 4383** *Maclura pomifera* (Osage orange) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains ~2 moles FITC/mole protein | See Sigma L 6141

**Agglutinin, *Maclura pomifera*, Horse Radish Peroxidase Conjugated**

*Synonyms:* Lectin

**ICN 153310** *Maclura pomifera* Purified by affinity chromatography | Specificity for  $\alpha$ -D-gal,  $\alpha$ -D-galNAc

**Agglutinin, *Maclura pomifera*, Peroxidase Conjugated**

*Synonyms:* Lectin

**Sigma L 4401** *Maclura pomifera* (Osage orange) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: 20-50 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified by affinity chromatography after conjugation | See Sigma L 6141

**Agglutinin, *Maclura pomifera*, TRITC Conjugated**

*Synonyms:* Lectin

**Sigma L 5889** *Maclura pomifera* (Osage orange) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 0.25-1 mole TRITC/mole protein | See Sigma L 6141

**Agglutinin, *Momordica charantia***

*Synonyms:* Lectin

**Sigma L 4644** *Momordica charantia* (Bitter pear melon) Lyophilized containing ~25% protein (Biuret); balance primarily NaCl & sodium phosphate; highly purified by affinity chromatography using a modification of the method of Ng, TB et al, *Int J Peptide Prot Res*, 28: 163, 1986; activity: <1  $\mu$ g/mL | The seeds of *Momordica charantia* contain two proteins with inhibitory activity on protein synthesis in a cell-free system; one is a high potency protein synthesis inhibitor, momordin; the other is a low potency protein synthesis inhibitor which is also a hemagglutinating lectin; MCA is a glycoprotein which exerts insulinomimetic, antilipolytic & lipogenic activities on isolated rat adipocytes; also agglutinates adipocytes & shows affinities for Gal & GalNAc; Barbieri, L et al, *Biochem J*, 18: 443, 1980; Ng, TB et al, *Int J Peptide Prot Res*, 28: 163, 1986

**Agglutinin, *Naja mossambica mossambica***

*Synonyms:* Lectin; Snake Venom Agglutinin; SVAM

**Sigma L 4515** *Naja mossambica mossambica* (Mossambica cobra) Lyophilized containing ~90% protein (Biuret); balance acetate buffer salts; highly purified; activity: <20  $\mu$ g/mL using glutaraldehyde fixed erythrocytes; <100  $\mu$ g/mL using trypsinized erythrocytes | Not blood group specific, but has an affinity for heparin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of appropriate human erythrocytes after incubation at 25°C; Oglivie, ML & Gartner, TK, *J Herpetology*, 18: 285, 1984

**Agglutinin, *Naja naja kaouthia***

*Synonyms:* Lectin; Snake Venom Agglutinin; SVAK

**Sigma L 8648** *Naja naja kaouthia* Lyophilized containing ~70% protein (Lowry); balance acetate buffer salts; highly purified; activity: <15  $\mu$ g/mL using glutaraldehyde-fixed type A human red blood cells | Not blood group specific, but has a high affinity for heparin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of appropriate human erythrocytes after 1 hr incubation at 25°C; Oglivie, ML & Gartner, TK, *J Herpetology*, 18: 285, 1984

**Agglutinin, *Narcissus pseudonarcissus***

*Synonyms:* Lectin

**Sigma L 5650** *Narcissus pseudonarcissus* (Daffodil) Lyophilized; essentially salt-free; highly purified by affinity chromatography using a modification of the method of Kaku, H & Goldstein, IJ, *Meth Enzymol*, 179: 327, 1989; activity: <1  $\mu$ g/mL | Agglutinates trypsinized rabbit erythrocytes with high efficiency & untreated rabbit erythrocytes less so; human erythrocytes are not agglutinated; NPA sugar specificity is directed to terminal & internal  $\alpha$ -D-mannosyl residues of glycoconjugates; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of trypsinized rabbit erythrocytes after 1 hr incubation at 25°C; VanDamme, JM et al, *Physiol Plantarum*, 73: 52, 1988; Kaku, H & Goldstein, IJ, *Meth Enzymol*, 179: 327, 1989

**Agglutinin, *Perseu americana***

Synonyms: Lectin

**Sigma L 8513** *Perseu americana* (Avocado) Partially purified; lyophilized; essentially salt-free; activity: <40 µg/mL | Not blood group specific; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr incubation at 25°C; Meade, NA et al, *Carbo Res*, 78: 349, 1980

**Agglutinin, *Phaseolus coccineus***

Synonyms: Lectin

**ICN 193553** *Phaseolus coccineus* (Scarlet runner bean) Purified, lyophilized; 250-300 µg/mL; mix of 5 lectins | Not blood group specific

**Sigma L 3138** *Phaseolus coccineus* (Scarlet runner bean) Affinity purified; lyophilized containing ~75% protein (Biuret); ~10% carbohydrate as glycoprotein; balance primarily NaCl; activity: <8 µg/mL; mitogenic at <10 µg/mL | Not blood group specific; agglutination is not inhibited by monosaccharides but is inhibited by fetuin; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; mitogenic activity is determined by <sup>3</sup>H-thymidine incorporation in lymphocyte cultures; Ochoa, JL & Kristiansen, T, *Biochim Biophys Acta*, 705: 396, 1982; Immunology Series No. 8 "Procedural Guide", p. 11, 1978, US Dept HEW, PHS, CDC, Bureau of Laboratories, Atlanta, GA

**Agglutinin, *Phaseolus coccineus*, Biotin Conjugated**

Synonyms: Lectin

**Sigma L 4514** *Phaseolus coccineus* (Scarlet runner bean) Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains 5-10 moles biotin/mole protein | See Sigma L 3138

**Agglutinin, *Phaseolus coccineus*, TRITC Conjugated**

Synonyms: Lectin

**Sigma L 4389** *Phaseolus coccineus* (Scarlet runner bean) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 1-2 moles TRITC/mole protein | See Sigma L 3138

**Agglutinin, *Phaseolus limensis***

Synonyms: Lectin

**ICN 153314** *Phaseolus limensis* Purified by affinity chromatography | Specificity for α-D-galNAc

**Sigma L 3897** *Phaseolus limensis* (Lima bean) Lyophilized; essentially salt-free; highly purified by modification of the method of Bessler, W & Goldstein, AJ, *Arch Biochem Biophys*, 165: 444, 1974; activity: <10 µg/mL | Consists of at least 3 molecular components: Component III (LBL<sub>4</sub>), component II (LBL<sub>8</sub>, a dimeric form of component III) & component I, a higher molecular weight form; components differ in their mitogenic activity toward human lymphocytes with component II (LBL<sub>8</sub>) showing the highest activity; the lectin has an affinity for GalNAc & an α-GalNAc-containing oligosaccharide, α-D-GalNAc-(1→3)-(α-L-Fuc-(1→2))-D-Gal; it preferentially agglutinates type A erythrocytes; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes, type O, after 1 hr incubation at 25°C; Roberts, DD et al, *J Biol Chem*, 257: 9198, 1982; Pandolfino, ER et al, *J Biol Chem*, 258: 9203, 1983

**Agglutinin, *Phaseolus limensis*, Biotin Conjugated**

Synonyms: Lectin

**ICN 153315** *Phaseolus limensis* Purified by affinity chromatography | Specificity for α-D-galNAc

**Agglutinin, *Phaseolus limensis*, FITC Conjugated**

Synonyms: Lectin

**ICN 153316** *Phaseolus limensis* Purified by affinity chromatography | Specificity for α-D-galNAc

**Agglutinin, *Phaseolus limensis*, Horse Radish Peroxidase Conjugated**

Synonyms: Lectin

**ICN 153317** *Phaseolus limensis* Purified by affinity chromatography | Specificity for α-D-galNAc

**Agglutinin, *Phaseolus vulgaris***

Synonyms: Agglutinin, Wax Bean; Erythroagglutinin; Lectin; Leukoagglutinin; Phytohemagglutinin; Phytohemagglutinin E; Phytohemagglutinin L; Phytohemagglutinin M; Phytohemagglutinin P

**ICN 153318** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 153322** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 153326** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 151884** *Phaseolus vulgaris* (Red kidney bean) Partially purified mixture of isolectins; mitogenic properties | Agglutinates erythrocytes of all human blood groups & many mammalian blood groups

**ICN 151885** *Phaseolus vulgaris* (Red kidney bean) Purified by affinity chromatography; high erythroagglutinating activity, low mitogenic activity | Inhibited by certain oligosaccharides; Kornfeld, R & S Kornfeld, *JBC*, 245:2536, 1970; Yachnin, A & RH Svenson, *Immunology*, 22:871, 1972

**ICN 151886** *Phaseolus vulgaris* (Red kidney bean) Purified by affinity chromatography; high mitogenic activity, low erythroagglutinin activity; 1.0-2.0 mg/mL | Yachnin, A & RH Svenson, *Immunology*, 22:871, 1972

**Sigma L 2646** *Phaseolus vulgaris* (Red kidney bean) Lyophilized; salt-free; activity: <40 µg/mL with erythrocytes; mitogenic at <10 µg/mL | Mucoprotein form See Sigma L 8629

**Sigma L 2769** *Phaseolus vulgaris* (Red kidney bean) Purified; lyophilized; salt-free; purified by a modification of the method of Leavitt, RD et al, *J Biol Chem*, 252: 2961, 1977; mitogenic at <5 µg/mL; does not agglutinate erythrocytes at 250 µg/mL; tested for leucoagglutination | Same comments as for Sigma L 8629

**Sigma L 8629** *Phaseolus vulgaris* (Red kidney bean) Purified; lyophilized; essentially salt-free; purified by a modification of the method of Leavitt, RD et al, *J Biol Chem*, 252: 2961, 1977; activity <10 µg/mL with erythrocytes; tested for leucoagglutination | PHA consists of 2 molecular species, an erythroagglutinin (PHA-E) which has low mitogenic activity & high erythroagglutinating activity & a leucoagglutinin (PHA-L) which has high mitogenic & leucoagglutinating activity, but very low erythroagglutinating activity; PHA-E is not blood group specific but agglutination can be inhibited by certain oligosaccharides; PHA-P is the protein form of PHA prior to separation & purification of erythroagglutinin & leucoagglutinin; PHA-M is the mucoprotein form; erythroagglutinin, leucoagglutinin & phytohemagglutinin conjugates are prepared from the corresponding purified lectins, Sigma L 8629, Sigma L 2769 & Sigma L 9017; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of either human erythrocytes or human leukocytes (10<sup>7</sup>/mL in saline) after 1 hr at 25°C; mitogenic activity is determined by <sup>3</sup>H-thymidine incorporation in lymphocyte cultures; Yachnin, A & Svenson, RH, *Immunology*, 22: 871, 1972; Felsted et al, *J Biol Chem*, 252: 2967, 1977; Kornfeld, R & Kornfeld, S, *J Biol Chem*, 245: 2536, 1970; Rigas, DA & Osgood, EE, *J Biol Chem*, 212: 607, 1955; Immunology Series No. 8 "Procedural Guide", p. 11, 1978, US Dept HEW, PHS, CDC, Bureau of Laboratories, Atlanta, GA

**Sigma L 8754** *Phaseolus vulgaris* (Red kidney bean) Lyophilized; salt-free; activity: <16 µg/mL with erythrocytes; mitogenic at <10 µg/mL | See Sigma L 8629

**Sigma L 8902** *Phaseolus vulgaris* (red kidney Bean)  
Lyophilized; salt-free; mitogenic at ~10 µg/mL; cell culture tested | Lectin

**Sigma L 9017** *Phaseolus vulgaris* (Red kidney bean) Affinity purified; lyophilized; essentially salt-free; activity: <16 µg/mL with erythrocytes; mitogenic at <10 µg/mL | See Sigma L 8629

**Sigma L 9132** *Phaseolus vulgaris* (red kidney bean)  
Essentially salt-free; lyophilized; activity: <16 µg/mL with erythrocytes; mitogenic at <10 µg/mL; cell culture tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

**ICN 152265** *Phaseolus vulgaris* (Wax bean) Purified by affinity chromatography | No defined CHO binding specificity; agglutinates a wide variety of cells; shows selective & differential agglutinability of tumor cells; Sela, BA et al, *BBA*, 310:273, 1973

#### Agglutinin, *Phaseolus vulgaris*, 10 nm Colloidal Gold Conjugated

**Synonyms:** Lectin; Phytohemagglutinin E; Phytohemagglutinin L

**ICN 154084** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 154087** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Phaseolus vulgaris*, 20 nm Colloidal Gold Conjugated

**Synonyms:** Lectin; Phytohemagglutinin E; Phytohemagglutinin L

**ICN 154085** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 154088** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Phaseolus vulgaris*, 5 nm Colloidal Gold Conjugated

**Synonyms:** Lectin; Phytohemagglutinin E; Phytohemagglutinin L

**ICN 154083** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 154086** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Phaseolus vulgaris*, Biotin Conjugated

**Synonyms:** Erythroagglutinin; Lectin; Leukoagglutinin; Phytohemagglutinin; Phytohemagglutinin E; Phytohemagglutinin L; Phytohemagglutinin P

**ICN 153319** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 153323** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**Sigma L 3509** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains ~15 moles biotin/mole protein | See Sigma L 8629

**Sigma L 7019** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized containing ~70% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains 6-12 moles biotin/mole protein | Same comments as for Sigma L 8629

**Sigma L 8512** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized containing ~85% protein (Lowry); balance primarily sodium citrate; contains ~6 moles biotin/mole protein | See Sigma L 8629

#### Agglutinin, *Phaseolus vulgaris*, FITC Conjugated

**Synonyms:** Lectin; Erythroagglutinin; Leukoagglutinin; Phytohemagglutinin; Phytohemagglutinin E; Phytohemagglutinin L; Phytohemagglutinin P

**ICN 153320** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 153324** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**Sigma L 0895** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized; salt-free; contains 2-5 moles FITC/mole protein | See Sigma L 8629

**Sigma L 1520** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized; salt-free; contains ~2 moles FITC/mole protein | See Sigma L 8629

**Sigma L 8006** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains 2-5 moles FITC/mole protein | Same comments as for Sigma L 8629

#### Agglutinin, *Phaseolus vulgaris*, Horse Radish Peroxidase Conjugated

**Synonyms:** Phytohemagglutinin E; Phytohemagglutinin L

**ICN 153321** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

**ICN 153325** *Phaseolus vulgaris* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Phaseolus vulgaris*, Immobilized

**Synonyms:** Erythroagglutinin; Lectin; Leukoagglutinin; Phytohemagglutinin E; Phytohemagglutinin L

**Sigma L 3007** *Phaseolus vulgaris* (Red kidney bean)  
Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg lectin/mL packed gel; suspension in 1.0 M NaCl | Same comments as for Sigma L 8629

**Sigma L 3132** *Phaseolus vulgaris* (Red kidney bean)  
Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg lectin/mL packed gel; suspension in 1.0 M NaCl containing 0.01% thimerosal as preservative; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 8629

#### Agglutinin, *Phaseolus vulgaris*, TRITC Conjugated

**Synonyms:** Lectin; Erythroagglutinin; Phytohemagglutinin E

**Sigma L 6139** *Phaseolus vulgaris* (Red kidney bean)  
Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains ~1 mole TRITC/mole protein | See Sigma L 8629

#### Agglutinin, *Phytolacca americana*

**Synonyms:** Lectin; Pokeweed Mitogen

**Sigma L 8777** *Phytolacca americana* Lyophilized; partially purified TCA precipitate; essentially salt-free; aseptically filled; activity: <20 µg/mL; mitogenic at ~2.5 µg/mL; cell culture tested | Lectin

**ICN 153327** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography; salt & sugar free; <20 µg/mL; agglutinates fresh human 2% type O erythrocytes in 0.01M PBS, pH 7.5 | Specificity for (D-glcNAc)<sub>3</sub>; mitogenic properties at ~2.5 µg/mL

**Sigma L 9379** *Phytolacca americana* (Pokeweed) Partially purified; TCA precipitate; lyophilized; essentially salt-free; activity: <20 µg/mL; mitogenic at ~2.5 µg/mL | Extracted from pokeweed roots; has hemagglutinating, leukoagglutinating & mitogenic properties; not blood group specific, but has affinity for *N*-acetyl-β-D-glucosamine oligomers; conjugates are prepared from Sigma L 9379 product; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; mitogenic activity was determined by <sup>3</sup>H-thymidine incorporation in lymphocyte cultures; Yokoyama, K et al, *Biochim Biophys Acta*, 538: 384, 1978; *Immunology Series No. 8*, Procedural guide p. 11, May 1978, US Dept HEW PHS CDC, Bureau of Laboratories, Atlanta, GA

#### Agglutinin, *Phytolacca americana*, 10 nm Colloidal Gold conjugated

**Synonyms:** Lectin; Pokeweed Mitogen

**ICN 154090** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>3</sub>

#### Agglutinin, *Phytolacca americana*, 20 nm Colloidal Gold conjugated

**Synonyms:** Lectin; Pokeweed Mitogen

**ICN 154091** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>3</sub>

#### Agglutinin, *Phytolacca americana*, 5 nm Colloidal Gold conjugated

**Synonyms:** Lectin; Pokeweed Mitogen

**ICN 154089** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>3</sub>

#### Agglutinin, *Phytolacca americana*, Biotin conjugated

**Synonyms:** Lectin; Pokeweed Mitogen

**ICN 153328** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>3</sub>

**Sigma L 8387** *Phytolacca americana* (Pokeweed) Lyophilized containing ~85% protein (E<sub>1%<sup>280</sup></sub>); balance primarily sodium citrate; contains 2-4 moles biotin/mole protein | See Sigma L 9379

#### Agglutinin, *Phytolacca americana*, FITC conjugated

**Synonyms:** Lectin; Pokeweed Mitogen

**ICN 153329** *Phytolacca americana* (Pokeweed) Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>3</sub>

**Sigma L 8631** *Phytolacca americana* (Pokeweed) Lyophilized containing ~10% protein (Biuret); balance phosphate buffer salts & NaCl; contains ~2 moles FITC/mole lectin | See Sigma L 9379

#### Agglutinin, *Phytolacca americana*, Immobilized

**Synonyms:** Lectin; Pokeweed Mitogen

**Sigma L 2882** *Phytolacca americana* (Pokeweed) Immobilized on cross-linked 4% beaded agarose; contains 1-3 mg lectin/mL packed gel; suspension in 1.0 M NaCl; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 9379

#### Agglutinin, *Pisum sativum*

**Synonyms:** Lectin

**Sigma L 5380** *Pisum sativum* (Pea) Purified by affinity chromatography; lyophilized; salt-free; activity: <20 µg/mL | Not blood group specific, but has affinity for terminal α-D-glucosyl & α-D-mannosyl residues; PSA lectin is a mitogen similar to Con A; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Trowbridge, IS, *J Biol Chem*, 249: 6004, 1974

#### Agglutinin, *Pisum sativum*, Biotin Conjugated

**Synonyms:** Lectin

**Sigma L 3884** *Pisum sativum* (Pea) Lyophilized containing ~70% protein (E<sub>1%<sup>280</sup></sub>); balance primarily sodium citrate; contains ~4 moles biotin/mole protein | See Sigma L 5380

#### Agglutinin, *Pisum sativum*, FITC Conjugated

**Synonyms:** Lectin

**Sigma L 0770** *Pisum sativum* (Pea) Lyophilized; salt-free; contains 2-4 moles FITC/mole protein (Lowry) | See Sigma L 5380

#### Agglutinin, *Pisum sativum*, Immobilized

**Synonyms:** Lectin

**Sigma L 2257** *Pisum sativum* (Pea) Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg lectin/mL packed gel; suspension in 1.0 M NaCl containing 0.01% thimerosal; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 5380

#### Agglutinin, *Pisum sativum*, TRITC Conjugated

**Synonyms:** Lectin

**Sigma L 6639** *Pisum sativum* (Pea) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains 0.5-1 mole TRITC/mole protein | See Sigma L 5380

#### Agglutinin, *Pseudomonas aeruginosa*

**Synonyms:** Lectin

**Sigma L 9895** *Pseudomonas aeruginosa* Lyophilized containing ~80% protein (Biuret); balance primarily sodium citrate plus traces of calcium chloride, magnesium chloride & manganese chloride; highly purified by affinity chromatography using a modification of the method of Gilboa-Garber, N, *Meth Enzymol*, 83: 378, 1982; activity: <15 µg/mL | Major affinity for D-galactose & its derivatives; extracts from *Pseudomonas aeruginosa* cells contain another lectin, PA-II which is specific for Fucose; PA-I agglutinates all types of human & animal erythrocytes & interacts also with unicellular protozoa, algae & bacteria; induces mitogenic stimulation in cultured human lymphocytes pretreated with neuraminidase; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.0; activity is the lowest concentration to agglutinate a 2% suspension of neuraminidase treated human blood group A erythrocytes after 1 hr at 25°C; Gilboa-Garber, N, *Meth Enzymol*, 83: 378, 1982

#### Agglutinin, *Psophocarpus tetragonolobus*

**Synonyms:** Lectin

**Sigma L 2138** *Psophocarpus tetragonolobus* (Winged bean) Purified; lyophilized containing ~65% protein (Biuret); balance primarily phosphate buffers & NaCl; activity: <30 µg/mL | Not blood group specific but has an affinity for *N*-acetyl-D-galactosamine; conjugates are prepared from purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Appukuttan, PS & Basu, D, *Anal Biochem*, 113: 253, 1981

#### Agglutinin, *Psophocarpus tetragonolobus*, Biotin Conjugated

**Synonyms:** Lectin

**Sigma L 3014** *Psophocarpus tetragonolobus* (Winged bean) Lyophilized containing ~85% protein (E<sub>1%<sup>280</sup></sub>); balance primarily sodium citrate; contains ~3 moles biotin/mole protein | See Sigma L 2138

**Agglutinin, *Psophocarpus tetragonolobus*, FITC Conjugated**

Synonyms: Lectin

**Sigma L 3264** *Psophocarpus tetragonolobus* (Winged bean) Lyophilized containing ~10% protein (Biuret); balance phosphate buffer salts & NaCl; contains ~3 moles FITC/mole protein | See Sigma L 2138

**Agglutinin, *Psophocarpus tetragonolobus*, Peroxidase Conjugated**

Synonyms: Lectin

**Sigma L 3139** *Psophocarpus tetragonolobus* (Winged bean) Lyophilized containing ~10% protein (Modified Warburg-Christian); balance phosphate buffer salts & NaCl; peroxidase activity: 20-60 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C | See Sigma L 2138

**Agglutinin, *Ptilota plumosa***

Synonyms: Lectin

**Sigma L 9260** *Ptilota plumosa* (Red marine algae) Partially purified; lyophilized; salt-free; activity: <50 µg/mL | Has anti-B blood group specificity; has an affinity for terminal α-D-galactosyl residues; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.3; activity is the lowest concentration to agglutinate a 2% suspension of papain treated human blood group B erythrocytes after 1 hr incubation at 25°C; Rogers, DJ et al, *Med Lab Sci*, 34: 195, 1977

**Agglutinin, *Ricinus communis* 120**

Synonyms: Lectin

**ICN 791451** *Ricinus communis*

**Agglutinin, *Ricinus communis* 60**

Synonyms: Lectin

**ICN 791401** *Ricinus communis*

**Agglutinin, *Ricinus communis* A**

Synonyms: Lectin; Ricin A Chain

**Sigma L 9514** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Prepared from Toxin RCA<sub>60</sub>; purified by affinity chromatography; electrophoretically pure (SDS-PAGE); solution in 40% glycerol containing 10 mM phosphate, pH 6.0, 0.15 M NaCl, 10 mM galactose & 0.5 mM DTT; extremely hazardous | Occurs in 2 forms designated RCA<sub>60</sub> & RCA<sub>120</sub> according to their MW of ~60,000 & 120,000 respectively; neither is blood group specific; RCA<sub>60</sub> also referred to as RCA<sub>II</sub>, Ricin D or RCL III is extremely toxic, inhibits protein synthesis & has an affinity for N-acetyl-D-galactosamine; RCA<sub>120</sub> also referred to as RCA<sub>I</sub> or RCL (I+II) is an agglutinin & has an affinity for terminal β-D-galactosyl residues; conjugates are prepared from affinity purified toxin, RCA<sub>60</sub> or agglutinin RCA<sub>120</sub>; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.2; activity is the lowest concentration to agglutinate a 2% suspension of either human erythrocytes after 1 hr at 25°C; Nicolson, GL & Blaustein, J, *Biochim Biophys Acta*, 266: 543, 1972; Nicolson, GL et al, *Biochemistry*, 13: 196, 1974; Wei, CH & Koh, C, *J Mol Biol*, 123: 707, 1978; Lin, TS & Li, SL, *Eur J Biochem*, 105: 453, 1980

**Agglutinin, *Ricinus communis* A, Deglycosylated**

Synonyms: Lectin; Ricin A Chain

**Sigma L 4022** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Solution in 40% glycerol containing 10 mM phosphate, pH 6.0, 0.15 M NaCl, 10 mM galactose & 0.5 mM DTT; extremely hazardous | The carbohydrate moiety of Ricin A chain has been modified using a metaperiodate-cyanoborohydride mixture; the products still inhibits protein synthesis in cell-free systems & its removal from the blood stream by the liver is markedly decreased; immunotoxins prepared from deglycosylated Ricin A chain will therefore be more effective in killing target cells; Thorpe, PE et al, *Eur J Biochem*, 147: 197, 1985; Skilleter, DN et al, *Biochim Biophys Acta*, 842: 12, 1985; Thorpe, PE et al, *Cancer Res*, 48: 6396, 1988; seeSigma L 9514

**Agglutinin, *Ricinus communis* B**

Synonyms: Lectin; Ricin B Chain

**Sigma L 9639** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Prepared from Toxin RCA<sub>60</sub>; purified by affinity chromatography; electrophoretically pure (SDS-PAGE); solution in 10 mM phosphate, pH 6.5, containing 0.15 M NaCl, 10 mM galactose, 0.5 mM DTT & 0.02% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>120</sub>**

Synonyms: Lectin

**Sigma L 7886** *Ricinus communis* (Castor bean) Highly purified by affinity chromatography using the method of Lin, TS & Li, SL, *Eur J Biochem*, 105: 453, 1980; activity: <1 µg/mL; solution in 0.005 M sodium phosphate, pH 7.2, 0.2 M NaCl & 0.1% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>120</sub>, Biotin Conjugated**

Synonyms: Lectin

**Sigma L 2641** *Ricinus communis* (Castor bean) Agglutinin RCA<sub>120</sub>; contains ~3 moles biotin/mole protein; solution in 0.01 M potassium phosphate, pH 7.3, 0.15 M NaCl & 0.1% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>120</sub>, FITC Conjugated**

Synonyms: Lectin

**Sigma L 4638** *Ricinus communis* (Castor bean) Contains 4-6 moles FITC/mole protein; solution in 0.01 M potassium phosphate, pH 7.2, 0.15 M NaCl & 0.1% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>120</sub>, Immobilized**

Synonyms: Lectin

**Sigma L 2390** *Ricinus communis* (Castor bean) Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg protein/mL packed gel; suspension in 1.0 M NaCl containing 0.02% sodium azide; 1 mL suspension yields ~0.5 mL packed gel; prepared by activation with p-nitrophenyl chloroformate; Wilchek, M & Miron, T, *Biochem Int*, 4: 629, 1982; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>120</sub>, Peroxidase Conjugated**

Synonyms: Lectin

**Sigma L 2758** *Ricinus communis* (Castor bean) Lyophilized containing ~75% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: 5-20 units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using two-step glutaraldehyde method of Avrameas, S & Ternyck, T, *Immunochemistry*, 8: 1175, 1971; repurified after conjugation by affinity chromatography; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>60</sub>***Synonyms:* Lectin; Toxin RCA<sub>60</sub>

**Sigma L 8508** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Highly purified by affinity chromatography using the method of Lin, TS & Li, SL, *Eur J Biochem*, 105: 453, 1980; activity: <20 µg/mL; solution in 0.01 M potassium phosphate, pH 7.0, 0.15 M NaCl & 0.1% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>60</sub>, FITC Conjugated***Synonyms:* Lectin; Toxin RCA<sub>60</sub>

**Sigma L 8633** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Contains ~1 mole FITC/mole protein; solution in 0.01 M potassium phosphate, pH 7.2, 0.15 M NaCl & 0.1% sodium azide; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>60</sub>, Immobilized***Synonyms:* Lectin; Toxin RCA<sub>60</sub>

**Sigma L 1265** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Immobilized on cross-linked 4% beaded agarose; contains 1.5-3 mg protein/mL packed gel; suspension in 1.0 M NaCl containing 0.02% sodium azide; 1 mL suspension yields ~0.5 mL packed gel; prepared by activation with p-nitrophenyl chloroformate; Wilchek, M & Miron, T, *Biochem Int*, 4: 629, 1982; extremely hazardous | See Sigma L 9514

**Sigma L 2632** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Immobilized on cross-linked 4% beaded agarose; contains 2-4 mg protein/mL packed gel; suspension in 1.0 M NaCl containing 0.02% thimerosal; 1 mL suspension yields ~0.5 mL packed gel; extremely hazardous | See Sigma L 9514

**Agglutinin, *Ricinus communis* RCA<sub>60</sub>, Peroxidase Conjugated***Synonyms:* Lectin; Toxin RCA<sub>60</sub>

**Sigma L 2633** *Ricinus communis* (Castor bean) MW 60k (RCA<sub>60</sub>), MW 120k (RCA<sub>120</sub>) Lyophilized containing ~75% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: 5-20 units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using two-step glutaraldehyde method of Avrameas, S & Ternyck, T, *Immunochemistry*, 8: 1175, 1971; repurified after conjugation by affinity chromatography; extremely hazardous! be aware of the risks & familiar with safety procedures before you use this product | See Sigma L 9514

**Agglutinin, *Robinia pseudoacacia****Synonyms:* Lectin

**ICN 153336** *Robinia pseudoacacia* Purified by affinity chromatography | Not blood group specific

**Agglutinin, *Robinia pseudoacacia*, Biotin Conjugated***Synonyms:* Lectin

**ICN 153337** *Robinia pseudoacacia* Purified by affinity chromatography

**Agglutinin, *Robinia pseudoacacia*, FITC Conjugated***Synonyms:* Lectin

**ICN 153338** *Robinia pseudoacacia* Purified by affinity chromatography

**Agglutinin, *Robinia pseudoacacia*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin

**ICN 153339** *Robinia pseudoacacia* Purified by affinity chromatography

**Agglutinin, *Salvia horminum****Synonyms:* Lectin

**ICN 153340** *Salvia horminum* Purified by affinity chromatography

**Agglutinin, *Salvia sclarea****Synonyms:* Lectin

**ICN 153341** *Salvia sclarea* Purified by affinity chromatography

**Agglutinin, *Sambucus nigra****Synonyms:* Lectin

**Sigma L 6890** *Sambucus nigra* (Elder) Lyophilized containing ~30% protein (Lowry); balance primarily NaCl; highly purified by modification of the method of Broekaert, WF et al, *Biochem J*, 221: 163, 1984 | Isolated from the inner bark (bast tissue) of elder stems & branches; not blood group specific but has an affinity for α-NeuNAc-(2→6)-Gal, α-NeuNAc-(2→6)-GalNAc & to a lesser extent, α-NeuNAc-(2→3)-Gal residues; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 7.3; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr incubation at 25°C; Broekaert, WF et al, *Biochem J*, 221: 163, 1984; Shibuya, N et al, *J Biol Chem*, 262: 1596, 1987

**Agglutinin, *Solanum tuberosum****Synonyms:* Lectin

**ICN 152063** *Solanum tuberosum* (Potato) Purified by affinity chromatography | Not blood group specific, but does have affinity for N-acetyl-β-D-glucosamine oligomers

**Sigma L 4266** *Solanum tuberosum* (Potato) Lyophilized containing ~20% protein (Lowry); ~20% carbohydrate present as glycoprotein; balance primarily NaCl; highly purified by affinity chromatography using a modification of the method of Matsumoto, I et al, *J Biochem*, 258: 2886, 1983; activity: <2 µg/mL | Not blood group specific; affinity for N-acetyl-β-D-glucosamine oligomers; glycoprotein containing approx. equal amounts of protein & carbohydrate; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Allen, AK & Neuberger, A, *Biochem J*, 135: 307, 1973

**Sigma L 7885** *Solanum tuberosum* (Potato) Lyophilized containing ~80% protein (Lowry); balance carbohydrate present as glycoprotein; partially purified; salt-free; activity: <75 µg/mL | See Sigma L 4266

**Agglutinin, *Solanum tuberosum*, Biotin Conjugated***Synonyms:* Lectin

**ICN 153342** *Solanum tuberosum* (Potato) Purified by affinity chromatography | Specificity for (D-glc NAC)<sub>3</sub>

**Agglutinin, *Solanum tuberosum*, FITC Conjugated***Synonyms:* Lectin

**ICN 153344** *Solanum tuberosum* (Potato) Purified by affinity chromatography | Specificity for (D-glc NAC)<sub>3</sub>

**Sigma L 9408** *Solanum tuberosum* (Potato) Lyophilized containing ~30% lectin; balance primarily HEPES buffer salts & NaCl; contains ~1 mole FITC/mole lectin | See Sigma L 4266

**Agglutinin, *Solanum tuberosum*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin

**ICN 153345** *Solanum tuberosum* (Potato) Purified by affinity chromatography | Specificity for (D-glc NAC)<sub>3</sub>

**Agglutinin, *Sophora japonica***

*Synonyms:* Lectin

**ICN 153346** *Sophora japonica* Purified by affinity chromatography | Specificity for  $\beta$ -D-galNAc

**Sigma L 6138** *Sophora japonica* (Japanese pagoda tree) Lyophilized; salt-free; highly purified by affinity chromatography using the method of Poretz, RD, *Methods in Enzymology*, 28: 349, 1972; activity: <20  $\mu$ g/mL | Has anti-A & anti-B human blood group specificity; has an affinity for N-acetyl-D-galactosamine & D-galactose; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 8.0; activity is the lowest concentration to agglutinate a 2% suspension of human blood group B erythrocytes after 1 hr at 25°C; Irimura, T et al, *Carbo Res*, 39: 317, 1975

**Agglutinin, *Sophora japonica*, Biotin Conjugated**

*Synonyms:* Lectin

**ICN 153347** *Sophora japonica* Purified by affinity chromatography | Specificity for  $\beta$ -D-galNAc

**Sigma L 3016** *Sophora japonica* (Japanese pagoda tree) Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains ~2 moles biotin/mole protein | See Sigma L 6138

**Agglutinin, *Sophora japonica*, FITC Conjugated**

*Synonyms:* Lectin

**ICN 153348** *Sophora japonica* Purified by affinity chromatography | Specificity for  $\beta$ -D-galNAc

**Agglutinin, *Sophora japonica*, Horse Radish Peroxidase Conjugated**

*Synonyms:* Lectin

**ICN 153349** *Sophora japonica* Purified by affinity chromatography | Specificity for  $\beta$ -D-galNAc

**Agglutinin, *Tetragonolobus purpureas***

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 9254** *Tetragonolobus purpureas* (Winged or asparagus pea) Salt-free; lyophilized; highly purified by affinity chromatography; activity: <32  $\mu$ g/mL | Anti-H blood group specificity & an affinity for  $\alpha$ -L-fucosyl residues & an unusually high affinity for  $\alpha$ -L-fucose residues on type II chain blood group oligosaccharides; conjugates are prepared from purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group O erythrocytes after 1 hr at 25°C; Pereira, MEA & Kabat, EA, *Ann NY Acad Sci*, 234: 301, 1974

**Agglutinin, *Tetragonolobus purpureas*, Biotin Conjugated**

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 3134** *Tetragonolobus purpureas* (Winged or asparagus pea) Lyophilized containing ~85% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; contains ~6 moles biotin/mole protein | See Sigma L 9254

**Agglutinin, *Tetragonolobus purpureas*, FITC Conjugated**

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 5644** *Tetragonolobus purpureas* (Winged or asparagus pea) Salt-free; lyophilized; contains 2-6 moles FITC/mole protein | See Sigma L 9254

**Agglutinin, *Tetragonolobus purpureas*, Immobilized**

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 3257** *Tetragonolobus purpureas* (Winged or asparagus pea) Immobilized on 4% beaded agarose; contains 1-2 mg protein/mL packed gel; spacer: 6 carbon; suspension in 0.01 M phosphate buffered saline containing 50% glycerol, 0.1 mM  $\text{CaCl}_2$ , 0.02% sodium azide; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 9254

**Agglutinin, *Tetragonolobus purpureas*, Peroxidase Conjugated**

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 1508** *Tetragonolobus purpureas* (Winged or asparagus pea) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance phosphate buffer salts; peroxidase activity: 10-30 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type II using the two step glutaraldehyde method of Avrameas, S & Ternyck, T, *Immunochemistry*, 8: 1175, 1971; repurified after conjugation by affinity chromatography | See Sigma L 9254

**Sigma L 5759** *Tetragonolobus purpureas* (Winged or asparagus pea) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance sodium citrate; peroxidase activity: 40-100 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified after conjugation by affinity chromatography | See Sigma L 9254

**Agglutinin, *Tetragonolobus purpureas*, TRITC Conjugated**

*Synonyms:* Lectin; Agglutinin, Lotus

**Sigma L 6764** *Tetragonolobus purpureas* (Winged or asparagus pea) Lyophilized containing ~75% protein (Lowry); balance potassium phosphate buffer salts; contains ~1 mole TRITC/mole protein | See Sigma L 9254

**Agglutinin, *Trichosanthes kinlowii***

*Synonyms:* LECTIN

**ICN 153358** *Trichosanthes kinlowii* Purified by affinity chromatography

**Agglutinin, *Trichosanthes kinlowii*, Biotin Conjugated**

*Synonyms:* Lectin

**ICN 153359** *Trichosanthes kinlowii* Purified by affinity chromatography

**Agglutinin, *Trichosanthes kinlowii*, FITC Conjugated**

*Synonyms:* Lectin

**ICN 153360** *Trichosanthes kinlowii* Purified by affinity chromatography

**Agglutinin, *Trichosanthes kinlowii*, Horse Radish Peroxidase Conjugated**

*Synonyms:* Lectin

**ICN 153361** *Trichosanthes kinlowii* Purified by affinity chromatography



**Agglutinin, *Triticum vulgaris****Synonyms:* Agglutinin, Wheat Germ; Lectin

**Sigma L 0636** *Triticum vulgaris* (wheat germ) Highly purified; essentially salt-free; lyophilized; aseptically processed; cell culture tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

**Sigma L 1263** *Triticum vulgaris* (wheat germ) Sterile-filtered solution of 0.01 M potassium phosphate buffered saline, pH 7.0; contains ~20-40 moles lectin bound/mole ferritin; tested by electron microscopy for ability to label cells | See Sigma L 9640

**Sigma L 3143** *Triticum vulgaris* (wheat germ) Highly purified; essentially salt-free; lyophilized; sterilized by  $\gamma$ -irradiation; cell culture tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

**Sigma L 4895** *Triticum vulgaris* (wheat germ) Lyophilized containing ~50% protein (Lowry); balance phosphate buffer salts; contains ~2 moles FITC/mole protein | See Sigma L 9640

**Sigma L 5142** *Triticum vulgaris* (wheat germ) Lyophilized containing ~85% protein ( $E_{280}^{1\%}$ ); balance primarily sodium citrate; contains 2-4 moles biotin/mole protein | See Sigma L 9640

**Sigma L 5266** *Triticum vulgaris* (wheat germ) Lyophilized containing ~10% protein (Lowry); balance phosphate buffer salts & NaCl; contains ~1 mole TRITC/mole protein | See Sigma L 9640

**Sigma L 9640** *Triticum vulgaris* (wheat germ) Salt-free; lyophilized; highly purified; activity: <20  $\mu$ g/mL | Not blood group specific but has an affinity for N-acetyl- $\beta$ -D-glucosaminyl residues & N-acetyl- $\beta$ -D-glucosamine oligomers; contains no protein-bound carbohydrate; conjugates are prepared from purified lectin; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Nagata, Y & Burger, MM, *J Biol Chem*, 249: 3116, 1974

**ICN 152266** *Triticum vulgaris* (Wheat) Purified by affinity chromatography; lyophilized; essentially salt- & CHO-free; mitogenic properties | Specificity for N-acetyl- $\beta$ -D-glucosaminyl residues & N-acetyl- $\beta$ -D-glucamine oligomers; specifically agglutinates erythrocytes & lymphocytes

**Agglutinin, *Triticum vulgaris*, 10 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**Sigma L 1894** *Triticum vulgaris* (wheat germ) Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Horisberger, M, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 155, 1985 | See Sigma L 9640

**ICN 154123** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, 20 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 154124** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, 5 nm Colloidal Gold Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 154122** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, Agarose***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 191472** *Triticum vulgaris* (Wheat) Supplied in a pre-packed column; 5 atoms hydrophilic spacer arm; 5 mg lectin/mL gel; suspension in PBS, 0.02%  $\text{NaN}_3$  | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$ ; useful for glycoproteins, polysaccharides, major sialoglycoprotein (glycophorin A) from human erythrocyte membrane, subcellular particles, cells (esp. T-lymphocytes)

**Agglutinin, *Triticum vulgaris*, Biotin Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 153362** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, Evans Blue Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**Sigma L 9884** *Triticum vulgaris* (wheat germ) Lyophilized containing ~85% protein; balance citrate buffer salts; contains ~2 moles Evans Blue/mole protein | See Sigma L 9640

**Agglutinin, *Triticum vulgaris*, FITC Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 153363** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**ICN 153364** *Triticum vulgaris* (Wheat) Purified by affinity chromatography | Specificity for  $(\beta(1\rightarrow4)\text{-D-glucNAc})_2$

**Agglutinin, *Triticum vulgaris*, Immobilized***Synonyms:* Lectin; Agglutinin, Wheat Germ

**Sigma L 1882** *Triticum vulgaris* (wheat germ) Immobilized on 4% cross-linked beaded agarose; contains 5-10 mg lectin/mL packed gel; suspension in 1.0 M NaCl & 0.02% thimerosal; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 9640

**Agglutinin, *Triticum vulgaris*, Immobilized on Macrobeads***Synonyms:* Lectin; Agglutinin, Wheat Germ

**Sigma L 1394** *Triticum vulgaris* (wheat germ) Immobilized on 6% agarose macrobeads; particle size: 200-300  $\mu$ m; contains ~6 mg lectin/mL gel; suspension in 0.9% NaCl & 0.01% thimerosal; similar to Sigma L 6257 but produced by Sigma | See Sigma L 9640

**Agglutinin, *Triticum vulgaris*, Peroxidase Conjugated***Synonyms:* Lectin; Agglutinin, Wheat Germ

**Sigma L 3892** *Triticum vulgaris* (wheat germ) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily citrate buffer; peroxidase activity: 50-200 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified after conjugation by affinity chromatography | See Sigma L 9640

**Sigma L 7017** *Triticum vulgaris* (wheat germ) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily citrate buffer; peroxidase activity: 50-200 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low molecular weight conjugates; repurified after conjugation by affinity chromatography; packaged in microcone vials for ease of reconstitution & recovery of microliter volumes | Same as Sigma L 3892 but packaged in microcone vials; see Sigma L 9640

## Agglutinin, *Triticum vulgaris*, Peroxidase Inactivated Conjugated

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**Sigma L 0390** *Triticum vulgaris* (wheat germ) Lyophilized containing ~90% protein (Modified Warburg-Christian); balance primarily sodium citrate; peroxidase activity: <0.01 unit purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from inactivated peroxidase, Sigma P 6278, using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978 | Potentially useful as an alternate probe in dual neuronal transport studies when conjugated with an appropriate marker; see Sigma L 9640

## Agglutinin, *Triticum vulgaris*, Sepharose 6MB

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**Sigma L 6257** *Triticum vulgaris* (wheat germ) Immobilized on Sepharose 6MB; particle size: 200-300 µm; contains ~5 mg lectin/mL gel; suspension in 0.9% NaCl & 0.01% thimerosal; similar to Sigma L 1394 but not produced by Sigma | See Sigma L 9640

## Agglutinin, *Triticum vulgaris*, Succinyl

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**ICN 153354** Purified by affinity chromatography

## Agglutinin, *Triticum vulgaris*, Succinyl Biotin Conjugated

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**ICN 153355** Purified by affinity chromatography

## Agglutinin, *Triticum vulgaris*, Succinyl FITC Conjugated

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**ICN 153356** Purified by affinity chromatography

## Agglutinin, *Triticum vulgaris*, Succinyl Horse Radish Peroxidase Conjugated

**Synonyms:** Lectin; Agglutinin, Wheat Germ

**ICN 153357** Purified by affinity chromatography

## Agglutinin, *Ulex europaeus* I

**Synonyms:** Lectin

**Sigma L 5505** *Ulex europaeus* (Gorse or Furze) MW 68k Essentially salt-free; lyophilized; purified by affinity chromatography using the method of Pereira, MEA et al, *Arch Biochem Biophys*, 185: 108, 1978; activity: <8 µg/mL | Has anti-H blood group specificity; 2 types of lectin: UEA I has an affinity for L-fucose & UEA II has an affinity for N,N'-diacetylchitobiose; UEA I MW was initially found to be 170,000; later reports indicate that UEA I may form aggregates at neutral & basic pH & that the correct MW is 68,000; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group O erythrocytes after 1 hr at 25°C; Matsumoto, I & Osawa, T, *Biochim Biophys Acta*, 194: 180, 1969; Horejsi, V & Kocourek, J, *Biochim Biophys Acta*, 336: 329, 1974; Allen, HJ & Johnson, EAZ, *Carbo Res*, 58: 253, 1977

**ICN 152179** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography; 1-2 mg/mL solution | Specificity for L-fucose & H-antigen bearing RBC; useful for identification of A & B blood groups, & secretors; Boyd, WC & E Sharpleigh, *J Lab Clin Med*, 44:235, 1985; Pereira, MEA et al, *Arch Biochem Biophys*, 185:108, 1978; Boyd, WC & E Sharpleigh, *Blood*, 9:1195, 1954

## Agglutinin, *Ulex europaeus* I + II

**Synonyms:** Lectin

**Sigma L 6762** *Ulex europaeus* (Gorse or Furze) Salt-free; lyophilized; partially purified; activity: <500 µg/mL | See Sigma L 5505

## Agglutinin, *Ulex europaeus* I, 10 nm Colloidal Gold Conjugated

**Synonyms:** Lectin

**Sigma L 4893** *Ulex europaeus* (Gorse or Furze) MW 68k Mean particle size 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.2, 0.02% PEG 20 & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; Horisberger, M, *Techniques in Immunocytochemistry*, Bullock & Petrusz, eds, Academic Press, 3: 155, 1985 | See Sigma L 5505

**ICN 154126** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for α-L-fucose

## Agglutinin, *Ulex europaeus* I, 20 nm Colloidal Gold Conjugated

**Synonyms:** Lectin

**ICN 154127** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for α-L-fucose

## Agglutinin, *Ulex europaeus* I, 5 nm Colloidal Gold Conjugated

**Synonyms:** Lectin

**ICN 154125** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for α-L-fucose

## Agglutinin, *Ulex europaeus* I, Biotin Conjugated

**Synonyms:** Lectin

**Sigma L 8262** *Ulex europaeus* (Gorse or Furze) MW 68k Lyophilized containing ~85% protein (E<sub>1%<sup>280</sup></sub>); balance primarily sodium citrate; contains ~3 moles biotin/mole protein | See Sigma L 5505

**ICN 153365** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for α-L-fucose

## Agglutinin, *Ulex europaeus* I, Ferritin Conjugated

**Synonyms:** Lectin

**Sigma L 4764** *Ulex europaeus* (Gorse or Furze) MW 68k Sterile-filtered solution of 0.01 M potassium phosphate buffered saline, pH 7.0; contains 1-5 moles lectin/mole ferritin | Tested by electron microscopy for ability to label cells; see Sigma L 5505

**Agglutinin, *Ulex europaeus* I, FITC Conjugated***Synonyms:* Lectin

**Sigma L 9006** *Ulex europaeus* (Gorse or Furze) MW 68k  
Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains 2-5 moles FITC/mole protein | See Sigma L 5505

**ICN 153366** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**ICN 153368** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Ulex europaeus* I, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin

**ICN 153367** *Ulex europaeus* Purified by affinity chromatography | Specificity for  $\alpha$ -L-fucose

**Agglutinin, *Ulex europaeus* I, Immobilized***Synonyms:* Lectin

**Sigma L 2382** *Ulex europaeus* (Gorse or Furze) MW 68k  
Immobilized on 4% cross-linked beaded agarose; contains 2-4 mg lectin/mL packed gel; suspension in 1.0 M NaCl with 0.01% thimerosal; binding capacity: ~3 mg BSA-fucosylamide/mL gel | See Sigma L 5505

**Agglutinin, *Ulex europaeus* I, Peroxidase Conjugated***Synonyms:* Lectin

**Sigma L 8146** *Ulex europaeus* (Gorse or Furze) MW 68k  
Lyophilized containing ~80% protein (Lowry); balance primarily sodium citrate buffer salts; peroxidase activity: 15-60 units purpurogallin/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using the two step glutaraldehyde method of Avrameas, S & Ternyck, T, *Immunochemistry*, 8: 1175, 1971; repurified after conjugation by affinity chromatography | See Sigma L 5505

**Agglutinin, *Ulex europaeus* I, TRITC Conjugated***Synonyms:* Lectin

**Sigma L 4889** *Ulex europaeus* (Gorse or Furze) MW 68k  
Lyophilized containing ~10% protein (Lowry); balance potassium phosphate buffer salts & NaCl; contains 4-8 moles TRITC/mole lectin | See Sigma L 5505

**Agglutinin, *Ulex europaeus* II***Synonyms:* Lectin

**ICN 780211** *Ulex europaeus*

**Sigma L 6391** *Ulex europaeus* (Gorse or Furze) Lyophilized containing ~25% protein (Biuret); balance primarily phosphate buffer salts & NaCl; highly purified by affinity chromatography; activity: <50  $\mu$ g/mL; Horejsi, V, *Biochim Biophys Acta*, 577: 389, 1979 | See Sigma L 5505

**ICN 152180** *Ulex europaeus* (Gorse seeds) Purified by affinity chromatography | Specificity for *N,N'*-diacetylchitobiose; Matsumoto, I & T Osawa, *BBA*, 194:180, 1969

**Agglutinin, *Ulex europaeus* II, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin

**ICN 153369** *Ulex europaeus* Purified by affinity chromatography | Specificity for (D-glucNAc)<sub>2</sub>

**Agglutinin, *Vicia ervilla****Synonyms:* Lectin

**ICN 152261** *Vicia ervilla* seeds Purified by affinity chromatography; lyophilized; essentially free of salt & CHO

**Agglutinin, *Vicia faba****Synonyms:* Lectin

**ICN 152262** *Vicia faba* (Broad bean) Purified by affinity chromatography; lyophilized; essentially free of salt & CHO; mitogenic properties | Specificity for D-man, D-gluc; Matsumoto, I et al, *J Biochem*, 93:763, 1983;

**Sigma L 6263** *Vicia faba* (Fava bean, Broad bean)  
Lyophilized containing ~20% protein (Biuret); balance primarily NaCl, phosphate buffer salts & stabilizer; highly purified by affinity chromatography using the method of Matsumoto, I et al, *J Biochem*, 93: 763, 1983; activity: <20  $\mu$ g/mL | Not blood group specific; affinity for D-mannose & D-glucose; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Matsumoto, I et al, *J Biochem*, 93: 763, 1983

**Agglutinin, *Vicia faba*, Biotin Conjugated***Synonyms:* Lectin

**ICN 153371** *Vicia faba* (Broad bean) Purified by affinity chromatography | Specificity for D-man, D-gluc

**Agglutinin, *Vicia faba*, FITC Conjugated***Synonyms:* Lectin

**Sigma L 4265** *Vicia faba* (Fava bean, Broad bean)  
Lyophilized containing ~60% protein (Lowry); balance potassium phosphate buffer salts; contains ~4 moles FITC/mole protein | See Sigma L 6263

**Agglutinin, *Vicia faba*, Horse Radish Peroxidase Conjugated***Synonyms:* Lectin

**ICN 153372** *Vicia faba* (Broad bean) Purified by affinity chromatography | Specificity for D-man, D-gluc

**Agglutinin, *Vicia sativa****Synonyms:* Lectin

**Sigma L 2770** *Vicia sativa* Lyophilized containing ~35% protein (Biuret); balance primarily NaCl, sodium phosphate salts & 20% sucrose; highly purified by affinity chromatography using the method of Falasca, A et al, *Biochim Biophys Acta*, 577: 71, 1979; activity: <32  $\mu$ g/mL | Not blood group specific; affinity for D-mannose & D-glucose; mitogenic activity on human peripheral blood lymphocytes & mouse lymphocytes; agglutination activity expressed in  $\mu$ g/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human erythrocytes after 1 hr at 25°C; Gebaver, G et al, *Hoppe-Seyler's Z Physiol Chem*, 360: 1727, 1979; Falasca, A et al, *Biochim Biophys Acta*, 577: 71, 1979

**ICN 152263** *Vicia sativa* seeds Purified by affinity chromatography; lyophilized; essentially free of salt & CHO

**Agglutinin, *Vicia villosa****Synonyms:* Lectin

**ICN 153373** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

**Sigma L 4011** *Vicia villosa* (Hairy vetch) Lyophilized containing 95% protein (Biuret); balance primarily sodium citrate; affinity purified by a modification of the method of Grubhoffer, L et al, *Biochem J*, 195: 626, 1981; two major bands on SDS-PAGE; may contain at least two isolectins; activity <65 µg/mL using blood group A<sub>1</sub> erythrocytes; does not agglutinate blood group B or O erythrocytes at 250 µg/mL | Has an affinity for N-acetyl-D-galactosamine; there are at least 3 tetrameric VVA isolectins composed of subunits A & B, designated B<sub>4</sub>, A<sub>2</sub>B<sub>2</sub> & A<sub>4</sub>; isolectin B<sub>4</sub> is specific for Tn activated erythrocytes; A<sub>4</sub> has anti-A<sub>1</sub> blood group specificity & A<sub>2</sub>B<sub>2</sub> has a specificity intermediate between A<sub>4</sub> & B<sub>4</sub>; there is an additional non-blood group specific lectin in seed extracts; conjugates are prepared from affinity purified lectin; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of appropriate erythrocytes after 1 hr at 25°C; Tollefsen, CE & Kornfeld, R, *J Biol Chem*, 258: 5165, 1983; Lee, LT et al, *Blood*, 58: 1228, 1981

**Sigma L 7513** *Vicia villosa* (Hairy vetch) Highly purified; lyophilized containing ~95% protein (Biuret); balance primarily sodium phosphate buffer salts; affinity purified by a modification of the method of Tollefsen, CE & Kornfeld, R, *J Biol Chem*, 258: 5165, 1983; single major band on SDS electrophoresis; may contain at least two isolectins; activity <0.5 µg/mL using neuraminidase & β-galactosidase treated blood group O erythrocytes (Tn-activated); does not agglutinate untreated blood group A, B or O erythrocytes at 250 µg/mL | See Sigma L 4011

#### Agglutinin, *Vicia villosa*, 10 nm Colloidal Gold Conjugated

*Synonyms:* Lectin

**ICN 154129** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Vicia villosa*, 20 nm Colloidal Gold Conjugated

*Synonyms:* Lectin

**ICN 154130** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Vicia villosa*, 5 nm Colloidal Gold Conjugated

*Synonyms:* Lectin

**ICN 154128** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Vicia villosa*, Biotin Conjugated

*Synonyms:* Lectin

**ICN 153374** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

**Sigma L 6012** *Vicia villosa* (Hairy vetch) Lyophilized containing ~90% protein (Biuret); balance primarily sodium citrate; contains ~3 moles biotin/mole protein | See Sigma L 4011

**Sigma L 7638** *Vicia villosa* (Hairy vetch) Lyophilized containing ~90% protein (Biuret); balance primarily sodium citrate; contains 3-6 moles biotin/mole protein | See Sigma L 4011

#### Agglutinin, *Vicia villosa*, FITC Conjugated

*Synonyms:* Lectin

**ICN 153375** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

**Sigma L 5887** *Vicia villosa* (Hairy vetch) Lyophilized containing ~90% protein (Biuret); balance primarily sodium citrate; contains 3-6 moles FITC/mole protein | See Sigma L 4011

**Sigma L 7763** *Vicia villosa* (Hairy vetch) Lyophilized containing ~90% protein (BCA); balance primarily sodium citrate; contains 3-6 moles FITC/mole protein | See Sigma L 4011

#### Agglutinin, *Vicia villosa*, Horse Radish Peroxidase Conjugated

*Synonyms:* Lectin

**ICN 153376** *Vicia villosa* Purified by affinity chromatography | Specificity for D-galNAc

#### Agglutinin, *Vicia villosa*, Immobilized

*Synonyms:* Lectin

**Sigma L 7888** *Vicia villosa* (Hairy vetch) Immobilized on 4% beaded agarose; spacer: 28 atom; contains 3-6 mg protein (E<sup>1%</sup><sub>280</sub>)/mL; suspension in 0.01 M phosphate, 0.15 M NaCl containing 50% glycerol, 0.02% sodium azide & trace metals | See Sigma L 4011

**Sigma L 9388** *Vicia villosa* (Hairy vetch) Immobilized on 4% beaded agarose; spacer: 12 atom; contains 2-4 mg protein (Biuret)/mL packed gel; suspension in 0.01 M phosphate buffered saline containing 50% glycerol & 0.02% sodium azide; 1 mL suspension yields ~0.5 mL packed gel | See Sigma L 4011

#### Agglutinin, *Vicia villosa*, Peroxidase Conjugated

*Synonyms:* Lectin

**Sigma L 5641** *Vicia villosa* (Hairy vetch) Lyophilized containing ~95% protein (E<sup>1%</sup><sub>280</sub>); balance primarily sodium citrate buffer salts; peroxidase activity: ~50 units/mg protein; unit definition: 1 unit forms 1 mg purpurogallin in 20 sec from pyrogallol at pH 6.0 at 20°C; prepared from peroxidase type VI using a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978; repurified after conjugation by affinity chromatography | See Sigma L 4011

#### Agglutinin, *Viscum album*

*Synonyms:* Lectin

**ICN 152264** *Viscum album* (European mistletoe) Purified by affinity chromatography | Specificity for terminal β-D-gal residues; inhibits allergen induced histamine release *in vitro* from human leukocytes; inhibits protein synthesis similar to *Ricinus communis* agglutinin-II

**Sigma L 0261** *Viscum album* (European mistletoe) Lyophilized; salt-free; partially purified; activity: <50 µg/mL using papain treated human blood group O erythrocytes; extremely hazardous | See Sigma L 2511

**Sigma L 2511** *Viscum album* (European mistletoe) Lyophilized; salt-free; highly purified by affinity chromatography using a modification of the method of Ziska, P et al, *Experientia*, 34: 123, 1978; activity: <4 µg/mL using human blood group O erythrocytes; extremely hazardous | Not blood group specific; affinity for β-D-galactosyl residues; inhibits protein synthesis similarly to Ricin (RCA<sub>60</sub>) & inhibits allergen induced histamine release *in vitro* from human leukocytes; agglutination activity expressed in µg/mL & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of appropriate human erythrocytes after 1 hr at 25°C; Stirpe, F et al, *Biochem J*, 190: 843, 1980; Sehrt, I & Luther, P, *Lectins: Biology Biochemistry & Clinical Biochemistry*, 2: 45, 1981, ed Bog-Hansen, DeGruyter, Berlin

#### Agglutinin, *Viscum album*, Biotin Conjugated

*Synonyms:* Lectin

**ICN 153377** *Viscum album* (European mistletoe) Purified by affinity chromatography | Specificity for β-D-gal

#### Agglutinin, *Viscum album*, FITC Conjugated

*Synonyms:* Lectin

**ICN 153378** *Viscum album* (European mistletoe) Purified by affinity chromatography | Specificity for β-D-gal

**Agglutinin, *Wisteria floribunda***

Synonyms: Lectin

**Sigma L 2016** *Wisteria floribunda* (Japanese wisteria) Lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; activity: No agglutination of Type A RBC's at 250  $\mu\text{g/mL}$  | Native lectin which has been disulfide-reduced; free sulfhydryls (one per subunit) are blocked with *N*-ethylmaleimide to prevent reoxidation; MW & valency are reduced to ~1/2 of the native lectin; agglutination activity is greatly reduced but reactivity with *N*-acetyl-D-galactosamine is retained; conjugates are prepared from affinity purified lectin following reduction & blocking; see Sigma L 8258

**Sigma L 8258** *Wisteria floribunda* (Japanese wisteria) Lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; highly purified (affinity chromatography); activity: <16  $\mu\text{g/mL}$  | Not blood group specific but has an affinity for *N*-acetyl-D-galactosamine; agglutination activity expressed in  $\mu\text{g/mL}$  & is determined from serial dilutions of a 1 mg/mL solution using phosphate buffered saline, pH 6.8; activity is the lowest concentration to agglutinate a 2% suspension of human blood group A erythrocytes after 1 hr at 25°C; Kurokawa et al, *J Biol Chem*, 251: 5686, 1976

**Agglutinin, *Wisteria floribunda*, Biotin Conjugated**

Synonyms: Lectin

**Sigma L 1516** *Wisteria floribunda* (Japanese wisteria) Lyophilized containing ~95% protein (Biuret); balance primarily sodium citrate; protein is biotinylated utilizing aminocaproyl spacer; contains ~4 moles biotin/mole protein | See Sigma L 8258

**Sigma L 1766** *Wisteria floribunda* (Japanese wisteria) Lyophilized containing ~95% protein ( $E^{1\%}_{280}$ ); balance primarily sodium citrate; biotinylated via aminocaproyl spacer; contains ~4 moles biotin/mole dimer | See Sigma L 2016 & Sigma L 8258

**Agglutinin, *Wisteria floribunda*, FITC Conjugated**

Synonyms: Lectin

**Sigma L 1641** *Wisteria floribunda* (Japanese wisteria) Lyophilized containing ~95% protein (Biuret); balance primarily sodium citrate; contains ~3 moles FITC/mole protein | See Sigma L 8258

**Aggrecan**

**Sigma A 1960** Bovine articular cartilage MW  $>2.5 \times 10^6$  Lyophilized, essentially salt-free; sterile-filtered | Proteoglycan of high molecular weight containing a core protein of 210-250k substituted with 100-150k glycosaminoglycan chains; the majority of the chains are chondroitin/dermatan sulfate, the minority being keratan sulfate glycosaminoglycans; will form a macro-molecular complex in the presence of hyaluronic acid causing an increase of relative viscosity of ~30%; Roughley, PJ & Lee, ER, *Microsc Res Tech*, 28: 385, 1994; Ruoslahti, E, *J Biol Chem*, 264: 13369, 1989; Hardingham, TE & Muir, H, *Biochim Biophys Acta*, 279: 401, 1972

**Agrostin**

**Sigma A 7928** *Agrostemma githago* seeds Lyophilized powder containing ~30% protein (Lowry); balance primarily glucose & sodium phosphate buffer salts | A ribosome inactivating protein; Stirpe, F et al, *Biochem J*, 216: 617, 1983; Stirpe, F & Barbieri, L, *FEBS Lett*, 195: 1, 1986

**Akt1/PKB  $\alpha$ , Active**

**USBio A1125-06** Human recombinant, expressed in Sf9 cells MW ~60k  $\geq 95\%$ ; purified using Ni-NTA agarose, activated with PDK1 & repurified; frozen solution in 50  $\mu\text{L}$  of 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 150 mM imidazole, 0.1%  $\beta$ -MSH, 0.1 mM EGTA, 270 mM sucrose, 1 mM benzamidine, 0.2 mM PMSF, 0.03% Brij-35 | N-terminus His-tagged fusion protein corresponding to human Akt1; SA:: 154 nmol phosphate/min/mg enzyme transferred to Akt/SGK substrate peptide (RPRATF); active kinase detected by comparing incorporation of ( $^{32}\text{P}$ ) into Akt/SGK substrate peptide

**Akt1/PKB  $\alpha$ , Inactive**

**USBio A1125-08** Human recombinant, N-terminus His-tagged fusion protein expressed in Sf9 cells MW ~60k  $\geq 80\%$ ; purified using Ni-NTA agarose; liquid in 50 mM Tris, pH 7.5, 0.1% (v/v)  $\beta$ -MSH, 0.1 mM EGTA, 1 mM benzamidine, 0.2 mM PMSF, 1 mg/mL BSA, 50% glycerol | Corresponds to the human sequence

**Akt1/PKB  $\alpha$ -GST, Inactive Agarose**

**USBio A1125-07** Rat fusion protein, expressed in *E. coli* MW ~83k Purified using glutathione sepharose; 50  $\mu\text{g}$  of GST-Akt1/PKBa bound to 100  $\mu\text{L}$  packed gel beads (200  $\mu\text{L}$  suspension); suspension of 50% agarose gel slurry in 0.05 M PBS, pH 7.2, 50% glycerol | Full-length bovine cDNA was fused in frame with GST; recognized by anti-peptide Ab directed against the sequence corresponding to residues 466-480 of Rat Akt1; cellular homolog of the viral oncogene v-akt; phosphorylates & inactivates GSK-3; growth factor or insulin stimulation of mouse NIH 3T3 fibroblasts or Rat-1 cells activates Akt1; activation is concomitant with phosphorylation of Thr<sup>308</sup> & Ser<sup>473</sup>; it is prevented by inhibitors of phosphatidylinositol 3-kinase

**Albumin**

Synonyms: Bovine Serum Albumin; Ovalbumin; Human Serum Albumin; Rat Serum Albumin

**Amersham US10867** Bovine Protease free | Suitable as an ELISA blocking agent

**ICN 105033** Bovine Clinical reagent grade, RIA grade; 98-99%; fatty acid-free powder; low levels of metabolites & enzymes; <1 micro U/g insulin RIA, T3 & T4  $\leq$  detectable levels, pH 7.0  $\pm$  0.2, <2% sulfated ash, <5% moisture | Designed for the most sensitive research & diagnostic applications; especially suitable for RIA & enzyme kits as a protein base

**ICN 150269** Bovine 30% Serological solution isotonic with respect to human erythrocytes; stabilized with ~10-15 mg octanoic acid/g protein; 0.1% NaN<sub>3</sub> as a preservative

**ICN 150270** Bovine 30% Serological solution isotonic with respect to human erythrocytes; <1 mg FA/g protein; stabilizer free; 0.1% NaN<sub>3</sub> as a preservative

**ICN 194120** Bovine Nuclease free;  $\geq 90\%$ ; no detectable exonuclease, endonuclease, ribonuclease or protease; some degradation products may exist; 50 mg/ml in 50% aqueous glycerol, neutral pH

**ICN 194773** Bovine Cell culture reagent,  $\gamma$ -irradiated; crystalline, 98-99%; essentially globulin-free

**ICN 194774** Bovine Cell culture reagent; lyophilized; essentially globulin-free

**ICN 194775** Bovine Cell culture reagent; powder; <0.1 ng/mg endotoxin

**ICN 194776** Bovine Cell culture reagent; powder; <0.1 ng/mg endotoxin | Prepared using a salt fractionation procedure with ion exchange chromatography

**ICN 55918** Bovine Lyophilized, purified antigen

**ICN 810012/810013/810014/810015** Bovine Crystalline powder; the purest bovine albumin available

**ICN 810032 ICN 810033 ICN 810034 ICN 810035 ICN 810036** Bovine Lyophilized, low salt; RIA insulin grade (<10  $\mu\text{U}$  insulin/g powder;  $\geq 98\%$ )

**ICN 810061** Bovine 35% Solution; sterile

**ICN 810101** Bovine Path-o-Cyte® 4 solution | Used as a medium in density gradient centrifugation or as an addition to tissue culture growth medium; stable  $\geq 2$  yr @ 5°C

**ICN 810111** Bovine Path-o-Cyte® 5 solution | Used as a medium in density gradient centrifugation or as an addition to tissue culture growth medium; stable  $\geq 2$  yr @ 5°C

**ICN 810133** Bovine 30% Solution; cap free, sterile

**ICN 810706** Bovine 30% Solution; non-sterile

**ICN 810783 ICN 810784** Bovine 30% Polymer enhanced solution | Prepared from high quality Fraction V powder intended for *in vitro* diagnostic use in immunohematological procedures requiring high protein diluent; can be used for serological procedures; potentiates the expression of weak Ag-Ab reactions & avidity of RBC

## Proteins

<b>ICN 820471</b>	<b>ICN 820472</b>	Bovine	Fatty acid free; 0.2 mg endotoxin
<b>ICN 840052</b>	<b>ICN 840053</b>	<b>ICN 840054</b>	<b>ICN 840055</b> Bovine Microbiological grade
<b>Sigma 850-100</b>	Bovine	For use in the determination of fibrin/fibrinogen degradation products in serum in the <i>Staphylococcal</i> Clumping Test per Sigma Procedure No. 850 or other usage; crystallized; 100 mg/vial; initial fractionation by cold alcohol precipitation	
<b>Sigma A 0336</b>	Bovine	Globulin free; 30% solution; essentially IgG free; ≤25 ng IgG/mg protein (HPLC); aseptically filled; ~0.85% NaCl; no stabilizer added	
<b>Sigma A 1662</b>	Bovine	30% solution; aseptically filled; stabilized with 10-15 mg octanoic acid/g protein; contains ~0.85% NaCl & 0.1% sodium azide as preservative	
<b>Sigma A 2153</b>	Bovine	Fraction V powder; prepared by a modification of Cohn, using cold ethanol, pH, & low temperature precipitation, followed by additional pH adjustment step prior to final drying; pH of a 1% (w/v) aqueous solution is ~7; ≥96% (electrophoresis); initial fractionation by cold alcohol precipitation; remainder mostly globulins; Cohn, EJ et al, <i>J Am Chem Soc</i> , 68: 459, 1946	
<b>Sigma A 3174</b>	Bovine	30% solution; high avidity; aseptically filled; stabilized with 10-15 octanoic acid/gram protein; contains ~0.85% NaCl & 0.1% sodium azide as preservative; tested for avidity with known incomplete antibody (not saline agglutinable)	
<b>Sigma A 3299</b>	Bovine	30% solution; high avidity; aseptically filled; no stabilizer added; contains ~0.85% NaCl & 0.1% sodium azide as preservative; tested for avidity with known incomplete antibody (not saline agglutinable)	
<b>Sigma A 3424</b>	Bovine	30% solution; ultra-high avidity; aseptically filled; no stabilizer added; contains ~0.85% NaCl & 0.1% sodium azide as preservative; tested for avidity with known incomplete antibody (not saline agglutinable)	
<b>Sigma A 3675</b>	Bovine	Fraction V powder; ≥98% (electrophoresis); initial fractionation by salt fractionation; low endotoxin: ≤0.1 ng/mg of endotoxin detection	
<b>Sigma A 3902</b>	Bovine	Vitamin B <sub>12</sub> & B <sub>12</sub> binding factor deficient; initial fractionation by cold alcohol precipitation; 1 g contains < 2.0 ng vitamin B <sub>12</sub> & will bind < 2.0 ng of vitamin B <sub>12</sub>   For use in vitamin B <sub>12</sub> assays	
<b>Sigma A 4378</b>	Bovine	1x crystallized; ≥97% albumin (agarose electrophoresis); initial fractionation by cold alcohol precipitation; prepared using method IV of Cohn   Cohn, EJ et al, <i>J Am Chem Soc</i> , 69: 1753, 1947	
<b>Sigma A 4628</b>	Bovine	5% solution; aseptically filled; contains ~0.70% NaCl; no stabilizer or preservative added	
<b>Sigma A 6003</b>	Bovine	≥96% albumin (agarose electrophoresis); essentially fatty acid free (~0.005%); initial fractionation by cold alcohol precipitation; prepared from Fraction V albumin (A 4503)   Chen, RF, <i>J Biol Chem</i> , 242: 173, 1967	
<b>Sigma A 7034</b>	Bovine	22% solution; aseptically filled; contains ~0.85% NaCl; 0.1% sodium azide as preservative	
<b>Sigma A 7159</b>	Bovine	25% solution in Tyrode's Buffer; aseptically filled; no preservative added	
<b>Sigma A 7284</b>	Bovine	30% solution; aseptically filled; contains ~0.85% NaCl; no stabilizer added; 0.1% sodium azide as preservative	
<b>Sigma A 7409</b>	Bovine	35% solution; aseptically filled; contains ~0.85% NaCl; no preservative added	
<b>Sigma A 7511</b>	Bovine	Crystallized; ≥97% albumin (agarose electrophoresis); essentially fatty acid free (~0.005%); initial fractionation by cold alcohol precipitation; prepared from albumin (A 4378)   Chen, RF, <i>J Biol Chem</i> , 242: 173, 1967	
<b>Sigma A 7534</b>	Bovine	35% solution; aseptically filled; contains ~0.85% NaCl; 0.1% sodium azide as preservative	
<b>Sigma A 7638</b>	Bovine	Lyophilized powder ≥99% (agarose electrophoresis); essentially globulin free; initial fractionation by cold alcohol precipitation; prepared from bovine albumin Fraction V (A 4503)	
<b>Sigma A 8327</b>	Bovine	30% solution; aseptically filled; contains ~0.85% NaCl; no stabilizer or preservative added	

<b>Sigma A 8577</b>	Bovine	30% solution; protease: <0.0001 unit/mg protein; alkaline phosphatase: <0.001 unit/mg protein; peroxidase: <0.001 unit/mg protein; aseptically filled; contains ~0.85% NaCl; no stabilizer or preservative added	
<b>Sigma A 9085</b>	Bovine	Lyophilized powder ≥98% (agarose electrophoresis); essentially IgG free; <25 ng IgG/mg protein (HPLC)	
<b>Sigma A 9205</b>	Bovine	30% solution; ≥96% albumin (agarose electrophoresis); essentially fatty acid free (~0.005%); initial fractionation by cold alcohol precipitation; aseptically filled; contains ~0.85% NaCl; no preservative added	
<b>Sigma A 0281</b>	Bovine albumin	Prepared from bovine albumin (A 7638); lyophilized powder ≥99% (electrophoresis); essentially fatty acid free & globulin free; initial fractionation by cold alcohol precipitation; Chen, RF, <i>J Biol Chem</i> , 242: 173, 1967	
<b>Biogenesis 0220-1404</b>	Bovine blood	MW 68k	Purified; from 0.05 M NH <sub>4</sub> HCO <sub>3</sub> ; lyophilized
<b>ICN 103700</b>	Bovine plasma	Crystalline, 98-99%; pH 5.2 ± 0.2 (1% solution), <0.5% sulfated ash, <0.1% carbohydrate, <5.2% ± 0.2% moisture   Prepared fresh by the Cohn cold ethanol fractionation method, followed by crystallization at low temperature from an alcohol-containing solution; not heated at any stage in the process; can be utilized as a nutrient for tissue culture, preparation of protein standards & as an antigen in immunological studies in sensitive research applications	
<b>ICN 194771</b>	Bovine plasma	Cell culture reagent, 96-99%; see ICN 103700, <5.2% moisture   See ICN 103700	
<b>Fitzgerald 30-AB73</b>	Bovine serum	Reagent grade; high purity; pH 7.0	
<b>Fitzgerald 30-AB74</b>	Bovine serum	Protease free; high purity; pH 7.0	
<b>Fitzgerald 30-AB79</b>	Bovine serum	High purity; fatty acid free; pH 7.0	
<b>Fluka 05468</b>	Bovine serum	MW ~67k	Fatty acid free; ≥97% (gel electrophoresis); ≥95% protein; ≤5% water; ≤3% (GE) globulin; ~0.005% fatty acids   From crystallized & lyophilized albumin isolated by Cohn method IV; initial fractionation by cold alcohol precipitation; stimulated the release of lysophosphatidylcholine from cultured rat hepatocytes; Cohn, EJ et al, <i>J Am Chem Soc</i> , 68: 1753, 1947; Baisted, DJ et al, <i>Biochem J</i> , 253: 693, 1988
<b>Fluka 05470</b>	Bovine serum	MW ~67k	≥98% (gel electrophoresis); ≥95% protein; ≤5% water; ≤0.5% residue on ignition, Na; ≤0.1% SO <sub>4</sub> ; ≤0.2% Cl; ≤0.01% Ca; ≤0.005% K; ≤0.001% Cu, Fe, Mg; ≤0.0005% Cd, Co, Cr, Mn, Ni, Pb, Zn   Peter, T Jr, <i>Adv Protein Chem</i> , 37: 161, 1985
<b>Fluka 05471</b>	Bovine serum	MW ~67k	≥97% (gel electrophoresis); ≥95% protein; ≤5% water; ≤2% α-globulin; ≤1% β-globulin   Prepared by Cohn method IV; initial fractionation by cold alcohol precipitation; S Anders Sevall, J, <i>Biochemistry</i> , 27: 5038, 1988; Cohn, EJ et al, <i>J Am Chem Soc</i> , 69: 1753, 1947
<b>Fluka 05478</b>	Bovine serum	MW ~67k	For vitamin B <sub>12</sub> assay; ≥97% (gel electrophoresis); ≥90% protein; ≤8% water; vitamin B <sub>12</sub> capacity ≤2 ng/g BSA
<b>Fluka 05489</b>	Bovine serum	MW ~67k	≥98% (gel electrophoresis); ~50 mg BSA/mL water
<b>Fluka 05490</b>	Bovine serum	MW ~67k	Low fatty acid; ~98% (gel electrophoresis); ≤1% residue on ignition; ≤3% water; ≤1% fatty acid
<b>Fluka 05491</b>	Bovine serum	MW ~67k	Molecular biology grade; ≥99% protein; acetylated; ≤5% water; no detectable DNases, RNases, proteases, phosphatases   Prepared from BSA by acetylation in order to inactivate nucleases; Ternynck, T et al, <i>Meth Enzymol</i> , 150: 117, 1987
<b>Fluka 05496</b>	Bovine serum	MW ~67k	Molecular biology grade; solution in 50 mM Tris HCl, 0.1 M NaCl, 0.25 mM EDTA-disodium salt, 1 mM mercaptoethanol, 50% glycerol; ~20 mg/mL; no detectable DNases, RNases, proteases, phosphatases   Acetylation of BSA to inactivate the nucleases; suitable for the stabilization of restriction enzymes

**Sigma A 2065** Bovine serum MW 66k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

**Biogenesis 0220-1604** Canine serum Purified; no preservatives; lyophilized

**Sigma A 3686** Chicken Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis)

**Biogenesis 0220-1724** Chicken egg white MW 44,287 Tested negative for *Salmonella*, *Staphylococcus*, *Coliform*, *Listeria* and *E. coli*; purified; no preservatives; lyophilized

**Fluka 05438** Chicken egg white MW ~45k ≥98% (gel electrophoresis); ≥99% protein; 6 mol mannose/mol ovalbumin carbohydrate content | Prepared from crystallized, lyophilized & desalted ovalbumin

**ICN 191224** Chicken egg white Lyophilized, ≥90% | Ovalbumin

**ICN 55925** Dog Purified Ag, lyophilized

**Sigma A 3184** Dog Essentially fatty acid free (~0.005%); prepared from Fraction V albumin (A 9263) | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 3185** Goat Essentially fatty acid free (~0.005%); prepared from Fraction V albumin (A 2514) | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 4164** Goat Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from goat albumin (A 2514)

**Sigma A 3060** Guinea pig Essentially fatty acid free (~0.005%); prepared from Fraction V albumin (A 2639) | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 6539** Guinea pig Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from guinea pig albumin (A 2639)

**Biogenesis 0220-1804** Guinea pig serum 15.7% nitrogen; purified; no preservatives; lyophilized

**ICN 55934** Hamster Purified Ag, lyophilized

**Sigma A 3434** Horse Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from horse albumin (A 9888)

**Sigma A 9888** Horse Fraction V powder

**Cortex CP0925U** Human >98%; liquid; 25%

**Cortex CS1052** Human >98%; powder

**ICN 103712** Human 30% Solution, aseptically filled; 0.85% NaCl, 0.1% NaN<sub>3</sub>

**ICN 55912** Human Purified Ag, lyophilized

**ICN 823011 ICN 823012** Human Crystalline, lyophilized

**ICN 823030 ICN 823031 ICN 823032 ICN 823033 ICN 823034 ICN 823036** Human 1X Crystalline, lyophilized; 97-99%; low B<sub>12</sub> & folate | Prepared using Cohn method IV; source material is tested for HbsAg, anti-HCV, anti-HIV-1, anti-HIV-2 & syphilis

**ICN 823471 ICN 823474** Human Low endotoxin | Highly suitable for serum-free culture methods

**Sigma A 1887** Human Source material has tested negative for HIV & HBsAg; ≥96% albumin; essentially fatty acid free (~0.005%); Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 3173** Human Low endotoxin (≤0.1 ng/mg solid) | Source material has tested negative for HIV & HBsAg

**Sigma A 3782** Human Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); essentially fatty acid free (~0.005%); prepared from essentially globulin free human albumin (A 8763) | Source material has tested negative for HIV & HBsAg

**Sigma A 4327** Human ≥96%; protease: <0.0001 units/mg protein; alkaline phosphatase: <0.001 units/mg protein; peroxidase: <0.001 units/mg protein; prepared from Fraction V powder (A 1653) | Source material has tested negative for HIV & HBsAg

**Sigma A 6784** Human 10% Solution; aseptically filled; contains ~0.85% NaCl & 0.05% sodium azide | Source material has tested negative for HIV & HBsAg

**Sigma A 6909** Human 30% Solution; aseptically filled; contains ~0.85% NaCl; 0.1% sodium azide as preservative | Source material has tested negative for HIV & HBsAg

**Sigma A 8763** Human Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from human albumin (A 1653) | Source material has tested negative for HIV & HBsAg

**Sigma A 9080** Human 30% Solution; from human plasma; aseptically filled; contains ~0.85% NaCl | Source material has tested negative for HIV & HBsAg

**Sigma A 9511** Human 1x crystallized & lyophilized; 97-99%; prepared from human albumin (A 1653) per Cohn | Source material has tested negative for HIV & HBsAg Cohn, EJ et al, *J Am Chem Soc*, 69: 1753, 1947

**Biogenesis 0220-0806** Human serum MW 65k pI: 4.7; affinity purified; from 0.02 M sodium phosphate, 0.14 M NaCl, pH 7.6; lyophilized

**Biogenesis 0220-0809** Human serum MW 28k Tested negative for HCV, HIV-1 and HIV-2 antibodies and HBsAg; affinity purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Fluka 05418** Human serum MW ~68k Fatty acid free, globulin free; ≥99% (gel electrophoresis); ≤10% water; ≤0.6% α-globulin; ≤0.4% β-globulin; ≤0.01% fatty acid | Prepared from crystallized & lyophilized Cohn fraction V; Lightner, DA et al, *JBC*, 263: 16669, 1988

**Fluka 05420** Human serum MW ~68k ≥98% (gel electrophoresis); ≤10% water; ≤1 residue on ignition | Peters, T Jr, *Adv Protein Chem*, 37: 161, 1985

**Scipac P199-1** Human serum/plasma >96%; lyophilized; suitable for bulk requirements | Serum protein

**ICN 55941** Mouse Purified Ag, lyophilized

**Sigma A 3559** Mouse Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from mouse albumin (A 3139)

**Sigma A 1056** Mouse Fraction V albumin Essentially fatty acid free (~0.005%); Chen, RF, *J Biol Chem*, 242: 173, 1967 | Prepared from Fraction V albumin (A 3139)

**Biogenesis 0220-1904** Mouse serum MW 67k Purified; essentially salt free; lyophilized

**ICN 823514** Mouse serum Lyophilized

**Sigma A 4414** Pig Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from pig albumin (A 2764)

**Sigma A 9422** Pig Essentially fatty acid free (~0.005%); prepared from Fraction V albumin (A 2764) | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 1173** Pig albumin Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); essentially fatty acid free (~0.005%); | Prepared from essentially globulin free albumin (A 4414)

**Sigma A 1830** Porcine serum ≥98% (agarose electrophoresis); initial fractionation by heat shock

**ICN 55948** Rabbit Purified Ag, lyophilized

**ICN 824514** Rabbit Crystalline | Used in RIA & EIA systems requiring a homologous protein diluent

**Sigma A 9438** Rabbit Essentially fatty acid free (~0.005%); prepared from Fraction V | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Sigma A 0764** Rabbit albumin Globulin free; lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis) | Prepared from rabbit albumin (Sigma A 0639)

**Biogenesis 0220-2004** Rabbit serum MW 66k >98% albumin; purified; no preservatives; lyophilized | Used as a protein standard or stabilizer for dilute protein samples

**Fluka 05456** Rabbit serum MW ~68k Globulin free; ≥98% (gel electrophoresis); ≥95% protein; ≤5% water

**ICN 55952** Rat Purified Ag, lyophilized

**Sigma A 4538** Rat Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); prepared from rat albumin (A 6272)

**Sigma A 6414** Rat Lyophilized powder; essentially globulin free; ~99% (agarose electrophoresis); essentially fatty acid free (~0.005%); prepared from essentially globulin free albumin (A 4538)

## Proteins

**Sigma A 2018** Rat Fraction V Prepared from Fraction V (A 6272); essentially fatty acid free (~0.005%); Chen, RF, *J Biol Chem*, 242: 173, 1967

**Biogenesis 0220-2439** Rat serum Purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Fluka 05464** Rat serum MW ~67k ≥98% (gel electrophoresis); ≥98% protein; ≤10% water

**Fluka 05466** Rat serum MW ~67k Fatty acid free; ≥98% (gel electrophoresis); ≤10% water; ≤0.01% fatty acid

**ICN 825014** Rat serum Lyophilized

**Scipac P166-1** Serum/plasma >96%; lyophilized; suitable for research and the most demanding applications | Serum protein

**Sigma A 6289** Sheep Essentially fatty acid free (~0.005%); prepared from Fraction V (A 3264) | Chen, RF, *J Biol Chem*, 242: 173, 1967

**Scipac P140-0** Urine of patients with chronic renal tubular proteinuria >99%; lyophilized; sterile filtered through 0.2µm membrane; available on request | Urine protein

**Scipac P140-1** Urine of patients with chronic renal tubular proteinuria >98%; lyophilized | Urine protein

### Albumin, (<sup>125</sup>I)-

**Synonyms:** Bovine Serum Albumin

**ICN 68031** Bovine Serum ~1mCi/mg, ~37 MBq/mg; 0.1 M KPO<sub>4</sub> buffer, pH 7.5

**ICN 68113** Human serum ~1 µCi/µg, ~37 kBq/µg; 0.1 M KPO<sub>4</sub>, pH 7.5

**ICN 68120** Rabbit serum ~1 µCi/µg; 0.1 M KPO<sub>4</sub> buffer, pH 7.5

### Albumin, (<sup>14</sup>C-Me)-

**Synonyms:** Bovine Serum Albumin; Ovalbumin

**ARC ARC-422** Bovine serum MW 69k 3-30 µCi/mmol; 111-1111 KBq/mg; in 0.01 M sodium phosphate, pH 7.2, buffer | Radiochemical

**Sigma A 7417** Bovine serum MW ~66k (monomer), ~132k (dimer) 5-50 Ci/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in Combi-vial | Radiochemical Prepared from Sigma A 7517

**Sigma A 6418** Chicken egg white MW ~45k 5-50 Ci/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in Combi-vial | Radiochemical prepared from Sigma A 7642

### Albumin, 10 nm Colloidal Gold Conjugated

**Sigma A 4292** Bovine Mean particle diameter 8-12 nm; monodisperse; bovine-biotinamidocaproyl (A 6043) adsorbed to colloidal gold; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; | Useful in the detection of biotinylated compounds using streptavidin as bridging protein Bonnard, °C et al, *Immunolabeling for Electron Microscopy*, Polak & Varndell, eds, Elsevier Science Publishers, p 95, 1984

**Sigma A 5179** Bovine Mean particle size 8-12 nm; monodisperse; albumin bovine (A 0281) adsorbed to colloidal gold; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M Tris, 0.02% PEG 20, & 0.02% sodium azide, pH 7.6; concentration: A<sub>520</sub> ~5.0; | Suitable for use as a control

### Albumin, 20 nm Colloidal Gold Conjugated

**Sigma A 4417** Bovine Mean particle diameter 17-23 nm; monodisperse; bovine-biotinamidocaproyl (A 6043) adsorbed to colloidal gold; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; | Useful in the detection of biotinylated compounds using streptavidin as bridging protein Bonnard, °C et al, *Immunolabeling for Electron Microscopy*, Polak & Varndell, eds, Elsevier Science Publishers, p 95, 1984

### Albumin, 2X Crystallized

**Synonyms:** Ovalbumin

**Fluka 05450** Chicken egg white MW ~45k Lyophilized powder; salt-free; ≥80% (gel electrophoresis); ≤3% loss on drying; ≤1% residue on ignition

### Albumin, 5 nm Colloidal Gold Conjugated

**Sigma A 5547** Bovine Mean particle diameter 3.5-6.5 nm; monodisperse; bovine-biotinamidocaproyl (A 6043) adsorbed to colloidal gold; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, & 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0; | Useful in the detection of biotinylated compounds using streptavidin as bridging protein Bonnard, °C et al, *Immunolabeling for Electron Microscopy*, Polak & Varndell, eds, Elsevier Science Publishers, p 95, 1984

### Albumin, 5X Crystallized

**Synonyms:** Ovalbumin

**Fluka 05440** Chicken egg white MW ~45k Lyophilized powder; ≥95% (gel electrophoresis); ≤6% loss on drying; ≤1% residue on ignition | Marshall, RD & Neuberger, A, *Glycoproteins*, BBA Library, vol 5: (A Gottschalk, ed), 2<sup>nd</sup>, 732, 1972, Elsevier. Amsterdam

### Albumin, Ac-

**Synonyms:** Bovine Serum Albumin

**Amersham US10848** Bovine Nuclease free | Tested as an enzyme stabilizer in PCR

**Promega R3961** Bovine serum Acetylated by the method of Gonzalez to ensure the inactivation of any contaminating nuclease activities & is dialyzed extensively with DI water to remove impurities | Used as an enzyme stabilizer or as a carrier protein; Gonzalez, N et al, *Arch Biochem Biophys*, 182: 404, 1977

### Albumin, Azo-

**Synonyms:** Sulfanilic Acid-Azoalbumin; Bovine Serum Albumin

**ICN 100308** Bovine Prepared from bovine albumin Fraction V; a soluble chromogenic substrate for proteolytic enzymes

**Sigma A 2382** Bovine albumin Fraction V Prepared from bovine albumin Fraction V (A 4503); soluble chromogenic substrate for proteolytic enzymes; Tomarelli, RM et al, *J Lab Clin Med*, 34: 428, 1949

### Albumin, Biotin Conjugated

**Sigma A 8549** Bovine Lyophilized powder containing ~90% protein (Biuret); balance sodium citrate buffer salts; 8-12 moles biotin/mole albumin

### Albumin, Biotinamido-Caproyl Conjugated

**Sigma A 6043** Bovine Lyophilized powder containing ~90% labeled protein (Biuret); balance sodium citrate buffer salts; 8-12 moles biotin/mole albumin; prepared from albumin (A7638) | Costello, SM et al, *Clin Chem*, 25: 1572, 1979

### Albumin, Carboxymethyl-

**Sigma A 6285** Bovine Lyophilized powder; essentially salt-free; <0.02 mole sulfhydryl/mole albumin & ≤1.5 moles S-carboxymethyl-cysteine/mole albumin

**Sigma A 9437** Bovine Dialyzed & lyophilized powder; prepared from Fraction V (A 0281) reduced & carboxymethylated; contains ≥30 moles S-carboxymethylcysteine/mole albumin

### Albumin, Cohn Fraction V

**Synonyms:** Bovine Serum Albumin

**ICN 100117** Bovine 35% Solution; aseptically filled & sterilized



**ICN 103703** Bovine Powder; 95-98% | Manufactured under non-denaturing conditions to yield a product with native fatty acid profile—exogenous short chain fatty acid stabilizers are never added; suitable as a nutrient in growth media, for increasing viscosity &/or protein in certain antibiotic assay media, as a binding inhibitor in growth media & *in vitro* biochemical or structural studies, & in the formulation of veterinary vaccines

**ICN 840532 ICN 840533 ICN 840534 ICN 840535** Bovine Powder; pH 5.2

**ICN 841032 ICN 841033 ICN 841034 ICN 841035** Bovine Powder; pH 7.0

**Fitzgerald 30-AB75** Bovine serum High purity; pH 7.0

**Fitzgerald 30-AB76** Bovine serum High purity; pH 5.2

### Albumin, Con-

*Synonyms:* Ovotransferrin; Ovalbumin

**Sigma C 0755** Chicken egg white Substantially Iron free

**Sigma C 0880** Chicken egg white Iron complex

**Sigma C 7786** Chicken egg white Substantially Iron free; cell culture tested

### Albumin, Cross-Linked Molecular Weight Standards for SDS-PAGE

**Sigma A 9392** Bovine MW 66k (monomer), 132k (dimer), 198k (trimer), 264k (tetramer) Lyophilized; ~7 mg/vial | See Sigma MW-SDS-280

### Albumin, Crude Powder

*Synonyms:* Egg Albumin; Ovalbumin

**Fluka 05461** Chicken egg white MW ~45k ≤8% loss on drying; ≤4% residue on ignition; ≤2% Na; ≤0.1% Ca, Mg; ≤0.005% K; ≤0.001% Fe; ≤0.0005% Cd, Co, Cr, Cu, Mn, Ni, Pb, Zn

### Albumin, Cysteiny

**Sigma A 0161** Bovine Lyophilized powder; essentially salt-free; <0.02 mole sulfhydryl/mole albumin; Isles, TE & Jocelyn, PC, *Biochem J*, 88: 84, 1963

### Albumin, Dimer

**Sigma A 9039** Bovine Lyophilized powder; ~90% (electrophoresis); "Native" dimer chromatographically purified from A 4503

### Albumin, Dinitrophenyl

**Sigma A 6661** Human Lyophilized powder; contains 30-40 moles DNP/mole albumin | Source material has tested negative for HIV & HbsAgDNP-albumin; Little, SR & Eisen, HN, *Methods in Immunol & Immunochem*, Vol 1: 128, 1967

### Albumin, FITC Conjugated

*Synonyms:* Bovine Serum Albumin

**Sigma A 9771** Bovine Prepared from crystallized & lyophilized bovine albumin (A 4378)

**Fluka 05493** Bovine serum MW ~67k ≥97% (gel electrophoresis); ≥98% protein; ≤10% water; ~10 moles/mole BSA FITC content | Prepared from crystallized & lyophilized BSA obtained by Cohn method IV; Lemke, H et al, *J Immuno Meth*, 121: 175, 1989; Cortese, JD et al, *J Cell Biol*, 113: 1331, 1991

**Fluka 05494** Canine serum MW ~67k ≥95% (gel electrophoresis); ~95% protein; ≤5% water; FITC content: ~10 moles/mole BSA

**Sigma A 4407** Dog ~10 moles FITC/mole albumin; prepared from dog albumin (A 9263)

**ICN 55883** Human Purified Ag, lyophilized

**Sigma A 7016** Human ~10 moles FITC/mole albumin; prepared from essentially globulin free albumin | Source material has tested negative for HIV & HbsAgFITC-albumin

**Sigma A 2889** Rat ~10 moles FITC/mole albumin; prepared from essentially globulin free rat albumin | FITC-albumin

### Albumin, Fraction II

*Synonyms:* Ovalbumin

**Sigma A 5253** Chicken egg Crude; dried egg white | Ovalbumin

### Albumin, Fraction III

*Synonyms:* Ovalbumin

**Sigma A 5378** Chicken egg ≥90% (agarose electrophoresis); crystallized & lyophilized

### Albumin, Fraction V

*Synonyms:* Bovine Serum Albumin; Human Serum Albumin; Ovalbumin

**Amersham US70195** Bovine ≥98%, pH (1%) 7.0; ≥96% protein

**Amersham US70244** Bovine RIA grade; ≥98%, pH (1%) 7.0

**ICN 100152** Bovine Fatty acid poor (<0.2 mg/g protein); 98-99%

**ICN 100153** Bovine Microbiological grade | Intended for use in growth of *Leptospire*s & other fastidious organisms; tested for ability to support rapid initiation of growth & high cell yield of *Leptospire*s

**ICN 152401** Bovine Fatty acid free (<0.005%); 98-99%

**ICN 160069** Bovine 98-99%; 1-2 mg Fatty acids/g protein, pH 7.02 (1%, isotonic), <2% sulfated ash, <6% moisture, <20ppm heavy metals | More highly purified than Cohn Fraction V powder

**ICN 160069/100153/152401** Bovine Powder; pH ~7.0

**ICN 194772** Bovine Cell culture reagent; fatty acid free (<0.05 mg/g protein); low endotoxin

**ICN 810531 ICN 810532 ICN 810533 ICN 810534 ICN 810535** Bovine Powder; pH ~5.2

**ICN 820012 ICN 820013 ICN 820015 ICN 820016** Bovine Fatty acid poor

**ICN 820022 ICN 820024 ICN 820025 ICN 820026** Bovine Lyophilized; fatty acid free

**ICN 820451 ICN 820452** Bovine Protease, HRP & alkaline phosphatase free

**Sigma A 1933** Bovine Prepared by salt fractionation, ion exchange & gel filtration chromatography; powder; low endotoxin (endotoxin <0.1 ng/mg); cell culture tested

**Sigma A 2058** Bovine Prepared by salt fractionation, ion exchange & gel filtration chromatography; powder; low endotoxin (endotoxin <0.1 ng/mg); IgG free (IgG <0.05% by agarose gel electrophoresis); cell culture tested

**Sigma A 2934** Bovine Powder; ~99%; low endotoxin: ≤1 ng/mg; essentially γ-globulin free; prepared from pasteurized serum; purified by heat treatment & organic solvent precipitation

**Sigma A 3059** Bovine Powder; ~99%; protease free; essentially γ-globulin free; prepared from pasteurized serum; purified by heat treatment & organic solvent precipitation

**Sigma A 3156** Bovine Crystalline; lyophilized; essentially globulin free; sterilized by γ-irradiation; cell culture tested

**Sigma A 3294** Bovine Powder; ≥98% (electrophoresis); protease ≤0.005% units/mg solid; initial fractionation by heat shock; remainder mostly globulins

**Sigma A 3912** Bovine Powder; ≥96% (electrophoresis); remainder mostly globulins; prepared with charcoal treatment & extensive dialysis to reduce low molecular weight substances; pH of a 1% (w/v) aqueous solution is ~5.2

**Sigma A 4161** Bovine Lyophilized; essentially globulin free; cell culture tested

**Sigma A 4503** Bovine Powder; ≥96% (electrophoresis); initial fractionation by cold alcohol precipitation; remainder mostly globulins; prepared by a modification of Cohn, using cold ethanol, pH, & low temperature precipitation; pH of a 1% (w/v) aqueous solution is ~5.2 | Cohn, EJ et al, *J Am Chem Soc*, 68: 459, 1946

**Sigma A 4919** Bovine Powder; low endotoxin (endotoxin <0.1 ng/mg); cell culture tested

## Proteins

**Sigma A 6793** Bovine Powder; ≥98% (electrophoresis); remainder mostly globulins; prepared by multi-temperature ethanol fractionation with extensive charcoal treatment, deionization & dialysis; pH of a 1% (w/v) aqueous solution is ~7

**Sigma A 6918** Bovine Powder; ≥98% (electrophoresis); remainder mostly globulins; prepared by multi-temperature ethanol fractionation with extensive charcoal treatment, deionization & dialysis; pH of a 1% (w/v) aqueous solution is ~5.2

**Sigma A 7030** Bovine Powder; ≥98% (electrophoresis); prepared from pasteurized bovine serum & further processed to be essentially fatty acid free (<0.02%); essentially γ-globulin free; pH of a 1% solution in 0.15 M NaCl is ~7 | Processed to reduce interference of T<sub>3</sub>, T<sub>4</sub> & insulin in RIA assays; suitable as diluent in ELISA applications

**Sigma A 7888** Bovine RIA grade; powder; ≥96% (electrophoresis); initial fractionation by cold alcohol precipitation; pH of a 1% aqueous solution is ~5.2 | Suitable for insulin RIA procedures; may yield an insulin blank of up to 0.1 μunit/mg in certain procedures

**Sigma A 7906** Bovine Powder; ≥98% (electrophoresis); remainder mostly globulins; prepared with charcoal treatment & extensive dialysis to reduce low molecular weight substances; pH of a 1% solution in 0.15 M NaCl is ~7

**Sigma A 8022** Bovine Powder; ≥96% (electrophoresis); remainder mostly globulins; prepared from pasteurized bovine serum; purified by heat treatment & organic solvent precipitation; pH of a 1% (w/v) aqueous solution is ~5.4

**Sigma A 8412** Bovine 7.5% Solution; prepared in DPBS; sterile-filtered; endotoxin tested; cell culture tested

**Sigma A 8806** Bovine Fatty acid free (FFA <0.005%); low endotoxin (endotoxin <0.1 ng/mg); cell culture tested

**Sigma A 8918** Bovine 35% Solution; prepared in DPBS; sterile-filtered; endotoxin tested; cell culture tested

**Sigma A 9306** Bovine Powder; ≥97%; essentially γ-globulin free; initial fractionation by salt fractionation; low endotoxin: ≤0.1 ng/mg of endotoxin detection; from bovine plasma produced in New Zealand

**Sigma A 9418** Bovine 96-99%; remainder mostly globulins; cell culture tested

**Sigma A 9430** Bovine Powder; ≥98% (electrophoresis); initial fractionation by heat shock; low endotoxin: ≤1 ng endotoxin/mg

**Sigma A 9543** Bovine Powder; ≥98% (electrophoresis); low endotoxin: ≤0.1 ng/mg; purified by heat treatment & organic solvent precipitation

**Sigma A 9576** Bovine 30% Solution; prepared in DPBS; sterile-filtered; endotoxin tested; cell culture tested

**Sigma A 9647** Bovine Powder; ≥96% (electrophoresis); remainder mostly globulins; purified by heat treatment & organic solvent precipitation; pH of a 1% (w/v) aqueous solution is ~7

**Fluka 05473** Bovine serum MW ~67k ≥96% (gel electrophoresis); ≥95% protein; ≤3% water | Prepared by multi-temperature ethanol fractionation with extensive charcoal treatment, deionization & dialysis

**Fluka 05475** Bovine serum MW ~67k RIA grade; ≥96% (gel electrophoresis); ≥90% protein; ≤3 water | Cohn, EJ et al, *J Am Chem Soc*, 68: 459, 1946

**Fluka 05476** Bovine serum MW ~67k ≥96% (gel electrophoresis); ≥95% protein; ≤5% water | Prepared by a modified Cohn procedure using cold ethanol, pH & low temperature precipitation followed by pH adjustment prior to final drying

**Fluka 05480** Bovine serum MW ~67k Lyophilized; ≥97% (gel electrophoresis); ≤3% water; ≤1% residue on ignition

**Fluka 05481** Bovine serum MW ~67k ≥96% (gel electrophoresis); ≤3% water | Prepared from pasteurized bovine serum; initial fractionation by heat shock; purified by heat treatment & organic solvent precipitation

**Fluka 05482** Bovine serum MW ~67k ≥96% (gel electrophoresis); ≥95% protein; ≤5% water | Prepared by a modified Cohn procedure using cold ethanol, pH & low temperature precipitation; Lepri, L et al, *Chromatographis*, 36: 297, 1993; Cohn, EJ et al, *J Am Chem Soc*, 68: 459, 1946

**Fluka 05484** Bovine serum MW ~67k ≥96% (gel electrophoresis); ≤3% water | Prepared by a modified Cohn procedure using cold ethanol, pH & low temperature precipitation followed by pH adjustment prior to final drying; Sozaki, N, *JBC*, 263: 5037, 1988; Cohn, EJ et al, *J Am Chem Soc*, 68: 459, 1946

**Fluka 05492** Bovine serum MW ~67k Low endotoxin; ≥75% (gel electrophoresis); ≥95% protein; ≤5% water; ≤1 U/mg endotoxin

**ICN 151429** Bovine serum Protease free; >97% by electrophoresis

**Fluka 05445** Canine serum ≥95% (gel electrophoresis); ≥95% protein; ≤5% water | Merck, 12: 8613

**Sigma A 4662** Cat Powder

**Sigma A 3014** Chicken Powder

**Sigma A 5503** Chicken egg ≥98% (agarose electrophoresis); crystallized & lyophilized; essentially salt-free

**Sigma A 9263** Dog Powder

**Sigma A 5287** Donkey Powder

**Sigma A 2514** Goat Powder

**Fluka 05483** Guinea pig serum MW ~62k ≥96% (gel electrophoresis); ≤5% water | Merck, 12: 8613

**Sigma A 5409** Hamster Powder

**Amersham US10878** Human 96-99%

**ICN 810171** Human 10% Solution; pH 7.1 ± 0.3, 0.05% NaN<sub>3</sub>

**ICN 823022** Human Lyophilized | Prepared by a modification of the Cohn procedure

**ICN 823051** Human 30% Solution; pH 7.1 ± 0.3, 0.1% NaN<sub>3</sub>

**ICN 823234** Human Lyophilized; FA free | Prepared by a modification of the Chen low pH charcoal method; ~0.2 mg/g FA

**Sigma A 1653** Human 96-99% albumin; powder; remainder mostly globulins; Cohn, EJ, *J Am Chem Soc*, 68: 459, 1946 | Source material has tested negative for HIV & HbsAg

**Sigma A 2817** Human Powder; 96-99% albumin; similar to A 1653, but specifically for bulk usage | Source material has tested negative for HIV & HbsAg

**ICN 191349** Human plasma Non-denatured; lyophilized, salt-free, homogeneous; >97% monomer purity; <3% α- or β-globulins (electrophoresis) | Prepared under proprietary non-denaturing conditions; negative for HbsAg & HIV Ab

**ICN 823001 ICN 823002** Human plasma Protease, HRP & AP free | Used to eliminate background interference in ELISA or other enzyme assay systems; prepared from plasma so there is no discernable proteolytic, peroxidase or alkaline phosphatase activity by common assay methods

**Fluka 05430** Human serum MW ~68k ≥85% (gel electrophoresis); ≤8% water; ≤3% residue on ignition | Domenici, E et al, *Chromatographia*, 29: 170, 1990; noctor, TAG & Wainer, IW, *Liq Chromat*, 16: 783, 1993

**ICN 55858** Mouse Purified, lyophilized

**Sigma A 3139** Mouse Powder

**Fluka 05487** Ovine serum ≥95% (gel electrophoresis); ≥95% protein; ≤5% water

**Sigma A 2764** Pig Powder; 96-99%; initial fractionation by cold alcohol precipitation

**ICN 55864** Rabbit Purified, lyophilized

**Sigma A 0639** Rabbit Powder

**Fluka 05455** Rabbit serum MW ~68k ≥95% (gel electrophoresis); ≥90% protein; ≤10% water

**ICN 824522** Rabbit serum Used in RIA & EIA systems requiring a homologous protein diluent

**ICN 55869** Rat Purified, lyophilized

**Sigma A 6272** Rat Powder

**Fluka 05465** Rat serum MW ~67k ≥95% (gel electrophoresis); ≥90% protein; ≤10% water; ≤3% α-globulin; ≤2% β-globulin | Schnitzer, JE et al, *PNAS*, 85: 6773, 1988

**Sigma A 4297** Rhesus monkey Powder

**Sigma A 3264** Sheep Powder

**Sigma A 4650** Turkey Powder

**Sigma A 7269** Turkey egg Crystallized & lyophilized; essentially salt-free; ~1% extraneous protein detected by electrophoresis on cellulose acetate in barbital buffer, pH 8.6, ionic strength 0.075; contains 8-12 moles mannose/mole albumin

#### Albumin, Fraction V Heat Shock Fraction

*Synonyms:* Bovine Serum Albumin

**Fluka 05479** Bovine serum MW ~67k Protease free; ≥96% (gel electrophoresis); ≤5% water; ≤0.001% alkaline phosphatase, peroxidase; ≤0.00001% protease | Initial preparation by heat shock

**Fluka 05488** Bovine serum MW ~67k ≥98% (gel electrophoresis); ≥95% protein; ≤3% water | Initial fractionation by heat shock; charcoal treatment & extensive dialysis to reduce low MW substances & a pH-adjustment prior to final drying; Pauly, DF & McMillin, JB, *JBC*, 263: 18160, 1988

#### Albumin, Fraction VI

*Synonyms:* Ovalbumin

**Sigma A 2512** Chicken egg ~99% (agarose electrophoresis); crystallized & lyophilized; essentially salt-free; a further purification of Sigma A 5503 to reduce mannose content; each mole of ovalbumin protein contains 5-6 moles of mannose as part of its native structure per Huang, CC et al, *Carbohydr Res*, 13: 127, 1970

**Sigma A 5015** Turkey egg Crystallized & lyophilized; essentially salt-free; ~1% extraneous protein detected by electrophoresis on cellulose acetate in barbital buffer, pH 8.6, ionic strength 0.075; contains 4-6 moles mannose/mole albumin | Ovalbumin

#### Albumin, Fraction VII

*Synonyms:* Ovalbumin

**Sigma A 7641** Chicken egg Crystallized & lyophilized; essentially salt-free; essentially free of S-Ovalbumin

#### Albumin, Fucosylamide

*Synonyms:* Albumin-1-Amido-2-Deoxy-L-Fucose

**Sigma A 6033** Bovine Lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; 15-25 moles monosaccharide/mole albumin; prepared from bovine albumin (A 7638) blocked by reductive amination with glyceraldehyde, coupled to fucosylamine by amidation

#### Albumin, Fucosylamide Biotin Conjugated

**Sigma A 4042** Bovine Biotin-labeled; lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; 3-6 moles biotin & 15-25 moles fucosylamide/mole BSA; prepared from bovine albumin (A 7638) by biotinylating using aminocaproyl spacer, blocking by reductive amination with glyceraldehyde, & coupling to fucosylamine by amidation

#### Albumin, Fucosylated 10 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154035** Bovine serum

#### Albumin, Fucosylated 20 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154036** Bovine serum

#### Albumin, Fucosylated 5 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154034** Bovine serum

#### Albumin, Galactosamide

*Synonyms:* Albumin-2-Amido-2-Deoxy-D-Galactose

**Sigma A 5908** Bovine Lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; contains 15-25 moles monosaccharide/mole albumin; prepared from bovine albumin (A 7638) blocked by reductive amination with glyceraldehyde, coupled to galactosamine by amidation

#### Albumin, Galactosylated 10 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154038** Bovine serum

#### Albumin, Galactosylated 20 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154039** Bovine serum

#### Albumin, Galactosylated 5 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154037** Bovine serum

#### Albumin, Galactosylated-β-o- 10 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154041** Bovine serum

#### Albumin, Galactosylated-β-o- 20 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154042** Bovine serum

#### Albumin, Galactosylated-β-o- 5 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154040** Bovine serum

#### Albumin, Glucosamide

*Synonyms:* Albumin-2-Amido-2-Deoxy-D-Glucose

**Sigma A 6158** Bovine Lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; contains 10-20 moles monosaccharide/mole albumin; prepared from bovine albumin (A 7638) blocked by reductive amination with glyceraldehyde, coupled to glucosamine by amidation

#### Albumin, Glucosylated 10 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154044** Bovine serum

#### Albumin, Glucosylated 15 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154043** Bovine serum

#### Albumin, Glucosylated 20 nm Colloidal Gold Conjugated

*Synonyms:* Bovine Serum Albumin

**ICN 154045** Bovine serum

## Proteins

### Albumin, Glucosylated- $\beta$ -o- 10 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154047** Bovine serum

### Albumin, Glycated

**Synonyms:** Human Serum Albumin

**Sigma A 8426** Bovine Lyophilized powder containing ~95% protein (Biuret); balance primarily citrate buffer salts; 1-2 moles hexose (as fructosamine)/mole albumin; glycated *in vitro* | Armbruster, DA, *Clin Chem*, 33: 2513, 1987; Furth, AJ, *Anal Biochem*, 175: 347, 1988

**Sigma A 8301** Human Lyophilized powder containing ~95% protein (Biuret); balance primarily citrate buffer salts; glycated *in vitro*; 1-5 moles hexose (as fructosamine)/mole albumin | Source material has tested negative for HIV & HbsAg; Armbruster, DA, *Clin Chem*, 33: 2513, 1987; Furth, AJ *Anal Biochem*, 175: 347, 1988

**Fitzgerald 30-AA72** Human plasma Immunogen grade

**USBio A1327-53** Human serum  $\geq 97\%$  (SDS-PAGE); free of nonglycated albumin; 1 mg/mL; lyophilized; 1 glyco group/mole albumin | Suitable for antigenic applications in immunological protocols

### Albumin, Glycosylated

**Synonyms:** Human Serum Albumin

**Biogenesis 0220-3056** Human serum Purified; no preservatives; lyophilized | Free of un-reacted albumin; elevated levels is a marker for diabetes; Garlick & Mazer, *JBC*, 258:6142, 1983; Dolhofer & Wieland, , *FEBS Letts*, 103:282, 1983; Williams et al, *PNAS*, 78:2393, 1981

### Albumin, Heat Shock Fraction

**Synonyms:** Bovine Serum Albumin

**ICN 810661 ICN 810662 ICN 810663 ICN 810667** Bovine Reagent grade; pH ~7.0

**ICN 810682 ICN 810683 ICN 810684 ICN 810685** Bovine Heat-shocked fractionate; low endotoxin

**Sigma A 3803** Bovine  $\geq 98\%$  (electrophoresis); initial fractionation by heat shock; processed to reduce fatty acid content to ~0.005%; pH of a 1% (w/v) aqueous solution is ~7 | Suitable as diluent in ELISA applications

**Fluka 05477** Bovine serum MW ~67k Enzyme immunoassay grade;  $\geq 98\%$  (gel electrophoresis);  $\geq 95\%$  protein;  $\leq 5\%$  water;  $\leq 0.02\%$  fatty acid | Initial fractionation by heat shock; further purified to reduce fatty acids & interfering impurities for immunoassays

### Albumin, Lactosyl

**Sigma A 5783** Bovine Lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; 10-20 moles disaccharide/mole albumin; prepared from bovine albumin (A 7638) &  $\alpha$ -lactose coupled via reductive amination | Schwartz, BA & Gray, GR, *Arch Biochem Biophys*, 181: 542, 1977 Albumin-N-1-(deoxylactitol)

### Albumin, Lewis x-Conjugated

**Synonyms:** Bovine Serum Albumin

**Calbiochem 434632** Bovine Serum MW 66k (BSA), 529.5 (Lewis x) Lyophilized solid averaging 10-12 carbohydrate moieties/molecule of protein | Neoglycoprotein containing 14-atom spacer; Lewis x is a human cancer marker & embryonic antigen

### Albumin, Low Folate Vitamin B<sub>12</sub>

**Scipac P198-1** Serum/plasma  $> 99\%$ ; lyophilized; suitable for research and the most demanding applications | Serum protein

### Albumin, Maltosyl

**Synonyms:** Albumin-N-1-(Deoxymaltitol)

**Sigma A 5283** Bovine Lyophilized powder containing ~85% glycoprotein (Biuret); balance primarily citrate buffer salts; 10-20 moles disaccharide/mole albumin; prepared from bovine albumin (A 7638) & maltose coupled via reductive amination | Schwartz, BA & Gray, GR, *Arch Biochem Biophys*, 181: 542, 1977

### Albumin, Mannosylated 10 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154072** Bovine serum

### Albumin, Mannosylated 20 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154073** Bovine serum

### Albumin, Mannosylated 5 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154071** Bovine serum

### Albumin, Mannosylated- $\alpha$ -o- 10 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154075** Bovine serum

### Albumin, Mannosylated- $\alpha$ -o- 20 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154076** Bovine serum

### Albumin, Mannosylated- $\alpha$ -o- 5 nm Colloidal Gold Conjugated

**Synonyms:** Bovine Serum Albumin

**ICN 154074** Bovine serum

### Albumin, Methylated

**Synonyms:** Bovine Serum Albumin

**Sigma A 1009** Bovine Used with diatomaceous earth for the separation & identification of natural & derived nucleic acids using column chromatography; M Andell, JD & Hershey, AD, *Anal Biochem*, 1: 66, 1960

**Fluka 05485** Bovine serum  $\geq 96\%$  (gel electrophoresis);  $\geq 90\%$  protein;  $\leq 10\%$  water | Prepared from Fluka 05482 by esterification with methanol; M Andell, JD & Hershey, AD, *Anal Biochem*, 1: 66, 1960

### Albumin, Modified Cohn Fraction V Heat Shock Fraction

**ICN 840042 ICN 840043 ICN 840044 ICN 840045** Bovine Powder; 96-99%

### Albumin, Monomer

**Synonyms:** Bovine Serum Albumin

**Sigma A 1900** Bovine albumin Purified from bovine albumin (A 4503) as described for mercaptalbumin per Janatova, J et al, *J Biol Chem*, 243: 3612, 1968; lyophilized powder containing ~98% monomer

**Albumin, Monomer Standard**

**ICN 810282** Bovine Meets specifications of the National Committee for Clinical Laboratory Standards, ASC-1 | Treated to remove high MW contaminants; recommended for use as a standard for Biuret, Folin-Lowry, gel permeation chromatography, amino acid analysis, PAGE & other test systems

**ICN 810291** Bovine Meets specifications of the National Committee for Clinical Laboratory Standards, ASC-1; 7% sterile solution without preservatives, >98% monomer (HPLC); 2 mL/ampoule | Treated to remove high MW contaminants; recommended for use as a standard for Biuret, Folin-Lowry, gel permeation chromatography, amino acid analysis, PAGE & other test systems

**ICN 810301** Bovine 7% sterile solution without preservatives, >98% monomer (HPLC) | Treated to remove high MW contaminants; recommended for use as a reference standard

**Albumin, N-Acetylglucosaminylated 10 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153990** Bovine Serum

**Albumin, N-Acetylglucosaminylated 20 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153991** Bovine Serum

**Albumin, N-Acetylglucosaminylated- 5 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153989** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 10 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153993** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 20 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153994** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 5 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153992** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 10 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153996** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 20 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153997** Bovine Serum

**Albumin, N-Acetylglucosaminylated- $\beta$ -o- 5 nm Colloidal Gold Conjugated**

*Synonyms:* Bovine Serum Albumin

**ICN 153995** Bovine Serum

**Albumin, N-Ac- $\beta$ -D-Glucosamide Resorufin Labeled**

**Sigma A 6052** Bovine Resorufin labeled; lyophilized powder; essentially salt-free; contains ~30 moles N-acetylglucosamine/mole BSA | Gabius, H-J et al, *Anal Biochem*, 165: 349, 1987

**Albumin, Naphthol Blue Black**

*Synonyms:* Black Albumin

**Sigma A 1777** Bovine BSA impregnated with naphthol blue-black dye; Amido Black 10B stained BSA; useful as a sedimentation marker for density gradient centrifugation; Kouvonen, I et al, *Anal Biochem*, 89: 306, 1978

**Albumin, Partially Denatured**

*Synonyms:* Human Serum Albumin

**Biogenesis 0220-0804** Human serum Tested negative for HIV and HBsAg; <20 ppm heavy metals; affinity purified; from 0.02 M sodium phosphate, 0.14 M NaCl, pH 7.6; lyophilized

**Albumin, Pre-**

*Synonyms:* Transthyretin

**Cortex CP1074** >95%

**USBio P6000-10** Human  $\geq$ 98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized in 50 mM Na<sub>3</sub>PO<sub>4</sub>, pH 7.5, 150 mM NaCl | Suitable for antigenic applications in immunological protocols

**Biodesign A50185H** Human plasma Purified

**Fitzgerald 30-AP36** Human plasma High purity

**Sigma P 7528** Human plasma Lyophilized powder; salt-free; ~95% by non-reducing polyacrylamide electrophoresis; E<sub>280</sub> at 1% = 14.0 | Thyroxine binding prealbumin; Raz, A et al, *J Biol Chem*, 244: 12, 1969

**Biogenesis 7600-0604** Human serum Lyophilized

**Scipac P171-0** Serum/plasma >99%; lyophilized; from Scipac P171-1; recommended for use as an immunogen | Nutritional protein

**Scipac P171-1** Serum/plasma >96%; lyophilized | Nutritional protein

**Scipac P171-2** Serum/plasma 40-90%; lyophilized | Nutritional protein

**Albumin, Rhodamine Conjugated**

**ICN 55897** Bovine Lyophilized, purified antigen

**Albumin, RITC Conjugated**

**ICN 655011** Bovine Liquid

**Albumin, Sialyl Lewis x Conjugated**

*Synonyms:* Bovine Serum Albumin

**Calbiochem 565951** MW 66k (BSA), 820.8 (Sialyl Lewis x) Lyophilized solid averaging 10-12 carbohydrate moieties/molecule of protein | Neoglycoprotein containing 3-atom spacer; for the study of inflammation & cell adhesion processes involving sialyl Lewis x & related analogs

**Calbiochem 565952** MW 66k (BSA), 820.8 (Sialyl Lewis x) Lyophilized solid averaging 10-12 carbohydrate moieties/molecule of protein | Neoglycoprotein containing 14-atom spacer; for the study of inflammation & cell adhesion processes involving sialyl Lewis x & related analogs

**Albumin, Standard**

*Synonyms:* Bovine Serum Albumin

**Fitzgerald 30-AB70** Bovine serum High purity; pH 7.0

**Fitzgerald 30-AB71** Bovine serum High purity; pH 5.2

**Sigma A 1533** Human 5 mL each of the following concentrations: 2, 4, 6, 8 & 10 g/dL albumin; albumin in 0.85% NaCl; 0.05% sodium azide added as preservative | Available as a set only & cannot be ordered separately

**Albumin, Sulforhodamine 101 Acid Chloride**

*Synonyms:* Texas Red-Albumin

**Sigma A 2164** Bovine albumin Prepared from crystallized & lyophilized bovine albumin (A 4378); lyophilized powder; salt-free; contains ~2-3 moles sulforhodamine 101 acid chloride/mole protein

**Albumin, TRITC Conjugated**

*Synonyms:* Bovine Serum Albumin

**Sigma A 2289** Bovine albumin Prepared from crystallized & lyophilized bovine albumin (A 4378); lyophilized powder; salt-free; contains 1 mole TRITC/mole protein

**Albumin,  $\alpha$ -D-Galactopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 2420** Bovine Lyophilized powder; salt-free; contains 15-20 moles  $\alpha$ -D-galactopyranose & 1-3 moles fluorescein/mole albumin; Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Galactopyranosylphenyl Isothiocyanate TRITC Conjugated**

**Sigma A 6544** Bovine Lyophilized powder; essentially salt-free; contains 15-25 moles  $\alpha$ -D-galactopyranose & ~1 mole TRITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Glucopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 5543** Bovine Lyophilized powder; essentially salt-free; contains 15-20 moles  $\alpha$ -D-glucopyranose & 2-3 moles FITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Mannopyranosylphenyl Isothiocyanate**

**Sigma A 8303** Bovine Lyophilized powder; salt-free; contains 15-25 moles  $\alpha$ -D-mannopyranose/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Mannopyranosylphenyl Isothiocyanate Biotin Conjugated**

**Sigma A 7924** Bovine Lyophilized powder; salt-free; contains 15-20 moles  $\alpha$ -D-mannopyranose & ~3 moles biotin/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Mannopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 7790** Bovine Lyophilized powder; salt-free; contains 15-20 moles  $\alpha$ -D-mannopyranose & 1.5-3.0 moles fluorescein/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -D-Mannopyranosylphenyl Isothiocyanate TRITC Conjugated**

**Sigma A 7915** Bovine Lyophilized powder containing ~95% glycoprotein (Lowry); balance primarily sodium carbonate buffer salts; 15-20 moles  $\alpha$ -D-mannopyranose & ~1 mole TRITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -L-Fucopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 5793** Bovine Lyophilized powder; essentially salt-free; contains 15-20 moles  $\alpha$ -L-fucopyranose & ~2-3 moles FITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\alpha$ -L-Fucopyranosylphenyl Isothiocyanate TRITC Conjugated**

**Sigma A 5918** Bovine Lyophilized powder containing ~95% glycoprotein (Lowry); balance primarily sodium carbonate buffer salts; contains 15-25 moles  $\alpha$ -L-fucopyranose & ~1 mole TRITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -D-Galactopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 8165** Bovine Lyophilized powder; essentially salt-free; contains 15-20 moles  $\beta$ -D-galactopyranose & 2-3 moles FITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -D-Galactopyranosylphenyl Resorufin Conjugated**

**Sigma A 6177** Bovine Resorufin labeled; lyophilized powder; essentially salt-free; contains ~30 moles  $\alpha$ -galactose/mole BSA | Gabius, H-J et al, *Anal Chem*, 165: 349, 1987

**Albumin,  $\beta$ -D-Glucopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 7172** Bovine Lyophilized powder; essentially salt-free; contains 15-20 moles  $\beta$ -D-glucopyranose & 2-3 moles FITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -D-Xylopyranosylphenyl Isothiocyanate FITC Conjugated**

**Sigma A 3955** Bovine Lyophilized powder containing ~95% glycoprotein (Lowry); balance primarily sodium carbonate buffer salts; 15-20 moles  $\beta$ -D-xylopyranose & 2-3 moles fluorescein/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -Lactosylphenyl Isothiocyanate Biotin Conjugated**

**Sigma A 7799** Bovine Lyophilized powder containing ~15-20 moles disaccharide & 2-3 moles biotin/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -Lactosylphenyl Isothiocyanate FITEC Conjugated**

**Sigma A 8040** Bovine Lyophilized powder; salt-free; contains 15-20 moles  $\beta$ -lactopyranose & 1.5-2 moles fluorescein/mole albumin | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin,  $\beta$ -Lactosylphenyl Isothiocyanate TRITC Conjugated**

**Sigma A 7665** Bovine Lyophilized powder; essentially salt-free; contains 15-25 moles  $\beta$ -D-lactopyranose & ~1 mole TRITC/mole protein | Monsigny, M et al, *Biol Cell*, 51: 187, 1984

**Albumin-*p*-Aminophenyl-*N*-Ac- $\beta$ -D-Galactosaminide**

*Synonyms:* Bovine Serum Albumin

**Sigma A 1159** Bovine albumin Lyophilized powder containing ~90% glycoprotein (Biuret); balance primarily Tris-citrate buffer salts; 15-25 moles monosaccharide/mole albumin | Prepared from bovine albumin (A7638) blocked by reductive amination with glyceraldehyde, coupled to *p*-aminophenyl-*N*-acetyl- $\beta$ -D-galactosaminide by amidation

**Albumin-*p*-Aminophenyl-*N*-Ac- $\beta$ -D-Glucosaminide**

*Synonyms:* Bovine Serum Albumin

**Sigma A 1034** Bovine albumin Lyophilized powder containing ~90% glycoprotein (Biuret); balance primarily Tris-citrate buffer salts; 15-25 moles monosaccharide/mole albumin | Prepared from bovine albumin (A7638) blocked by reductive amination with glyceraldehyde, coupled to *p*-aminophenyl-*N*-acetyl- $\beta$ -D-glucosaminide by amidation

**Albumin-*p*-Aminophenyl- $\alpha$ -D-Mannopyranoside**

**Sigma A 4664** Bovine Lyophilized powder containing ~90% glycoprotein (Biuret); balance primarily citrate buffer salts; 20-30 moles monosaccharide/mole albumin; prepared from bovine albumin (A7638) blocked by reductive amination with glyceraldehyde, coupled to *p*-aminophenyl- $\alpha$ -D-mannopyranoside by amidation

### Alcohol Dehydrogenase

**Sigma A 2190** Horse liver MW 39.8k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

### Alcohol Dehydrogenase, Carbonic Anhydrase, Catalase, Lysozyme, Phosphorylase B, Trypsin Inhibitor

**Sigma SDS-6B** Contains six biotinylated proteins (~0.1 mg total): lysozyme, phosphorylase b, catalase, carbonic anhydrase, alcohol dehydrogenase & trypsin inhibitor; ~33% Protein, 33% NaCl & 33% sucrose | Molecular weight standard mixture; sDS molecular weight standard mixture

### Allophycocyanin

**ICN 150274** Algae Purified; 100 mM NaPO<sub>4</sub>, 60% (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 0.02% NaN<sub>3</sub> | Bousiba, S & A Richmond, *Arch Microbiol*, 120:155-159, 1979

### Amino Acid Oxidase, Apo-D-

**Biogenesis 0380-0206** Porcine kidney MW 38-39k (monomer) Purified; lyophilized | Tu et al, *Arch Biochem Biophys*, 159:889 1973; Parkin & Hultin, *Biotech & Bioeng XXI*, 939, 1979

### Amino Acid Oxidase, D-

**Biogenesis 0380-0104** Porcine kidney MW 38-39k Purified; 3.2M ammonium sulphate, pH 7.0; suspension | *Arch Biochem Biophys*, 159:889, 1973

### Amphiregulin

**Oncogene PF047** Human recombinant MW 11k >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 5-15 ng/mL as determined by the ability to stimulate the proliferation of Balb/3T3 cells | Species reactivity: human; for proliferation studies; 98 amino acid protein

**ICN 195724** Human recombinant, expressed in *E. coli* Lyophilized; ≥97% | BSA used as a carrier protein

### Amphiregulin Epidermal Growth Factor

**Synonyms:** Keratinocyte Autocrine Factor

**Sigma A 7080** Human recombinant, expressed in *E. coli* MW 18k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from PBS containing 500 μg BSA; proliferative activity is tested in culture by using a mouse fibroblast cell line BALB/3T3; endotoxin tested; see Sigma E 1264 | Glycosylated polypeptide originally isolated from the media of phorbol ester treated MCF-7 human breast carcinoma cells; stimulates the growth of normal epithelial cells, fibroblasts & keratinocytes though inhibits the growth of several aggressive tumor cell lines such as HTB-10 neuroblastoma cells, A431 epidermoid & HTB-132 breast carcinoma cells; Marquardt, H et al, *Science*, 223: 1079, 1984

### Amyloglucosidase

**Sigma A 2910** *Aspergillus niger* pI 3.6; vial contains ~2 mg | IEF Marker

### Amyloid A

**Biogenesis 0490-1802** Mouse acute phase serum MW 12k Contaminants: mainly Apolipoprotein A1; semi-pure; PBS buffer, pH 7.3, 0.1% NaN<sub>3</sub>; liquid

### Amyloid A, Apo-Serum

**Synonyms:** Serum Amyloid A, Apo-

**Biogenesis 0490-1739** Human r-DNA *E. coli* MW 11.7k Purified; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid

**PeproTech 300-13** Human recombinant, expressed in *E. coli* MW 11.7k >98%; 104 aa; lyophilized from 3 mM Tris pH 7.6; exerts its biological activity in the concentration range of 10.0-50.0 μg/mL

### Amyloid P

**Alexis 200-007** Human plasma MW ~25-28k >95% (SDS-PAGE & cellulose acetate electrophoresis); 500 μg protein (Lowry & Pierce); liquid in PBS containing 10 mM sodium azide; purified by affinity chromatography & ion exchange chromatography | From citrated human plasma converted to serum by kaolin

### Amyloid P, Serum

**Biogenesis 0490-2752** Human serum MW 25-28k (monomeric) Tested negative for HIV and HBsAg antibodies; purified from PBS, with 10 mM NaN<sub>3</sub>; lyophilized | Pepys et al, *Ann NY Acad Sci*, 389:286, 1982

### Angiogenin

**Synonyms:** Growth Factor

**Oncogene PF075** Human recombinant MW 14k (non-glycosylated form) >97% (SDS-PAGE); lyophilized; biological activity: 1 μg of recombinant human angiogenin produces an absorbance change at 260 nm of ~2.0-3.0 based on a ribonucleolytic assay using yeast tRNA | Species reactivity: yeast, human

**ICN 195723** Human recombinant, expressed in *E. coli* Lyophilized, ≥97%; activity based on ribonucleolytic activity vs. yeast tRNA | ANG

**Sigma A 6955** Human recombinant, expressed in *E. coli* MW 14.4k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate saline containing 2.5 mg BSA; endotoxin tested; cell culture tested | A single chain polypeptide with an isoelectric point of pI>9.5. Angiogenesis is the formation of blood vessels or capillaries from existing blood vessels that occurs in response to specific signal; angiogenin stimulates capillary & umbilical vein endothelial cells to produce diacylglycerol; member of the ribonuclease superfamily; ribonucleolytic activity of angiogenin toward most RNase A substrates is lower than that of RNase A; however, the ribonucleolytic activity of angiogenin is essential to its angiogenic activity since inhibition of the angiogenin RNase activity inhibits the angiogenic activity; also important in tumor growth, where the capillary network formed by the tumor increases the blood-born nutrients to the tumor that allow it to grow. Fatt, J et al, *Biochemistry*, 24: 5480, 1985; Folkman, J et al; in: *International Review of Experimental Pathology*, Richter, G (ed), Academic Press, New York, p. 207, 1976

### Angiostatin

**Synonyms:** Plasminogen, Human; Human plasminogen

**Biodesign A86885H** >98%

**Oncogene 176700** MW 50k Lyophilized from 20 mM NaCl; ≥98% (SDS-PAGE); no plasmin, plasminogen detected; soluble in water; prepared from fluid shown by certified tests to be negative for HBsAg & HIV & HCV antibodies | Proteolytic fragment of plasminogen; a specific inhibitor of endothelial cell proliferation & one of the most potent & specific natural inhibitors of angiogenesis & metastatic tumor growth; significantly inhibits bFGF-induced endothelial cell proliferation & migration at concentrations ranging from 300 nM-1.0 μM; Sim, BK et al, *Cancer Res*, 57: 1329, 1997; Wu, Z et al, *BBRC*, 236: 651, 1997; Cao, Y et al, *JBC*, 271: 29461, 1996; O'Reilly, MS et al, *Cell*, 79: 315, 1994

## Proteins

**Calbiochem 176700** Human MW 50k Lyophilized from 20 mM NaCl; ≥98% (SDS-PAGE); plasmin, plasminogen: none detected; soluble in water; prepared from fluid has been shown to be negative for HBsAg & for antibodies to HIV & HCV | A proteolytic fragment of plasminogen; a specific inhibitor of endothelial cell proliferation & one of the most potent & specific natural inhibitors of angiogenesis & metastatic tumor growth; human angiotensin significantly inhibits bFGF-induced endothelial cell proliferation & migration at concentrations ranging from 300 nM-1.0 μM; Sim, BK et al, *Cancer Res*, 57: 1329, 1997; Wu, Z et al, *Biochem Biophys Res Com*, 236: 651, 1997; Cao, Y et al, *J Biol Chem*, 271: 29461, 1996; O'Reilly, MS et al, *Cell*, 79: 315, 1994

**Biogenesis 0559-5050** Human plasma MW ~40k Tested negative for antibodies to HIV I, HIV-II, HCV, and *T. pallidum*, and HBsAg; purified; liquid

### Angiotensin Converting Enzyme

**Chemicon AG761** Human ≥95% | Cellular biochemistry/regulatory protein used in immunoblotting (Western)

**Chemicon AG782** Rat ≥95% | Cellular biochemistry/regulatory protein used in immunoblotting (Western)

### Angiotensinogen

*Synonyms:* Renin Substrate

**Biodesign A50108H** Human plasma Purified

**Sigma A 2562** Human plasma >95% (SDS-PAGE); lyophilized powder containing sodium phosphate buffer salts, pH 6.8; protein determined by (E<sub>280</sub><sup>1%</sup>) | Tewksbury, DA, *Fed Proc*, 42: 2724, 1983

**Sigma A 2283** Porcine plasma Lyophilized powder containing ~65% protein (Modified Warburg-Christian); balance primarily sodium citrate; activity: 1,500-3,000 units/g angiotensinogen protein; unit definition: 1 unit yields 1.0 nmole angiotensin I in the presence of renin at pH 6.0 at 37°C measured by RIA | Suitable for measuring renin by RIA

### Annexin

**Sigma A 2699** Bovine liver MW 32.5k & 35k Lyophilized from solution containing dithiothreitol; affinity purified | Fauvel, J et al, *FEBS Lett*, 216: 45, 1987

**Sigma A 2824** Bovine liver MW 67k Lyophilized from solution containing dithiothreitol; affinity purified | Fauvel, J et al, *FEBS Lett*, 216: 45, 1987

**Sigma A 2449** Bovine lung MW 36k Lyophilized from solution containing dithiothreitol; affinity purified | Gerke, V & Weber K, *EMBO J*, 3: 227, 1984; Glenney, JB Jr et al, *J Cell Biol*, 104: 503, 1987; Pepinsky, RB et al, *J Biol Chem*, 263: 10799, 1988

**Sigma A 2574** Bovine lung MW 32.5k & 35k Lyophilized from solution containing dithiothreitol; affinity purified | Gerke, V & Weber K, *EMBO J*, 3: 227, 1984; Glenney, JB Jr et al, *J Cell Biol*, 104: 503, 1987; Pepinsky, RB et al, *J Biol Chem*, 263: 10799, 1988

### Annexin I

**Biodesign A80108B** Bovine lung Purified

### Annexin II

**Biodesign A80109B** Bovine lung Purified

### Annexin III

**Biodesign A80110B** Bovine lung Purified

### Annexin IV

**Biodesign A80111B** Bovine liver Purified

### Annexin V

*Synonyms:* PAP-1; Calphosbindin I; Lipocortin V; Annexin V, rh

**Sigma A 9460** Human placenta MW 33k ≥90% (SDS-PAGE); solution in 40 mM Tris-HCl, pH 7.5, containing 150 mM NaCl, 1 mM DTT & 0.05% sodium azide | Buhl, W-J et al, *Eur J Cell Biol*, 56: 381, 1991; Schlaepfer, DD et al, *Biochemistry*, 31: 1886, 1992

**Alexis 201-018** Human recombinant, expressed in *E. coli* MW 35.8k Lyophilized; >98% (SDS-PAGE & HPLC); reconstituted solution contains 20 mM phosphate buffer, pH 7.0, 0.02% Tween 80, 130 mM arginine HCl

**Alexis BMS306/a** Recombinant expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & reverse phase HPLC); 30 μg lyophilized powder; reconstituted solution contains 20 mM phosphate buffer, 0.02% Tween 80, 130 mM arginine hydrochloride, pH 7.0 | Exhibits anti-phospholipase activity & binds to phosphatidylserine

### Annexin V, APC Conjugated

*Synonyms:* Annexin V, APC Conjugated rh-

**Alexis 209-252** Human recombinant, expressed in *E. coli* MW 35.8k ≥98% (SDS-PAGE & HPLC); liquid containing 50 mM TRIS, 100 mM NaCl, 1% BSA & 0.02% sodium azide, pH 7.4 | APC has an excitation min of 650 nm & an emission max of 660 nm; suitable for dual staining experiments to detect phosphatidylserine whilst cell-surface protein can be detected with a suitable MAb (FITC-labeled or using an appropriately labeled secondary antibody)

**Alexis BMS306APC/a** Recombinant expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & reverse phase HPLC); 30 μg lyophilized powder; reconstituted solution contains 20 mM phosphate buffer, 0.02% Tween 80, 130 mM arginine hydrochloride, pH 7.0 | APC shows excitation maxima of 564 (495) nm & 650 nm & emission maxima of 576 nm & 660 nm, respectively; useful detection of phosphatidylserine; allows simple secondary labeling by staining, eg, the membrane surface proteins with a monoclonal antibody for further cellular characterization

### Annexin V, Biotin Conjugated

*Synonyms:* Annexin V, Biotin Conjugated rh-

**Sigma A 7810** 3-6 moles biotin/mole annexin V; solution in 50 mM Tris-HCl, pH 7.5, containing 100 mM NaCl | Useful for detection of apoptotic cells in conjunction with streptavidin coupled to alkaline phosphatase, peroxidase, or FITC

**Alexis 209-002** Human recombinant, expressed in *E. coli* >98% (SDS-PAGE & HPLC); liquid containing 50 mM TRIS, 100 mM NaCl, 1% BSA & 0.02% sodium azide, pH 7.4 | Flow cytometry applications; Andree, HA et al, *J Biol Chem*, 265: 4923, 1990; Fadok, VA et al, *J Immuno*, 148: 2207, 1992; Koopman, G et al, *Blood*, 84: 1415, 1994; Homburg, CH et al, *Blood*, 85: 532, 1995; Vermes, I et al, *J Immunol Meth*, 184: 39, 1995; Martin, S et al, *J Exp Med*, 182: 1545, 1995; Rovere, P et al, *J Immunol*, 156: 4631, 1996; Boersma, AWM et al, *Cytometry*, 24: 123, 1996

**Alexis BMS306BT/a** Recombinant expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & reverse phase HPLC); 30 μg lyophilized powder; reconstituted solution contains 20 mM phosphate buffer, 0.02% Tween 80, 130 mM arginine hydrochloride, pH 7.0 | See Alexis BMS306FI/a

### Annexin V, Cy3.18 Conjugated

**Sigma A 4963** Cy3.18 conjugate; contains 1-3 moles Cy3/mole annexin V; solution in 50 mM Tris-HCl, pH 7.5, containing 100 mM NaCl | Useful for detection of apoptotic cells in conjunction with streptavidin coupled to alkaline phosphatase, peroxidase, or FITC

### Annexin V, FITC Conjugated

*Synonyms:* Annexin V, FITC Conjugated rh-

**Sigma A 9210** 1-2 moles FITC/mole annexin V; ~50 μg/mL in 50 mM Tris-HCl, pH 7.5, containing 100 mM NaCl | Can be used for detection of apoptotic cells by flow cytometry



**Alexis 209-250** Human recombinant, expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & HPLC); liquid containing 50 mM TRIS, 100 mM NaCl, 1% BSA & 0.02% sodium azide, pH 7.4 | Flow cytometry applications; member of a family of proteins that are structurally related & exhibit Ca<sup>2+</sup>-dependent phospholipid-binding properties; binds to various phospholipid species & shows its highest specificity for phosphatidylserine; situated on the inner leaflet of the plasma membrane; when cell death occurs, phosphatidylserine is translocated in the outer layer of the membrane, ie. the external surface of the cell; this occurs in the early phases of apoptosis during which the cell membrane itself remains intact; FITC-labeled annexin V can easily be used for the quantification of apoptotic cells; in contrast to apoptosis, necrosis is accompanied by the loss of cell membrane integrity & leakage of cellular constituents into the environment; therefore, the measurement of annexin V binding, performed simultaneously with a dye exclusion test using propidium iodide is a perfect assay to detect apoptotic cells & to discriminate between apoptosis & necrosis; thus, annexin V FITC represents a fast, simple & reliable method for the detection & quantification of apoptotic cells on a single cell basis; loss of translocation of phosphatidylserine seems to be a universal phenomenon of apoptosis; thus likely that apoptotic cells of all cell types can be quantified by staining with annexin V FITC & propidium iodide; see Alexis 209-002

**Alexis BMS306FI/a** Recombinant expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & reverse phase HPLC); 30 µg lyophilized powder; reconstituted solution contains 20 mM phosphate buffer, 0.02% Tween 80, 130 mM arginine hydrochloride, pH 7.0 | Exhibits anti-phospholipase activity & binds to phosphatidylserine; useful for detecting apoptotic cells by flow cytometry; Boersma, AWM et al, *Cytometry*, 24: 123, 1996; Homburg, CHE et al, *Blood*, 85: 532, 1995; Koopman, G et al, *Blood*, 84: 1415, 1995; Martin, SJ et al, *J Exp Med*, 182: 1545, 1995; Rovere P et al, *J Immunol*, 156: 4631, 1996; Vermes, I et al, *J Immunol Methods*, 184: 39, 1995

#### Annexin V, PE Conjugated

**Synonyms:** Annexin V, PE Conjugated rh-

**Alexis BMS306PE/a** Recombinant expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & reverse phase HPLC); 30 µg lyophilized powder; reconstituted solution contains 20 mM phosphate buffer, 0.02% Tween 80, 130 mM arginine hydrochloride, pH 7.0 | PE shows excitation maxima of 564 (495) nm & 650 nm & emission maxima of 576 nm & 660 nm, respectively; useful detection of phosphatidylserine; allows simple secondary labeling by staining, eg, the membrane surface proteins with a monoclonal antibody for further cellular characterization

#### Annexin V, R-PE Conjugated

**Alexis 209-251** Human recombinant, expressed in *E. coli* MW 35.8k >98% (SDS-gel electrophoresis & HPLC); liquid containing 50 mM TRIS, 100 mM NaCl, 1% BSA & 0.02% sodium azide, pH 7.4 | R-PE has an excitation min of 564 nm & an emission max of 576 nm; suitable for dual staining experiments to detect phosphatidylserine whilst cell-surface protein can be detected with a suitable MAb (FITC-labeled or using an appropriately labeled secondary antibody)

#### Annexin VI

**Biodesign A80113B** Bovine liver Purified

#### Anthopleura Toxin A

**Sigma T 3529** *Anthopleura xanthogrammica*

#### Antichymotrypsin, αI-

**Biodesign A50104H** Human Purified

**USBio A2298-03** Human >98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized from 0.02 M Tris, 0.2 M NaCl, pH 7.5 | Suitable for antigenic applications in immunological protocols

**USBio A2298-05** Human >98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized from 0.02 M Tris, 0.2 M NaCl, pH 7.5 | Suitable for antigenic applications in immunological protocols

**Biogenesis 0600-8004** Human plasma MW 68k Tested negative for HBsAg, HCV and HIV antibodies; purified; from 37.5 µl of 150 mM NaCl, 20 mM TRIS-HCl, pH 8.0; lyophilized | Inhibitor of Chymotrypsin and Cathepsin G SA; Travis et al, *Biochem*, 17:5647, 1979

**ICN 191347** Human plasma MW 68k Salt-free, lyophilized; negative for HBsAg & HIV Ab; 95-100% inhibitory activity; >99% (SDS-PAGE), single arc by IEP | Travis, J, D Garner & J Bowen, *Biochemistry*, 17:5647, 1978; Travis, J & GS Salvesen, *Annu Rev Biochem*, 42:655, 1983

**ICN 770941 ICN 770942 ICN 770943** Human plasma 98% | Excellent for immunization

**Cortex CP3002** Plasma >95%

**Scipac P159-1** Pooled serum/plasma >96%; lyophilized; available on request | Acute phase serum protein

**Scipac P159-5** Pooled serum/plasma ~90%; frozen in TRIS buffer | Acute phase serum protein; binds PSA

#### Antigen II, Non-Specific Cross Reacting

**Biogenesis 6882-5107** Human meconium Tested negative for HBsAg, antibodies to HCV and HIV-1/2; purified; 1 mM Tris-HCl, pH 7.0; liquid

#### Antigen S-100

**Cortex CP1079U** Human brain >98%

#### Antiplasmin, αII-

**Biogenesis 0620-4802** Human serum MW 70k SA: 5 IU/mg; tested negative for HBsAg and HIV antibodies; 1 mg Tris-Sodium citrate and 1.5 mg NaCl, pH 7.5; lyophilized; purified | Saito et al, *Circ Res*, 34:641, 1974

**Cortex CP3004** Plasma >95%

#### Antithrombin III

**USBio A2298-25** Human >98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 5 mg/vial supplied in 20 mM Tris HCl, 0.1 M sodium citrate, 0.15 M NaCl, pH 8.3 | Suitable for antigenic applications in immunological protocols

**Biodesign A50109H** Human plasma Purified | Platelets & hemostasis reagents

**ICN 153572** Human plasma MW 65k >95%; lyophilized, 50 mM Tris-HCl, pH 8, 0.15M NaCl | Wide-spectrum inhibitor; Rosenberg, RD & PS Damus, *JBC*, 248:6490, 1973

**ICN 194187** Human plasma Highly purified; <0.02 PEU antigenic heparin cofactor II | Wide-spectrum inhibitor; Rosenberg, RD & PS Damus, *JBC*, 248:6490, 1973

**ICN 194936** Human plasma 50% Glycerol/H<sub>2</sub>O | Important serine protease inhibitor in the coagulation cascade; Rosenberg, RD et al, *J Clin Invest*, 74:1, 1984

**Biogenesis 0620-7002** Human serum MW 65k Tested negative for HBsAg, HCV and HIV antibodies; 20 mM Tris/HCl, 100 mM sodium citrate, 150 mM NaCl, pH 8.3; liquid | Single band by SDS-PAGE

**Cortex CP3007U** Plasma >98%

**Scipac P214-1** Plasma >96%; lyophilized | Hemostasis protein

#### Antitrypsin, αI-

**ICN 191346** Human plasma MW 52k >95% (SDS-PAGE); lyophilized, 1 mg protein, 30 mM NaPO<sub>4</sub> buffer, 300 mM NaCl | Prepared from plasma negative for HBsAg & HIV Ab; Travis, J & Salvesen, GS, *Annu Rev Biochem*, 42:655, 1983

**USBio A2298-32** Human plasma >95%; lyophilized in 644 µL 30 mM sodium phosphate, 300 mM NaCl | Suitable for antigenic applications in immunological protocols

**Biogenesis 0640-5604** Human serum MW 54k Tested negative for HBsAg, HIV I and II antibodies and HCV antibodies; purified; from 20 mM ammonium bicarbonate buffer; lyophilized

**Cortex CP3003** Plasma >96%

## Proteins

### APO-1/Fas

**Synonyms:** sAPO-1/Fas; APO-1/Fas:Fc-IgG Fusion Protein

**Alexis BMS314** Human recombinant, expressed in human embryo kidney cells MW 60k >95% (SDS-PAGE); 50 µg lyophilized powder | The extracellular domain of human APO-1/Fas (AA 1-154) is fused to the Fc portion of human IgG1; inhibits the activity of APO-1/Fas ligand of human & mouse; inhibits soluble APO-1/Fas ligand-mediated lysis of APO-1 sensitive cells; MW measured under reducing conditions

### APO-1/Fas Ligand

**Synonyms:** sAPO-1/Fas Ligand

**Alexis BMS309** Human recombinant, produced in human embryo kidney cells >95% (SDS-PAGE); 5 µg lyophilized powder at 0.1 mg/mL | MW 32k (nonglycosylated), 35k (glycosylated) under reducing conditions; the extracellular domain of human APO-1/Fas ligand (AA 103-281) is fused to the N-terminus to a 26 AA linker protein & tag; glycosylation of recombinant form is similar or identical to natural form; recombinant human soluble APO-1/Fas ligand recognizes the APO-1/Fas receptor of human, mouse & rat; a 40k type II transmembrane protein belonging to the TNF family; interaction between APO-1/Fas ligand & APO-1/Fas induces apoptosis of APO-1/Fas sensitive cells at a concentration ≥50 ng/mL, e.g. on A20 B lymphoma cells; implicated in CTL-mediated-killing, activation-induced cell death, creation of immune-privileged sites & tissue homeostasis; the extracellular part of APO-1/Fas ligand can be cleaved off by a metalloprotease, generating soluble APO-1/Fas ligand

### Apoferritin

**ICN 100260** Horse spleen ≥40 mg/mL 0.15M NaCl | Prepared from crystalline, Iron free, cadmium-free ferritin; Criehton, RR, *Structure & Bonding*, 17:67, 1974

### Apolactoferrin

**Synonyms:** Lactoferrin, Iron Depleted

**Sigma A 1835** Human milk ~90% (SDS-PAGE); lyophilized powder; salt-free

### Apolipoprotein AI

**Cortex CP1061** >95%

**Cortex CP2012** >95%

**Sigma A 4422** Bovine plasma Lyophilized from 0.01 M ammonium bicarbonate; ~95% (SDS-PAGE) | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**ICN 59414** Human Purified Ag; lyophilized

**Biogenesis 0650-0311** Human plasma MW 28.4k Tested negative for HIV-1, HIV-2, HCV antibodies and HBsAg; purified; 0.1 M Na-hydrocarbonate; lyophilized | Segret & Albers, *Meth Enzymol*, 128, Academic Press, 1986; Fielding et al, *BBRC*, 46:1493, 1972; Tall & Small, *Adv Lipid Res*, 17:1, 1980

**Fitzgerald 30-AA15** Human plasma High purity

**Fitzgerald 30-AC15** Human plasma Control/calibrator

**Fluka 10817** Human plasma MW ~280k ≥90% (GE); ≥97% protein content; lyophilized from 0.01 M ammonium hydrogen carbonate | A principle protein component of high-density lipoproteins; Gennis, RB & Jonas, A, *Ann Rev Biophys Bioeng*, 6: 195, 1977

**ICN 153906** Human plasma MW 28,016 10mM Tris, 0.1% NaN<sub>3</sub>, pH 8.0 buffer; 0.8-3.0 mg/mL protein; >98%

**Sigma A 9284** Human plasma Lyophilized from 0.01 M ammonium bicarbonate; ~85% (SDS-PAGE) | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**USBio A2299-10** Human plasma ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~1 mg/mL supplied in 0.01 M ammonium bicarbonate, pH 7.4 | Suitable for antigenic applications in immunological protocols

**Biodesign A95120H** Human plasma HDL Purified | Species specificity: human

**Biodesign A23100M** Murine plasma Purified | Species specificity: mouse

**Scipac P188-3** Pooled serum/plasma >96%; frozen in TRIS buffer; 1-5 mg/mL; available on request | Apolipoprotein

**Biogenesis 0650-0329** Rabbit plasma MW 27.6k theoretical, confirmed by SDS-PAGE pI: 5.2 +/- 0.05; purified; 10 mM triethylamine bicarbonate, pH 7.5; lyophilized | Segret & Albers, *Meth Enzymol*, 128, Academic Press, 1986; Fielding et al, *BBRC*, 46:1493, 1972; Pan et al, *Eur J Biochem*, 170:99, 1987; Chao et al, *JBC*, 259:5306, 1984

**Scipac P188-2** Serum/plasma 30-80%; frozen in TRIS buffer; | Apolipoprotein

### Apolipoprotein AII

**ICN 59415** Human Purified Ag; lyophilized

**USBio A2299-34** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Biogenesis 0650-0604** Human plasma MW 17,380 Tested negative for HBsAg and for antibodies to HIV and HCV; purified; 10 mM NH<sub>4</sub>HCO<sub>3</sub>, pH 7.4; liquid | Binds phospholipids during lipoprotein metabolism; displaces lecithin-cholesterol acyltransferase bound to lipoprotein; influences HDL functional states and contributes to arteriosclerosis; Breslow, *PNAS USA*, 90:8314, 1993

**ICN 153907** Human plasma MW 17.4k 10mM Tris, 50mM NaCl, 1.0mM EDTA, 1.0mM TSF, pH 8.0; 0.8-1.5 mg/mL protein; ≥98%

**Sigma A 8909** Human plasma Lyophilized from 0.01 M ammonium bicarbonate; ~97% (SDS-PAGE) | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Fitzgerald 30-AA20** Human plasma (HDL) High purity

**Biodesign A95122H** Human plasma HDL Purified | Species specificity: human

### Apolipoprotein AV

**Cortex CP8101** >95%

### Apolipoprotein B

**Synonyms:** Lipoprotein, Low Density

**Cortex CP1060** >95%

**ICN 59416** Human Purified Ag; lyophilized

**USBio A2299-48** Human ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 9.4 mg/mL supplied in 0.15 M NaCl, pH 7.5, 0.01% EDTA | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AA25** Human plasma High purity

**Sigma A 9159** Human plasma Lyophilized from buffer containing 10 mM sodium deoxycholate, 0.05 M sodium carbonate & 0.05 M NaCl, pH 10.0; ~97%; delipidated with sodium deoxycholate | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Sigma A 9937** Human plasma Lyophilized from 117 mM sodium phosphate containing 3.1 mM SDS, pH 7.4; ~97%; delipidated with SDS | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Biogenesis 0650-1004** Human plasma LDL MW 550  
Tested negative for antibodies to HBsAg, HCV and HIV 1 and 2;  
purified; 10 mM sodium deoxycholate, 0.1 M sodium bicarbonate,  
0.5 M NaCl, pH 11; liquid | Helenius et al, *Biochem*, 10:2542,  
1971; Laemlli, *Nature*, 227:680, 1970; Ginsbury, et al, *JBC*,  
259:6667, 1984

### Apolipoprotein B100

**Biodesign A34300H** Human plasma Purified | Species  
specificity: human

**ICN 153908** Human plasma MW 549k 10mM Na  
deoxycholate, 50mM NaCl, 10mM  $\text{NH}_4\text{HCO}_3$ , pH 9.0; 0.8-1.5  
mg/mL protein;  $\geq 95\%$

**USBio A2299-49** Human plasma ~2 mg/mL in 100mM Tris,  
2mM SDS, pH 8.0 | Delipidated & purified by gel filtration; useful  
in Lowry protein determination assay; none detected: Apo(a),  
ApoC, ApoE; cross reacts with anti-LDL

**Scipac P193-2** Plasma 40-90%; lyophilized | Apolipoprotein

### Apolipoprotein CI

**Synonyms:** Lipoprotein, Very Low Density

**Cortex CP2013**  $>95\%$

**ICN 59417** Human Purified Ag; lyophilized

**USBio A2299-60** Human  $\geq 98\%$ ; no contaminants detected;  
single band by SDS-PAGE, IEP, &/or RID; 2.0 mg/mL supplied in  
0.01 M  $\text{NH}_4\text{HCO}_3$ , pH 7.4 | Suitable for antigenic applications in  
immunological protocols

**Biogenesis 0650-1204** Human fresh plasma MW 6,613  
 $\geq 95\%$  (SDS-PAGE); tested negative for HIV and HBsAg; from 10  
mM ammonium bicarbonate; lyophilized

**Biodesign A95126H** Human plasma Purified | Species  
specificity: human

**Fitzgerald 30-AA32** Human plasma High purity

**ICN 194957** Human plasma MW 6613 Lyophilized,  $>95\%$   
| Partially activates lecithin-cholesterol acyltransferase & inhibits  
lipase activity; Chen, CH, *Circulation*, 76:IV-117, 1987

### Apolipoprotein CII

**Synonyms:** Lipoprotein, Very Low Density; Lipoprotein Lipase  
Cofactor

**ICN 59418** Human Purified Ag; lyophilized

**USBio A2299-64** Human  $\geq 98\%$ ; no contaminants detected;  
single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized in  
0.01 M  $\text{NH}_4\text{HCO}_3$ , pH 7.4 | Suitable for antigenic applications in  
immunological protocols

**Biodesign A95128H** Human plasma Purified | Species  
specificity: human

**Fitzgerald 30-AA27** Human plasma High purity

**ICN 194958** Human plasma MW 8.8k Lyophilized,  $>95\%$   
| Low serum levels indicate Nephrotic Syndrome (Tangier disease);  
Jackson, RL & G Holdsworth, *Methods Enzymol*, 128, Chap 14,  
1986

**Biogenesis 0650-1404** Human serum Tested negative for  
HIV antibodies and HBsAg; purified; 0.01 M ammonium  
bicarbonate, non-sterile; lyophilized | Jonas et al, *Biochem*,  
20:3802, 1981; Herbert et al, *JBC*, 248:4941, 1972; Schonfeld et  
al, *J Lipid Res*, 19:645, 1977; Formisano et al, *JBC*, 253:354, 1978

### Apolipoprotein CIII

**Synonyms:** Lipoprotein, Very Low Density

**Cortex CP2015**  $>95\%$

**ICN 59419** Human Purified Ag; lyophilized

**USBio A2299-72** Human  $\geq 98\%$ ; no contaminants detected;  
single band by SDS-PAGE, IEP, &/or RID; 4.0 mg/mL supplied in  
0.01 M  $\text{NH}_4\text{HCO}_3$ , pH 7.4 | Suitable for antigenic applications in  
immunological protocols

**Biodesign A95129H** Human plasma Purified | Species  
Specificity: human

**Biogenesis 0650-1804** Human plasma Tested negative for  
HIV antibodies and HBsAg; purified; 0.01 M ammonium bicarbonate  
with 5 M guanidine-HCl; liquid | Catapano et al, *J Lipid Res*,  
19:1047, 1978; Kane, *Anal Biochem*, 53:350, 1973; Jonas et al,  
*Biochem*, 20:3802, 1981; Herbert et al, *JBC*, 248:4941, 1972;  
Schonfeld et al, *J Lipid Res*, 19:645, 1977; Formisano et al, *JBC*,  
253:354, 1978

**Fitzgerald 30-AA28** Human plasma High purity

**ICN 194959** Human plasma MW 8750 10mM ammonium  
carbonate, pH 7.5;  $>95\%$  | May inhibit lipoprotein lipase activation  
by Apo C-II; Catapano, AL et al, *J Lipid Res*, 19:1047, 1978

### Apolipoprotein E

**Synonyms:** Lipoprotein, Very Low Density

**ICN 59432** Human Purified Ag; lyophilized

**USBio A2299-73** Human  $\geq 98\%$ ; no contaminants detected;  
single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL in 0.1 M Tris,  
0.1 M ammonium bicarbonate, pH 7.5 | Suitable for antigenic  
applications in immunological protocols

**Biodesign A95130H** Human plasma Purified | Species  
Specificity: human

**ICN 194960** Human plasma MW 34.2k 10mM ammonium  
carbonate, pH 7.5;  $>95\%$  | A VLDL component & subclass of HDL;  
LDL receptor ligand & participant in immunoregulation & cell growth  
differentiation; Mahley, RW, *Science*, 240:622, 1988

**Fitzgerald 30-AA30** Human plasma (VLDL) High purity

**Biogenesis 0650-2104** Human plasma VLDL MW 34.2k  
Tested negative for HBsAg, and antibodies to HCV and HIV;  
purified; 50 mM  $\text{NH}_4\text{HCO}_3$ , pH 7.4; liquid | No free monomer at  
concentrations  $>1$  mg/mL; exists as monomer in buffers containing  
5 M guanidine HCL or 6 M urea

**ICN 195016** Human recombinant, expressed in *E. coli* MW  
34k Lyophilized,  $>95\%$

**Cortex CP2016** Plasma  $>95\%$

**Biodesign A95199H** Rabbit plasma Purified | Species  
Specificity: human

### Apolipoprotein E IV

**USBio A2299-77** Expressed in baculovirus insect cell culture  
system  $\geq 95\%$  (SDS-PAGE); liquid in 0.7 M ammonium  
carbonate, pH 7.5; pI: 6.7 (for the primary isoform of rApo E4)

**Biogenesis 0650-2409** Human r-DNA baculovirus system  
MW 34k Purified; pI: 6.7; 0.7 M  $\text{NH}_4\text{HCO}_3$ , pH 7.5; liquid |  
Soluble in aqueous solutions; may be no free monomer at  
concentrations  $>1$  mg/mL; apolipoproteins exist as monomers in  
buffers containing 5 M guanidine HCl or 6 M urea; Corder et al,  
*Science*, 261:921, 1993; Strittmatter et al, *PNAS USA*, 90:8098,  
1993; Gretsche et al, *PNAS USA*, 88:8530, 1991; Rall et al, *Meth  
Enzymol*, 128:273, 1986

**ICN 194962** Human recombinant, isoform E4 MW 34k  
Lyophilized,  $>98\%$  | Gretsch, DG et al, *PNAS*, 88:8530, 1991

### Apolipoprotein EII

**Biogenesis 0650-2209** Human r-DNA expressed in baculovirus  
insect cell culture system MW 34k Purified; pI: 6.25 (for the  
primary isoform of rApo E2); 700 mM  $\text{NH}_4\text{HCO}_3$ ; liquid |  
Strittmatter et al, *PNAS USA*, 90:8098, 1993; Gretsche et al, *PNAS  
USA*, 88:8530, 1991

### Apolipoprotein EIII

**Biogenesis 0650-2309** Human r-DNA MW 34k Purified;  
pI: 6.35 (for the primary isoform of rApo E3); 0.7 M  $\text{NH}_4\text{HCO}_3$ , pH  
7.5; liquid | No free monomer at concentrations  $>1$  mg/mL; exists  
as monomer in buffers containing 5 M guanidine HCL or 6 M urea;  
Strittmatter et al, *PNAS USA*, 90:8098, 1993; Gretsche et al, *PNAS  
USA*, 88:8530, 1991; Rall et al, *Meth Enzymol*, 128:273, 1986

**ICN 194961** Human recombinant, isoform E3 MW 34k  
Lyophilized,  $>98\%$  | Gretsch, DG et al, *PNAS*, 88:8530, 1991

## Proteins

### Apolipoprotein H

**Synonyms:** Glycoprotein I,  $\beta_2$ -

**ICN 59653** Human Purified Ag; lyophilized

**Scipac P195-1** Serum/plasma >96%; lyophilized | Apolipoprotein

### Apolipoprotein H/ $\beta$ II

**Synonyms:** Glycoprotein II $\beta$ -

**Biodesign A11083H** Human plasma Purified | Species Specificity: human

### Apolipoprotein SAA

**Biodesign A52313H** *E. coli* Purified | Species Specificity: human

**ICN 195013** Human recombinant, expressed in *E. coli* MW 11.5k Lyophilized, >98%; 5-50  $\mu$ g/mL

### Aprotinin

**Sigma A 2315** Bovine lung MW 6.5k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

### Arf2, His-Tagged

**Calbiochem 181321** Rat brain recombinant, produced by overexpression of a full-length Arf2 cDNA clone in *E. coli* MW 21.9k  $\geq$ 90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; ADP-ribosylation factors (Arfs) are GTP-binding proteins that act as allosteric activators of NAD: arginine ADP-ribosyltransferase activity of cholera toxin; they regulate intracellular vesicular traffic & stimulate the activity of phospholipase D; localized to the perinuclear Golgi structure in cells; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Liang, JO & Kornfield, S, *J Biol Chem*, 272: 4141, 1997; Hosaka, M et al, *J Biochem*, 120: 813, 1996; Price, SR et al, *Mol Cell Biochem*, 159: 15, 1996; Moss, J et al, *J Biol Chem*, 270: 12327, 1995; Price, SR et al, *J Biol Chem*, 267: 17766, 1992; Steams, T et al, *Mol Cell Biol*, 10: 6690, 1990

### Arf3, His-Tagged

**Calbiochem 181323** Human brain recombinant, produced by overexpression of a full-length Arf3 cDNA clone in *E. coli* MW 21.7k  $\geq$ 90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; ADP-ribosylation factors (Arfs) are GTP-binding proteins that act as allosteric activators of NAD: arginine ADP-ribosyltransferase activity of cholera toxin; they regulate intracellular vesicular traffic & stimulate the activity of phospholipase D; associated with the Golgi & endoplasmic reticulum; expression of Arf3 is developmentally regulated; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Tsai, SC et al, *J Biol Chem*, 266: 8213, 1991; Price, SR et al, *Mol Cell Biochem*, 159: 15, 1996; Moss, J et al, *J Biol Chem*, 270: 12327, 1995; Price, SR et al, *J Biol Chem*, 267: 17766, 1992

### Arf4, His-Tagged

**Calbiochem 181325** Human brain recombinant, produced by overexpression of a full-length Arf4 cDNA clone in *E. coli* MW 21.6k  $\geq$ 90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; ADP-ribosylation factors (Arfs) are GTP-binding proteins that act as allosteric activators of NAD: arginine ADP-ribosyltransferase activity of cholera toxin; they regulate intracellular vesicular traffic & stimulate the activity of phospholipase D; human Arf4 exhibits ~96% homology with rat Arf4; plays a role in the recruitment of vesicle coat proteins in the secretory pathway; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Deitz, SB et al, *Mol Cell Biol*, 16: 3275, 1996; Price, SR et al, *Mol Cell Biochem*, 159: 15, 1996; Moss, J et al, *J Biol Chem*, 270: 12327, 1995; Monaco, L et al, *PNAS*, 87: 2206, 1990

### Arf5, His-Tagged

**Calbiochem 181327** Human Neuroblastoma (NIE115) recombinant, produced by overexpression of a full-length Arf5 cDNA clone in *E. coli* MW 21.6k  $\geq$ 90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; ADP-ribosylation factors (Arfs) are GTP-binding proteins that act as allosteric activators of NAD: arginine ADP-ribosyltransferase activity of cholera toxin; they regulate intracellular vesicular traffic & stimulate the activity of phospholipase D; predominantly cytosolic but can be recruited to the Golgi membranes upon binding to a non-hydrolyzable analog of GTP; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Liang, JO & Kornfield, S, *J Biol Chem*, 272: 4141, 1997; Cavenagh, MM et al, *J Biol Chem*, 271: 21767, 1996; Tsuchiya, M et al, *J Biol Chem*, 266: 2772, 1991; Moss, J et al, *J Biol Chem*, 270: 12327, 1995; Price, SR et al, *J Biol Chem*, 267: 17766, 1992

### Arf6, His-Tagged

**Calbiochem 181329** Human Neuroblastoma (NIE115) recombinant, produced by overexpression of a full-length Arf6 cDNA clone in *E. coli* MW 21.2k  $\geq$ 90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; ADP-ribosylation factors (Arfs) are GTP-binding proteins that act as allosteric activators of NAD: arginine ADP-ribosyltransferase activity of cholera toxin; they regulate intracellular vesicular traffic & stimulate the activity of phospholipase D; localized in cell plasma membranes & membranes of secretory chromaffin granules; thought to play a role in receptor-mediated endocytosis & exocytosis; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; D'Souza-Schorey, C et al, *Science*, 267: 1175, 1995; Cavenagh, MM et al, *J Biol Chem*, 271: 21767, 1996; Tsuchiya, M et al, *J Biol Chem*, 266: 2772, 1991; Moss, J et al, *J Biol Chem*, 270: 12327, 1995

### Asialoglycophorin

**Sigma A 9791** Human blood type MN Lyophilized powder | Predominantly asialoglycophorin A

### Atropin

**ICN 159838** *Crotalus atrox* (Western diamondback rattlesnake) MW ~35k One band (SDS-PAGE) | An anti-cancer protein; 0.5  $\mu$ g kills various cancer cells *in vitro* ( $10^5$  cells/culture); no effect on normal mouse kidney, spleen & liver cells up to 5  $\mu$ g; prevents & causes regression of ascitic tumors formed by mouse myeloma cells; show enhanced cytolytic activity when used in combination with Kaotree

### Avidin

**Synonyms:** Biotin Enzymes Inhibitor

**ICN 100303** MW 70k 10 U/mg, 1 U binds 1  $\mu$ g D-biotin, pH 8.9 | Glycoprotein with tetrameric structure; high Specificity for biotin; a highly specific inhibitor of biotin enzymes

**ICN 55827** Lyophilized from water with 0.01% thimerosal

**ICN 150047** Chicken egg white MW 70k 10-15 U/mg solid, 1 U binds 1 µg D-biotin, pH 8.9; lyophilized | Useful in a biotin-avidin system for labeling biomolecules for receptor studies, immunoassays & immunohistological methods

**ICN 150407** Chicken egg white MW 70k 10-15 U/mg protein, 1 U binds 1 µg D-biotin, pH 8.9; affinity purified

**Sigma A 9390** Chicken egg white Lyophilized powder; chromatographically purified; 1 unit binds 1.0 µg of D-biotin; 10-15 units/mg protein

**Sigma A 8706** Recombinant expressed in corn Affinity purified; 1 unit binds 1.0 µg of D-biotin

#### Avidin, 4-(2-Aminoethylamido)-Succinyl-

**Sigma A 7909** Lyophilized powder containing ~90% protein (Biuret); balance sodium citrate

#### Avidin, Ac-

**ICN 153844** 10-13 U/mg solid, crystalline; isoelectric point 8.5 (IEF) | A chemically modified avidin with lower isoelectric point than native avidin; reacted with acetic anhydride

#### Avidin, Agarose

**ICN 191323** Chicken egg white 1 mg avidin/mL gel; capacity ~60 nmoles d(+) biotin/mL packed gel; suspension in PBS, 0.02% NaN<sub>3</sub> | 5 atoms hydrophilic spacer arm; used for isolation of biotinyl-peptides, proteins, ligands & immobilization of biotinylated enzymes

#### Avidin, Alkaline Phosphatase Conjugated

**ICN 55963** Liquid in 0.03 M Tris buffered saline, pH 8.0, 1% BSA, 10% glycerol, 0.05% NaN<sub>3</sub>

#### Avidin, Ferritin Conjugated

**Sigma A 4030** Solution in 50% glycerol, 0.25 M NaCl, 0.01 M sodium phosphate, pH 6.8, containing 0.02% sodium azide; ~10 mg/mL protein; contains ~1 mole ferritin/mole of avidin; prepared by reductive alkylation by a modification of the procedure of Bayer | Labeled with equine spleen ferritin; Bayer, EA et al, *J Histochem Cytochem*, 24: 933, 1976

**Sigma A 5405** Lyophilized powder; ~30% protein; balance primarily Tris buffer salt; prepared by modification of the procedure of Sullivan | Labeled with equine spleen ferritin; actual ferritin to avidin ratio given on label; Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978

#### Avidin, FITC Conjugated

**ICN 55880** Liquid in 0.02 M PBS, pH 7.3, 10% glycerol, 0.05% NaN<sub>3</sub>

**Sigma A 2901** Lyophilized powder containing ~80% protein (A<sub>280</sub>); balance primarily sodium citrate; contains 2-4 moles fluorescein isothiocyanate/mole avidin

#### Avidin, Horse Radish Peroxidase Conjugated

**ICN 55898** Liquid in 0.02 M PBS, pH 7.3, 10% glycerol, 0.01% thimerosal

#### Avidin, Peroxidase Conjugated

**Sigma A 3151** Lyophilized powder containing ~80% protein (E<sub>1%</sub><sup>280</sup>); balance primarily citrate buffer; contains 1-2 moles peroxidase/mole avidin; peroxidase activity: 80-160 units/mg protein; avidin activity: 5-10 units/mg protein; 1 unit forms 1 mg of purpurogallin/20 seconds from pyrogallol at pH 6.0, 20°C; coupled by a modification of Sullivan | Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978

#### Avidin, Rhodamine Isothiocyanate Conjugated

**Sigma A 3026** Lyophilized powder containing ~90% protein (Biuret); balance primarily citrate buffer salts; contains 1-2 moles rhodamine isothiocyanate/mole avidin;

#### Avidin, Streptavidin Labeled

**Amersham US11681** *Streptomyces avidinii* A tetrameric protein containing four high specificity binding sites for biotin

#### Avidin, Succinyl Labeled

**Sigma A 3907** Lyophilized powder containing ~90% protein (E<sub>1%</sub><sup>280</sup>); balance sodium citrate; prepared by succinylation by a modification of the procedure of Klapper & Klotz | Klapper, MH & Klotz, IM, *Meth Enzymol*, 25: 531, 1972

#### Avidin, Texas Red Labeled

**ICN 55894** Liquid in 0.02 M PBS, pH 7.3, 10% glycerol, 0.05% NaN<sub>3</sub>

#### Avidin, β-Galactosidase Labeled

**Sigma A 2930** Lyophilized powder containing ~60% protein (E<sub>1%</sub><sup>280</sup>); balance primarily Tris-succinate with a trace of dithiothreitol; galactosidase activity: 200-600 units/mg protein; avidin activity: 2-4 units/mg protein; 1 unit hydrolyzes 1.0 µmole o-nitrophenyl β-D-galactoside/min at pH 7.3, 37°C; prepared from avidin (A 9275) partially acetylated, & β-galactosidase (G 5635) by modification of Sullivan | Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978

#### Azurin

**Sigma A 3672** *Pseudomonas aeruginosa* Lyophilized powder containing ~70% protein (Lowry); balance primarily ammonium acetate buffer salts

#### B Cell Activating Factor

**PeproTech 310-13** Human recombinant, expressed in *E. coli* MW 17.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered novel ligand of the TNF family; important role as costimulator of B cell proliferation & function; soluble; 153 AA; ED<sub>50</sub> < 10 ng/mL; SA determined by the dose-dependent stimulation of IL-8 production by Human PBMC

#### B Cell Attracting Chemokine I

**PeproTech 300-47** Human recombinant, expressed in *E. coli* MW 10.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered chemokine; 85 AA; SA determined by its ability to chemoattract human B cells

#### Bacitracin

**Synonyms:** Polypeptide Antibiotic

**Amersham US11805** *Bacillus subtilis* 38 U/mg (as is) | An antibiotic polypeptide

#### Bacitracin, Zinc

**Synonyms:** Polypeptide Antibiotic

**Amersham US11810** *Bacillus subtilis* ≥40 U/mg (as is); 2-10% Zn | An antibiotic polypeptide

#### BAD Control Proteins

**Oncogene PF086** MW 76k Contains a positive control phosphorylated by PKA *in vitro* & the non-phosphorylated Bad fusion protein | Detects a ~76k mouseBAD peptide including residues Ser<sup>112</sup>, Ser<sup>136</sup>, and Ser<sup>155</sup>, fused to paramyosin

#### BAD, Agarose

**USBio B0003-50** Murine full-length, His-tagged Bad fusion protein expressed in *E. coli* ~90% | Bound with ProBond™ nickel-chelating resin to agarose

#### BAD, Soluble

**USBio B0003-60** Murine recombinant, full-length Bad fused with an N-terminal His<sup>6</sup>-tag, expressed in *E. coli* Applications: kinase assay

## Proteins

### Bafilomycin AI

**USBio B0003-70** >96% by HPLC; soluble in DMSO, EtOH or acetone; lyophilized | A macrolide antibiotic that acts as a specific potent inhibitor of vacuolar-type ATPases; blocks lysosomal cholesterol transport in macrophages

### B-Cell Stimulation Factor, Pre-

**Synonyms:** Stromal Cell Derived Factor  $\beta$

**Calbiochem 512777** Human recombinant, expressed in *E. coli* MW 8.5k  $\geq 97\%$  (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50  $\mu$ g BSA/ $\mu$ g PBSF/SDF-1 $\beta$ ; biological activity: ED<sub>50</sub>=50-100 ng/mL as measured by its ability to chemoattract human T lymphocytes cultured in the presence of IL-2; endotoxin:  $\leq 100$  pg/ $\mu$ g PBSF/SDF-1 $\beta$  | Supports the proliferation of a stromal cell-dependent pre-B cell line; found to be a chemoattractant for T lymphocytes & monocytes but not neutrophils; recently shown to be a ligand for the CSCR4 (fusin/LESTR) receptor that functions as a coreceptor for lymphocyte-tropic HIV-1 strains; Bleul, C et al, *Nature*, 382: 829, 1996; Oberlin, E et al, *Nature*, 382: 833, 1996; Tashiro, K et al, *Science*, 261: 600, 1993; Nagasaka, T et al, *PNAS*, 91: 2305, 1994

**ICN 195794** Human recombinant, expressed in *E. coli*  $\geq 97\%$ ; lyophilized; max chemotaxis = 1  $\mu$ g/mL, by chemoattractant ability to Fusin (CXCR-4)

### Bcl-2, Agarose

**USBio B0807-06** Murine full-length Bcl-2, GST fusion protein expressed in *E. coli* 5  $\mu$ g of fusion protein, 54kD, bound to 50  $\mu$ L of packed glutathione-agarose beads in PBS with 10% glycerol; provided as a 50% slurry for a total volume of 100  $\mu$ L; frozen solution | Bound to glutathione-agarose; overexpression of Bcl-2 blocks apoptosis in response to a number of inductive stimuli; forms heterodimers with Bax & other family members; phosphorylation of Bcl-2 may decrease its anti-apoptotic activity

### B-DNF

**BioSource International PHC7014** Human recombinant

### Bence Jones Protein $\kappa$

**Cortex CP8105U** >98%

**Cortex CP8106** >95%

### Betacellulin

**IBT ARU020, ARU100** Bovine recombinant, expressed in *E. coli* MW 8995 Lyophilized from 50 mM acetic acid, 0.05% (v/v) TFA | In the EGF family; 80 AA heparin-binding protein; synthesized as a transmembrane precursor; the soluble cytokine, containing 1 EGF structural motif, is released by proteolytic cleavage

**IBT ASU010** Rat recombinant, expressed in *E. coli* MW 9039 Lyophilized from 50 mM acetic acid, 0.05% (v/v) TFA | Binds the EGF receptor (ErbB-1) which then dimerizes with an EGF receptor family one (ErbB-1, ErbB-2, ErbB-3 or ErbB-4) to signal through the tyrosine kinase pathway; at high concentrations EGF & BTC can induce cell growth & differentiation in the absence of ErbB-1 (TGF- $\alpha$  cannot); potent mitogen for Balb/c 3T3 fibroblasts, retinal pigment epithelial cells & vascular smooth muscle cells

### Betacellulin Epidermal Growth Factor

**Sigma B 3670** Human recombinant, expressed in *E. coli* MW 9.5k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from PBS containing 500  $\mu$ g BSA; bioactivity is measured in cell proliferation assay using BALB/3T3 fibroblasts; endotoxin tested; see Sigma E 1264 | New member of the EGF family of cytokines

### Biglycan

**Sigma B 8041** Bovine articular cartilage MW  $> 2.5 \times 10^6$  Lyophilized, essentially salt-free; sterile-filtered | 200-350k proteoglycan consisting of a 45k core protein & 2 chondroitin/dermatan sulfate glycosaminoglycan chains; interacts with collagen type I as well as with fibronectin & TGF- $\beta$ ; Roughley, PJ et al, *Matrix Biol*, 14: 51, 1994; Schonherr, E et al, *J Biol Chem*, 270: 2776, 1995; Pogany, G et al, *Arch Biochem Biophys*, 313: 102, 1994

### Bone Morphogenic Protein II

**Kamiya** Recombinant MW 12k  $> 85\%$  &  $< 95\%$  (SDS-PAGE)

### Bone Morphogenic Protein, Natural Cocktail

**Kamiya**

### Botulinum Toxin A

**Calbiochem 203674** *Clostridium botulinum* MW 500k Liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0, stabilized with hemagglutinin; single band purity (disc gel electrophoresis); highly toxic: LD<sub>50</sub> $\leq 50$  mg/kg | Presynaptic toxin that acts at neuromuscular junctions & inhibits acetylcholine release; inhibits catecholamine secretion from bovine adrenal medullary cells; does not affect the entry of Ca<sup>2+</sup> into cells; Schiavo, G et al, *Ann NY Acad Sci*, 710: 65, 1994; in *Botulinum Neurotoxins & Tetanus Toxin* (Simpson, LL, ed), Academic Press, San Diego, CA

### Botulinum Toxin A Heavy Chain

**Calbiochem 203652** *Clostridium botulinum* MW 100k Lyophilized solid; single band purity (SDS-PAGE); toxic: LD<sub>50</sub> $\leq 200$  mg/kg but  $> 50$  mg/kg | Subunit of botulinum toxin A responsible for membrane binding & internalization; useful in binding studies; Gill, DM, *Microbiol Rev*, 46: 86, 1982

### Botulinum Toxin A Light Chain

**Calbiochem 203650** *Clostridium botulinum* MW 50k Lyophilized solid; single band purity (SDS-PAGE); toxic: LD<sub>50</sub> $\leq 200$  mg/kg but  $> 50$  mg/kg | Enzymatic subunit of botulinum toxin A responsible for blocking acetylcholine release from synaptic vesicles; mimics the intact toxin if injected into cells; Gill, DM, *Microbiol Rev*, 46: 86, 1982; Simpson, LL, in *Methods in Neuroscience* (Conn, PM, ed), Academic Press, 8: 56, 1992

### Botulinum Toxin B

**Calbiochem 203672** *Clostridium botulinum* MW 500k Liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0, stabilized with hemagglutinin; single band purity (disc gel electrophoresis); highly toxic: LD<sub>50</sub> $\leq 50$  mg/kg | Neurotoxin that inhibits catecholamine secretion from bovine adrenal medullary cells & acts at neuromuscular junctions, repressing the release of acetylcholine

### Botulinum Toxin B Heavy Chain

**Calbiochem 203656** *Clostridium botulinum* MW 100k Lyophilized solid; single band purity (SDS-PAGE); toxic: LD<sub>50</sub> $\leq 200$  mg/kg but  $> 50$  mg/kg | Subunit of botulinum toxin B responsible for membrane binding & internalization; useful in binding studies; Gill, DM, *Microbiol Rev*, 46: 86, 1982

### Botulinum Toxin B Light Chain

**Calbiochem 203654** *Clostridium botulinum* MW 50k Lyophilized solid; single band purity (SDS-PAGE); toxic: LD<sub>50</sub> $\leq 200$  mg/kg but  $> 50$  mg/kg | Enzymatic subunit of botulinum toxin B responsible for blocking acetylcholine release from synaptic vesicles; mimics the intact toxin if injected into cells; Gill, DM, *Microbiol Rev*, 46: 86, 1982; Simpson, LL, in *Methods in Neuroscience* (Conn, PM, ed), Academic Press, 8: 56, 1992

**Botulinum Toxin C**

**Calbiochem 203676** *Clostridium botulinum* MW 500k  
Liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0, stabilized with hemagglutinin; single band purity (disc gel electrophoresis); highly toxic: LD<sub>50</sub> ≤ 50 mg/kg | Neurotoxin that inhibits catecholamine secretion from bovine adrenal medullary cells & acts at neuromuscular junctions, repressing the release of acetylcholine; exhibits ADP-ribosyltransferase activity

**Botulinum Toxin D**

**Calbiochem 203677** *Clostridium botulinum* MW 300k  
Single band purity (disc gel electrophoresis); liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0; highly toxic: LD<sub>50</sub> ≤ 50 mg/kg | Potent neurotoxin that acts at presynaptic terminals of cholinergic neurons, blocking the release of acetylcholine; inhibits catecholamine secretion from bovine adrenal medullary cells & human neutrophils; causes GTP-stimulated ADP-ribosylation of a 22 kDa protein isolated from mouse brain membranes; Nath, J et al, *J Immunol*, 152: 1370, 1994

**Botulinum Toxin E**

**Calbiochem 203673** *Clostridium botulinum* MW 300k  
Liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0; highly toxic: LD<sub>50</sub> ≤ 50 mg/kg | Neurotoxin that acts at neuromuscular junctions, repressing the release of acetylcholine

**Botulinum Toxin F**

**Calbiochem 203679** *Clostridium botulinum* MW 235k  
Liquid in 200 mM NaCl, 50 mM NaOAc, pH 6.0; single band purity (disc gel electrophoresis); highly toxic: LD<sub>50</sub> ≤ 50 mg/kg | Neurotoxin that acts at neuromuscular junctions, repressing the release of acetylcholine; in *Botulinum Neurotoxins & Tetanus Toxin* (Simpson, LL, ed), Academic Press, San Diego, CA

**Botulinum Toxoid Type A**

**Calbiochem 203653** *Clostridium botulinum* Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; non-toxic as determined by LD<sub>50</sub> assay in mice | Prepared by formaldehyde inactivation of botulinum toxin type A

**Botulinum Toxoid Type B**

**Calbiochem 203658** *Clostridium botulinum* Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; non-toxic as determined by LD<sub>50</sub> assay in mice | Prepared by formaldehyde inactivation of botulinum toxin type A

**Bradykinin**

**ARC ART-701** MW 1060.24 2,3-(Prolyl-3,4-H(N)) 90-120 Ci/mmol; 3.33-4.44 TBq/mmol; in 0.2% TFA: CH<sub>3</sub>CN (80:20) | Radiochemical

**Breast Tumor Marker Antigen**

*Synonyms:* Ca 15-3®

**ICN 771001 ICN 771002 ICN 771003** Human ascites >96%; iodination grade; >50,000 U/mL | for immunization or labeling

**Bungarotoxin, FITC-α-**

*Synonyms:* Snake Toxin

**Sigma T 9641** *Bungarus multicinctus* ~1 mole FITC/mole α-bungarotoxin | Fluorescent label for nicotinic receptors on the motor endplate

**Sigma T 3783** *Bungarus multicinctus* 0.5-1 mole FITC/mole β-bungarotoxin | Fluorescent label for cholinergic terminals

**Bungarotoxin, α-**

*Synonyms:* Snake Toxin; Phospholipase A<sub>2</sub> Presynaptic, Neurotoxic

**Sigma T 3019** *Bungarus multicinctus* Binds irreversibly to motor endplate acetylcholine receptors; prevents opening of nicotinic receptor-associated ion channels

**Sigma B-137** *Bungarus multicinctus* (Elapidae snake) White solid; peptide content & salt form information are provided with each lot | Neurotoxin which binds irreversibly with post-synaptic cholinergic receptors to produce neuromuscular blockage; potent neurotoxin; Mebs et al, *Biochem Biophys Res Commun*, 44: 711, 1971; Kalash et al, *Neuroendocrinology*, 49: 462, 1989; Kamiya et al, *Brain Res Bull*, 8: 431, 1982

**Alexis 630-050** *Bungarus multicinctus* MW 6979.0 ≥98%; lyophilized powder; soluble in water or aqueous buffers; potent neurotoxin | Halliwell, JV, *J Neurochem*, 39: 543, 1982; Kondo, K et al, *J Biochem*, 91: 1519 & 1531, 1982; Rehm, H & Betz, H, *J Biol Chem*, 259: 6865, 1984; Petersen, M et al, *Neurosci Lett*, 68: 141, 1986; Schmidt, RR & Betz, H, *Biochemistry*, 28: 8346, 1989; Danse, JM et al, *Nucl Acids Res*, 18: 4609, 1990; Strong, PN, *Pharmacol ther*, 46: 137, 1990

**Sigma T 5644** *Bungarus multicinctus* Toxic phospholipase A<sub>2</sub> | Destroys synaptic vesicles & inhibits ACh release

**C Reactive Protein**

**ICN 194983** Human ascites >95%; supplied in 2 mM CaCl<sub>2</sub>, 150 mM NaCl, 20 mM Tris, pH 7.5 | Useful in immunological studies & in rheumatoid arthritis diagnosis

**Sigma C 4063** Human plasma Solution in 0.02 M Tris, 0.25 M NaCl, pH 8.0, containing 0.1% sodium azide; protein determined by Lowry

**ICN 150713** Human pleural & ascites fluid & plasma >99%; 1.0-3.0 mg protein/mL in 220 mM NaCl, 0.1% NaN<sub>3</sub>, 20 mM Tris, pH 8.0 | Recommended for immunological applications in the preparation of antisera

**ICN 152315** Human pleural & ascites fluid & plasma >95%; 1.5-3.0 mg protein/mL in 220 mM NaCl, 0.1% NaN<sub>3</sub>, 20 mM Tris, pH 8.0 | Suitable for use as a standard in CRP assays &/or kit calibration for diagnostic purposes

**Biodesign A15200H** Human pleural fluid 60-80% | Cardiac markers

**Biodesign A97201H** Human pleural fluid >99% | Cardiac markers

**ICN 194982** Human serum >99%; supplied in 2 mM CaCl<sub>2</sub>, 140 mM NaCl, 0.1% NaN<sub>3</sub>, 10 mM Tris, pH 8.0 | For use as a calibration standard, structural & functional studies, & an Ag for antisera production

**Sigma C 8898** *Limulus polyphemus* Hemagglutinin free; lyophilized powder containing ~60% protein (modified Warburg-Christian); balance primarily NaCl, Tris succinate, calcium acetate; prepared from C 7023 by removal of hemagglutinin

**C1**

**Cortex CP1093** >95%

**C1 Esterase Inhibitor**

**Cortex CP2041U** >98%

**C-10**

*Synonyms:* MRP-1

**Biodesign A52006M** *E. coli* MW 10.7k Purified | Species specificity: mouse

**Chemicon GF076** Murine ≥95%

**PeproTech 250-06** Murine recombinant, expressed in *E. coli* MW 10.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Member of the CC chemokine family; related to macrophage inflammatory protein-1 alpha (MIP-1a); 95 AA; SA determined by its ability to chemoattract Balb/c mouse spleen MNCs

## Proteins

C-10 Chemokine		
<b>Sigma C 0835</b>	Mouse recombinant, expressed in <i>E. coli</i> ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 0.5 mg BSA; endotoxin tested   Member of the CC or β chemokine class which act primarily as chemoattractants & activate monocytes, dendritic cells, T lymphocytes, natural killer cells, B lymphocytes, basophils & eosinophils; originally identified as a transcript that is induced in bone marrow cells upon stimulation with GM-CSF; the precursor form of C-10 consists of 116 AA; to generate the mature C-10 (95 AA) the precursor cleaves its hydrophobic signal peptide; a combination of chemoattractant & cytokine, describing proteins structurally defined as chemoattractants for leukocytes; Schall, T, in: <i>The Cytokine Handbook</i> , Thomson, A (ed), Academic Press, San Diego, p. 419, 1994; Murphy, PM, <i>Ann Rev Immunol</i> , 12: 593, 1994; Miller, MD et al, <i>Crit Rev Immunol</i> , 12: 17, 1992; Oppenheim, JJ et al, <i>Ann Rev Immunol</i> , 9: 617, 1991; Rot, A et al, <i>J Exp Med</i> , 176: 1489, 1992; Rollins, BJ et al, <i>Mol Cell Biol</i> , 11: 3215, 1991; Walter, S et al, <i>Int J Cancer</i> , 49: 431, 1991; Tanaka, Y et al, <i>Nature</i> , 361: 79; 1993	
C1Q		
<b>Cortex CP1002U</b>	>98%	
<b>USBio C0010-10</b>	Human	≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL (≥500,000 U/mg) supplied in PBS buffer, 40% glycerol, pH 7.2, no preservative   Suitable for antigenic applications in immunological protocols
C2		
<b>Cortex CP2021</b>	>98%	
C3		
<b>Cortex CP1036U</b>	>98%	
C3b		
<b>Cortex CP1044</b>	>95%	
C3c		
<b>Cortex CP1040</b>	>95%	
C3d		
<b>Cortex CP1043</b>	>95%	
C4		
<b>Cortex CP1037</b>	>95%	
C4a		
<b>Cortex CP1091U</b>	>98%	
C4b		
<b>Cortex CP2011U</b>	>98%	
C4b Binding Protein		
<b>ICN 194188</b>	Human plasma	Purified; <0.25 µg protein S (ELISA)
C5		
<b>Cortex CP2026U</b>	>98%	
C5b,6		
<b>Cortex CP2031U</b>	>98%; complex	
C6		
<b>Cortex CP2032U</b>	>98%	

C7		
<b>Cortex CP2033U</b>	>98%	
C8		
<b>Cortex CP2034U</b>	>98%	
C9		
<b>Cortex CP1050</b>	>95%	
CA72-4 Cancer Antigen		
<b>USBio C0100</b>	Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 100K U/mL (Centocor RIA) supplied in 0.1 M PBS, pH 7.4, 0.05% NaN <sub>3</sub> , 2.5% sucrose   Suitable for antigenic applications in immunological protocols, calibrators & controls; some background levels of CA-125 & CA-19-9	
Cag Antigen, <i>Helicobacter pylori</i>		
<b>IBT HPA-5000-4, HPA-5000-5</b>	<i>E. coli</i> MW 30k >90%; 0.50 mg/mL solution in PBS, 0.1% SDS, 10 mM EDTA, pH 7.4   Covers Glu <sup>748</sup> to Glu <sup>1015</sup> of <i>H. pylori</i> cytotoxin-associated gene A	
Calbindin		
<i>Synonyms:</i> CaBP-9k		
<b>Biogenesis 0100-0078</b>	Porcine synthetic intestine Purified; lyophilized   Schroder et al, <i>J Physiol</i> , 429:715, 1996	
Calbindin-D <sub>9k</sub>		
<i>Synonyms:</i> CaBP-9k		
<b>Calbiochem 206500</b>	Porcine intestine MW 8840 ≥98% (HPLC); white lyophilized solid; soluble in water   Intestinal vitamin D-dependent calcium-binding protein; functions as a cytosolic buffer for Ca <sup>2+</sup> ions in duodenal enterocytes & facilitates transepithelial active transport of Ca <sup>2+</sup> ions; also present in pig uterus & placenta; binds two equivalents of Ca <sup>2+</sup> ; Hitchman, AJW & Harrison, JE, <i>Can J Biochem</i> , 50: 758, 1972; Schroder, B et al, <i>J Physiol</i> , 429: 715, 1996	
Calcineurin		
<i>Synonyms:</i> Calmodulin Binding Protein; Modulator Binding Protein; Protein Phosphatase 2B; Ca <sup>++</sup> /Calmodulin-Dependent Serine/Threonine Phosphatase		
<b>Fluka 21044</b>	Bovine brain ~30 U/mg; ~1% protein content; 1 U corresponds to the amount of protein causing 50% inhibition of the activated 3',5'-cyclic nucleotide activity, when assayed with 2 U calmodulin & 0.1 mM Ca <sup>2+</sup> in an enzyme coupled system at pH 7.5, 30°C   Aitken, A et al, <i>Dev Biochem</i> , 25: 113, 1983	
<b>ICN 150545</b>	Bovine brain Lyophilized; ~1% protein, with buffers, salts & stabilizers; 1U causes 50% inhibition of activated phosphodiesterase 3'-5' cyclic nucleotide activity when assayed in 2 U activator & 0.1 mM Ca <sup>2+</sup> in an enzyme coupled system	
<b>Sigma C 1907</b>	Bovine brain Lyophilized powder containing ~1% protein (Lowry); balance 0.5% EGTA, buffer salts & stabilizers; activity: 2,500-5,000 units/mg protein; unit definition: 1 unit causes a 50% inhibitions of the activated phosphodiesterase, 3':5'-cyclic nucleotide (P 9529) activity when assayed with 2 units of activator (P 2277) & 0.1 mM Ca <sup>++</sup> in an enzyme coupled system at pH 7.5, 30°C   Involved in T-lymphocyte activation; may be involved in hyperphosphorylation of tau in Alzheimer's disease; inhibits calmodulin-induced activation of cyclic nucleotide-dependent phosphodiesterase	
<b>Biogenesis 0100-0122</b>	Human r-DNA <i>E. coli</i> MW 60k (A), 15k (B) Purified; 25 mM TRIS, 3 mM MgCl <sub>2</sub> , 1 mM DTT, 1 mM EGTA, pH 7.4; liquid   Recombinant human calcineurin A and B co-expressed with yeast myristoyl-Co-A:protein N-myristoyltransferase; the resulting highly active calcineurin is N-myristoylated on the CaNB-subunit, as is the native protein; Mondragon et al, <i>Biochem</i> , 36:4934, 1997	



**Calcineurin, B $\alpha$ -**

<b>Chemicon AG640</b>	Bovine brain	≥95%	Purified protein for apoptosis & signal transduction
<b>Chemicon AG655</b>	Recombinant	≥95%	Purified protein for apoptosis & signal transduction

**Calcineurin, B $\alpha$ - His Tag**

<b>Chemicon AG656</b>	Recombinant	≥95%	Purified protein for apoptosis & signal transduction
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**Calciseptine**

**ICN 193934** *Dendroaspis p. polyepes* MW 7036 A polypeptide toxin consisting of 60 residues that selectively blocks L-type voltage-dependent Ca<sup>2+</sup> channels in various cells; De Wille et al, *PNAS*, 88:2437, 1991

**Calcium Binding Protein**

**Sigma C 1540** Bovine mucosa Vitamin-induced; lyophilized powder containing ~60% protein (Lowry); balance salts; prepared by the modification of the method of Bryant & Andrews | Bryant, DW & Andrews, P, *Biochem J*, 211: 709, 1983

**Calmodulin**

**Synonyms:** Phosphodiesterase 3':5'-Cyclic Nucleotide Activator; Phosphodiesterase 3':5'-Cyclic Nucleotide Activator; Phosphodiesterase 3':5'-Cyclic Nucleotide Activator, Gold Conjugated; Phosphodiesterase 3':5'-Cyclic Nucleotide Activator, FITC Conjugated; Nitric Oxide Synthase Activator

**ICN 195697** Lyophilized; virtually salt free; 15,000-30,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup> | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Alexis 202-024** Bovine brain ≥98% (SDS gel electrophoresis); essentially salt-free; lyophilized powder; specific activity: >20,000 U/mg protein (Lowry); 1 unit stimulated 0.016 activated units of phosphodiesterase 3':5'-cyclic nucleotide to 50% of the max activity of the enzyme when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup> at 30°C, pH 7.5

**Biogenesis 1740-2384** Bovine brain >98% (SDS-PAGE); essentially salt free; SA: >4000 U/mg protein; purified material; no preservatives; lyophilized

**Calbiochem 208690** Bovine brain MW 16,723 ≥95% (SDS-PAGE); solid lyophilized from 50 mM Tris-HCl, 150 mM NaCl, 2 mM EDTA, pH 7.6; specific activity: ≥12,500 units/mg protein; 1 unit gives rise to 50% of the maximal enzyme activation of a standard level of activator-deficient 3',5'-cyclic nucleotide phosphodiesterase | *Merck Index*, 12: 1767

**Calbiochem 208694** Bovine brain MW 16,723 High Purity ≥99% (SDS-PAGE); solid lyophilized from 1.7 mM HEPES, 30 μM CaCl<sub>2</sub>, pH 7.0; specific activity: ≥13,000 units/mg protein; 1 unit gives rise to 50% of the maximal enzyme activation of a standard level of activator-deficient 3',5'-cyclic nucleotide phosphodiesterase | *Merck Index*, 12: 1767

**ICN 195691** Bovine brain MW 16.7k Lyophilized; 1.7 mM HEPES, pH 7, 30 mM CaCl<sub>2</sub>; 13,000 U/mg; 1 U activates 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub>; ≥99% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**ICN 195692** Bovine brain Lyophilized; virtually salt free; >40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>; ≥98% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Sigma P 0809** Bovine brain MW acidic proteins (<30k) Crude; lyophilized powder containing calmodulin & S-100 proteins (BCA) | Convenient source of low actual percentages of protein activator & S-100 proteins as determined by HPLC provided on label

**Sigma P 1062** Bovine brain MW 3350 (spacer to albumin-coated colloidal gold) 5 nm colloidal Gold labeled; mean particle diameter 3.5-6.5 nm, monodisperse; calmodulin from Sigma P 2277 coupled through PEG; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, pH 7.0, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | For the enhanced detection of calmodulin binding compounds; Fujimoto, K et al, *J Histochem Cytochem*, 37: 249, 1989

**Sigma P 1187** Bovine brain MW 3350 (spacer to albumin-coated colloidal gold) 10 nm colloidal Gold labeled; mean particle diameter 8-10 nm, monodisperse; calmodulin from Sigma P 2277 coupled through PEG; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, pH 7.0, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | For the enhanced detection of calmodulin binding compounds; Fujimoto, K et al, *J Histochem Cytochem*, 37: 249, 1989

**Sigma P 2277** Bovine brain ~95% (SDS-PAGE); essentially salt-free; lyophilized powder; activity: >40,000 U/mg protein (Lowry); unit definition: 1 U stimulates 0.016 activated U of phosphodiesterase 3':5'-cyclic nucleotide, Sigma P 0520, in a 3 mL reaction volume at pH 7.5 & 30°C to 50% of maximum activity of the enzyme when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup> | Ca<sup>2+</sup> binding protein that is required for activation of cyclic nucleotide-dependent phosphodiesterase; involved in intracellular Ca<sup>2+</sup> homeostasis; O'Neil, KT & DeGrado, WF, *Trends Pharmacol Sci*, 15: 59, 1990

**Sigma P 3922** Bovine brain Essentially salt-free; lyophilized powder; activity: >40,000 U/mg protein (Lowry); prepared by labeling Sigma P 2277 with tetramethylrhodamine isothiocyanate; contains 0.5-1.0 mole TRITC/mole of protein | Useful for the direct localization of calmodulin binding inside the cell, i.e. binding on mitochondria, & as a probe in studying mitosis *in vivo*; Zavortink et al, *Exp Cell Res*, 149: 375, 1983; Pardue, RL et al, *Cell*, 23: 533, 1981

**Sigma P 4046** Bovine brain Essentially salt-free; lyophilized powder; activity: >40,000 U/mg protein (Lowry); prepared by labeling Sigma P 2277 with fluorescein isothiocyanate; contains 0.5-1.0 mole FITC/mole of protein | Useful as a probe in studying mitosis *in vivo*; Zavortink et al, *Exp Cell Res*, 149: 375, 1983

**ICN 195693** Bovine heart Lyophilized; 2500-10,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>; ≥90% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Sigma P 0270** Bovine heart Lyophilized powder containing ~90% protein (Lowry); balance primarily buffer salts as imidazole & magnesium sulfate; activity: 2,500-10,000 U/mg protein; purified by modification of Teo | Protein activator required for the Ca<sup>2+</sup> dependent activation of phosphodiesterase 3':5'-cyclic nucleotide, Sigma P 0520; Teo, TS et al, *J Biol Chem*, 248: 588, 1973

**Fluka 21275** Bovine testes MW ~17k Lyophilized calcium complex; ≥70,000 U/mg protein; ~3.5% Ca; 1 U is the amount required to get 50% of the max activity of calcium-dependent, calmodulin-free phosphodiesterase

**ICN 195694** Bovine testes Lyophilized; virtually salt free; >40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>; ≥98% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Sigma P 1431** Bovine testes >98% (SDS-PAGE); essentially salt-free; lyophilized powder; activity: >40,000 U/mg protein (Lowry) | Ca<sup>2+</sup> binding protein that is required for activation of cyclic nucleotide-dependent phosphodiesterase; involved in intracellular Ca<sup>2+</sup> homeostasis; O'Neil, KT & DeGrado, WF, *Trends Pharmacol Sci*, 15: 59, 1990

**Calbiochem 208695** Chicken recombinant, expressed in *E. coli* MW 16.7k ≥95% (SDS-PAGE); liquid in 100 mM KCl, 10 mM Tris-HCl, 1 mM DTT, 1 mM EDTA, pH 7.5; biological activity: Will activate nitric oxide synthase

**ICN 195894** Chicken recombinant, expressed in *E. coli* MW 16.7k ≥95%

**Biogenesis 1740-2656** Human brain Lyophilized

## Proteins

**Calbiochem 208698** Human brain MW 16.7k ≥98% (SDS-PAGE); salt-free lyophilized solid; specific activity: ≥40,000 units/mg protein; 1 unit gives rise to 50% of the maximal enzyme activation of a standard level of activator-deficient 3',5'-cyclic nucleotide phosphodiesterase | Prepared from tissue of individuals that have been shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV

**USBio C1035** Human brain ≥98%; no contaminants detected; single band by SDS PAGE, IEP, &/or RID; 40K U/mg; salt-free lyophilized | Suitable for antigenic applications in immunological protocols; 1 U increases the maximal enzyme activation of activator-deficient 3', 5'-cyclic nucleotide phosphodiesterase by 50%

**Biodesign A86810H** Human brain tissue >98% | Apoptosis & signal transduction

**Fluka 21272** Human erythrocytes MW ~17k ≥99.0% (HPLC); lyophilized calcium complex stabilized with CaCl<sub>2</sub> & imidazole hydrochloride; ~50,000 U/mg protein; ~1% Ca; 1 U is the amount required to get 50% of the max activity of calcium-dependent, calmodulin-free phosphodiesterase | CaM

**ICN 195695** Human erythrocytes Lyophilized; virtually salt free; 30,000-40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>; ≥90% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Biogenesis 1740-2699** Ovine testis Purified; lyophilized

**ICN 195696** Porcine brain Lyophilized; virtually salt free; >40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>; ≥95% | Used to activate CaM-dependent phosphodiesterase, calcineurin, CaM kinases, etc

**Sigma P 1915** Porcine brain >95% (SDS-PAGE); essentially salt-free; lyophilized powder; activity: >40,000 U/mg protein (Lowry) | Ca<sup>2+</sup> binding protein that is required for activation of cyclic nucleotide-dependent phosphodiesterase; involved in intracellular Ca<sup>2+</sup> homeostasis; O'Neil, KT & DeGrado, WF, *Trends Pharmacol Sci*, 15: 59, 1990

**Sigma P 5779** Spinach Essentially salt-free; lyophilized powder; activity: 15,000-30,000 U/mg protein (Lowry) | Ca<sup>2+</sup> binding protein that is required for activation of cyclic nucleotide-dependent phosphodiesterase; involved in intracellular Ca<sup>2+</sup> homeostasis; O'Neil, KT & DeGrado, WF, *Trends Pharmacol Sci*, 15: 59, 1990

### Calmodulin Bα His Tag

**Chemicon AG10P** ≥95% | Purified protein for apoptosis & signal transduction

### Calmodulin Kinase II Inhibitor

**USBio C1036-80** Recombinant, expressed in *E. coli* MW 70k >70% | Expressed mainly in brain & testis

### Calmodulin, 10 nm Colloidal Gold Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, Gold Conjugated

**ICN 195703** Bovine brain Lyophilized

### Calmodulin, 20 nm Colloidal Gold Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, Gold Conjugated

**ICN 195704** Bovine brain Lyophilized

### Calmodulin, 5 nm Colloidal Gold Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, Gold Conjugated

**ICN 195702** Bovine brain Lyophilized

### Calmodulin, AEDANS Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, AEDANS Conjugated

**ICN 195698** Bovine brain Lyophilized; >30,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>

### Calmodulin, Agarose

**ICN 191303** 5 atoms hydrophilic spacer arm; 1 mg Calmodulin per mL gel; suspension in PBS, 0.02% Na<sub>3</sub>N | Applications: ATPases, protein kinases, phosphodiesterases, proteins in neurotransmission

### Calmodulin, Biotin Conjugated

**Calbiochem 208697** Bovine brain Liquid in PBS 1 mg/mL BSA, 0.02% Na<sub>3</sub>N; may be carcinogenic/teratogenic | Biotin-CaM; useful for the study of calmodulin-binding proteins; Hern Andex, EO et al, *Tissue Cell*, 26: 849, 1994; Kincaid, RL et al, *Methods Enzymol*, 159: 605, 1988

### Calmodulin, Dansyl-

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, Dansyl-

**ICN 195699** Bovine brain Lyophilized; dansyl chloride labeled; ~30,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>

### Calmodulin, FITC Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, FITC Conjugated

**ICN 195701** Bovine brain Lyophilized; >40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>

### Calmodulin, Immobilized

**Calbiochem 208702** Bovine brain Cross-linked agarose matrix coupled to 1 mg/mL calmodulin in PBS buffer containing 0.02% Na<sub>3</sub>N | Tariq Khan, M et al, *J Biol Chem*, 269: 10016, 1994; Lukas, TJ & Watterson, DM, *Methods Enzymol*, 157: 328, 1988

### Calmodulin, TRITC Conjugated

**Synonyms:** Phosphodiesterase 3:5'-Cyclic Nucleotide Activator, TRITC Conjugated

**ICN 195705** Bovine brain Lyophilized; >40,000 U/mg; 1 U activates 0.016 U 3',5'-cyclic-nucleotide phosphodiesterase to 50% V<sub>max</sub> when saturated with activator in the presence of 0.01 mM Ca<sup>2+</sup>

### Calmodulin-Dependent Phosphodiesterase

**Chemicon AG641** Bovine brain ≥95% | Purified protein for apoptosis & signal transduction

### Calpain Inhibitor I

**Biogenesis 1740-6110** Non-species synthetic Lyophilized

### Calpain Inhibitor II

**Biogenesis 1740-6120** Non-species synthetic Lyophilized

### Calpain Inhibitor III

**Biogenesis 1740-6130** Non-species synthetic Lyophilized

### Calpain Inhibitor IV

**Biogenesis 1740-6140** Non-species synthetic Lyophilized

**Calpastatin**

**Synonyms:** Calcium Activated Neutral Proteinase Inhibitor; Protease Inhibitor

**Calbiochem 208901** Human erythrocytes MW 250k Liquid in 30 mM Tris-HCl, 1 mM EDTA, 1 mM EGTA, 600 μM DTT, 40% glycerol, pH 7.4; specific activity: ≥1000 units/mg protein; one unit is the amount of protein that inhibits the increase in absorbance at 750 nm by 1.0 induced by one unit of calpain I at 30°C, pH 7.5 using casein as a substrate | Tetrameric protein that is a specific, endogenous inhibitor of the calcium-activated neutral proteinases; prepared from blood that has been shown to be negative for HBsAg & for antibodies to HIV & HCV; Melloni, E et al, *Biochem Biophys Res Comm*, 106: 731, 1981; Shigeta, K et al, *Biochem Int*, 9: 327, 1994; Parkes, C, *Proteinase Inhibitors* (Barrett & Salvesen, eds), 19: 571, Elsevier Science Publishers BV, 1986

**Calbiochem 208900** Human recombinant MW 14k Homogeneous purity (SDS-PAGE); lyophilized solid; soluble in water | Domain I of human calpastatin; endogenous protease inhibitor that acts specifically on calpain I; exhibits greater inhibitory capacity than calpain inhibitors I & II; not available for sale in Japan; Salamino, F et al, *Biochem Biophys Res Comm*, 199: 1326, 1994; Vemori, T et al, *Biochem Biophys Res Comm*, 166: 1485, 1990; Asada, K et al, *J Enzyme Inhib*, 3: 39, 1989

**Calreticulin**

**Sigma C 4714** Bovine liver MW 60k Lyophilized powder; ≥90% (SDS-PAGE); essentially salt-free | A high-specificity calcium binding protein which plays a dynamic role in calcium homeostasis; binds directly to the DNA domain of hormone receptors as well as to the regulatory cytoplasmic domain of proteins of the integrin family; possesses a chaperone function; Mery, L et al, *J Biol Chem*, 271: 9332, 1996; Burns, K et al, *Nature*, 367: 476, 1994; Dedhar, S, *TIBS*, 19: 269, 1994; Wada, I et al, *J Biol Chem*, 270: 20298, 1995

**Calyculin A**

**USBio C1036-70** >98% by HPLC; lyophilized; soluble in DMSO & EtOH, insoluble in H<sub>2</sub>O | Potent inhibitor (K<sub>i</sub> ~ 0.1 nM) with high specificity for the PP-1 & PP-2 classes of protein Ser/Thr phosphatase

**Cancer Antigen 125**

**Cortex CP1062** Low cross grade purity

**Cortex CP1062P** Standard grade purity

**Biodesign A32303H** Human fluids Ovarian cancer calibrator grade; low cross reactivity | Tumor markers, cancer antigens & oncogenes

**Biodesign A97182H** Human fluids Ovarian cancer calibrator grade | Tumor markers, cancer antigens & oncogenes

**Cancer Antigen 15-3**

**USBio C0050-20** Human ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; CA125 ≤1%, CA 19-9 ~6%, CA 72-4 ≤0.05%; 130K U/mL supplied in 0.01 M phosphate, 0.1 M NaCl, pH 7.2, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**USBio C0050-24** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 6,100 U/mL (CIS RIA) supplied in 0.1 M NaCl, 0.01 M phosphate, pH 7.4, & 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**USBio C0050-21** Human fluids; ≥90% (HPLC); ≤10% background cancer antigens, mainly CA 125; ~20kI U/mL (CIS CA 15-3 ELISA RIA assay); liquid in PBS, pH 7.4, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols.

**Cancer Antigen 15-3™**

**Cortex CP1064** Low cross purity

**Cortex CP1064P** Standard grade purity

**Biodesign A32231H** Cell culture Breast cancer calibrator grade; low cross reactivity | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Biodesign A32618H** Cell culture Breast cancer calibrator grade | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Biodesign A37211H** Cell culture Breast cancer calibrator grade | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Biodesign A33130H** Human fluids Breast cancer calibrator grade; low cross reactivity | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Biodesign A33187H** Human fluids Breast cancer calibrator grade | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Biodesign A97183H** Human fluids Breast cancer antigen grade | Tumor markers, cancer antigens & oncogenes; CA 15-3™ is a trademark of Centocor Inc, Malvern, PA

**Cancer Antigen 19-9**

**Cortex CP1063** Low cross grade purity

**Cortex CP1063P** Standard grade purity

**Biodesign A37116H** Cell culture Gastrointestinal cancer calibrator grade | Tumor markers, cancer antigens & oncogenes

**USBio C0075-13** Human ≥70%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 210K U/mL (CIS RIA) supplied in 20 mM phosphate buffer, 150 mM NaCl, pH 5.2, 0.1% NaN<sub>3</sub>, 0.2m filtered | Suitable for antigenic applications in immunological protocols

**USBio C0075-14** Human ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; CA 125: 0%, CA 15-3: 0%, CA 72-4 ≤ 1%; ~1 M U/mL (CIS RIA) supplied in PBS buffer, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biodesign A32302H** Human fluids Gastrointestinal cancer calibrator grade; low cross reactivity | Tumor markers, cancer antigens & oncogenes

**Biodesign A97184H** Human fluids Gastrointestinal cancer antigen grade | Tumor markers, cancer antigens & oncogenes

**Biodesign A97185H** Human fluids Gastrointestinal cancer antigen grade | Tumor markers, cancer antigens & oncogenes

**Cancer Antigen 19-9®**

**Synonyms:** GI-Pancreatic Tumor Marker Antigen

**ICN 770961 ICN 770962 ICN 770963** Human ascites >65-85%; standard grade; >50,000 U/mL | For controls & calibrators

**ICN 770971 ICN 770972 ICN 770973** Human ascites >96%; iodination grade; >50,000 U/mL | For immunization or labeling

**Cancer Antigen 242™**

**Biodesign A37705H** Cell culture Calibrator grade | Tumor markers, cancer antigens & oncogenes; CA 242™ is a trademark of Kabi Pharmacia

**Cancer Antigen 27-29**

**Cortex CP1096** Low cross grade purity

**Cancer Antigen 50**

**Cortex CP1066** Low cross grade purity

**Cortex CP1066P** Standard grade purity

**Cancer Antigen 50**

**Biodesign A37115H** Cell culture Calibrator grade | Tumor markers, cancer antigens & oncogenes

**Cancer Antigen 50**

**Biogenesis 1695-0356** Human tissue fluids Liquid

**Cancer Antigen 72-4**

**Cortex CP1065** Low cross grade purity

## Proteins

### Cortex CP1065P Standard grade purity

**USBio C0100-10** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 100K U/mL (Centocor RIA) supplied in 0.1 M PBS, pH 7.4, 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, 2.5% sucrose | Suitable for antigenic applications in immunological protocols, calibrators & controls, & other applications where background contaminants need to be minimized; very low background levels (<1%) of CA-125 & CA-19-9

**ICN 770981 ICN 770982 ICN 770983** Human ascites >96%; iodination grade; >50,000 U/mL | Human antigen for immunization or labeling

**Biodesign A32200H** Human fluids Calibrator grade | Tumor markers, cancer antigens & oncogenes

**Calbiochem 209930** Human fluids, TAG-72 Liquid in PBS, pH 7.4 with 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; activity: 5000-50,000 units/mL; contaminants: traces of α<sub>1</sub>-acid glycoprotein, CA 15-3, CA 19-9 & CA 125, CEA & HAS; prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | A glycoprotein that is one of the most sensitive & specific markers for monitoring gastric cancers; elevated in serum of individuals with breast, colon, lung, ovary, rectum & stomach cancers; suitable for use in immunoassays & as a standard; Guadagni, F et al, *Cancer Invest*, 13: 227, 1995; Alles, AJ et al, *Ann Surg*, 219: 131, 1994; Johnson, VG et al, *Cancer Res*, 46: 850, 1986; Klug, TL et al, *Int J Cancer*, 38: 661, 1986

### Cancer Antigen, Breast

**Synonyms:** Cancer Antigen 15-3

**Biogenesis 1695-0056** Human tissue fluids SA: 34,850 U/mL; tested negative for HIV 1 and 2, HCV and HbsAg; purified; PBS buffer, pH 7.4, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid

**Biogenesis 1695-0066** Human tissue fluids Semi-pure; liquid

### Cancer Antigen, Gastrointestinal

**Synonyms:** Cancer Antigen 19-9

**Biogenesis 1695-0156** Human tissue fluids Purified; liquid

**Biogenesis 1695-0166** Human tissue fluids Semi-pure; liquid

### Cancer Antigen, Ovarian

**Synonyms:** Cancer Antigen 125

**USBio C0050-10** Human fluids, ovarian cancer ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; CA 19-9 ≤1.0%, CA72-4 ≤1.0%, CA15-3 ≤0.1%; ≥120K U/mL (ROCHE) supplied in 0.03 M PBS, pH 7.2, 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, sucrose | Suitable for antigenic applications in immunological protocols.

**Biogenesis 1695-0556** Human pleural fluids Tested negative for HIV 1, 2, HCV and HBsAg; purified; PBS buffer, pH 7.4, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid

**Biogenesis 1695-0566** Human tissue fluids Semi-pure; liquid

**USBio C0050** Human, ovarian cancer ≥70% with trace amounts of CEA, CA19-9, CA15-3, CA 72-4; 200K U/mL (ROCHE) supplied in 0.02 M PBS, pH 7.2, 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Cancer Associated Antigen B

**Synonyms:** Cancer Antigen 15-3

**Calbiochem 209915** Breast tumor, Human fluids MW 400k Liquid in PBS, pH 7.4 with 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; concentration: 10,000-200,000 units/mL (RIA); contaminants: CA 19-9 & CA 125: <25%; prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | A glycoprotein normally present at levels < 30 units/mL, found in significantly higher levels in serum of women with metastatic breast cancer; exists in serum & fluid as a high molecular weight complex of >1,000,000; suitable for use in immunoassays & as an immunogen; Barros, AC et al, *Eur J Surg Oncol*, 20: 130, 1994; Reddish, M et al, *J Tumor Marker Oncol*, 7: 1, 1993; Hilken, J et al, *Int J Cancer*, 34: 197, 1984; Kufe, D et al, *Hybridoma*, 3: 223, 1984

### Cancer Associated Antigen GI

**Synonyms:** Cancer Antigen 19-9

**Calbiochem 209920** Gastrointestinal tumor, Human fluids MW 200k Liquid in PBS, pH 7.4 with 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; activity: 50,000-200,000 units/mL (CIS-EIA); contaminants: CA 15-3 & CA 125: <25%; prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | A glycoprotein that is elevated in serum of individuals with colorectal, gastric or pancreatic cancers; the antigen is defined by a monoclonal antibody that recognizes a carbohydrate determinant, sialylated lacto-N-fucopentaose II, a Lewis a blood group antigen; suitable for use in immunoassays as an immunogen & in enzyme/radiolabeling; Deugnier, YM et al, *Gut*, 35: 1107, 1994; Diez, M et al, *Anticancer Res*, 14: 2819, 1994; Klug, TL et al, *Cancer Res*, 48: 1505, 1988; Kufe, D et al, *Hybridoma*, 3: 223, 1984; Steinberg, W, *Am J Gastroenterology*, 4: 350, 1985; Koprowski, H et al, *Science*, 212: 53, 1981

**Calbiochem 209922** Gastrointestinal tumor, Human, Cell culture-derived MW 200k Liquid in PBS, pH 7.4 with 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; ≥95% (SDS-PAGE); activity: 10,000-2,000,000 units/mL; contaminants: CA 15-3 & CA 125: <25%; prepared from cell culture supernatants of a human colon adenocarcinoma cell line | A cell surface glycoprotein found at elevated levels in serum of individuals with colorectal, gastric or pancreatic cancers; mainly secreted by pancreatic & bile duct cells; identified by a monoclonal antibody that recognizes a carbohydrate determinant, sialylated lacto-N-fucopentaose II, a Lewis a blood group antigen; suitable for use in immunoassays as an immunogen; Deugnier, YM et al, *Gut*, 35: 1107, 1994; Diez, M et al, *Anticancer Res*, 14: 2819, 1994; Klug, TL et al, *Cancer Res*, 48: 1505, 1988; Steinberg, W, *Am J Gastroenterology*, 4: 350, 1985; Koprowski, H et al, *Science*, 212: 53, 1981

### Cancer Associated Antigen O

**Synonyms:** Cancer Antigen 125

**Calbiochem 209925** Ovarian tumor, Human fluids MW 200k Liquid in PBS, pH 7.4 with 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; activity: 50,000-200,000 units/mL; contaminants: CA 19-9 & CA 27.29: <25%; prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | A cell surface glycoprotein that is widely used as a marker for ovarian epithelial cancers; exists in serum & fluid as a high molecular weight complex of >100k; suitable for use in immunoassays, as an immunogen & in enzyme/radiolabeling; O'Riordan, DK et al, *Gut*, 36: 303, 1995; Rustin, GJ, *Ann Oncol*, 4: 571, 1993; Davis, HM et al, *Cancer Res*, 46: 6143, 1986; Canney, PA et al, *Br J Cancer*, 50: 765, 1984

### Carbonic Anhydrase

**Sigma C 1311** Bovine erythrocyte MW 29k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

### Carbonic Anhydrase I

**Sigma C 6653** Human erythrocytes pI 6.6; vial contains ~2 mg | IEF Marker

### Carbonic Anhydrase II

**Sigma C 3666** Bovine erythrocytes pI 5.4; vial contains ~1 mg | IEF Marker

**Sigma C 6403** Bovine erythrocytes pI 5.9; vial contains ~2 mg | IEF Marker

### Carcinoembryonic Antigen

**Synonyms:** CD66

**Dako X0556** >95% | Antigen useful as an immunogen

**Cortex CP1001** Cell line >95%

**USBio C1300-14** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1.55 mg/mL (EIA) supplied in 0.15 M phosphate buffer, pH 7.3, 0.07% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Suitable for antigenic applications in immunological protocols

<b>Biodesign A32100H</b>	Human ascites	≥95%	Tumor markers, cancer antigens & oncogenes
<b>Biodesign A32137H</b>	Human ascites	≥95%	Tumor markers, cancer antigens & oncogenes
<b>Calbiochem 219369</b>	Human colon adenocarcinoma cell line MW 180k	Lyophilized solid; single band purity (SDS-PAGE)	Found in tumors in adults; presence indicates carcinogenic activity; purified CEA has been the most widely used general marker in determining & monitoring the status of malignant disease; derived from an established cell line
<b>Fitzgerald 30-AC25</b>	Human colon carcinoma	Standard purity >70%	
<b>Fitzgerald 30-AC30</b>	Human colon carcinoma	High purity >96%	
<b>USBio C1300-16</b>	Human colon carcinoma liver metastases	No contaminants detected by SDS-PAGE or Rocket IEP; ~1.0 mg/mL supplied in 0.15 M phosphate buffer, pH 7.3, 0.1% NaN <sub>3</sub>   Suitable for antigenic applications in immunological protocols	
<b>Biogenesis 1820-5904</b>	Human liver metastases	Semi-pure; liquid	
<b>Biogenesis 1820-5804</b>	Human liver metastases of colon adenocarcinoma	MW 180k by SDS-PAGE (single subunit) Tested negative for HBsAg, HIV 1 and 2 and HCV antibodies; pl: 3.7; purified; 10 mM TRIS, pH 8.0, 0.1% NaN <sub>3</sub> ; liquid	
<b>Biodesign A81125H</b>	Human metastatic liver	98%	Tumor markers, cancer antigens & oncogenes
<b>Calbiochem 219368</b>	Human tumor	MW 180k	Liquid in 150 mM NaCl, 20 mM phosphate buffer, pH 7.3; preservative- & reductant-free; no perchloric acid or detergents were used; ≥98% (IEP); single major band purity (SDS-PAGE); prepared from tissue of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV   Found in tumors in adults; a useful marker for breast cancer & adenocarcinomas of the esophagus & stomach; derived from liver metastases of colon adenocarcinoma via saline extraction, ion exchange & gel filtration; Kim, YH et al, <i>Cancer</i> , 75: 451, 1995; Esteben, JM et al, <i>Cancer</i> , 74: 1575, 1994; Jacobs, EL & Haskell, CM, <i>Curr Probl Cancer</i> , 15: 299, 1991; Robertson, JF et al, <i>Br J Cancer</i> , 64: 757, 1991
<b>Cortex CP3012</b>	Liver	>98%	
<b>Cortex CP3012P</b>	Liver	>40%	
<b>Fitzgerald 30-AC26</b>	Recombinant	High purity >60%	
<b>Fitzgerald 30-AC27</b>	Recombinant	High purity >95%	

### Cardiotoxin

**Synonyms:** Snake Toxin; *Naja nigricollis* Toxin γ; Protein Kinase C Inhibitor

**Sigma C 9759** *Naja mossambica mossambica* Mixture of cardiotoxins

**Sigma C 1777** *Naja naja kaouthia* Mixture of cardiotoxins

**Calbiochem 217504** *Naja nigricollis* MW 6827.4 C<sub>298</sub>H<sub>493</sub>N<sub>81</sub>O<sub>77</sub>S<sub>12</sub> ≥95% (IEF); lyophilized solid; contaminants: phospholipase A<sub>2</sub> activity <2%; LD<sub>50</sub>≤2000 mg/kg; not available for sale outside of the United States | A cytolytic toxin that causes depolarization of skeletal muscle fibers *in vitro*; stimulates Ca<sup>2+</sup> transport & ATP hydrolysis by the sarcolemmal Ca<sup>2+</sup>/Mg<sup>2+</sup> ATPase; action is strongly potentiated by phospholipase A<sub>2</sub>; Raynor, RL et al, *J Biol Chem*, 266: 2753, 1991; Grognet, JM et al, *Mol Immunol*, 23: 132, 1986; Huang, JL & Trumble, WR, *Toxicon*, 29: 31, 1991; Jang, JY et al, *Biochemistry*, 36: 4635, 1997; *Merck Index*, 12: 1884

### Cardiotrophin I

**Biodesign A52332H** *E. coli* MW 21.5k Purified

**Chemicon GF058** Human ≥95%

**Biogenesis 1828-5030** Human r-DNA Lyophilized

**BioSource International PHC1594** Human recombinant

**Calbiochem 218200** Human recombinant, expressed in *E. coli* MW 21.5k ≥99% (SDS-PAGE & HPLC); lyophilized solid; biological activity: ED<sub>50</sub>≤1 ng/mL as measured by the ability of CT-1 to induce proliferation of TF-1 cells in a dose-dependent manner | A cytokine with structural similarities to interleukin-6; promotes the survival of neonatal cardiomyocytes via the activation of an anti-apoptotic signaling pathway requiring MAP kinases; induces a distinct hypertrophic response to endothelin-1 in cultured neonatal cardiomyocytes; induces heat shock protein accumulation in cultured cardiac cells & protects them from stressful stimuli; Ch Andrasekar, B et al, *Immunol Lett*, 61: 89, 1998; Kuwahara, K et al, *J Cardiovasc Pharmacol*, 31: 5354, 1998; Stephanou, A et al, *J Mol Cell Cardiol*, 30: 849, 1998; Sheng, Z et al, *J Biol Chem*, 272: 5783, 1997

**PeproTech 300-32** Human recombinant, expressed in *E. coli* MW 21.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the leukemia inhibitory/ciliary neurotrophic factor/Oncostatin M/interleukin-11 family of cytokines; affects cells through interaction with the gp 130 receptor subunit; 201 AA; ED<sub>50</sub> < 1.0 ng/mL; SA > 1 x 10<sup>6</sup> U/mg; SA determined by the dose-dependent proliferation of TF-1 cells

### Casein

**ICN 101289** Hammerstein grade; typical analysis: 13.9% N<sub>2</sub>, 6.0% moisture, 1.1% ash; 2.0% ash (phosphate free), pH 5.5 (2% suspension)

**ICN 104815** A standard casein; ANRC reference protein

**ICN 904520** Vitamin free; precipitated casein, extracted with ethyl alcohol; from New Zealand lactic acid

**ICN 904798** Vitamin free; micropulverized

**Fluka 22078** Bovine milk Low vitamin; ~5% water; ≤0.1% Ca, K, Na; ≤0.01% Zn; ≤0.005% Ca, Co, Cu, Ni, Pb; ≤0.2% lactic acid; ~0.2 ppm thiamine hydrochloride; ~0.5 ppm riboflavin; ~0.4 ppm pyridoxine hydrochloride, folic acid; ~4 ppm pantothenic acid; ~0.01 ppm biotin, vitamin B<sub>12</sub>

**Fluka 22080** Bovine milk ≤5% residue on ignition; ≤15% water | Can be cross-linked with peroxidase; Matheis, G & Whitaker, JR, *J Prot Chem*, 3: 35, 1984; Hinterwaldner, *Coating*, 17: 174, 1984

**Sigma C 3400** Bovine milk Vitamin free; yellow-tan powder; essentially "vitamin free"; from lactic acid precipitated New Zeal & casein extracted with ethyl alcohol

**Sigma C 5679** Bovine milk Essentially vitamin free; insect cell culture tested

**Sigma C 5890** Bovine milk Purified powder | After dephosphorylation, a suitable substrate for protein kinase; mayer, SE et al, *Meth Enzymol*, 38: 66, 1974

**Sigma C 6554** Bovine milk High protein; insect cell culture tested

**Sigma C 7078** Bovine milk Technical

**Sigma C 7906** Bovine milk Dietary fiber control

**Sigma C 0536** Goat milk Lyophilized powder; ~90% protein (Biuret); lactose content <3%

**Sigma C 3335** Human milk Lyophilized powder; ≥90% (electrophoresis); containing ~60% protein (Biuret);

**Sigma C 7164** Sheep milk Lyophilized powder containing ~85% protein (Biuret); lactose content <3%

### Casein Sodium Salt

**Amersham US12865**

**ICN 102896 ICN 902896** Sodium Caseinate

**Sigma C 8654** Bovine milk

### Casein Type I, FITC Conjugated

**Synonyms:** Protease Substrate

**Sigma C 0403** Bovine milk Lyophilized powder; essentially salt-free; 5-20 μg FITC/mg solid | Twining, SS, *Fed Proc*, 42: 1951, 1983; Twining, SS, *Anal Biochem*, 143: 30, 1984

## Casein Type II, FITC Conjugated

**Synonyms:** Protease Substrate

**Sigma C 3777** Bovine milk Lyophilized powder; essentially salt-free; 20-50 µg FITC/mg solid | Twining, SS, *Fed Proc*, 42: 1951, 1983; Twining, SS, *Anal Biochem*, 143: 30, 1984

## Casein Type III, FITC Conjugated

**Synonyms:** Protease Substrate

**Sigma C 0528** Bovine milk Lyophilized powder; essentially salt-free; 50-100 µg FITC/mg solid | Twining, SS, *Fed Proc*, 42: 1951, 1983; Twining, SS, *Anal Biochem*, 143: 30, 1984

## Casein Vitafree

**Amersham US12866** Free of vitamins | Hot alcohol extracted New Zealand casein

## Casein, (<sup>14</sup>C-Me)-

**ARC ARC-426** MW 23.6k 0.5-5 µCi/mg; 18.5-185 KBq/mg; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical

**Sigma C 5784** 5-50 µCi/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in serum bottle | Radiochemicalprepared from Sigma C 5890

## Casein, (<sup>14</sup>C-Me)-α-

**Sigma C 5909** 5-50 µCi/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in serum bottle | Radiochemicalprepared from Sigma C 6780

**ARC ART-758** MW 23.6k 5-10 µCi/mg; 185-370 KBq/mg; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical

**Sigma C 6034** 5-50 µCi/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in serum bottle | Radiochemicalprepared from Sigma C 6905

**Sigma C 6159** 5-50 µCi/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in serum bottle | Radiochemicalprepared from Sigma C 0406

## Casein, Agarose

**ICN 191282** 5 atoms hydrophilic spacer arm; 10-15 mg ligand per mL gel; suspension in PBS, 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Iodinatable reagent for protease activity measurement; protein kinase substrate

## Casein, Azo-

**Synonyms:** Protease Substrate

**Fluka 11610** E<sup>1%</sup><sub>440</sub> in 0.1 M NaOH: 32-38 | Suitable as substrate for proteolytic enzymes; Rowan, AD & Buttle, DJ, *Meth Enzymol*, 244: 555, 1994; Peyronel, DV & Cantera, AMB, *Electrophoresis*, 16: 1894, 1995

**ICN 100863**

**Sigma A 2765** E<sup>1%</sup><sub>440</sub> in 0.1 N NaOH: 32-38 | Sulfanilamide-azocasein; Tomarelli, RM et al, *J Lab Clin Med*, 34: 428, 1949

## Casein, Azo- Sodium Salt

**Fluka 11615** Lyophilized | See Fluka 11610

## Casein, Dephosphorylated

**Sigma C 4032** Bovine milk Lyophilized powder; ≥80% dephosphorylated

**Sigma C 4765** Bovine milk 5% solution; aseptically filled; hydrolyzed & partially dephosphorylated | Prepared for the assay of cyclic-AMP dependent protein kinase; other substrates such as protamine & histone might be evaluated for this purpose

## Casein, Hammersten

**Amersham US12840** Blocking agent used in Western blotting

## Casein, High Nitrogen

**Amersham US12845** ≥95% Protein; ≤10% moisture; ≤1.5% fat | Prepared exclusively from New Zealand casein

**ICN 901293** Purified

## Casein, Low Trace Element

**ICN 960128** Bovine milk 30 mesh; precipitated by HCl rather than lactic acid to remove most of the trace metals usually present in casein

## Casein, N,N-Dimethylated Salt Free

**Synonyms:** Protease Substrate

**Sigma C 9801** Bovine milk Lyophilized powder; <10% reactivity with 2,4,6-trinitrobenzenesulfonic acid (TNBS) compared to non-methylated casein; prepared by reductive methylation of C 5890 by the method of Cabacungan | Cabacungan, JC et al, *Anal Biochem*, 124: 272, 1982

## Casein, Resorufin Labeled

**Synonyms:** Casein, 1-(Resorufin-4-Carbonyl)Piperidine-4-Carboxylic Acid; Protease Substrate

**Fluka 22097** ~90 µg resorufin/mg casein | Substrate for protease activity in beer; Mochaba, F et al, *Proc Congr-Eur Brew Conv* 24<sup>th</sup>, 597, 1993

## Casein, α-

**ICN 100251** Prepared by urea fractionation

**Fluka 22084** Bovine milk ≥90% (GE); off-white powder; ≥80% protein content; ≤5% water

**Sigma C 6780** Bovine milk Lyophilized powder; chromatographically purified; ≥70% protein (Biuret); ~85% α<sub>s</sub>-casein by electrophoresis

## Casein, α- Dephosphorylated

**Sigma C 8032** Bovine milk Lyophilized powder; ≥80% enzymatically prepared from C 6780

## Casein, α- Low Protease

**Synonyms:** Plasmin Substrate; Fibrinolysin Substrate

**ICN 195096** Bovine milk Processed to minimize contaminating protease | Suitable substrate for the assay of plasmin

**Sigma C 7891** Bovine milk Lyophilized powder containing 10-20% NaCl; ~60% α<sub>s</sub>-casein by electrophoresis; balance primarily β-casein

## Casein, α- No Protease

**Fluka 22085** Bovine milk ≥60% (GE); ≥70% protein content; ≤40% β-casein; no detectable proteases

## Casein, β-

**ICN 100321** Lyophilized; ≥90%; <2% α-casein

**Fluka 22086** Bovine milk ≥80% (GE); lyophilized white powder; ≥80% protein content

## Casein, β- Dephosphorylated

**Sigma C 8157** Bovine milk Lyophilized powder; ≥80% dephosphorylated; enzymatically prepared from C 6905

## Casein, β- Salt Free

**Sigma C 6905** Bovine milk Lyophilized powder; essentially salt-free; ≥90% β-casein by electrophoresis

## Casein, γ-

**ICN 100653** Bovine milk

**Fluka 22087** Bovine milk ≥70% (GE); beige powder; ≥90% protein content

### Casein, κ-

**Sigma C 0406** Bovine milk Lyophilized powder; ≥80% κ-casein by electrophoresis

### Caspase I

**Chemicon CC126** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase II

**Chemicon CC127** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase III

*Synonyms:* CPP-32

#### Kamiya

**Chemicon CC119** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase III Fluorometric Substrate

**USBio C2087-19** ≥95% by HPLC; lyophilized | Useful in Apopain activity assay *in vitro* (5–50 μM); solubilize lyophilized in 1 mL of DMSO

### Caspase III, Active

**BioSource International PHZ0014** Human recombinant

### Caspase IX

**Chemicon CC120** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase VI

**Chemicon CC122** Human active recombinant Purified protein for apoptosis & signal transduction

**Kamiya** Human recombinant

### Caspase VI, Active

**BioSource International PHZ0034** Human recombinant

### Caspase VII

#### Kamiya

**Chemicon CC125** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase VIII

#### Kamiya

**Chemicon CC123** Human active recombinant Purified protein for apoptosis & signal transduction

### Caspase X

**Chemicon CC128** Human active recombinant Purified protein for apoptosis & signal transduction

### Cathepsin B

**Cortex CP3009** Liver >95%

### Cathepsin C

**Biogenesis 1910-8709** Bovine spleen

### Cathepsin D

**Cortex CP3090** >95%

**Biogenesis 1910-9004** Bovine spleen Lyophilized

**Biogenesis 1910-9037** Human kidney Liquid

**Biodesign A50161H** Human liver Purified | Tumor markers, cancer antigens & oncogenes

**Biogenesis 1910-9016** Human liver Lyophilized

**USBio C2097-26** Human liver tissue ≥300 U/mg; 1 mg/mL; lyophilized from 2 mM sodium phosphate, pH 6.5 | Suitable for antigenic applications in immunological protocols

### Cathepsin G

**Biogenesis 1910-9847** Human Liquid

**USBio C2097-50** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 2–4 U/mg; lyophilized, salt free | Suitable for antigenic applications in immunological protocols

**Cortex CP3010** Neutrophil >95%

### Cathepsin H

**Biogenesis 1910-9957** Human Liquid

**USBio C2097-60** Human liver tissue ≥80% (SDS-PAGE); trace human enzyme contaminants; ~0.5 mg/mL in 30 mM sodium acetate buffer, pH 5.0, 1 mM EDTA, 0.08 M NaCl | Suitable for antigenic applications in immunological protocols

### CC Chemokine

*Synonyms:* C-10

**ICN 195770** Murine recombinant, expressed in *E. coli* ≥97%; lyophilized; ED<sub>50</sub> = 0.05–0.2 μg/mL activity

### CC Chemokine Receptor I

**Chemicon GF090** Human ≥95% | Blocks function

### CC Chemokine Receptor VIII, 2<sup>nd</sup> Extracellular Loop

**Chemicon GF096** Human ≥95% | Blocks function

### CC Chemokine Receptor VIII, N-Terminal

**Chemicon GF095** Human ≥95% | Blocks function

### CD137 Ligand-muCD8 Fusion Protein

*Synonyms:* CD137L-muCD8 Fusion Protein

**Alexis ANC-503-020** Human Purified liquid; free of azide & carrier protein & stabilized with 0.5 mg/mL gentamycin sulfate | A soluble fusion protein consisting of the extracellular (184 AA) domain of human CD137L fused to the extracellular domain (167 AA) of mouse CD8α; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); binds to CD137 & blocks binding of anti-CD137 monoclonal antibody; human CD137L (4-1BB Ligand) is a type II transmembrane protein constitutively expressed by monocytes, B cells & neuroblastoma cells; binding of CD137 (4-1BB) to CD137L induces monocyte activation Alderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

### CD137 Ligand-muCD8 Fusion Protein, Biotin Conjugated

*Synonyms:* CD137L-muCD8 Fusion Protein, Biotin Conjugated

**Alexis ANC-503-030** Human Liquid; stabilized with 0.04% sodium azide | A soluble fusion protein consisting of the extracellular (184 AA) domain of human CD137L fused to the extracellular domain (167 AA) of mouse CD8α; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); binds to CD137 & blocks binding of anti-CD137 monoclonal antibody; human CD137L (4-1BB Ligand) is a type II transmembrane protein constitutively expressed by monocytes, B cells & neuroblastoma cells; binding of CD137 (4-1BB) to CD137L induces monocyte activation Alderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

### CD137 Ligand-muCD8 Fusion Protein, FITC Conjugated

**Synonyms:** CD137L-muCD8 Fusion Protein, FITC Conjugated

**Alexis ANC-503-040** Human Liquid; stabilized with 0.04% sodium azide | A soluble fusion protein consisting of the extracellular (184 AA) domain of human CD137L fused to the extracellular domain (167 AA) of mouse CD8 $\alpha$ ; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); binds to CD137 & blocks binding of anti-CD137 monoclonal antibody; human CD137L (4-1BB Ligand) is a type II transmembrane protein constitutively expressed by monocytes, B cells & neuroblastoma cells; binding of CD137 (4-1BB) to CD137L induces monocyte activationAlderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

### CD137 Ligand-muCD8 Fusion Protein, Purified

**Synonyms:** CD137L-muCD8 Fusion Protein, Purified

**Alexis ANC-503-820** Human Purified liquid; preservative free | A soluble fusion protein consisting of the extracellular (184 AA) domain of human CD137L fused to the extracellular domain (167 AA) of mouse CD8 $\alpha$ ; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); binds to CD137 & blocks binding of anti-CD137 monoclonal antibody; human CD137L (4-1BB Ligand) is a type II transmembrane protein constitutively expressed by monocytes, B cells & neuroblastoma cells; binding of CD137 (4-1BB) to CD137L induces monocyte activationAlderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

### CD137 Ligand-muCD8 Fusion Protein, R-PE

**Synonyms:** CD137L-muCD8 Fusion Protein, R-PE

**Alexis ANC-503-050** Human Liquid; stabilized with 0.04% sodium azide | A soluble fusion protein consisting of the extracellular (184 AA) domain of human CD137L fused to the extracellular domain (167 AA) of mouse CD8 $\alpha$ ; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); binds to CD137 & blocks binding of anti-CD137 monoclonal antibody; human CD137L (4-1BB Ligand) is a type II transmembrane protein constitutively expressed by monocytes, B cells & neuroblastoma cells; binding of CD137 (4-1BB) to CD137L induces monocyte activationAlderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

### CD137-hulg Fusion Protein

**Synonyms:** 4-1BB-hulg Fusion Protein

**Alexis ANC-502-020** Human MW 55k Purified liquid; free of azide & carrier protein & stabilized with 0.5 mg/mL gentamycin sulfate | A soluble fusion protein consisting of the extracellular (186 AA) domain of human CD137 fused to human IgG1 Fc; transfectant cell line: CHO; applications in flow cytometry & immunohistochemistry (frozen sections); CD137 Ig fusion protein blocks binding of anti-human CD137 to activated CEM human tumor cells & also binds to CD137 Ligand on Raji cells; human CD137 (4-1BB) is expressed on activated T cells within 24-48 hours of activation; CD137 is a type I membrane protein & a member of the tumor necrosis factor (TNF) receptor superfamily; CD137 appears to be important for T cell proliferation & survival & induces monocyte activationGiarni-Wagner, BA, *Cellular Immunol*, 169: 91, 1996; Schwarz, H et al, *Blood*, 87: 2839, 1996; Alderson, MR, *Eur J Immunol*, 24: 2219, 1994; Langstein, J et al, *J Immunol*, 160: 2488, 1998

**Alexis ANC-502-820** Human Purified liquid; preservative free | Comments & references are the same as Alexis ANC-502-020

### CD137-hulg Fusion Protein, Biotin Conjugated

**Alexis ANC-502-030** Human Liquid; stabilized with 0.04% sodium azide | Comments & references are the same as Alexis ANC-502-020

### CD137-hulg Fusion Protein, FITC Conjugated

**Alexis ANC-502-040** Human Liquid; stabilized with 0.04% sodium azide | Comments & references are the same as Alexis ANC-502-020

### CD137-hulg Fusion Protein, R-PE

**Alexis ANC-502-050** Human Liquid; stabilized with 0.04% sodium azide | Comments & references are the same as Alexis ANC-502-020

### CD152 (CTLA-4).Ig:Fc Fusion Protein

**Alexis ANC-501-020A, -820, -030A, -040, -050** Human MW 110k Purified liquid; free of azide & carrier protein & stabilized with 0.5 mg/mL gentamycin sulfate | A soluble dimeric fusion protein consisting of the extracellular (125 AA) domain of human CTLA-4 fused to mouse IgG2a Fc; transfectant cell line: BHK; applications in flow cytometry & immunohistochemistry (frozen sections); CD152 Ig binds with high Specificity to human or mouse CD80 (B7-1) & CD86 (B7-2) & blocks binding of anti-CD80 (B7-1) & anti-CD86 (B7-2) Mabs; also binds to mouse CD80/CD86; human CD152 (CTLA-4) mulg is a cell surface glycoprotein expressed at low levels on activated T cells; CD152 is a high Specificity receptor for the costimulatory molecules CD80 (B7-1) & CD86 (B7-2) & appears to function as a negative regulator of T cell activation; a soluble fusion protein combining the extracellular (125 AA) domain of human CD152 & mouse IgG2a Fc (CTLA-4) was developedLindsten, T, *J Immunol*, 151: 3489, 1993; Morton, PA et al, *J Immunol*, 156: 1047, 1996; Walunas, TL et al, *Immunity*, 1: 405, 1994; Kar Andikar, NJ et al, *J Exp Med*, 184: 783, 1996; Cross, AH et al, *J Clin Invest*, 95: 2783, 1995

**Alexis 202-038** Mouse MW ~110k  $\geq 99\%$  (SDS-PAGE); 50  $\mu$ g in 50 mM sodium phosphate buffer, pH 7.5, 100 mM KCl, 150 mM NaCl; 50  $\mu$ g protein | A soluble dimeric fusion protein consisting of the extracellular (160 AA) domain of mouse CTLA-4 fused to mouse IgG2a Fc; transfectant cell line: NS.1; applications in flow cytometry, functional studies & immunohistochemistry (frozen sections); mouse CD152 Ig has biological activity & binds with high specificity to mouse CD80 (B7-1) & CD86 (B7-2) & also binds to human, rat, pig & monkey CD80 (B7-1) & CD86 (B7-2) proteins & blocks the binding of anti-CD80 (B7-1) & anti-CD86 (B7-2) Mabs as well as block the interaction of CD80 &/or CD86 with cell surface CD28 &/or CD152; is a potent immunosuppressive agentSteurer, W et al, *J Immunol*, 155: 1165, 1995; Borriello, F et al, *Immunity*, 6: 303, 1997; Perez, VL et al, *Immunity*, 6: 411, 1997

### CD154 Fusion Protein

**Synonyms:** CD40L Soluble

**Alexis 201-036** Human recombinant, expressed in *E. coli* MW 48k Soluble; lyophilized powder containing 50  $\mu$ g protein & purified from *E. coli* by ion exchange & gel filtration chromatography; dissolve in 0.5 mL water to give a solution with a concentration of 20  $\mu$ g/mL containing 12.5 mM HEPES, 0.05 mM EDTA, 2.5% glycerol, 0.5% BSA, 150 mM NaCl, 1.5 mM KCl, 4 mM Na<sub>2</sub>HPO<sub>4</sub>, 0.8 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.2 | Monomer MW 15k; noncovalent trimer consisting of residues Gly<sup>116</sup> to Leu<sup>261</sup> of human CD40L; identical to the final construct made for determination of the crystal structure; biologically active; capable of co-stimulating human B cell proliferation in the presence of hIL-4, anti-IgM (or both); in the presence of a cytokine mixture, it can induce differentiation of human B cells to secrete IgM & IgG; Karpusas et al, *Structure*, 3: 1031 & 1426, 1995; Mazzei, GJ et al, *J Biol Chem*, 270: 7025, 1995



**CD154 Ligand-muCD8 Fusion Protein**

**Synonyms:** CD40L-muCD8 Fusion Protein

**Alexis ANC-505-020, -820, -030, -040, -050** Human Purified liquid; free of azide & carrier protein & stabilized with 0.5 mg/mL gentamycin sulfate | Soluble molecule consisting of the extracellular (213 AA) domain of human CD154 fused to the extracellular domain (167 AA) of mouse CD8 $\alpha$ ; transfectant cell line: Mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); CD154-muCD8 binds to CD40 & blocks binding of anti-CD40 monoclonal antibody; human CD154 (CD40 Ligand) is a member of the tumor necrosis factor (TNF) family & is expressed on the surface of activated T cells; interaction of CD154 & CD40 is essential for isotype switching in B cells; known genetic defects that alter this interaction lead to impaired immune system function; CD154 has been shown to be hyperexpressed by B & T cells in SLE patients; CD154 has been reported to be expressed on vascular endothelial cells, smooth muscle cells & macrophages indicating a possible role for the CD40-CD154 immunoregulatory signaling mechanism during inflammation & immunity in atherosclerosis Gray, D, *Seminars in Immunol*, 6: 303, 1994; Pietravalle, F et al, *J Biol Chem*, 271: 5965, 1996; noelle, RJ, *Immunity*, 4: 415, 1996; Desai-Mehta, A et al, *J Clin Invest*, 97: 2063, 1996; Grewal, S & Flavell, RA, *Immunol Today*, 17: 410, 1996; Mach, F et al, *PNAS*, 94: 1931, 1997

**CD4 Antigen**

**Biodesign A49162B** Baculovirus 95%

**CD40 Ligand, Soluble**

**Synonyms:** rhCD40 Ligand

**Alexis BMS308/a** Human recombinant, expressed in *E. coli* MW 48k 50  $\mu$ g lyophilized powder; reconstituted solution at 20  $\mu$ g/mL in 0.5 mL water contains 12.5 mM HEPES, 0.05 mM EDTA, 2.5% glycerol, 0.5% BSA, 150 mM NaCl, 1.5 mM KCl, 4 mM Na<sub>2</sub>HPO<sub>4</sub>, 0.8 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.2 | Monomer MW 15k; noncovalent trimer starting at Gly<sup>116</sup> in the human DS40L sequence; purification from *E. coli* by ion exchange & gel filtration chromatography

**CD40 Ligand/Thrombin Receptor Activator Peptide**

**Chemicon GF101** Human  $\geq 95\%$

**PeproTech 310-02** Human recombinant, expressed in *E. coli* MW 16.3k  $>98\%$  (SDS-PAGE & HPLC);  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Type II membrane protein; effectuates the helper function of T cells on resting B cells; 149 AA residues comprising the receptor binding TNF-like domain of CD40L; stimulates IL-8 induction by human PBMC; SA determined by the stimulation of IL-12 induction by human peripheral blood mononuclear cells (PBMC)

**CD40-mulg Fusion Protein**

**Alexis ANC-504-020** Human Purified liquid; free of azide & carrier protein & stabilized with 0.5 mg/mL gentamycin sulfate | A soluble fusion protein consisting of the extracellular (193 AA) domain of human CD40 fused to mouse IgG2a Fc; transfectant cell line: mouse myeloma cell line P3x63Ag8.653; applications in flow cytometry & immunohistochemistry (frozen sections); CD40-mulg fusion protein blocks binding of anti-human CD40 to Raji human tumor cells; human CD40 is a member of the tumor necrosis factor (TNF) receptor family & is present on all B cells except plasma cells; CD40 is also found on some epithelial cells, carcinomas & lymphoid dendritic cells; plays an important role in B cell activation & the interaction with its ligand CD154 (CD40 ligand) is essential for isotype switching Foy, TA, *Ann Rev Immunol*, 14: 591, 1996; Ozaki, ME et al, *J Immunol*, 159: 214, 1997

**Alexis ANC-504-820** Human Purified liquid; preservative free; see Alexis ANC-504-020

**CD40-mulg Fusion Protein, Biotin Conjugated**

**Alexis ANC-504-030** Human Liquid; stabilized with 0.04% sodium azide; see Alexis ANC-504-020

**CD40-mulg Fusion Protein, FITC Conjugated**

**Alexis ANC-504-040** Human Liquid; stabilized with 0.04% sodium azide; see Alexis ANC-504-020

**CD40-mulg Fusion Protein, R-PE**

**Alexis ANC-504-050** Human Liquid; stabilized with 0.04% sodium azide; see Alexis ANC-504-020

**Cdc42 Protein**

**ICN 195960** Rat brain recombinant, expressed in *E. coli* MW 23,980 A basic component of morphogenesis & cell cycle progression in eukaryotic cells; suitable for a positive control or western blotting cross-reactivity assay

**Cdc42, His-Tagged**

**Calbiochem 219430** Rat brain recombinant, produced by overexpression of a full-length Cdc42 cDNA clone in *E. coli* MW 23,980  $\geq 90\%$  (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; fundamental component of morphogenesis & cell cycle progression in eukaryotic cells; stimulates the formation of filopodia; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Olson, MF et al, *Science*, 269: 1270, 1995; Simon, MN et al, *Nature*, 376: 702, 1995

**Cdc42Hs, GST-Tagged**

**Calbiochem 219432** Human recombinant, expressed in *E. coli* MW 48,260  $\geq 90\%$  (SDS-PAGE); liquid in 20 mM HEPES, 5 mM MgCl<sub>2</sub>, 1 mM Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, 40% glycerol, pH 8.0; GTP $\gamma$ S binding:  $\geq 400$  mmol/mol; use 100 ng/blot probed with Anti-Cdc42 | GTP binding protein; small Rho GTPase that belongs to the Ras superfamily that regulates cytoskeletal rearrangements in response to growth factor stimulation; acts on targets in the Golgi & directs polarized growth at the plasma membrane; homolog of the yeast Cdc42 cell division cycle gene product; useful as a positive control in Western blotting & as an affinity precipitation reagent using immobilized glutathione resin; Erickson, JW et al, *J Biol Chem*, 271: 26850, 1996; Ridley, A et al, *Curr Biol*, 6: 1256, 1996; Shinjo, K et al, *PNAS*, 87: 9853, 1990

**Cdc42Hs, His-Tagged**

**Calbiochem 219434** Human recombinant, expressed in *E. coli* MW 21,960  $\geq 90\%$  (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 5 mM imidazole, 40% glycerol, pH 7.9; GTP $\gamma$ S binding:  $\geq 600$  mmol/mol; use 100 ng/blot probed with Anti-Cdc42 | GTP binding protein; small Rho GTPase that belongs to the Ras superfamily that regulates cytoskeletal rearrangements in response to growth factor stimulation; homolog of the yeast Cdc42 cell division cycle gene product; useful as a positive control in Western blotting & as an affinity precipitation reagent using Ni<sup>2+</sup>-charged metal chelate resin; Ridley, A et al, *Curr Biol*, 6: 1256, 1996; Shinjo, K et al, *PNAS*, 87: 9853, 1990

**Ceruloplasmin**

**Cortex CP1010**  $>95\%$

**Biodesign A50143H** Human plasma Purified

**Calbiochem 239799** Human plasma MW 134k Lyophilized from 100 mM KCl, 50 mM potassium phosphate buffer, 20 mM  $\epsilon$ -aminocaproic acid, pH 6.8;  $\geq 95\%$  (SDS-PAGE); soluble in water; prepared from plasma shown to be negative for HBsAg & for antibodies to HIV & HCV | Serum copper transport & iron oxidizing protein; plays an important role in antioxidant protection against organic & inorganic oxygen radicals generated by iron & ascorbate; Gutteridge, JM & Quinlan, GJ, *Biochim Biophys Acta*, 1156: 144, 1993; Harris, ED et al, *Proc Soc Exp Biol Med*, 196: 130, 1991; Krsek-Staples, JA & Webster, RO, *Free Radic Biol Med*, 14: 115, 1993; *Merck Index*, 12: 2049

**Biogenesis 1940-0404** Human serum Lyophilized

**ICN 194974** Human serum MW 134k Lyophilized; >95% | Serum copper transport & iron oxidizing protein; plays an important role in antioxidant protection against organic & inorganic O<sub>2</sub> radicals from iron & ascorbate; Gutteridge, JM & GJ Quinlan, *BBA*, 1156:144, 1993

## Chaperonin 10

**Synonyms:** Growth Related Oncogene ES

**Sigma C 7438** *E. coli* recombinant, overexpressed in *E. coli* ≥90% (SDS-PAGE); lyophilized powder containing Tris buffer salts, KCl, DTT & trehalose as stabilizer; inhibition of GroEL ATPase ~50% at a molar ratio of 2:1 (GroES:GroEL) | Belongs to the family of heat-shock molecular chaperones found in prokaryotes & in eukaryotic organelles; assist the folding of nascent, organelle-imported or stress-destabilized polypeptides; *in vitro*, purified GroEL together with purified GroES in presence of Mg-ATP facilitate refolding & reactivation of denatured proteins, eg, the photosynthetic enzyme rubisco & the mitochondrial enzyme rhodanese; the folding activity of a 1:1 molar mixture of GroEL: GroES was tested using urea-denatured rhodanese; at least 2-fold reactivation was obtained; Goloubinoff, P et al, *Nature*, 342: 884, 1989; Mendoza, JA et al, *J Biol Chem*, 266: 13044, 1991

## Chaperonin 60

**Synonyms:** Growth Related Oncogene EL

**Sigma C 7688** *E. coli* recombinant, overexpressed in *E. coli* >95% (SDS-PAGE); lyophilized powder containing Tris buffer salts, KCl, DTT & trehalose as stabilizer; ATPase activity >80 nmol/min/mg protein at 30°C

## Chaperonin 60+10

**Synonyms:** Growth Related Oncogene EL+ES

**Sigma C 7563** *E. coli* recombinant, overexpressed in *E. coli* 1:1 Mixture; >95% (SDS-PAGE); lyophilized powder containing Tris buffer salts, KCl, DTT & trehalose as stabilizer

## Chimera

**Synonyms:** Flt-1/Fc

**ICN 195784** Human recombinant, expressed in Sf21 ≥97%; lyophilized; 15-30 ng/mL will typically inhibit \_ the biological response to 4 ng/mL VEGF

## Cholera Toxin

**Sigma C 3012** *Vibrio cholerae* When reconstituted to 1 mL, solution will contain 0.05 M Tris buffer salts, pH 7.5, 0.2 M NaCl, 0.003 M Na<sub>2</sub>SO<sub>4</sub>, 0.001 M EDTA • Na<sup>2</sup>; prepared by a modification of the methods of Rappaport & Mekalanos | Toxin that consists of an A subunit surrounded by five B subunits, which attach the toxin to ganglioside G<sub>M1</sub> on the cell surface; the A subunit catalyzes ADP-ribosylation of the α-subunit of G proteins, reducing GTPase activity & activating the a-subunit; catalyzes ADP-ribosylation of cell membrane adenylate cyclase; Rappaport, RS et al, *Infection & Immunity*, 9: 294, 1974; Mekalanos, JJ et al, *ibid*, 20: 552, 1978

**Sigma C 8052** *Vibrio cholerae* ~95% (SDS-PAGE); lyophilized powder containing ~5% protein (Lowry-TCA); balance primarily Tris buffer salts, NaCl, sodium azide, EDTA•Na<sup>2</sup>; activity: 10<sup>5</sup>-10<sup>6</sup> units/mg protein; unit definition: 1 unit of cholera toxin increases the adenylate cyclase activity by a factor of 6, measured as (<sup>3</sup>H)-cAMP present, using ~70,000 CHO cells after incubation for 90 minutes at 37°C with (<sup>3</sup>H)-adenine followed by 15 minute incubation with 1 mM 3-isobutyl-1-methylxanthine | Composed of one A chain (28 kD) subunit that catalyzes the ADP-ribosylation activity of the cell membrane adenylate cyclase, & five B chain (11.8 kD) subunits that bind with high affinity to cell membrane ganglioside-GMSalomon, Y, *Meth Enzymol*, 195: 22, 1991; Mekalanos, JJ, *Meth Enzymol*, 165: 169, 1988Toxin that consists of an A subunit surrounded by five B subunits, which attach the toxin to ganglioside G<sub>M1</sub> on the cell surface; the A subunit catalyzes ADP-ribosylation of the α-subunit of G proteins, reducing GTPase activity & activating the a-subunit; catalyzes ADP-ribosylation of cell membrane adenylate cyclase

**Calbiochem 227035** *Vibrio cholerae*, Type Inaba 569B MW 84k Single band purity (disc gel electrophoresis); solid lyophilized from 200 mM NaCl, 50 mM Tris, 3 mM Na<sub>2</sub>SO<sub>4</sub>, 1 mM EDTA, pH 7.5; SA: ≥a standard cholera toxin preparation determined in an ADP-ribosylation assay; highly toxic: LD<sub>50</sub> ≤50 mg/kg; may be carcinogenic/teratogenic | Useful for studies involving adenylate cyclase, AMP & related membrane-transport phenomena;

**Calbiochem 227036** *Vibrio cholerae*, Type Inaba 569B MW 84k Identical to Calbiochem 227035, but azide free; single band purity (disc gel electrophoresis); solid lyophilized from 200 mM NaCl, 50 mM Tris, 1 mM EDTA, pH 7.5; highly toxic: LD<sub>50</sub> ≤50 mg/kg; may be carcinogenic/teratogenic | Useful for tissue culture applications; consists of a single A subunit surrounded by five B subunits; the A subunit catalyzes the ADP-ribosylation of the α-subunit of G-proteins, reducing intrinsic GTPase activity & activating the α-subunit; the B subunits are responsible for the attachment of the native toxin on the cell surface; DiRita, VJ et al, *PNAS*, 88: 5403, 1991; Gilman, AG, *Ann Rev Biochem*, 56: 615, 1987; Moss, J & Vaughan, M, *Curr Top Cell Regul*, 32: 49, 1992

## Cholera Toxin A Subunit

**Sigma C 2398** *Vibrio cholerae* Lyophilized powder; when reconstituted to 1 mL, solution will contain 0.05 M Tris buffer salts, pH 7.5, 0.2 M NaCl, 0.003 M Na<sub>2</sub>SO<sub>4</sub>, 0.001 M EDTA•Na<sup>2</sup>; prepared by a modification of the method of Lai | Catalyzes ADP-ribosylation of the α-subunit of G proteins, reducing GTPase activity & activating the α-subunit; catalyzes ADP-ribosylation of cell membrane adenylate cyclase; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Mekalanos, JJ, *Meth Enzymol*, 165: 169, 1988

**Sigma C 8180** *Vibrio cholerae* Lyophilized powder containing ~5% protein (Lowry); balance Tris buffer salts, NaCl, sodium azide, sodium EDTA; ADP-ribosylation activity: measured by ADP-ribosylation of poly-L-arginine following the incorporation of ADP-ribose from NAD-(adenine-UL-<sup>14</sup>C) to TCA-precipitable material; 1 μg of cholera toxin A subunit will cause the incorporation of at least 1 picomoles of ADP-ribose in 30 min at 30°C; cholera toxin B subunit: ≤0.5% (SDS-PAGE); prepared by a modification of the method of Lai | Catalyzes ADP-ribosylation of the a-subunit of G proteins, reducing GTPase activity & activating the α-subunit; catalyzes ADP-ribosylation of cell membrane adenylate cyclase; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Mekalanos, JJ, *Meth Enzymol*, 165: 169, 1988

**Calbiochem 227037** *Vibrio cholerae*, Type Inaba 569B MW 28k Solid lyophilized from 200 mM NaCl, 50 mM Tris, 3 mM Na<sub>2</sub>SO<sub>4</sub>, 1 mM EDTA, pH 7.5; in an ADP-ribosylation assay, the specific enzymatic activity of a typical lot is ~2.0 times that of cholera toxin on a weight basis; contaminants B subunit & intact toxin: none detected by native PAGE; highly toxic: LD<sub>50</sub> ≤50 mg/kg; may be carcinogenic/teratogenic | The subunit responsible for activation of adenylate cyclase; catalyzes the ADP-ribosylation of the α-subunit of G-proteins, reducing intrinsic GTPase activity & activating the α-subunit

## Cholera Toxin B Subunit

**Synonyms:** Choleragenoid

**Sigma C 7771** *Vibrio cholerae* Lyophilized powder containing Tris buffer salts, NaCl, sodium azide, sodium EDTA; antitoxin combining power activity: >30 toxoid units/μg protein (Lowry); permeability factor (PF) activity: <0.05%; bioassay not run by Sigma | Cholera toxin subunit that binds ganglioside G<sub>M1</sub> on the cell surface; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Craig, JP, in *Microbial Toxins*, Vol 2A, 189, Kadis, S et al, eds Academic Press Inc, New York

**Sigma C 9903** *Vibrio cholerae* ≥95% (SDS-PAGE); lyophilized powder containing ~5% protein (Lowry); balance Tris buffer salts, NaCl, sodium azide, sodium EDTA; activity: measured by ELISA using ganglioside GM<sub>1</sub>-coated multiwell plates, rabbit anti-cholera toxin B subunit antibodies & peroxidase-labeled goat anti-rabbit IgG as the second antibody; 50% saturation of binding was achieved with 0.05-1 μg of cholera toxin B subunit/mL; cholera toxin A subunit: ≤0.5% (SDS-PAGE); prepared by a modification of the method of Lai | Cholera toxin subunit that binds ganglioside G<sub>M1</sub> on the cell surface; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Craig, JP, in *Microbial Toxins*, Vol 2A, 189, Kadis, S et al, eds Academic Press Inc, New York

**Calbiochem 227039** *Vibrio cholerae*, Type Inaba 569B MW 55k Solid lyophilized from 200 mM NaCl, 50 mM Tris, 3 mM NaN<sub>3</sub>, 1 mM EDTA, pH 7.5; highly toxic: LD<sub>50</sub> ≤50 mg/kg; may be carcinogenic/teratogenic | Portion of cholera toxin responsible for binding to GM1 ganglioside receptors in membranes; blocks action of toxin on intact cells; Mulhein, SA et al, *J Membr Biol*, 109: 21, 1989

#### Cholera Toxin B Subunit Type Inaba 569B, Peroxidase Conjugated

**Calbiochem 227041** Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; specific activity: 125 purpurogallin units/mg HRP; toxic: LD<sub>50</sub> ≤50 mg/kg | Suitable for the demonstration of dendritic branching in retrogradely labeled neurons; 50 times more sensitive than free peroxidase as both an orthogradely & retrogradely transported marker in the rat visual system; Raappana, P & Arvidsson, J, *J Comp Neurol*, 328: 103, 1993; Trojanowski, JQ, *J Neurosci Methods*, 9: 185, 1983

#### Cholera Toxin B Subunit, Biotin Conjugated

**Synonyms:** Choleragenoid

**Sigma C 9972** *Vibrio cholerae* Lyophilized powder containing ~40% protein (Lowry); balance sodium phosphate buffer salts, sodium azide, sodium EDTA; biotin content: ~1.0 mole/mole protein; activity: measured by ELISA using ganglioside GM<sub>1</sub>-coated multiwell plates, rabbit anti-cholera toxin B subunit antibodies & peroxidase-labeled goat anti-rabbit IgG as the second antibody; 50% saturation of binding was achieved with 0.1-1 µg of cholera toxin B subunit-biotin conjugate/mL; conjugated B subunit gives a similar value for 50% binding to that of unconjugated B subunit from which it is prepared | Cholera toxin subunit that binds ganglioside GM<sub>1</sub> on the cell surface; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Craig, JP, in *Microbial Toxins*, Vol 2A, 189, Kadis, S et al, eds Academic Press Inc, New York

#### Cholera Toxin B Subunit, FITC Conjugated

**Synonyms:** Choleragenoid

**Sigma C 1655** *Vibrio cholerae* Lyophilized powder containing ~20% protein (Lowry); balance Tris buffer salts, NaCl, sodium azide, sodium EDTA; FITC content: ~1.0 mole/mole protein; activity measured by ELISA using ganglioside GM<sub>1</sub>-coated multiwell plates, rabbit anti-cholera toxin B subunit antibodies & peroxidase-labeled goat anti-rabbit IgG as the second antibody; 50% saturation of binding was achieved with 0.01-1 µg of cholera toxin B subunit-FITC conjugate/mL | Cholera toxin subunit that binds ganglioside GM<sub>1</sub> on the cell surface; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Craig, JP, in *Microbial Toxins*, Vol 2A, 189, Kadis, S et al, eds Academic Press Inc, New York

#### Cholera Toxin B Subunit, Peroxidase Conjugated

**Synonyms:** Choleragenoid

**Sigma C 4672** *Vibrio cholerae* Lyophilized powder; vial contains ~42 µg cholera toxin B subunit, 100 µg (10-30 units) horseradish peroxidase & buffer salts from 0.1 mL of 0.01 M sodium phosphate, pH 7.5; unit definition: 1 unit forms 1 mg of purpurogallin from pyrogallol/20 sec at pH 6.0 at 20°C | Cholera toxin subunit that binds ganglioside GM<sub>1</sub> on the cell surface; Lai, CY et al, *J Infect Dis*, 133: S23, 1976; Craig, JP, in *Microbial Toxins*, Vol 2A, 189, Kadis, S et al, eds Academic Press Inc, New York

#### Cholesterol Esterase

**Biogenesis 2070-0004** Porcine pancreas

#### Chorionic Gonadotropin

**Cortex CP1011P** Human >40%

**Cortex CP1011U** Human >98%

**Biodesign A81351M** Human pregnancy urine 50%

**Biodesign A81355M** Human pregnancy urine 98%

**Calbiochem 230734** Human urine MW 36.7k Standard grade; lyophilized solid; immunopotency: ≥3000 IU/mg (WHO 1<sup>st</sup> IRP 75/551); soluble in water; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Glycoprotein hormone synthesized by chorionic tissue of the placenta & found in urine during pregnancy; present in body fluids of patients with trophoblastic disease & ovarian tumors; *Merck Index*, 12: 2273

**Calbiochem 869031** Human urine MW 36.7k Iodination grade; lyophilized solid; ≥95% (SDS-PAGE); immunopotency: ≥16,000 IU/mg (WHO 1<sup>st</sup> IRP 75/551); soluble in water; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | *Merck Index*, 12: 2273

#### Chorionic Gonadotropin, Intact

**USBio C5069-21** Human ≥98% (SDS-PAGE); lyophilized from ammonium bicarbonate buffer; SA ~15000 IU/mg by 2nd (3rd IS for HCG 75/537, WHO); hLH <0.2%, hFSH <0.05%, hTSH <0.05% | Suitable for antigenic applications in immunological protocols

**Biogenesis 2090-0454** Human urine MW 36.7k SA: 14.1 KIU/mg; 2 subunits; pl: 4.9; hLH/hFSH/hTSH <0.2%; purified; from 10 mM phosphate buffer, 150 mM NaCl, 0.1% NaN<sub>3</sub>, pH 7.4; lyophilized

**Biogenesis 2090-0459** Human urine MW 38.4k <2% hCG alpha & hCG beta, hPL undetectable; tested negative for HBsAg, HCV, HIV-1 & HIV-2 antibodies, HIV-Ag, HTLV I & II antibodies; 10,000 IU/mg; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | A potent LH agonist; displays a weak FSH-like SA; Bahl, JBC, 244:567, 1969; Birken, *Ann Endocrinol*, 45:297, 1984

**Biogenesis 2090-0489** Human urine MW 38.4k <0.1% hPL, no other hormones detected; tested negative for HCV, HIV-1, HIV-2 and HBsAg; semi-pure; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized

**Biogenesis 2090-0504** Human urine 0.004% hLH, 0.04% hFSH; tested negative for HBsAg, HCV, HIV I, HIV II and syphilis; SA: 8,000 IU/mg; semi-pure; lyophilized

#### Chorionic Gonadotropin, α-

**Cortex CP1038U** Human >98%

**USBio C5069-52** Human ≥98%; hLH ≤0.1%, hFSH ≤0.05%, hTSH ≤0.05%, hCGb ≤0.1%, hCG ≤1%; lyophilized from 50 mM ammonium bicarbonate buffer | Suitable for antigenic applications in immunological protocols

**Biogenesis 2090-1204** Human pituitary Tested negative for antibodies to HIV and HBsAg; <1% beta subunit; purified; PBS buffer, pH 7.2, no preservatives; liquid

**Biodesign A81251M** Human pregnancy urine 50%

**Biodesign A81255M** Human pregnancy urine 98%

**Biogenesis 2090-1209** Human urine MW 14,930 <0.2% hCGb; SA: 1000 IU/mg; tested negative for Hepatitis B surface antigen, Hepatitis C (HCV antibody), HIV-1, HIV-2 antibody; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Bahl, *BBRC*, 40:422, 1970

**USBio C5069-86** ≥98%; hCG ≤0.2%; FSH, TSH & LH: none detected; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized from 0.05 M ammonium bicarbonate | Suitable for antigenic applications in immunological protocols

**Cortex CP1012U** Human >98%

**Biogenesis 2090-1809** Human pregnancy urine MW 23,470 <0.1% hCG-alpha; tested negative for HBsAg, HCV and HIV-1 and 2; SA: 1,000 IU/mg; purified; 50 mM ammonium bicarbonate buffer, pH 8.0; lyophilized

**Biodesign A81451M** Human pregnancy urine 50%

**Biodesign A81455M** Human pregnancy urine 98%

**Biogenesis 2090-1804** Human urine Lyophilized

**Calbiochem 969126** Human urine MW 22.2k Iodination grade; lyophilized solid; >98% (SDS-PAGE); immunopotency: ≥1000 IU/mg (WHO 1<sup>st</sup> IRP 75/551); soluble in water; α-Subunit: <2.0% by RIA; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Glycoprotein hormone produced by the trophoblastic cells of the placenta; determines the specificity & activity of the hormone; inhibits the growth of Kaposi sarcoma-derived cells; *Merck Index*, 12: 2273; Albini, A et al, *AIDS*, 11: 713, 1997

### c-H-Ras, GST-Tagged

**Calbiochem 553329** Human recombinant, expressed in *E. coli* MW 48,299 ≥90% (SDS-PAGE); liquid in 20 mM HEPES, 5 mM MgCl<sub>2</sub>, 40% glycerol, 1 mM NaN<sub>3</sub>, pH 8.0; GTPγS binding: ≥400 mmol/mol | GTP binding protein; small GTPase that regulates growth & proliferation in response to growth factor stimulation; mutants defective in GTP hydrolysis are potent oncogenes; useful as a positive control in Western blotting & as an affinity precipitation reagent using immobilized glutathione resin; Boguski, M & McCormick, F, *Nature*, 366: 643, 1993

### c-H-Ras, His-Tagged

**Calbiochem 553330** Human recombinant, expressed in *E. coli* MW 21,999 ≥90% (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 40% glycerol, 5 mM imidazole, pH 7.9; GTPγS binding: ≥500 mmol/mol | GTP binding protein; small GTPase that regulates growth & proliferation in response to growth factor stimulation; mutants defective in GTP hydrolysis are potent oncogenes; useful as a positive control in Western blotting & as an affinity precipitation reagent using Ni<sup>2+</sup>-charged metal chelate resin; Boguski, M & McCormick, F, *Nature*, 366: 643, 1993

### Chromogranin A

**Sigma C 9335** Bovine adrenal medulla MW 48k ≥90% (SDS-PAGE); lyophilized powder | High-capacity low-affinity Ca<sup>++</sup> binding protein; major protein in secretory vesicles; precursor of biologically active peptide (Pancreasatin) & is involved in the sorting of secretory proteins & granules biogenesis; interacts with membrane proteins, including the inositol 1,4,5-triphosphate receptor/Ca<sup>++</sup> channel; a very hydrophilic protein that migrates on SDS-PAGE with an apparent MW of 75 kD; Yoo SH & Albanesi, JP, *J Biol Chem*, 265: 14414, 1990; Winkler, H & Fischer-Colbrie, R, *Neuroscience*, 49: 497, 1992; Sigafos, J et al, *J Anat*, 183: 253, 1993; Huttner, WB et al, *TIBS*, 16: 27, 1991; Yoo, SH & Lewis, MS, *Biochemistry*, 34: 632, 1995

### Chymotrypsinogen A Type II, α-

**Sigma C 4879** Bovine pancreas 6X Crystallized; lyophilized powder; essentially salt-free; activity: 40-60 units/mg solid after activation to α-chymotrypsin; unit definition: 1 U hydrolyzes 1.0 μmole BTEE/min at pH 7.8 at 25°C; may contain up to 1 U α-chymotrypsin/mg prior to activation by trypsin

### Clathrin

**Sigma C 5823** Bovine brain Lyophilized powder containing ~10% protein; balance Tris & MES buffers; clathrin heavy chains represent more than 60% of the total protein; contains clathrin assembly proteins | The major protein of coated vesicles; involved in receptor-mediated endocytosis & recycling of synaptic vesicles; clathrin triskelion binds to adaptins on the cytoplasmic domain of membrane receptors forming coated pits that develop into endocytotic vesicles; Nandi, Pk et al, *Biochem*, 19: 5917, 1980; Woodman, PG & Warren, G, *J Cell Biol*, 112: 1133, 1991

### Cleavage Control Protein

**Calbiochem 69069-3** Cleaved into two proteolytic fragments of 35k & 13k, (Thrombin) or 32k & 16k (Enterokinase) which are easily visualized by SDS-PAGE | Used to monitor the performance of either thrombin or enterokinase cleavage conditions

### Cobra Venom Factor

**Synonyms:** Cobra Venom Anti-Complementary Protein

**Calbiochem 233550** *Naja naja* MW 75k, 51k & 29-31k >99% (SDS-PAGE); liquid in 140 mM NaCl, 10 mM Tris, pH 8.0; no phospholipase activity detected; 1.24 μg protein=1.0 unit of functional activity when *in vitro* anticomplementary activity is measured by the method of Ballow & Cochrane; LD<sub>50</sub>≤2000 mg/kg; not available for sale outside of the United States | 3 subunits; mediates specific cytotoxicity via the alternative pathway of human complement activation; Bogers, WM et al, *Eur J Immunol*, 23: 433, 1993; Muller, B & Muller-Ruchholtz, W, *Leuk Res*, 11: 461, 1987; Ballow, M & Cochrane, CG, *J Immunol*, 103: 944, 1969

**Calbiochem 233552** *Naja naja kaouthia* MW 68k (α), 48k (β), 30k (γ) >99% (SDS-PAGE); liquid in PBS, pH 7.2; no phospholipase activity detected; 4-6 μg purified CVF=1.0 unit of functional activity when *in vitro* anticomplementary activity is measured by the method of Cochrane, CG et al; LD<sub>50</sub>≤2000 mg/kg; not available for sale outside of the United States | 3 S-S subunits; structural & functional analog of cobra as well as mammalian, C3; in the presence of Factor B, Factor D & Mg<sup>2+</sup>, CVF forms a stable CVF,Bb complex with is a C3/C5 convertase enzyme, however the CVF,Bb complex is not susceptible to regulation by Factors H & I; Fritzinger, DC et al, *J Immunol*, 149: 3554, 1992; Vogel, CW & Muller-Eberhard, HJ, *J Immunol Methods*, 73: 203, 1984; Cochrane, CG, *J Immunol*, 105: 55, 1970

**Sigma C 8406** *Naja naja kaouthia* Lyophilized powder containing ~35% protein (Biuret); balance primarily NaCl & ammonium acetate; major band on gel electrophoresis >80%

### Cobratoxin, α-

**Synonyms:** Snake Toxin

**Sigma C 6903** *Naja naja kaouthia* Chromatographically purified | Binds nicotinic receptors & blocks cholinergic neurotransmission at the neuromuscular junction; binding is irreversible

### Collagen

**Fluka 27662** Bovine Achilles' tendon MW ~80k Lyophilized | Miller, EJ & Gay, S, *Meth Enzymol*, 144: 3, 1987

**ICN 150703** Bovine dermal Aqueous, 3 mg/mL; 99.9% | suitable for cell culture & many biochemical applications

**ICN 151458** Bovine dermal Tissue culture grade; sterile; enzyme-solubilized, 3 mg/mL; 99%

**ICN 160084** Calf skin Soluble | Suitable for gel formation, platelet aggregation & assay of collagenase by viscometry; Gallop & Seifert, *Methods Enzymol*, VI:635, 1963

**Sigma 885-1** Calf skin Freeze-dried vial containing ~2 mg collagen with buffer salts

### Collagen Mixture, Crude

**Calbiochem 234112** Calf skin Lyophilized solid; soluble in acetic acid | A crude mixture of various collagens from calf skin; *Merck Index*, 12: 2543; Gallop, PM & Seifert, S, *Methods Enzymol*, 6: 635, 1963

### Collagen Mixture, Types I/II

**Biogenesis 2150-2556** Porcine

**Biogenesis 2150-2656** Rat tail tendon MW ~300k 60-65% collagen type I, 30-35% collagen type III; <0.5% non-collagenous proteins, ~10% cross-linked collagen type I dimers and trimers, <5% other collagen types; purified; essentially salt free; lyophilized | Molecular composition: M[a1(I)1a2(I)2], native triple-helical structure is preserved (characteristic optical rotation spectrum and ability to form microfibrils); dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal degradation converts dissolved collagen to gelatin

### Collagen Mixture, Types I/III

**Biogenesis 2150-2306** Bovine

**ICN 193492** Bovine 95% Type I, 5% Type III; sterile; aqueous, 0.3% pure bovine collagen buffered with 0.1% acetate, pH 3.2-3.8 (20°C);

**Biogenesis 2150-2356** Canine

**Biogenesis 2150-2506** Mouse tail tendons MW 300k 45% collagen type I & III, 10% collagen type IV, <1% collagen type V, <0.5% non-collagenous proteins; purified; essentially salt free; lyophilized | Dissolved collagen (0.05-0.5 M acetic acid, pH 2.5 at 4°C) retains immunologic properties of native collagen types I+III; thermal denaturation converts dissolved collagen to gelatin; molecular composition:  $M[a1(I)1a2(I)2]$ , native triple helix; Rhodes & Miller, *Biochem*, 17:3442, 1979

**Biogenesis 2150-2606** Rabbit

### Collagen Type I

**Synonyms:** Collagenase Substrate

**ICN 160083** Bovine Achilles tendon Insoluble; Type I (predominantly) | Einbinder, J & M Schubert, *JBC*, 188:335, 1951

**Sigma C 8886** Bovine Achilles tendon Sigma Type II; insoluble; prepared by modification of the method of Neuman | Neuman, RE, *Arch of Biochem*, 24: 289, 1949; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Sigma C 9879** Bovine Achilles tendon Sigma Type I; insoluble; prepared by method of Einbinder & Schubert | Not suitable for coating glassware Einbinder, J & Schubert, M, *J Biol Chem*, 188: 335, 1951; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Chemicon CC072** Bovine fetal skin Purified | Extracellular matrix protein

**Biodesign A33120B** Bovine placenta Purified

**Biogenesis 2150-0515** Bovine skin MW ~300k ~10% cross-linked collagen type I dimers & trimers, <5% other collagen types, <0.5% non-collagenous proteins; purified; essentially salt free; lyophilized | Native, triple-helical structure is preserved (characteristic optical rotation spectrum and ability to form microfibrils); molecular composition:  $[a1(I)1a2(I)2]$ , native triple helix; dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal degradation converts dissolved collagen to gelatin

**Fluka 27664** Calf skin Soluble; prepared by a modification of the procedure of Gallop, PM & Seifter, S, *Meth Enzymol*, 6: 635, 1963 | Electrophoresis test: consistent with calf skin collagen; Yannas, IV et al, *PNAS*, 86: 933, 1989

**ICN 150026** Calf skin Soluble, lyophilized | For attachment of primary cultures of epithelioid cells & many other cell types; Gallop & Seifert, *Methods Enzymol*, VI:635, 1963

**Sigma C 3511** Calf skin Sigma Type III; acid soluble; prepared by modification of the method of Gallop | Gallop, PM & Seifter, S, *Meth Enzymol*, VI, 635, 1963, 1949; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Sigma C 8919** Calf skin 0.1% solution in 0.1 N acetic acid; sterile-filtered; cell culture tested

**Sigma C 9791** Calf skin Acid soluble; cell culture tested | suitable for tissue culture & cell biology studies; prepared by a modification of Gallop, PM & Seifter, S, *Meth Enzymol*, VI: 635, 1963

**Chemicon CC090** Chicken fetal tissue Purified | Extracellular matrix protein

**Biogenesis 2150-1308** Goat skin MW 300k <0.5% non-collagenous proteins, typically cross-linked collagen type I dimers and trimers (approx 10%); purified; essentially salt free; lyophilized | Molecular composition:  $a1(I)1a2(I)2$ , native triple helix; dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal degradation converts dissolved collagen to gelatin

**Biodesign A33704H** Human placenta Purified

**Biogenesis 2150-0030** Human placenta MW 300k <0.5% non-collagenous proteins; typical contaminants are cross-linked collagen type I dimers and trimers (approx 10%); other collagen types constitute <5% according to immunoassay and analytical chromatography; tested negative for HBsAg and HIV-1/2 antibodies; purified; contains 10% NaCl; lyophilized

**Calbiochem 234149** Human placenta Liquid in 10 mM acetic acid; ≥95% (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Highly purified preparation; useful as a gel or thin coating for the attachment of cells; *Merck Index*, 12: 2543; Karsenty, G et al, *J Biol Chem*, 266: 24842, 1991; Klasson, SC et al, *Coll Relat Res*, 6: 397, 1986

**Chemicon CC050** Human placenta Purified | Extracellular matrix protein

**Sigma C 7774** Human placenta Sigma Type VIII; acid soluble; prepared by modification of the pepsin extraction & salt fractionation method of Niyibizi | Niyibizi, C et al, *J Biol Chem*, 259: 14170, 1984; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Sigma C 1809** Kangaroo tail Lyophilized from 10 mM glacial acetic acid; acid soluble; cell culture tested | suitable for tissue culture & cell biology studies; prepared by a modification of the pepsin extraction method of Niyibizi, et al

**Sigma C 3929** Kangaroo tail Acid soluble; prepared by modification of the pepsin extraction & salt precipitation method of Niyibizi | Niyibizi, C et al, *J Biol Chem*, 259: 14170, 1984; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Biogenesis 2150-1425** Mouse embryos MW ~300k Cross linked collagen type I dimers and trimers represent approximately 10%; <3% collagen type III, <0.5% non-collagenous proteins; purified; essentially salt free; lyophilized | Extracted from washed dissected tissue into dilute acetic acid after mild pepsin treatment; collagen type I was purified by using differential salt precipitation; dissolved collagen (0.1 M acetic acid, pH 3.0) retains immunogenic properties; thermal denaturation converts the collagen to gelatin; Rhodes & Miller, *Biochem*, 17:3442, 1979

**Fluka 27666** Rat tail Soluble; for cell biology; prepared by a modification of the procedure of Bernstein, MB, *Lab Invest*, 7: 134, 1958 | Electrophoresis test: consistent with rat tail collagen

**Sigma C 7661** Rat tail Acid soluble; cell culture tested | suitable for tissue culture & cell biology studies; prepared by a modification of the extraction method of Bornstein, MB, *Lab Invest*, 7: 134, 1958

**Sigma C 8897** Rat tail Sigma Type VII; acid soluble; prepared by modification of the method of Bornstein | Preparation method from Bornstein, MB, *Lab Invest*, 7: 134, 1958; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**USBio C7510-18** Rat tail Tested for uniform gelation & attachment/spreading of PC-12 rat cells; negative for the presence of mycoplasma, bacteria & fungi; ~4 mg/mL in 0.02 N HOAc; do not freeze

**Biogenesis 2150-1915** Rat tail tendon <0.5% non-collagenous proteins, typically cross-linked collagen type I dimers and trimers (approx 10%); purified; essentially salt free; lyophilized | Molecular composition:  $a1(I)1a2(I)2$  native triple helix; dissolved collagen (0.1 M acetic acid, pH 3.0) retains immunogenic properties; thermal denaturation (100°C for 5 min) converts collagen to gelatin

### Collagen Type I, FITC Conjugated

**Chemicon CC111F** Bovine inner skin Purified | Extracellular matrix protein; not for sale in Japan

### Collagen Type II

**Calbiochem 234184** Bovine MW 100k Salt-free lyophilized solid; ≥95% (SDS-PAGE) | Highly purified preparation isolated from the triple helical domain of Gn-HCl-extracted & pepsin-digested bovine joint cartilage collagen Type II; subunit composition:  $\alpha1(II)_2$ ; does not react with anti-collagen Type I & anti-collagen Type III by Western Blotting; *Merck Index*, 12: 2543; Sieper, J et al, *Arthritis Rheum*, 39: 41, 1996; Boissier, M-C et al, *Arthritis Rheum*, 33: 1, 1990

**Biogenesis 2150-0535** Bovine articular cartilage Essentially homogenous by SDS-PAGE; purified; from dilute acetic acid as acid-soluble monomers; lyophilized | Useful in the study of the cartilage-collagen induced model of arthritis in rats and mice, autoimmunity studies (eg tests for autoimmune responses to cartilage collagen in rheumatoid patients) & collagen-chemistry comparison studies

## Proteins

**USBio C7510-21** Bovine articular cartilage MW 30k Highly purified ≥99% (SDS-PAGE); lyophilized; soluble in acidic buffer (max 4 mg/mL), but difficult to dissolve in neutral buffer | Purified for immunization; suitable for antigenic applications in immunological protocols; used for collagen-induced arthritis (CIA) in experimental animals; to avoid fibril formation under neutral conditions, use a buffer containing 0.15-0.2 M NaCl & keep on ice; to prepare a collagen gel, dissolve in neutral buffer containing 0.15-0.2 M NaCl & incubate at 37°C for 1-2 hr

**Biodesign A33122B** Bovine cartilage Purified

**Chemicon CC110** Bovine hyaline cartilage Purified | Extracellular matrix protein; not for sale in Japan

**Sigma C 7806** Bovine nasal septum Acid soluble; prepared by modification of the pepsin extraction method of Niyibizi | Niyibizi, C et al, *J Biol Chem*, 259: 14170, 1984; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**USBio C7510-26** Bovine sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**Sigma C 1188** Bovine tracheal cartilage Acid soluble; prepared by modification of the pepsin extraction method of Trentham | Trentham, et al, *J Exp Med*, 146: 857, 1977; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**USBio C7510-22** Chick sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); lyophilized; soluble in acidic buffer (max 4 mg/mL), but difficult to dissolve in neutral buffer | Purified for immunization; suitable for antigenic applications in immunological protocols; used for collagen-induced arthritis (CIA) in experimental animals; to avoid fibril formation under neutral conditions, use a buffer containing 0.15-0.2 M NaCl & keep on ice; to prepare a collagen gel, dissolve in neutral buffer containing 0.15-0.2 M NaCl & incubate at 37°C for 1-2 hr

**USBio C7510-27** Chick sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**Chemicon CC092** Chicken sternal cartilage Purified | Extracellular matrix protein

**Sigma C 9301** Chicken sternal cartilage suitable for tissue culture & cell biology studies; prepared by a modification of Trentham, DE et al, *J Exp Med*, 146: 857, 1977

**Calbiochem 234185** Human MW 100k Salt-free lyophilized solid; ≥95% (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Highly purified preparation isolated from the triple helical domain of Gn-HCl-extracted & pepsin-digested human joint cartilage collagen Type II; subunit composition: α1(II)<sub>3</sub>; does not react with anti-collagen Type I & anti-collagen Type III by Western Blotting; *Merck Index*, 12: 2543; Ricard-Blum, S et al, *J Cell Biochem*, 27: 347, 1985; Boissier, M-C et al, *Arthritis Rheum*, 33: 1, 1990

**Biodesign A22314H** Human cartilage Purified

**Chemicon CC052** Human cartilage Purified | Extracellular matrix protein

**Biogenesis 2150-0070** Human hip/knee joint cartilage Purified; dilute acetic acid; lyophilized | Useful in the study of the cartilage-collagen induced model of arthritis in rats and mice, autoimmunity studies & collagen-chemistry comparison studies

**USBio C7510-23** Human sternal cartilage MW 300k Highly purified ≥99% (SDS-PAGE); lyophilized; soluble in acidic buffer (max 4 mg/mL), but difficult to dissolve in neutral buffer | Purified for immunization; suitable for antigenic applications in immunological protocols; used for collagen-induced arthritis (CIA) in experimental animals; to avoid fibril formation under neutral conditions, use a buffer containing 0.15-0.2 M NaCl & keep on ice; to prepare a collagen gel, dissolve in neutral buffer containing 0.15-0.2 M NaCl & incubate at 37°C for 1-2 hr

**USBio C7510-28** Human sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**USBio C7510-29** Monkey sternal cartilage Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**USBio C7510-30** Mouse sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**USBio C7510-24** Porcine sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); lyophilized; soluble in acidic buffer (max 4 mg/mL), but difficult to dissolve in neutral buffer | Purified for immunization; suitable for antigenic applications in immunological protocols; used for collagen-induced arthritis (CIA) in experimental animals; to avoid fibril formation under neutral conditions, use a buffer containing 0.15-0.2 M NaCl & keep on ice; to prepare a collagen gel, dissolve in neutral buffer containing 0.15-0.2 M NaCl & incubate at 37°C for 1-2 hr

**USBio C7510-31** Porcine sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

**USBio C7510-25** Rat sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); lyophilized; soluble in acidic buffer (max 4 mg/mL), but difficult to dissolve in neutral buffer | Purified for immunization; suitable for antigenic applications in immunological protocols; used for collagen-induced arthritis (CIA) in experimental animals; to avoid fibril formation under neutral conditions, use a buffer containing 0.15-0.2 M NaCl & keep on ice; to prepare a collagen gel, dissolve in neutral buffer containing 0.15-0.2 M NaCl & incubate at 37°C for 1-2 hr

**USBio C7510-32** Rat sternal cartilage MW 30k Highly purified ≥99% (SDS-PAGE); solution in 0.05 M acetic acid; free of pepsin & proteoglycans | Highly purified for ELISA; used for assaying Ab in sera from collagen-induced arthritis (CIA) models & humans by ELISA; polymeric or fibrillar collagen can bind nonspecifically to Ig in serum samples, secondary Ab & avidin-peroxidase, creating high, false-positive reactions; this highly purified, polymeric-free, ELISA grade collagen prevents false positives

### Collagen Type II, FITC Conjugated

**Chemicon CC110F** Bovine hyaline cartilage Purified | Extracellular matrix protein

### Collagen Type III

<b>Biodesign A33124B</b>	Bovine placenta	Purified	
<b>Chemicon CC081</b>	Bovine placenta	Purified	Extracellular matrix protein
<b>Biogenesis 2150-0555</b>	Bovine skin	MW 300k	<0.5% non-collagenous proteins; typical contaminants are cross-linked collagen type II dimers and trimers (approximately 10%); other collagen types constitute <5% by immunoassay and analytical chromatography; purified; lyophilized   $\alpha 1(\text{III})_3$ native triple helix; dissolved preparations (0.1 M acetic acid, pH 3.0) retain immunochemical properties; thermal degradation to gelatin occurs at 100°C for 5 minutes
<b>Chemicon CC078</b>	Bovine skin	Purified	Extracellular matrix protein
<b>Biodesign A33123H</b>	Human placenta	Purified	
<b>Biogenesis 2150-0110</b>	Human placenta	MW ~300k	<0.5% non-collagenous proteins, typically cross-linked collagen type III dimers and trimers (approx 10%); tested negative for HBsAg and HIV-1/2 antibodies; molecular composition: $\alpha 1(\text{III})_3$ ; purified; essentially salt free; lyophilized
<b>Chemicon CC054</b>	Human placenta	Purified	Extracellular matrix protein
<b>Sigma C 4407</b>	Human placenta	Sigma Type X; acid soluble;	prepared by modification of the pepsin extraction & salt fractionation method of Hill & Harper   Hill, RJ & Harper, E, <i>Anal Biochem</i> , 141: 83, 1984; Bornstein, P & Traub, W, <i>The Proteins</i> , IV: 412, 1979
<b>Biogenesis 2150-1955</b>	Rat healthy tendons	MW 300k	<0.5% non-collagenous proteins, typically cross-linked collagen type III dimers and trimers (approx 10%); purified; essentially salt free; lyophilized   Molecular composition: $\alpha 1(\text{III})_3$ , native triple helix; dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal denaturation (100°C for 5 min) converts collagen to gelatin
<b>Collagen Type III, FITC Conjugated</b>			
<b>Chemicon CC112F</b>	Bovine skin	Purified	Extracellular matrix protein; not for sale in Japan
<b>Collagen Type IV</b>			
<i>Synonyms:</i> Collagenase Substrate			
<b>Biodesign A33126B</b>	Bovine placenta	Purified	
<b>Chemicon CC083</b>	Bovine placenta	Purified	Extracellular matrix protein
<b>Biodesign A33125H</b>	Human placenta	Purified	
<b>Biogenesis 2150-0150</b>	Human placenta	MW 340k	<2% Collagen type I & type V, <1% collagen type III, <0.5% non-collagenous proteins; molecular composition: $\alpha 1(\text{V})_2$ , $\alpha 2(\text{V})$ (native triple helix); tested negative for HBsAg and HIV antibodies; purified; essentially salt free; lyophilized   Dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal degradation converts dissolved collagen to gelatin; Glanville et al, <i>Eur J Biochem</i> , 95:383, 1979; Sage et al, <i>Biochem</i> , 18:3815, 1979; Klasson et al, <i>Coll Rel Res</i> , 6:397, 1986
<b>Calbiochem 234154</b>	Human placenta	MW 130k	Aseptically filled liquid in 10 mM acetic acid; homogeneous purity (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV   Highly purified preparation; useful as a reference standard for collagen Type IV; typically used as a thin coating on tissue culture surfaces; <i>Merck Index</i> , 12: 2543; Klasson, SC et al, <i>Coll Relat Res</i> , 6: 397, 1986
<b>Chemicon CC076</b>	Human placenta	Purified	Extracellular matrix protein
<b>Fluka 27663</b>	Human placenta	MW ~125k	Prepared by a modified pepsin extraction method of Glanville, RW et al, <i>Eur J Biochem</i> , 95: 383, 1979   Electrophoresis test: consistent with basement membrane collagen; Bailey, AJ et al, <i>FEBS Lett</i> , 99: 361, 1979; Konigsberg, IR, <i>Meth Enzymol</i> , 58: 525, 1979
<b>Sigma C 5533</b>	Human placenta	Lyophilized from 10 mM glacial acetic acid; acid soluble; cell culture tested	PCR negative for HIV & Hepatitis B; prepared by a modification of the pepsin extraction method of Niyibizi, et al

**Sigma C 7521** Human placenta Sigma Type VI; acid soluble; prepared by modification of the pepsin extraction method of Glanville; 3 bands following SDS polyacrylamide gel electrophoresis under reducing conditions consistent with basement membrane collagen | Glanville, RW et al, *Eur J Biochem*, 95: 383, 1979; Bailey AJ et al, *FEBS Lett*, 99: 361, 1979; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

**Sigma C 0543** Mouse sarcoma Lyophilized; sterile-filtered; chloroform treated; pepsin is not used in the preparation; 0.75 mg/vial; cell culture tested | Isolated from basement membrane of Engelbreth-Holm-Swarm mouse sarcoma; suitable for attachment of epithelial, endothelial, muscle & nerve cells in culture

### Collagen Type IV, FITC Conjugated

**Chemicon CC113F** Bovine placenta Purified | Extracellular matrix protein; not for sale in Japan

### Collagen Type V

**Biodesign A33128B** Bovine placenta Purified

**Chemicon CC084** Bovine placenta Purified | Extracellular matrix protein

**Biodesign A33127H** Human placenta Purified

**Biogenesis 2150-0190** Human placenta <2% collagen type I & IV, <1% collagen type III, <0.5% non-collagenous proteins; tested negative for HBsAg and HIV antibodies; purified; essentially salt free; lyophilized | Molecular composition: [ $\alpha 1(\text{V})_2$ ,  $\alpha 2(\text{V})$ ]; native triple helix; dissolved collagen (0.5 M acetic acid, pH 2.5) retains immunogenic properties; thermal degradation converts dissolved collagen to gelatin; Glanville et al, *Eur J Biochem*, 95:383, 1979; Sage et al, *Biochem*, 18:3815, 1979; Klasson et al, *Coll Rel Res*, 6:397, 1986

**Calbiochem 234161** Human placenta Consists of three subunits:  $\alpha 1(\text{V})$ ,  $\alpha 2(\text{V})$  &  $\alpha 3(\text{V})$  of MW 110,000, 115,000 & 125,000, respectively; liquid in 10 mM acetic acid; homogeneous purity (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | *Merck Index*, 12: 2543

**Chemicon CC077** Human placenta Purified | Extracellular matrix protein

**Sigma C 3657** Human placenta Sigma Type IX; acid soluble; prepared by modification of the pepsin extraction & salt fractionation method of Niyibizi | Niyibizi, C et al, *J Biol Chem*, 259: 14170, 1984; Bornstein, P & Traub, W, *The Proteins*, IV: 412, 1979

### Collagen Type V, FITC Conjugated

**Chemicon CC084F** Bovine placenta Purified; FITC conjugated | Extracellular matrix protein; not for sale in Japan

### Collagen Type VI

**Biodesign A33130B** Bovine placenta Purified

**Chemicon CC086** Bovine placenta Purified | Extracellular matrix protein

**Biodesign A33129H** Human placenta Purified

**Biogenesis 2150-0230** Human placenta Tested negative for HIV-1 and 2 antibodies and for HBsAg; <1% collagen types III, IV & V, <0.5% non-collagenous protein; purified; essentially salt free; lyophilized | Dissolved collagen (0.1 M acetic acid, pH 3.0) retains immunogenic properties; thermal denaturation converts collagen to gelatin; Miller & Rhodes, *Meth Enzymol*, 82, 1982

### Collagen Type XI

**Biogenesis 2150-0715** Bovine articular cartilage Purified; dilute acetic acid; lyophilized | Supplied as acid-soluble monomers; useful in the study of the cartilage-collagen induced model of arthritis in rats and mice, autoimmunity studies & collagen chemistry comparison studies

### Collagen, Azo Dye Impregnated

**Sigma A 4341** Dye-impregnated hide powder | Azocoll suitable as a non-specific protease substrate; the rate of dye release may vary from lot to lot Chavira, R Jr et al, *Anal Biochem*, 136: 446, 1984

### Collagen, Carrier Insoluble Bone

Kamiya

### Colony Stimulating Factor Tpo

*Synonyms:* Thrombopoietin

**Sigma T 4309** Human recombinant, expressed in mouse myeloma cell line NSO ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 250 µg BSA; activity measured in a cell proliferation assay using MO7e cells; endotoxin tested | 335 AA; due to glycoylation the protein has an apparent MW of 75 kD in SDS-PAGE; precursor form consists of 356 AA; to generate the mature Tpo (335 AA), the precursor cleaves a 21 AA signal peptide; human, mouse & dog Tpo shows 69-75% AA homology; Tpo is the ligand for the receptor encoded by the *c-Mpl* proto-oncogene, acts as a stimulator of the development of megakaryocyte precursors of platelets; similar to erythropoietin, Tpo leads to an increase in the number of circulating platelets; affects the entire thrombopoietic process with stronger effects in the later stages; other thrombopoietic cytokines include stem cell factor (SCF), IL-3, IL-6 & IL-11

**Sigma T 4184** Mouse recombinant, expressed in mouse myeloma cell line NSO ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 250 µg BSA; activity measured in a cell proliferation assay using MO7e cells; endotoxin tested; see Sigma T 4309

### Colony Stimulating Factor, Granulocyte

*Synonyms:* Colony Stimulating Factor G

**Biodesign A52023H** *E. coli* MW 18.5k Purified

**Biodesign A52255H** *E. coli* MW 19k Purified | Species specificity: mouse

**Chemicon GF051** Human ≥95%

**BioSource International PHC2034** Human recombinant

**Calbiochem 234370** Human recombinant, expressed in *E. coli* MW 18k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 20 mM acetic acid containing 50 µg HSA/µg G-CSF; biological activity: ED<sub>50</sub>=20-60 pg/mL as measured in a cell proliferation assay with the murine myeloblastic cell line NFS-60; endotoxin: ≤100 pg/µg G-CSF; may be carcinogenic/teratogenic | Pleiotropic cytokine best known for its specific effects on proliferation, differentiation & activation of hematopoietic cells of neutrophilic granulocyte lineage; causes neutrophil sequestration in rabbit lungs; inano, H et al, *Am J Respir Cell Mol Biol*, 19: 167, 1998; Nicola, NA et al, *Ann Rev Biochem*, 58: 45, 1989

**ICN 154138** Human recombinant, expressed in *E. coli* Lyophilized from a sterile filtered solution containing 50 µg human serum albumin/µg cytokine in 10 mM acetic acid; ≥95%; activity: ED<sub>50</sub> = 0.02-0.06 ng/mL measured in a cell proliferation assay with murine myeloblastic cell line NFS-60 | Best known for its proliferation, differentiation & activation effects on neutrophilic granulocyte hematopoietic cells

**PeproTech 300-23** Human recombinant, expressed in *E. coli* MW 18.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent stimulator of bone marrow cells, especially those of neutrophil lineage; can enhance the survival & activate the immunological functions of mature neutrophils; 174 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 1 × 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine M-NSF-60 cells

**Sigma G 0407** Human recombinant, expressed in *E. coli* MW 19.6k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 10 mM acetic acid containing 100 µg BSA; activity measured in a cell proliferation assay using NFS-60 cells; endotoxin tested | Produced by monocytes & fibroblasts; stimulates granulocyte colony formation, activates neutrophils, differentiates certain myeloid leukemic cell lines & is a potent activator of mature granulocytes; natural human G-CSF is a glycoprotein having 177 AA; shares ~75% AA sequence homology & has biological cross-reactivity with murine G-CSF; Shirafuji, N et al, *Exp Hematol*, 17: 116, 1989; Metcalf, D, *Cell*, 43: 5, 1985; Groopman, JE, *Cell*, 50: 5, 1987; Souza, LM et al, *Science*, 232: 61, 1986; Morstyn, G & Burgess, A, *Cancer Res*, 48: 5624, 1988

**BioSource International PMC2034** Mouse recombinant

**Calbiochem 234371** Mouse recombinant, expressed in *E. coli* MW 19k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 20 mM acetic acid containing 50 µg BSA/µg G-CSF; biological activity: ED<sub>50</sub>=10-30 pg/mL as measured in a cell proliferation assay using a mouse myeloblastic cell line NFS-60; endotoxin: ≤100 pg/µg G-CSF; may be carcinogenic/teratogenic | Pleiotropic cytokine best known for its specific effects on proliferation, differentiation & activation of hematopoietic cells of neutrophilic granulocyte lineage; induces binding of STAT1 & STAT3 to IFN-γ response region in human neutrophils; Borolenta, C et al, *FEBS Lett*, 386: 239, 1996; Moore, MAS, *Ann Rev Immunol*, 9: 159, 1991; Nillson, SK et al, *Blood*, 86: 66, 1995; Gabrilove, JL, *Growth Factors*, 6: 187, 1992; Tsuchiya, M et al, *PNAS*, 83: 7633, 1986; *Merck Index*, 12: 4558

**Sigma G 8160** Mouse recombinant, expressed in *E. coli* MW 19k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 20 mM acetic acid containing 250 µg BSA; activity measured in a cell proliferation assay using NFS-60 cells; endotoxin tested; see Sigma G 0407

**ICN 195761** Murine recombinant, expressed in *E. coli* ≥95%; activity: ED<sub>50</sub> = 0.01-0.03 ng/mL | G-CSF

**PeproTech 250-05** Murine recombinant, expressed in *E. coli* MW 19.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized from 10 mM NaCitrate pH 4.0 | Potent stimulator of bone marrow cells, especially those of neutrophil lineage; 179 AA; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine M-NFS-60 cells



**Colony Stimulating Factor, Granulocyte-Macrophage***Synonyms:* Colony Stimulating Factor GM**Biodesign A52303H** *E. coli* MW 14k Purified**Biodesign A52503H** *E. coli* MW 14k Purified | Species specificity: mouse**Chemicon GF004** Human ≥95%**BioSource International PHC2014** Human recombinant**Oncogene PF014** Human recombinant MW 14k >98% (SDS-PAGE); lyophilized; biological activity: half maximal stimulation of granulocyte & macrophage colony formation from human bone cells 0.1 ng/mL | Species reactivity: human; for proliferation studies & Western blot**Calbiochem 234373** Human recombinant, expressed in *E. coli* MW 14k ≥97% (SDS-PAGE); lyophilized from filter-sterilized PBS containing 50 µg BSA/µg GM-CSF; biological activity: ED<sub>50</sub>=20-80 pg/mL as measured in a cell proliferation assay with TF-1 cells; endotoxin: ≤100 pg/µg GM-CSF; may be carcinogenic/teratogenic | Stimulates proliferation, maturation & function of hematopoietic cells; target cells include macrophages, granulocytes & eosinophils; mediates host defense & inflammation & is associated with tumor growth & tumor growth & metastasis; Moore, MAS, *Ann Rev Immunol*, 9: 159, 1991; Tsuruta, N et al, *Cancer*, 82: 2173, 1998; *Merck Index*, 12: 4559**Fitzgerald 30-AG10** Human recombinant, expressed in *E. coli***Harlan BT-3006** Human recombinant, expressed in *E. coli* Lyophilized; 0.002 mg**Harlan BT-3007** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg**ICN 154137** Human recombinant, expressed in *E. coli* Frozen; ≥95%; activity: ED<sub>50</sub> = 0.02-0.08 ng/mL | Stimulates the production of superoxide anion by eosinophils; stimulates granulocyte & macrophage production in human & murine bone marrow cell cultures**PeptoTech 300-03** Human recombinant, expressed in *E. coli* MW 14.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent species-specific stimulator of bone marrow cells; stimulates precursor cells of granulocytes, macrophages, & eosinophils; 123 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of human TF-1 cells**Sigma G 5035** Human recombinant, expressed in *E. coli* MW 18-22k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 100 µg BSA; activity tested in culture using human TF-1 cells; endotoxin tested | Induces myeloid progenitor cells from bone marrow to form colonies containing macrophages & granulocytes in a semisolid media; acts upon mature macrophages, eosinophils & neutrophils to stimulate various functional activities; acidic glycoprotein which binds to high affinity receptors on GM-CSF sensitive cells; although it shares 54% AA sequence homology with mouse GM-CSF, their biological actions are species-specific; other growth factors & CSFs modulate receptor binding or actions of GM-CSF; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Metcalf, D, *Blood*, 67: 257, 1986; Nicola, N, *Immunol Today*, 8: 134, 1987; Wong, G et al, *Science*, 228: 810, 1985; Morstyn, G & Burgess, A, *Cancer Res*, 48: 5624, 1988; Mazur, e & Cohen, J, *Clin Pharmacol Ther*, 46: 250, 1989**ICN 150708** Human recombinant, expressed in yeast containing the GM-CSF gene originally cloned from peripheral blood t-cell DNA & purified by HPLC Frozen; ≥95%; ≥1.25 × 10<sup>7</sup> U/mg protein; 1 U induces half-maximal <sup>3</sup>H-TdR incorporation by TF-1 cells in a 96 hr bioassay**Biogenesis 4740-1004** Mouse r-DNA Lyophilized**Biogenesis 4740-1115** Mouse r-DNA**BioSource International PMC2014** Mouse recombinant**Calbiochem 234374** Mouse recombinant, expressed in *E. coli* MW 14.8k >97% (SDS-PAGE); lyophilized from filter-sterilized PBS containing 50 µg BSA/µg GM-CSF; biological activity: ED<sub>50</sub>=100-300 pg/mL as measured in a cell proliferation assay using a factor-dependent cell line, DA-3; endotoxin: ≤100 pg/µg GM-CSF; may be carcinogenic/teratogenic | Pleiotropic cytokine that can stimulate proliferation, maturation & function of hematopoietic cells; improves the response rate to antibiotic therapy in cancer subjects; Moore, MAS, *Ann Rev Immunol*, 9: 159, 1991; Anaissie, EJ et al, *Am J Med*, 100: 15, 1996; *Merck Index*, 12: 4559; Watanabe, S et al, *J Biol Chem*, 271: 12681, 1996; Nicola, NA, *Ann Rev Biochem*, 58: 45, 1989; Gough, NM et al, *EMBO J*, 4: 645, 1985**Sigma G 0282** Mouse recombinant, expressed in *E. coli* MW 23k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 250 µg BSA; proliferative activity tested in culture using mouse DA-3 cells; endotoxin tested; see Sigma G 5035 | Acidic glycoprotein; Ihle, JN et al, *Advances in Viral Oncology*, G Klein (ed), Raven Press, New York, NY, 4: 95, 1984**Chemicon GF026** Murine ≥95%**Fitzgerald 30-AG15** Murine recombinant, expressed in *E. coli***Harlan BT-5112** Murine recombinant, expressed in *E. coli* Lyophilized; 0.005 mg**Harlan BT-5113** Murine recombinant, expressed in *E. coli* Lyophilized; 0.025 mg**ICN 195007** Murine recombinant, expressed in *E. coli* MW 14k Lyophilized | GM-CSF**PeptoTech 315-03** Murine recombinant, expressed in *E. coli* MW 14.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent, species-specific stimulator of bone marrow cells; stimulates precursor cells of granulocytes, macrophages, & eosinophils; 124 AA; ED<sub>50</sub> ≤ 0.2 ng/mL; SA ≥ 5 × 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine FDC-P1 cells**ICN 150709** Murine recombinant, expressed in yeast & purified by HPLC Frozen; ≥90%; ≥5.0 × 10<sup>6</sup> U/mg protein; 1 U stimulates half-maximal proliferation of FDCP2-1D cells; optimal colony formation is typically obtained using 10-50 ng/mL | GM-CSF**BioSource International PRC2014** Rat recombinant**Colony Stimulating Factor, Macrophage***Synonyms:* Colony Stimulating Factor I; Colony Stimulating Factor M**Biodesign A52025H** *E. coli* MW 18.4k Purified**BioSource International PHC2024** Human**Chemicon GF053** Human ≥95%**Biogenesis 4740-1255** Human r-DNA Liquid**Calbiochem 234376** Human recombinant, expressed in *E. coli* MW 37k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg M-CSF; biological activity: ED<sub>50</sub>=0.5-1.5 ng/mL as measured in a cell proliferation assay using the M-CSF-dependent mouse monocytic cell line M-NFS-60; endotoxin: ≤100 pg/µg M-CSF; may be carcinogenic/teratogenic | Stimulates formation of macrophage colonies from bone marrow hematopoietic progenitor cells; increases osteoclastic bone resorption in adults; induces cell death in HIV-1 infected monocytes; Edwards, M et al, *Bone*, 22: 325, 1998; Bergamini, A et al, *Immunol Lett*, 42: 35, 1994; Hattersley, G et al, *Biochem Biophys Res Comm*, 177: 526, 1991**PeptoTech 300-25** Human recombinant, expressed in *E. coli* MW 36.8k >98%; 316 AA; lyophilized with no additives; ED<sub>50</sub>: 1.0-5.0 ng/mL as determined by a cell proliferation assay using murine M-NFS-60 cells

## Proteins

**Sigma M 6518** Human recombinant, expressed in *E. coli* MW 18.5k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 100 µg BSA; proliferative activity tested in culture using mouse M-NFS-60 cells; endotoxin tested | Glycoprotein containing an N-terminal Met; produced by monocytes, fibroblasts & endothelial cells; stimulates the formation of macrophage colonies, enhances antibody-dependent cell mediated cytotoxicity by monocytes & macrophages & inhibits bone resorption by osteoclasts; appears in a few different MW forms due to variations in glycosylation; 159 AA; Halenbeck, R et al, *Biotechnology*, 7: 710, 1989; Metcalf, D, *Blood*, 67: 257, 1986; Mufson, RA et al, *Cellular Immunol*, 119: 182, 1989; Kawasaki, ES et al, *Science*, 230: 291, 1985; Hattersley, G et al, *J Cell Physiol*, 137: 199, 1988

**ICN 152368** Human recombinant, expressed in yeast Frozen; ≥90%; ≥2 x 10<sup>5</sup> proliferation U/mg protein; 1 U stimulates half-maximal proliferation of non-adherent mouse bone marrow cells | Supports proliferation & differentiation of macrophage colonies in bone marrow cultures; ironically, human M-CSF is a strong inducer of mouse macrophage colony formation, but is significantly less active on human cells; only effective on mouse cells & gives rise to macrophage colonies in murine bone marrow cultures

**ICN 160008** Human urine MW ~100k Sterile filtered with 1% BSA in H<sub>2</sub>O; ≥1 x 10<sup>7</sup> U/mg protein; 1 U stimulates colony formation of mouse bone marrow cells in a soft agar assay

**Calbiochem 234378** Mouse recombinant, expressed in *E. coli* MW 26k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg M-CSF; biological activity: ED<sub>50</sub>=0.5-1.5 ng/mL as measured in a cell proliferation assay using the M-CSF-dependent mouse monocytic cell line M-NFS-60; endotoxin: ≤100 pg/µg M-CSF; may be carcinogenic/teratogenic | Stimulates formation of macrophage colonies from bone marrow hematopoietic progenitor cells; Ladner, MB et al, *PNAS*, 85: 6706, 1988; Bergamini, A et al, *Immunol Lett*, 42: 35, 1994; Hattersley, G et al, *Biochem Biophys Res Comm*, 177: 192, 1991

**Sigma M 9170** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 500 µg BSA; activity tested in culture by cell proliferation assay using mouse monocytic cell line M-NFS-60; endotoxin tested; see Sigma M 6518 | Halenbeck, R et al, *Biotechnology*, 7: 710, 1989

**ICN 160007** Murine recombinant, expressed in *E. coli* Lyophilized with BSA carrier; >97%; activity: ED<sub>50</sub> = 0.5-1.5 ng/mL; 1 U stimulates half maximal cell proliferation using a M-CSF dependent murine monocytic cell line, M-NFS-60 | Supports the proliferation & differentiation of macrophage colonies in bone marrow cultures

### Colony Stimulating Factor, Macrophage Human

**IBT GF-390-3, GF-390-4** *E. coli* >92%; 1 mg/mL solution in 0.1% mannitol, 0.1 M citrate, pH 6.5 | SA = 6x10<sup>7</sup> U/mg (measured by the mouse bone marrow colony-forming assay)

### Colony Stimulating Factor, Murine Granulocyte

**Chemicon GF059** Murine ≥95%

### Complement

**USBio C7849-10** Goat Lyophilized complete with buffered saline ionic diluent

**ICN 55852 ICN 55854** Guinea pig Purified

**USBio C7849-15** Guinea pig Lyophilized complete with buffered saline ionic diluent

**USBio C7849-20** Hamster Lyophilized complete with buffered saline ionic diluent

**ICN 55860** Mouse Purified

**USBio C7849-25** Mouse Lyophilized complete with buffered saline ionic diluent; ~85 mg protein /mL; immunoelectrophoresis: to pass standard

**ICN 55866** Rabbit Purified

**USBio C7849-35** Rabbit Lyophilized complete with buffered saline ionic diluent

**ICN 55870** Rat Purified

### Complement B

*Synonyms:* Properdin Factor B

**ICN 191383** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 4909** Human serum Lyophilized from 0.05 M Tris buffer, pH 7.5, containing 0.02 M NaCl, 0.01 M EDTA, 0.01 M ε-aminocaproic acid; single band by immunoelectrophoresis at 20 µg protein/gel against both anti-B & anti-whole serum | Suitable for radioiodination

### Complement C1

**Sigma C 2660** Human serum ~90% by nonreducing SDS-urea gel; frozen solution containing 0.1 mg/mL protein in 20 mM Tris-HCl, 154 mM NaCl, 1 mM CaCl<sub>2</sub>, 0.03 mM *p*-nitrophenyl-*p*'-guanidinobenzoate, pH 7.4 | Functionally active by a hemolytic assay; suitable for radioiodination

### Complement C1 Esterase Inhibitor

**Sigma C 2412** Human MW ~105k ~95% (SDS-PAGE); frozen solution containing 0.4 mg/mL protein in 20 mM Tris-HCl, 240 mM NaCl, 1 mM EDTA, pH 7.4 | Functionally active; suitable for radioiodination

### Complement C1q

**ICN 191391** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 0660** Human serum Lyophilized from 0.05 M Tris buffer, pH 7.3, containing 0.5 M NaCl; single band by immunoelectrophoresis at 20 µg protein/gel against both anti-C1q & anti-whole serum; no visible reaction against anti-IgG, anti-IgM, anti-IgA sera at 20 µg protein/gel | Suitable for radioiodination

**Scipac P102-1** Pooled serum/plasma >96%; lyophilized | Complement protein

### Complement C3

**ICN 191390** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 0651** Human serum ~95% (SDS-PAGE); lyophilized from 10 mM sodium phosphate buffer; pH 7.2, containing 150 mM NaCl | Partial aggregation of C3 may be observed when product is electrophoresed; suitable for radioiodination

**Sigma C 2910** Human serum Frozen solution containing 1 mg/mL in 15 mM sodium phosphate buffer, 150 mM NaCl, pH 7.2; activity: ≥50 C3H50 units/mg using C3 deficient serum | Functionally pure by a hemolytic assay using deficient sera; suitable for radioiodination

**USBio C7850-12** Human serum ≥97%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~5 mg/mL RID (CAP 4) supplied in PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Scipac P150-0** Pooled serum/plasma >99%; frozen in sodium phosphate buffer; immunoaffinity absorbed; <1% IgG, IgM, IgG and C4 combined totals by RID | Complement protein

**Scipac P150-1** Pooled serum/plasma >96%; lyophilized | Complement protein

**Scipac P150-2** Serum/plasma 40-90%; lyophilized; available on request | Complement protein

### Complement C4

**USBio C7850-17** Human Purity: Trace amounts of C3; 3.2 mg/mL supplied in PBS, pH 7.2, & 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**ICN 191389** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 8195** Human serum Frozen solution containing 1 mg/mL in 25 mM sodium phosphate buffer, 100 mM NaCl, pH 7.2, containing 0.02% sodium azide; activity: ≥300,000 C4H50 U/mg protein (not determined by Sigma) | Suitable for radioiodination

**Scipac P151-0** Pooled serum/plasma >99%; frozen in sodium phosphate buffer; immunoaffinity absorbed; <1% IgG, IgM, IgG and C3 combined totals by RID | Complement protein

**Scipac P151-3** Pooled serum/plasma >96%; frozen in sodium phosphate buffer | Complement protein

**Scipac P151-2** Serum/plasma 40-90%; lyophilized | Complement protein

#### Complement C4b Binding Protein

**Sigma C 2537** Human plasma MW 500k >70% (SDS-PAGE); lyophilized from ~20 µg protein in 100 µL of 20 mM Tris buffer, 0.1 M NaCl, pH 7.4; a macromolecular glycoprotein of & is composed of 7 identical subunit chains of 70 kD | Regulatory factor for both complement system & blood coagulation; suitable for radioiodination; Nagasawa, S et al, *Immunochemistry*, 14: 749, 1977; Dahlback, B, *J Biochem*, 209: 847, 1983

#### Complement C5

**ICN 191388** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 3160** Human serum ≥75% by (SDS-PAGE); frozen solution containing 1 mg/mL in 10 mM sodium phosphate, 150 mM NaCl, pH 7.2; hemolytic activity: >300,000 C5H50 U/mg protein | Functionally active by a sensitive hemolytic assay; suitable for radioiodination

#### Complement C5a

**Fluka 60897** Human recombinant, expressed in *E. coli* MW ~8.6k ≥95% (GE); protein modification: non-glycosylated form with glutathione bound to Cys-27; ~65% of C5a carry a methionyl residue at Thr-1 (NH<sub>2</sub>-terminal end) | Wilkinson, PC, *Meth Enzymol*, 162: 127, 1988; Pike, MC & Snyderman, R, *ibid*, 162: 236, 1988; Janatova, J, *ibid*, 162: 579, 1988; Daumy, GO et al, *Biochim Biophys Acta*, 967: 326, 1988

**Sigma C 5788** Human recombinant, expressed in *E. coli* MW ~8.6k (non-glycosylated, with glutathione attached to Cys<sup>27</sup>) & C5a having an added methionyl residue at the amino terminus (~65%) | Exhibits biological activities similar to serum-derived C5a; suitable for radioiodination

#### Complement C6

**ICN 191387** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 3285** Human serum ≥80% by (SDS-PAGE); frozen solution containing 1 mg/mL in 10 mM sodium phosphate, 150 mM NaCl, pH 7.2; hemolytic activity: >300,000 C6H50 U/mg protein | Functionally active by a sensitive hemolytic assay; suitable for radioiodination

#### Complement C7

**ICN 191386** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 2787** Human serum ≥60% by (SDS-PAGE); frozen solution containing 1 mg/mL in 10 mM sodium phosphate, 150 mM NaCl, pH 7.2; hemolytic activity: >200,000 C7H50 U/mg protein | Functionally active by a sensitive hemolytic assay; suitable for radioiodination

#### Complement C8

**ICN 191385** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 3535** Human serum ≥85% by (SDS-PAGE); frozen solution containing 1 mg/mL in 15 mM sodium phosphate, 150 mM NaCl, pH 7.2; activity: ≥125,000 C8H50 U/mg protein using C8 deficient serum | Functionally pure by a sensitive hemolytic assay using deficient sera; suitable for radioiodination

#### Complement C9

**ICN 191384** Human serum Functionally & biochemically pure (PAGE); 1 mg protein/mL; in PBS, 40% glycerol

**Sigma C 3660** Human serum Frozen solution at 1 mg/mL containing 15 mM sodium phosphate, 135 mM NaCl, pH 7.4; activity: ≥70,000 C9H50 U/mg protein using C9 deficient serum | Functionally pure by a sensitive hemolytic assay using deficient sera; suitable for radioiodination

#### Complement D

**Sigma C 5688** Human plasma >90% (SDS-PAGE); frozen solution containing 100 µg/mL in PBS, pH 7.2 | Suitable for radioiodination; Niemann, MA et al, *J Immunol*, 132: 809, 1984

#### Complement H

**Sigma C 5813** Human plasma >90% (SDS-PAGE); solution containing 1 mg/mL in PBS, pH 7.2 | C3b-binding protein which regulates the formation & function of complement C3 & C5 convertases; suitable for radioiodination; Fearon, DT & Austen KF, *Proc Natl Acad Sci USA*, 74: 1683, 1977; Pangburn, MK & Muller-Eberhard, HJ, *Springer Semin Immunopath*, 7: 63, 1984

#### Complement III

**Biogenesis 2222-5704** Human plasma MW ~180k Tested negative for antibodies to HBsAg, HCV and HIV-1 and 2; purified; from 0.01 M PBS, pH 7.2; lyophilized | Cellulose acetate electrophoresis shows one band only with beta2-electrophoretic mobility

#### Complement IIIb

**Biogenesis 2222-5909** Human Liquid

#### Complement Iq

**Biogenesis 2221-5504** Human serum MW 410k Tested negative for HIV1/2 antibodies, HBsAg and HCV antibodies; purified; 0.01M EDTA, 0.3M NaCl, pH 7.5; lyophilized | Single band in PAGE

#### Complement IV

**Biogenesis 2222-7704** Human serum Liquid

#### Complement IX

**Biogenesis 2222-9054** Human serum Liquid

#### Complement P

**Sigma C 6063** Human plasma ≥95% (SDS-PAGE); frozen solution containing 1 mg/mL in PBS, pH 7.2 | Suitable for radioiodination; Pangburn MK, *Meth Enzymol*, 162: 639, 1988

#### Complement V

**Biogenesis 2222-8454** Human serum Liquid

#### Complement VI

**Biogenesis 2222-8654** Human serum Liquid

#### Complement VII

**Biogenesis 2222-8854** Human serum Liquid

#### Complement VIII

**Biogenesis 2222-8954** Human serum Liquid

#### Component LS III

*Synonyms:* Snake Toxin

**Sigma T 0409** *Laticauda semifasciata* FW 6837.6 Lyophilized powder containing ~80% protein (Lowry); balance potassium phosphate buffer salts | Postsynaptic neurotoxin; Maeda, N & Tamiya, N, *Biochem J*, 141: 389, 1974

## Proteins

### Conalbumin

**Synonyms:** Ovotransferrin

**ICN 194981** Chicken egg MW 76k >95% | Binding protein which can transport metal ions such as Cu<sup>2+</sup>, Fe<sup>2+</sup>, Mn<sup>2+</sup> & Zn<sup>2+</sup>; Szekacs, A et al, *Anal Biochem*, 207:291, 1992

**Fluka 27695** Chicken egg white MW ~77k ≥89% (GE); lyophilized; ≤0.005% Fe; ≤6% loss on drying; ≤0.05% residue on ignition | Crichton, RR et al, *Eur J Biochem*, 164: 485, 1987; Mano, N et al, *J Chromatog*, 603: 105, 1992

### Connexin, 32 Control Peptide

**Chemicon AG632** ≥95% | Purified protein for apoptosis & signal transduction; for use with Chemicon AB1721

### Connexin, 40 Control Peptide

**Chemicon AG634** ≥95% | Purified protein for apoptosis & signal transduction; for use with Chemicon AB1726

### Connexin, 43 Control Peptide

**Chemicon AG633** ≥95% | Purified protein for apoptosis & signal transduction; for use with Chemicon AB1727

**Chemicon AG678** Purified protein for apoptosis & signal transduction; for use with Chemicon MAB3067/AB1721

### Corticosteroid Binding Globulin

**Synonyms:** Transcortin; Steroid Binding Protein

**USBio C7902** Human ≥60%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in PBS buffer, pH 7.5 | Suitable for antigenic applications in immunological protocols

**USBio C7902-10** Human ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in PBS buffer, pH 7.5 | Suitable for antigenic applications in immunological protocols

**Biogenesis 2319-3004** Human serum MW 55.7k Tested negative for HBsAg and HIV-1 and HCV antibodies; affinity purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Calbiochem 235200** Human serum MW 55.7k Solid lyophilized from 50 mM NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; ≥99% (SDS-PAGE); soluble in aqueous buffers & water; prepared from serum shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Regulates the concentration of free cortisol & progesterone; Ghose-Dastidar, J, *PNAS*, 88: 6408, 1991; Smith, CL & Hammond, GL, *Endocrinology*, 128: 983, 1991

### Cortisol Binding Globulin

**Biogenesis 2330-6809** Human serum MW 55.7k Tested negative for HBsAg and HIV-1 and HIV-2 antibodies; affinity purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, salt free; lyophilized

### C-Reactive Protein

**Cortex CP1000U** >98%

**Biogenesis 1707-2004** Human plasma MW 114k Tested negative for HIV I and II antibody, HBsAg and HCV antibody; purified; 20 mM Tris, 0.28 M NaCl, 0.09% NaN<sub>3</sub> and 5 mM CaCl<sub>2</sub>, pH 8.0, 0.2 μM filtered; liquid

**Biogenesis 1707-2029** Human pleural ascites Purified; liquid

**Fitzgerald 30-AC05** Human serum High purity

**Fitzgerald 30-AC10** Human serum Standard purity

**Fitzgerald 30-CC30** Human serum Control/calibrator

**Fitzgerald 30-AC07** Recombinant expressed in *E. coli* >99%

**Scipac P100-0** Serum/plasma >99%; liquid in TRIS buffer; immunoaffinity absorbed; 1-5 mg/mL | Cardiac marker protein

**Scipac P100-7** Serum/plasma >96%; liquid in TRIS buffer; 1-5 mg/mL | Cardiac marker protein

### C-Reactive Protein, 60-80%

**USBio C7907-24** Sterile filtered (0.2 μm) | Suitable for antigenic applications in immunological protocols

### C-Reactive Protein, 95-98%

**USBio C7907-26** Human serum ≥80% (RID Behring, SDS-PAGE); clear to light amber, colorless; sterile filtered (0.2 μm); 2-4 mg/mL supplied in 0.1 M Tris-HCl, 0.2 M NaCl, pH 7.5, 2 mM CaCl<sub>2</sub>, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Creatine Kinase BB

**USBio C7910-10** Recombinant ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in Tris buffered saline, pH7.2, 10 mM β-MSH, 50% glycerol, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Creatine Kinase BB Isoenzyme

**USBio C7910-14** Human brain ≥99%; no contaminants were detected to CK-MB & CK-mM; 0.69 mg/mL protein, 340 U/mL enzyme activity at 30°C, pH 6.5; 500 U/mg; purified preparation in 5 mM succinate, 1 mM EDTA, 5 mM β-MSH, 0.01 M NaCl, 50% glycerol, pH 7.2 | Suitable for antigenic applications in immunological protocols

### Creatine Kinase MB

**USBio C7910-11** Recombinant ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL, 950 IU/mg supplied in Tris buffered saline, pH7.2, 10 mM β-MSH, 50% glycerol, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Creatine Kinase MB Isoenzyme

**Scipac P190-8** Heart tissue 1-10%; liquid in TRIS buffer; no contamination from other isoforms | Cardiac marker protein

**USBio C7910-18** Human heart No contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 300 U/mL total CK; 0.14 mg/mL CKMB (mass) supplied in 0.05 M Tris, 10mM β-MSH, 50% glycerol, 0.15 M NaCl, pH 7.5 | Suitable for antigenic applications in immunological protocols

**USBio C7910-19** Human heart ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; supplied in 0.01 M Tris, 5 mM β-MSH, 50% glycerol, pH 7.2, no preservatives added | Suitable for antigenic applications in immunological protocols

### Creatine Kinase MM Isoenzyme

**USBio C7910-25** Human skeletal muscle ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~2 mg/mL protein, ~430 U/mg protein; purified preparation in 10 mM Tris HCl, 150 mM NaCl, 1 mM Na EDTA, 10 mM β-Mercaptoethanol, 0.15 M NaCl, 50% glycerol, pH 7.4 | Suitable for antigenic applications in immunological protocols

**USBio C7910-12** Recombinant ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; supplied in Tris buffered saline, pH7.2, 10 mM β-MSH, 50% glycerol, 1 mM EDTA | Suitable for antigenic applications in immunological protocols

### Crosstide

**Synonyms:** Akt Substrate

**USBio C7935** ≥95% after Sephadex G-10 chromatography in 10% HOAc; frozen solution in sterile deionized H<sub>2</sub>O | Suitable as a substrate for Akt/PKB when used in conjunction with immunoprecipitated Akt/PKB; may also be phosphorylated by other protein kinases, including Rsk-2

**Crotoxin, A Subunit**

**Calbiochem 238476** *Crotalus durissus terrificus* MW 9160 >99% (SDS-PAGE); lyophilized solid; soluble in water; activity: 60 phospholipase A<sub>2</sub> detected (titrimetric assay); not available for sale outside of the United States | Acidic non-toxic, non-enzymatic subunit; Faure, G et al, *Eur J Biochem*, 223: 161, 1994; Aird, SD et al, *Biochim Biophys Acta*, 1040: 217, 1990

**Crotoxin, B Subunit**

**Calbiochem 238477** *Crotalus durissus terrificus* MW 14,040 >99% (SDS-PAGE); lyophilized solid; soluble in water; activity: 60 units/mg; one unit is the amount of enzyme that releases 1.0 μmol fatty acid/minute at 25°C, pH 8.0 using egg yolk emulsion as the substrate; not available for sale outside of the United States | Basic phospholipase A<sub>2</sub> subunit; Faure, G et al, *Eur J Biochem*, 223: 161, 1994; Aird, SD et al, *Arch Biochem Biophys*, 249: 296, 1986; Mascarenhas, YP et al, *Eur Biophys J*, 21: 199, 1992

**Cyclin H**

**IBT TA-350-1** Human recombinant, expressed in *E. coli*

**Cyclophilin A**

**Alexis 201-023** Human recombinant, expressed in *E. coli* ≥90%; 0.5 mg/mL in 20 mM Tris HCl, pH 7.8 | May be used as a control in Western Blot experiments with Alexis 210-124; used to catalyze the *cis-trans*-isomerization of X-Pro-peptide bonds; protein folding reactions that are limited by the isomerization of X-Pro-peptide bonds are accelerated by cyclophilin A

**Cyfra 21-1**

*Synonyms:* Cytokeratin 19

**USBio C8910** Human TPA: ~ 2,000 K U/mL, 3,000 K U/mL (Boehringer Mannheim EIA); liquid tissue culture supernatant in Tris buffer, 8 M urea, 10 mM EDTA, pH 7.0 | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AC69** Human cell line Standard purity

**Cortex CP1067r** Recombinant >95%

**Fitzgerald 30-AC68** Recombinant expressed in *E. coli* >96%

**Cystatin**

*Synonyms:* Cysteine Protease Inhibitor; Ficin Inhibitor; Papain Inhibitor; Thiol Protease Inhibitor

**Biogenesis 2409-8107** Chicken egg white Liquid

**Fluka 30065** Chicken egg white MW ~12.5k ≥95% (GE) | Barrett, AJ, *Meth Enzymol*, 80: 771, 1981; Barrett, AJ, *Trends Biochem Sci*, 12: 193, 1987; Bode, W et al, *EMBO J*, 7: 2593, 1988

**Fluka 30066** Chicken egg white Solution; ≥85% (GE); in 0.01 M Tris buffer, pH 8.0, with 50% glycerol; 1 mg protein/mL | Anastasi, A et al, *Biochem J*, 211: 129, 1983; Turk, V & Bode, W, *FEBS Lett*, 285: 213, 1991

**ICN 194984** Chicken egg white MW 12.7k Activity: 10-15 BAEE U/mg protein; 1 mg inhibits ~1.5 mg of papain | Competitive & reversible inhibitor; Anastasi, A et al, *Biochem J*, 211:129, 1983

**Sigma C 0408** Chicken egg white Solution in 10 mM Tris buffer, pH 8.0, containing 50% glycerol; 1 mg protein inhibits 50% of the activity of 40-80 BAEE units of papain, Sigma P 4762, at pH 6.8, 40°C; 1 BAEE unit of papain hydrolyzes 1.0 μmole *N*α-benzoyl-L-arginine ethyl ester/min at pH 6.2, 25°C; protein by E<sub>280</sub> at 1% | Barret, AJ, *Meth Enzymol*, 80: 771, 1981; Anastasi, A et al, *Biochem J*, 211: 129, 1983

**Sigma C 8917** Chicken egg white Lyophilized powder; 1 mg protein inhibits 50% of the activity of 40-80 BAEE units of papain, Sigma P 4762, at pH 6.8, 40°C; 1 BAEE unit of papain hydrolyzes 1.0 μmole *N*α-benzoyl-L-arginine ethyl ester/min at pH 6.2, 25°C; protein by E<sub>280</sub> at 1% | Barret, AJ, *Meth Enzymol*, 80: 771, 1981; Anastasi, A et al, *Biochem J*, 211: 129, 1983

**Cystatin A**

*Synonyms:* Steffin A; Thiol Protease Inhibitor

**ICN 194985** Human placenta MW 12k >99%; 50 μg/mL in 10 mM Tris-HCl, pH 7.8 | Competitive & reversible thiol-protease inhibitor; Brain, J et al, Hoppe Seyler's *Z Physiol Chem*, 364:1475, 1983

**Biogenesis 2409-8257** Human plasma MW ~12k Purified; 10 mM Tris/HCl, pH 7.8; liquid

**Cystatin B**

*Synonyms:* Steffin B; Thiol Protease Inhibitor

**ICN 194986** Human plasma MW 12k >99%; 50 μg/mL in 10 mM NaOAc, pH 5.5 | Competitive & reversible thiol-protease inhibitor; Brain, J et al, Hoppe Seyler's *Z Physiol Chem*, 364:1475, 1983

**Cystatin C**

**Biogenesis 2409-8457** Human plasma MW 13.5k Purified; 10 mM sodium acetate buffer, pH 5.5; liquid | Brizin et al, *BBRC*, 118:103, 1984

**ICN 194987** Human plasma Lyophilized; 20 inhibitory U/mg protein; 1 U inhibits 1.0 U of papain in 20 min at 25°C | Bazin, J et al, *BBRC*, 118:103, 1984

**Cytochrome c**

**Sigma C 9197** Bison heart MW 12,327 ≥95%; prepared without TCA

**Biogenesis 2450-0004** Bovine heart Purified; essentially salt free; lyophilized | Supplied predominantly in the oxidized form; manufactured without TCA

**Sigma C 2037** Bovine heart MW 12,327 ≥95%; prepared without TCA

**Sigma C 3006** Bovine heart MW 12,327 Practical grade; ≥60% based on containing variable amounts of reduced cytochrome c; prepared without TCA

**Sigma C 3131** Bovine heart MW 12,327 ≥95%; prepared without TCA

**Sigma C 0761** Chicken heart MW 12,222 ≥95%; prepared without using TCA

**Sigma C 4013** Dog heart MW 12,241 ≥95%; prepared without TCA

**Biogenesis 2450-0104** Equine heart Lyophilized

**ICN 101467** Horse heart MW 12,384 >90%

**Sigma C 2506** Horse heart MW 12,384 ≥95%; prepared without TCA

**Sigma C 7752** Horse heart MW 12,384 ≥95%; prepared without TCA | Formerly listed as Type VI

**Sigma C 8266** Horse heart MW 12,384 Practical grade; ≥95% based on containing variable amounts of reduced cytochrome c; prepared using TCA

**R&D Systems 709-CC-010** Human placenta 95%; lyophilized | Species specificity: human cytochrome C; used in *in vitro* apoptosis assays

**Sigma C 4011** Pigeon breast muscle MW 12,173 ≥95%; prepared without TCA

**Sigma C 9261** Pigeon heart MW 12,173 ≥95%; prepared without TCA

**Sigma C 0886** Porcine heart MW 12,327 ≥95%; prepared without using TCA

**Sigma C 9136** Rabbit heart MW 12,220 ≥95%; prepared without TCA

**Sigma C 7892** Rat heart MW 12,132 ≥95%; prepared without TCA

**Sigma C 2436** *Saccharomyces cerevisiae* MW 12,588 ≥85%; prepared without TCA | Care has been taken to maintain the native form of the protein; it has not been artificially oxidized or reduced during purification

**Sigma C 2136** Sheep heart MW 12,327 ≥95%; prepared without TCA

## Proteins

**Sigma C 2011** Tuna heart MW 12,170 ≥95%; prepared without TCA

### Cytochrome c, (<sup>14</sup>C-Me)-

**Sigma C 7664** Horse heart MW ~12.3k 5-50 µCi/mg protein; solution in 10 mM sodium phosphate, pH 7.0, in serum bottle | Radiochemical prepared from Sigma C 7752

### Cytochrome c, Acid Modified

**Sigma C 3256** Horse heart MW 12,384 Acid modified; purity ~90% based on millimolar extinction coefficient at 550 nm of 27.8 and essentially "Fraction II, pH 7" of Margoliash prepared using TCA; contains inactive cytochrome polymers which can be converted back to native cytochrome | High rate of ascorbic acid oxidation & low enzymatic activity in a cytochrome oxidase system; Margoliash, E, *Biochem J*, 56: 535, 1954; Schejter, A et al; *Biochim Biophys Acta*, 73: 641, 1963

### Cytochrome c, Biotin Conjugated

**Sigma C 2022** Horse heart Lyophilized powder containing ~80% protein; balance sodium citrate buffer salts; contains 4-6 moles biotin/mole cytochrome c

### Cytochrome c, C551

**Sigma C 9533** *Pseudomonas aeruginosa* Solution in 0.05 M ammonium azide, pH 4.5, containing 0.02% sodium azide | Rosen, R & Pecht, I, *Biochemistry*, 15: 775, 1976

### Cytochrome c, DITC Glass Coupled

**Sigma C 1155** *Candida krusei* Coupled to DITC glass via the α- & ε-amino groups; 1-2 nmol/mg glass as determined by AA analysis | Use-tested as a standard for solid phase protein sequencing analysis

### Cytochrome c, Partially Acetylated

**Sigma C 4186** Horse heart Partially acetylated; lyophilized powder containing ~90% protein; balance potassium phosphate buffer salts; ~60% of the lysine residues are acetylated (ninhydrin) | Suitable for detection of superoxide radicals in biological systems containing cytochrome c reductases or oxidases; Azzi, A et al; *BBRC*, 65: 597, 1975

### Cytochrome F

**Sigma C 2285** Spinach Lyophilized powder; essentially salt-free; prepared by a modification of the method of Ho & Krogman; *A554/A280* ~0.5 | Ho & Krogman, *J Biol Chem*, 255: 3855, 1980

**Sigma C 0168** Turnip Lyophilized powder; essentially salt-free; prepared by the method of Gray; *A554/A280* ~0.8 | Gray, JC, *Eur J Biochem*, 82: 133, 1978

### Cytochrome H

**Sigma C 7523** *Helix pomatia* digestive glands

### Cytochrome P450

**Synonyms:** Pentoxoresorufin O-De-Ethylase; P450 2B4

**Sigma C 7552** Rabbit liver microsomes Induced with phenobarbital; lyophilized powder containing ~10% protein (Bradford); balance potassium phosphate buffer, pH 7.5, EDTA & stabilizer; activity: 150-450 units/mg protein; unit definition: 1 unit releases 1.0 pmole of resorufin from pentoxoresorufin/min at pH 7.6 at 37°C; contains 0.1-0.4 unit cytochrome-P450 reductase/mg protein | Ubiquitous heme-containing enzymes found in prokaryotes & eukaryotes; part of a super-family of enzymes found in mammalian liver whose role is removal of xenobiotic compounds from the body; Schenkman, JB, *Handbook of Experimental Pharmacology*, Vol 105: pp 3-14, Springer-Verlag, Berlin Heidelberg, 1993; Haugon, DA & Coon, MJ, *J Biol Chem*, 251: 7929, 1976

### Cytokeratin

**Biogenesis 5550-0404** Human epidermis Liquid

### Cytokeratin 18

**ICN 771032** MW 45k Highly purified protein for use as a high MW marker, a standard, or an Ag for various purposes

**Biodesign A08004B** Bovine liver >98%

**Biogenesis 5553-1804** Bovine liver Lyophilized

### Cytokeratin 19

**Biodesign A08014H** *E. coli* >95%

### Cytokeratin 8

**ICN 771022** MW 52.5k Highly purified protein for use as a high MW marker, a standard, or an Ag for various purposes

**Biodesign A08003B** Bovine liver >95%

**Biogenesis 5553-0804** Bovine liver MW 52k pI: 6.4; purified; 30 mM Tris/HCl, pH 8.0, 9 M urea, 2 mM DTT; lyophilized | Franke et al, *Exp Cell Res*, 131:299ff, 1981; Quinian et al, *J Mol Biol*, 178:365ff, 1984

### Cytokine Induced Neutrophil Chemoattractant I Chemokine

**Sigma C 9709** Rat recombinant, expressed in *E. coli* MW ~7.8k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in 30% acetonitrile/0.1% trifluoroacetic acid containing 0.5 mg BSA; biological activity measured by its ability to induce myeloperoxidase release from cytochalasin B-treated neutrophils; endotoxin tested | Member of the C-X-C or α chemokine class which act primarily on neutrophils as a chemoattractant & activator & plays an important role in the infiltration of neutrophils into inflammatory sites; originally purified from media conditioned by IL-1β stimulated rat kidney epithelioid cells (NRK-52E); CINC may be the rat equivalent of human GROs; polypeptide of 72 AA

### Cytokine Induced Neutrophil Chemoattractant IIb

**BioSource International PRC1564** Rat recombinant

**BioSource International PRC1565** Rat recombinant

### Cytolysin, *Stoichactis*

**Calbiochem 569415** *Stoichactis helianthus* (sea anemone), synthetic MW 16,977 ≥90% (HPLC); lyophilized solid; soluble in water; LD<sub>50</sub>≤2000 mg/kg | Toxin belonging to the group of channel-forming polypeptides; one of the most potent hemolysins known; this toxin contains a binding site specific for sphingomyelin; Blumenthal, KM & Kem, WR, *J Biol Chem*, 258: 5574, 1983

### Cytomegalovirus Glycoprotein B

**IBT CMA-1400-3, CMA-1400-4** CHO cells MW 140k >90%; 0.50 mg/mL solution in 90 mM sodium citrate, 200 mM NaCl, pH 6.0 | Covers Met<sup>1</sup> to Val<sup>907</sup> of human CMV glycoprotein B; glycosylated

### Cytomegalovirus Glycoprotein P50

**IBT CMA-1410-3, CMA-1410-4** *E. coli*, as a fusion protein with human superoxide dismutase MW 62k >85%; 0.50 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.4 | Covers Met<sup>1</sup> to Gly<sup>433</sup> of glycoprotein p50 of the CMV AD169 strain

### Cytomegalovirus Glycoprotein P65

**IBT CMA-1420-3, CMA-1420-4** Yeast cells, as a fusion with human superoxide dismutase MW 79k >90%; 0.50 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Met 1 to Gly 561 of the glycoprotein p65 of the CMV AD169 strain

### DARPP-32

**Chemicon AG657** Recombinant ≥95% | Purified protein for apoptosis & signal transduction

**D-Dimer**

**Biodesign A86870H** Human plasma >95% | Platelets & hemostasis reagents

**Scipac P202-4** Plasma Extract; frozen in sodium phosphate buffer | Hemostasis protein

**Defensin Iα (NP-1)**

**BioSource International PHC1615** Human recombinant

**Defensin α**

*Synonyms:* NP-1; BD-2

**Chemicon GF099** Human ≥95%

**Chemicon GF100** Human ≥95%

**Dengue 2 Antigen, Strain 16681**

**Biodesign R02220** Purified | Infectious disease antigen

**Desmin**

**ICN 771042** MW 53k Highly purified protein for use as a high MW marker, a standard, or an Ag for various purposes

**Biodesign A08005C** Chicken stomach >98%

**Desmosine**

**ICN 191378** Bovine neck ligament Crystalline; 99% (AA analysis); hygroscopic

**DHEA Sulfate**

**USBio D3228** Iodination grade; ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; white crystalline powder | Suitable for antigenic applications in immunological protocols

**USBio D3228-05** ≥98%; white crystalline powder; MP: 150-190°C

**Diphtheria Toxin**

**Sigma D 2918** *Corynebacterium diphtheriae* Lyophilized powder containing sodium phosphate buffer & lactose | Inhibits protein synthesis by catalyzing ADP-ribosylation of eukaryotic aminoacyltransferase II; not assayed by Sigma; Grollman, AP & Huang, M-T, in Protein Synthesis, A Series of Advances, 1976

**Diphtheria Toxin, (Glu<sup>52</sup>)-**

**Sigma D 7544** *Corynebacterium diphtheriae* Lyophilized powder containing sodium phosphate buffer & lactose | Not assayed by Sigma; CRM 197; sold by weight of (Glu<sup>52</sup>)-diphtheria toxin

**Diphtheria Toxin, Un-nicked**

**Calbiochem 322326** *Corynebacterium diphtheriae* MW 63k Single band purity (disc gel electrophoresis); solid lyophilized from sterile 10 mM Tris, 1 mM EDTA, pH 7.5; soluble in aqueous buffers; toxic: LD<sub>50</sub> ≤200 mg/kg but >50 mg/kg; may be carcinogenic/teratogenic | Catalyzes ADP-ribosylation of eukaryotic aminoacyltransferase II (EF2) using NAD as substrate, thereby inhibiting protein synthesis; also induces internucleosomal breakdown; causes DNA fragmentation & cytotoxicity in U937 cells; activation requires nicking with a protease followed by reduction with DTT; Kochi, SK & Collier, RJ, *Exp Cell Res*, 208: 296, 1993; Chang, MP et al, *J Biol Chem*, 264: 15261, 1989; Pappenheimer, AM Jr, *Ann Rev Biochem*, 46: 69, 1977

**DNA Fragmentation Factor 45/ICAD**

**USBio D3224-41** Human recombinant, expressed in *E. coli* MW ~48k ≥85% (SDS-PAGE, Coomassie blue staining); purified using Ni-NTA agarose; supplied as 50 µg of His-tagged DFF45/ICAD in 500 µL PBS, 50% glycerol | Recombinant human full length His-tagged fusion protein; a heterodimer of 40kD & 45kD subunits; caspase 3 cleaves the 45kD subunit (DFF45) to generate an active factor that causes DNA fragmentation without further requirement of caspase 3 or other cytosolic factors; an N-terminus His-tagged fusion protein expressed in *E. coli* corresponding to the human sequence

**DNA/Protein A, Agarose**

**USBio D3956** Salmon sperm recombinant Suitable for use in immunoprecipitation; recombinant Protein A covalently bound to agarose by alkylamine linkage

**DnaJ Protein**

**Calbiochem 323100** *E. coli* MW 41k Liquid in 100 mM NaCl, 50 mM Tris, 1 mM DTT, 50% glycerol, pH 7.5; DNases, proteases, RNases: none detected | Molecular chaperone that is essential for the activation of substrate binding properties of the DnaK chaperone; plays an integral role in protein folding & in mediating protein-protein interactions in both normal & stressed cells; enhances the ATPase activity of DnaK *in vivo*; useful for *in vitro* protein folding studies; Wall, D et al, *J Biol Chem*, 270: 2139, 1995; Gething, MJ & Sambrook, J, *Nature*, 355: 33, 1992; Landry, SF et al, *Nature*, 355: 455, 1992; Liberek, K et al, *PNAS*, 88: 2874, 1991

**DnaK Protein**

**Calbiochem 323105** *E. coli* MW 72k >95% (SDS-PAGE); liquid in 100 mM NaCl, 50 mM Tris, 1 mM DTT, 50% glycerol, pH 7.5; DNases, proteases, RNases: none detected | Molecular chaperone & a member of the HSP70 family; plays an integral role in protein folding & in mediating protein-protein interactions in both normal & stressed cells; functions as a monomer with a single peptide-binding site; possesses ATPase activity which facilitates the release of bound proteins & the disaggregation of protein complexes *in vivo*; useful for *in vitro* protein folding studies; Wall, D et al, *J Biol Chem*, 270: 2139, 1995; Gething, MJ & Sambrook, J, *Nature*, 355: 33, 1992; Landry, SF et al, *Nature*, 355: 455, 1992; Langer, T et al, *Nature*, 356: 683, 1992

**Drap 1/P28**

**IBT TA-300-1** Human recombinant, expressed in *E. coli*

**DsbA Protein**

**Calbiochem 324500** *E. coli* MW 21k >95% (SDS-PAGE); liquid in 100 mM NaCl, 50 mM Tris, 50% glycerol, pH 7.5; DNases, proteases, RNases: none detected | A monomeric periplasmic *E. coli* protein that appears to be necessary for correct formation of disulfide bonds in exported proteins *in vivo*; catalyzes the exchange of disulfide bonds & the oxidation of free sulfhydryl groups *in vitro*; useful for facilitating the refolding of inactive proteins containing reduced or misformed disulfide bonds; Akiyama, Y et al, *J Biol Chem*, 267: 22440, 1992; Schirra, HJ et al, *Biochemistry*, 37: 6263, 1998; Bardwell, JCA et al, *Cell*, 67: 581, 1992

**Ecarin**

*Synonyms:* Prothrombin Activator

**Sigma E 0504** *Echis carinatus* venom ~50 units/vial; contains thimerosal & lactose; unit definition: 1 unit activates prothrombin to produce 1 unit of amidolytic activity at pH 8.4 at 37°C; 1 amidolytic unit hydrolyzes 1.0 µmole of *N*-p-tosyl-Gly-Pro-Arg-p-nitroanilide/min at pH 8.4, 37°C

### Echistatin Disintegrin

**Synonyms:** Integrin Inhibitor

**Sigma E 1518** *Echis carinatus* >95% (SDS-PAGE); lyophilized; sterilized by  $\gamma$ -irradiation | Disintegrins represent a novel family of integrin  $\beta$ 1 &  $\beta$ 3 inhibitor proteins isolated from viper venoms; low molecular weight, cysteine-rich peptides containing the Arg-Gly-Asp (RGD) sequence; the most potent known inhibitors of integrin function; they interfere with cell adhesion to the extracellular matrix including adhesion of melanoma cells & fibroblasts to fibronectin & are potent inhibitors of platelet aggregation

### E-C-L Cell Attachment Matrix

**USBio E0275** Engelbreth-Holm-Swarm (EHS) mouse tumor Protein determined by Bradford dye binding assay using gamma globulin as the standard; 1 mg/mL frozen liquid in 0.05 M Tris-HCl, pH 7.4, 0.15 M NaCl

### Elastin

**ICN 101636** Bovine neck ligament Powder

**Sigma E 1625** Bovine neck ligament Powder

**Calbiochem 324695** Human lung Solid; prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Insoluble protein prepared from normal human lung by alkaline hydrolysis according to Lansing procedure; useful for measurement of elastolytic enzymes in tissues; *Merck Index*, 12: 3577; Reilly, CF & Travis, J, *Biochim Biophys Acta*, 621: 147, 1980; Lansing, AI et al, *Anat Rec*, 114: 555, 1952

**ICN 191169** Human lung powder Used for measurement of elastolytic enzymes in tissue; Reilly, CF & J Travis, *BBA*, 621:147, 1980

### Elastin, Congo Red

**Synonyms:** Elastase Substrate

**ICN 101637** Bovine neck ligament Impregnated with Congo Red dye, ground powder;  $\epsilon$ 495, 1% susp, blank value 0.02, digested value >10

**Sigma E 0502** Bovine neck ligament Elastin impregnated with Congo red dye; prepared from Sigma 1625 | Substrate for the estimation of elastase

### Elastin, Fluorescein

**Synonyms:** Elastase Substrate

**ICN 100620** Elastin covalently labeled with Fluorescein Isothiocyanate

### Elastin, Orcein

**Synonyms:** Elastase Substrate

**ICN 100618** Impregnated with orcein

**Sigma E 1500** Bovine neck ligament Elastin impregnated with orcein; prepared from Sigma 1625 | Substrate for the estimation of elastase

### Endostatin, rh-

**Calbiochem 324742** Human recombinant, expressed in *Spodoptera frugiperda* MW 21,231 Lyophilized solid;  $\geq$ 95% (SDS-PAGE); soluble in water | C-terminal proteolytic fragment of collagen XVIII that specifically inhibits endothelial cell proliferation & potentially inhibits angiogenesis & tumor growth; Oh, SP et al, *Genomics*, 19: 494, 1994; O'Reilly, MS et al, *Cell*, 88: 277, 1997

### Endostatin, rm-

**Calbiochem 324743** Mouse recombinant, expressed in *Spodoptera frugiperda* MW 21,397 Lyophilized solid;  $\geq$ 95% (SDS-PAGE); soluble in water | C-terminal proteolytic fragment of collagen XVIII that specifically inhibits endothelial cell proliferation & potentially inhibits angiogenesis & tumor growth; Hohenester, E et al, *EMBO J*, 17: 1656, 1998; O'Reilly, MS et al, *Cell*, 88: 277, 1997

### Endothelial Cell Growth Supplement

#### USBio E3010

**USBio E3010-05** Mitogenic for many cell types under reduced- or serum-free conditions, such as mammalian, avian, & human endothelial cells, smooth muscle cells, keratinocytes, melanocytes & hybridomas; often fully substitutes for feeder layers in culture of fastidious cells

### Endothelial Mitogen

**Biogenesis 4110-5004** Bovine hypothalamus Microorganisms & mycoplasma: not detected, endotoxins: 0.5 Eu/mg protein; 0.1 M NaCl, 5 mM, NaH<sub>2</sub>PO<sub>4</sub>, pH 7.4; lyophilized | Useful in vascular endothelial cells; hybridoma cell cloning, Balb/C-3T3 cells, keratinocytes

### Enterotoxin B

**Synonyms:** Staphylococcal Enterotoxin B

**Calbiochem 324798** *Staphylococcus aureus* Lyophilized solid from 5 mM potassium phosphate buffer, pH 6.8; single major band purity (SDS-PAGE); highly toxic: LD<sub>50</sub> $\leq$ 50 mg/kg | A heat-stable bacterial superantigen that activates the immune system to produce a burst of anti-inflammatory cytokines; Hasko, G et al, *Eur J Immunol*, 28: 1417, 1998

**Fluka 45182** *Staphylococcus aureus* MW 29k  $\geq$ 95% (GE); 25% protein content; contains sodium phosphate | Iandolo, JJ & Tweten, RK, *Meth Enzymol*, 165: 43, 1988

### Eotaxin CC Chemokine

**Biodesign A52250H** *E. coli* MW 8.4k Purified | Species specificity: mouse

**Biodesign A52321H** *E. coli* MW 8.3k Purified

**Chemicon GF042** Human  $\geq$ 95%

**Biogenesis 4182-4050** Human r-DNA Purified; lyophilized

**BioSource International PHC1434** Human recombinant

**PeptoTech 300-21** Human recombinant, expressed in *E. coli* MW 8.3k  $\geq$ 98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Chemokine characterized by its high chemotactic selectivity for eosinophils; the location of the four Cys residues in Eotaxin places it in the  $\beta$ -chemokine family (CC) of cytokines (along with RANTES, MCP-3 & MIP-1 $\alpha$ ); 74 AA; SA determined by its ability to chemoattract human peripheral blood eosinophils

**Sigma E 7127** Human recombinant, expressed in *E. coli* MW ~8.4k  $\geq$ 97% (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 1 mg BSA; biological activity measured by its human eosinophil chemotactic activity; endotoxin tested | Member of the CC or  $\beta$  chemokine class which act primarily as chemoattractants & activate monocytes, dendritic cells, T lymphocytes, natural killer cells, B lymphocytes, basophils & eosinophils; originally isolated from bronchoalveolar lavage fluid of guinea pigs sensitized by aerosol challenge with ovalbumin; polypeptide of 74 AA; precursor form is 97 AA; to generate the mature Eot (74 AA), the precursor cleaves a 23 amino-terminal AA signal peptide; Eot is chemotactic for eosinophils, but not mononuclear cells or neutrophils; human Eot shows ~60% AA homology to mouse & guinea pig eotaxin; shows high identity with MCP-1, 2 & 3

**Biogenesis 4182-4250** Mouse r-DNA Purified; lyophilized

**BioSource International PMC1434** Mouse recombinant

**Sigma E 9008** Mouse recombinant, expressed in *E. coli*  $\geq$ 97% (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 1 mg BSA; biological activity measured by its human eosinophil chemotactic activity; endotoxin tested; see Sigma E 7127

**Chemicon GF043** Murine  $\geq$ 95%



**Eotaxin CC Chemokine, Murine**

**PeproTech 250-01** Murine recombinant, expressed in *E. coli* MW 8.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Shares many biological & physical characteristics of human Eotaxin; chemokine exhibiting a high chemotactic selectivity for eosinophils; 74 AA; SA determined by its ability to chemoattract purified eosinophils

**Eotaxin II CC Chemokine**

*Synonyms:* MPIF-2

**Biodesign A52333H** *E. coli* MW 8.8k Purified

**Chemicon GF062** Human ≥95%

**Biogenesis 4182-4650** Human r-DNA Lyophilized

**PeproTech 300-33** Human recombinant, expressed in *E. coli* MW 8.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered CC chemokine; characterized by its high chemotactic selectivity for eosinophils; 78 AA; SA determined by its ability to chemoattract human peripheral blood eosinophils

**PeproTech 250-22** Murine recombinant, expressed in *E. coli* MW 10.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered CC chemokine characterized by its high chemotactic selectivity for eosinophils; 93 AA; SA determined by its ability to chemoattract murine lymphocytes cells

**Eotaxin III CC Chemokine**

*Synonyms:* TSC

**Biogenesis 0100-0126** Human r-DNA Lyophilized

**PeproTech 300-48** Human recombinant, expressed in *E. coli* MW 8.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered CC chemokine; binds to the CCR3 receptor & is highly chemotactic for eosinophils; 71 AA; SA determined by its ability to chemoattract human CCR3/HEK 293 cells

**Epidermal Growth Factor**

*Synonyms:* Urogastrone, β-

**Harlan BT-4016** Lyophilized; 0.1 mg; with carrier protein

**Harlan BT-4017** Lyophilized; 0.1 mg; without carrier protein

**Harlan BT-5014** Receptor Grade; lyophilized; 1 mg; receptor grade

**Harlan BT-5016** Tissue culture grade; lyophilized; 1 mg; tissue culture grade

**Biodesign A52115H** *E. coli* MW 6k Purified

**Chemicon GF001** Human ≥95%

**Biogenesis 4220-1004** Human r-DNA <sup>125</sup>I-conjugated

**Biogenesis 4220-0704** Human r-DNA *E. coli* Purified; contains ~ 100 µg phosphate salts, aseptic; lyophilized | Kelly & Hunter, *Clin Sci*, 79:425, 1990

**BioSource International PHG0062** Human recombinant

**Oncogene PF011** Human recombinant MW 6348 (AA analysis) >92% (HPLC); lyophilized with 100 µg BSA; reconstitute in 10mM acetic acid; biological activity: fully active in EGF receptor binding & mitogenesis assays | Species reactivity: human; for proliferation studies & binding studies; exerts its biological effects in the concentration range of 10-100 pM

**Fitzgerald 30-AE40** Human recombinant, expressed in *E. coli*

**Harlan BT-3000** Human recombinant, expressed in *E. coli* Lyophilized; 0.1 mg

**Harlan BT-3001** Human recombinant, expressed in *E. coli* Lyophilized; 1 mg

**PeproTech 100-15** Human recombinant, expressed in *E. coli* MW 6.2k >97%; 53 AA; lyophilized with no additives; ED<sub>50</sub>: 0.2-1.0 ng/mL as determined by the stimulation of thymidine uptake by Balb/c 3T3 cells

**Sigma E 9644** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS, pH 7.4; proliferative activity is measured in culture using the BALB/3T3 cell line; endotoxin tested; see Sigma E 1264 | Rubin, JS et al, *Proc Natl Acad Sci USA*, 88: 415, 1991

**Sigma E 1264** Human recombinant, expressed in *S. cerevisiae* MW 6k ≥98% (SDS-PAGE); 0.2 µm filtered & lyophilized from an acetic acid solution; endotoxin tested | A polypeptide originally discovered & purified from mouse submaxillary glands by Cohen & Levi-Montalcini; isolated from human urine; initially named β-urogastrone; structurally homologous to Transforming Growth Factor α; mitogenic for a variety of epidermal & epithelial cells including fibroblasts, glial cells, mammary epithelial cells, vascular & corneal endothelial cells, bovine granulosa, rabbit chondrocytes, HeLa & SV40-3T3 cells; shown to accelerate wound healing; EGF receptor is a 170 kD glycoprotein having EGF-activated protein tyrosine kinase activity; platelet derived Growth Factor (PDGF) transmodulates the EGF receptor by reducing both its EGF affinity & its kinase activity probably via the activation of a separate cellular kinase; Levi-Montalcini, R & Cohen, S, *Ann NY Acad Sci*, 85: 324, 1960; Cohen, S, *J Biol Chem*, 237: 1555, 1962; Cohen, S & Carpenter, G, *Proc Natl Acad Sci USA*, 72: 1317, 1975; Carpenter, G & Cohen, S, *Ann Rev Biochem*, 48: 193, 1979; Brown, G et al, *N Engl J Med*, 321: 76, 1989; Schlessinger, J, *Biochemistry*, 27: 3119, 1988; Davis, R & Czech, M, *J Biol Chem*, 262: 6832, 1988; Shoyab, M et al, *Proc Natl Acad Sci USA*, 85: 6528, 1988; Carpenter, G & Zendeigui, J, *Anal Biochem*, 153: 279, 1985

**Biogenesis 4220-1104** Mouse

**BioSource International PMG0062** Mouse recombinant

**Biogenesis 4220-1404** Mouse submaxillaries MW 6.1k Purified; 0.01 M sodium acetate, sterile; lyophilized | Cohen, *JBC*, 237:1555, 1962; Taylor et al, *JBC*, 247:5928, 1972; Taylor et al, *PNAS*, 67:164, 1970

**Chemicon EA135** Murine ≥95%

**Chemicon EA140** Murine Semi-pure

**Biodesign A3B808H** *Pichia pastoris* Pure; entire native sequence

**Biogenesis 4220-1454** Rat adult male submandibular glands MW 5377 Purified; from 0.01 M sodium acetate solution; lyophilized

**Chemicon EA144** Recombinant ≥95%

**Sigma E 1257** Submaxillary glands of adult male mice Receptor grade; 0.2 µm filtered & lyophilized from an ammonium acetate solution; isolated by gel filtration & ion-exchange chromatography; purity determined by SDS-PAGE; endotoxin tested; see Sigma E 1264

**Sigma E 4127** Submaxillary glands of adult male mice Tissue culture grade; 0.2 µm filtered & lyophilized from an ammonium acetate solution; purified by gel filtration; endotoxin tested; this product is less extensively purified than product Sigma E 1257 as determined by SDS-PAGE; see Sigma E 1264

**Sigma E 6135** Submaxillary glands of adult male mice Lyophilized; isolated by reverse phase chromatography; purity determined by AA analysis & HPLC; tested by receptor binding radioimmunoassay; see Sigma E 1264

**Epidermal Growth Factor Receptor**

**Promega V5551** A-431 Tumor cell line MW 170k 1 unit is the amount of EGF receptor required to catalyze the transfer of 1 pmol of phosphate onto angiotensin II/min at 30°C | Glycoprotein; comprises an extracellular domain that binds EGF, a single membrane-spanning domain & a cytoplasmic domain that has intrinsic protein tyrosine kinase activity; ligands that bind the receptor are EGF, transforming growth factor-α, vaccinia virus growth factor & amphiregulin; substrates include the pp60src-derived peptides, angiotensin II, ras GTPase activating protein, c-erb B2, lipocortin I & phospholipase C-γ; Todderud, G & Carpenter, G, *BioFactors*, 2: 11, 1989; Carpenter, G & Cohen, S, *JBC*, 265: 7709, 1990; Weber, W et al, *JBC*, 259: 14631, 1984

**Sigma E 2645** Human carcinoma A431 cells Affinity purified; lyophilized powder with trehalose as cryoprotectant; reconstitution with 100 µL 10% glycerol in distilled water gives 50 mM HEPES, pH 7.6, 150 mM NaCl, 0.05% Triton X-100, 1 mM DTT & 10% trehalose; activity: ≥15,000 units/mg protein (Bradford) | A receptor protein tyrosine kinase that mediates the activity of epidermal growth factorPanayotou, G et al, *Receptor Purification*, 1: 289, 1990Unit definition: 1 unit catalyzes the incorporation of 1 pmol of phosphate from γ-<sup>32</sup>P-ATP into poly(Glu, Tyr), 4:1 at 30°C/min

## Proteins

**Sigma E 3641** Human carcinoma A431 cells Affinity purified; solution in 50% glycerol, containing 50 mM HEPES, pH 7.6, 150 mM NaCl, 0.1% Triton, 1 mM DTT & 10% trehalose; activity: ≥15,000 units/mg protein (Lowry) | See Sigma E 2645

### Epidermal Growth Factor Receptor, Extracellular Domain

**IBT GR-010-3, GR-010-5** Human recombinant, expressed in *Spodoptera rugiperda* insect cells (Sf9) >85%; 0.50 mg prot/mL in 10 mM Tris-HCl, pH 7.0 | Binds radioiodinated EGF; inhibits EGF-mediated proliferation of fibroblasts

### Epidermal Growth Factor, Human

**IBT GF-010-5, GF-010-8** Yeast >97%; lyophilized powder | Mitogenic activity measured by stimulation of <sup>3</sup>H-thymidine incorporation into human foreskin fibroblasts; EGF activity determined by receptor binding assay (RBA) using A-431 cells

### Epidermal Growth Factor, Long

**ICN 198785** Human recombinant, expressed in *E. coli* MW 12,297 >95%; lyophilized | Potent analog of EGF; useful as a growth factor supplement for serum-free or low serum cell cultures

### Epidermal Growth Factor, Long Human

**IBT NU200, NM001, NM005** MW 12,298 Dried from 0.1 M acetic acid | Analog of EGF with a 53 AA N-terminal extension; suited for cell culture in serum free & low serum media

### Epinephrine, (-)-L-(N-Me-<sup>3</sup>H)-

*Synonyms:* Adrenoceptor Agonist

**ARC ART-809** MW 183.2 70-87 Ci/mmol; 2.59-3.22 TBq/mmol; in 0.2 N HOAc: EtOH (9:1) | Radiochemical

### Epithelial Neutrophil Activating Peptide 78

**Biodesign A52322H** *E. coli* Purified | ENA-78

**PeproTech 300-22** Human recombinant, expressed in *E. coli* MW 8.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Chemoattractant & activator for neutrophils; belongs to the IL-8 subgroup of the CXC family of chemokines; 74 AA; SA determined by its ability to chemoattract CXCR2 transfected HEK cells

### Epithelial Neutrophil Activating Peptide 78 Chemokine

**Sigma E 9769** Human recombinant, expressed in *E. coli* MW 8.3k >97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 500 µg BSA; activity measured in culture by its ability to induce myeloperoxidase release from neutrophils; endotoxin tested | Member of the C-X-C or α supergene family; originally discovered from the conditioned medium of human pulmonary epithelial cells (A549) stimulated with TNF-α or IL-1β; protein with 78 AA containing 4 cysteines positioned identically to those of IL-8; shares 53% sequence homology with NAP-2 & 52% sequence homology with GROα; shares several properties of neutrophil activation with NAP-2 & IL-8; induces chemotactic activity in neutrophils as well as release of elastase from cytochalasin-B-pretreated neutrophils & the induction of cytosolic calcium release; neutrophils migrate in response to ENA-78 into inflamed joints of patients with rheumatoid arthritis; Schroder, J et al, *J Immunol* 139: 3474, 1987 General references: Walz, A et al, *J Exp Med*, 174: 1355, 1991; Walz, A et al, in: *Chemotactic Cytokines*, Plenum Publishing Corp, 1991; Koch, A et al, *Journal of Clin Invest*, 94: 1012, 1994

### Epstein Barr Virus Antigen

**Biodesign R70100** Lysate | Infectious disease antigen

### Epstein Barr Virus Early Antigen

**USBio E3440-10** EBV early diffuse ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in PBS | Suitable for antigenic applications in immunological protocols; useful marker of chronic or acute infection; suitable applications include EIA at concentrations of <1µg/mL for coating plates & Western blot analysis

**USBio E3440** EBV infected cells ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in TNE buffer, pH 8.0 | Suitable for antigenic applications in immunological protocols

### Epstein Barr Virus Early Antigen D

**Biodesign R93110** Affinity purified | Infectious disease antigen

### Epstein Barr Virus Early Antigen R Complex p17

**Biodesign R93120** Affinity purified | Infectious disease antigen

### Epstein Barr Virus Membrane Protein gp350/250

**Biodesign R93125** Affinity purified | Infectious disease antigen

### Epstein Barr Virus Nuclear Antigen

**USBio E3440-21** *E. coli* MW 27k ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in PBS | Suitable for antigenic applications in immunological protocols; useful marker of chronic infection & useful in IgA & IgM studies; suitable applications include EIA at concentrations of ≤1 µg/mL for coating plates & Western blot analysis

**USBio E3440-11** RAJI strain ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in TNE buffer, pH 8.0 | Suitable for antigenic applications in immunological protocols

### Epstein Barr Virus Nuclear Antigen 1

**Biodesign R57523** Purified | Infectious disease antigen

**Biodesign R65916** Recombinant MW 78k Purified | Infectious disease antigen

### Epstein Barr Virus Viral Capsid Antigen

**USBio E3440-22** Suitable for use in IFA, ELISA & antigenic applications in immunological protocols

**USBio E3440-23** EBV-p18 ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in PBS | Suitable for antigenic applications in immunological protocols

### Epstein Barr Virus Viral Capsid Antigen 125

**Biodesign R70150** Affinity purified | Infectious disease antigen

### Epstein Barr Virus Viral Capsid Antigen 160

**Biodesign R93105** Affinity purified | Infectious disease antigen

### Erabutoxin A

*Synonyms:* Snake Toxin

**Sigma E 6763** *Laticauda semifasciata* Lyophilized powder containing ~80% protein (Lowry); balance potassium phosphate buffer salts | Postsynaptic neurotoxin; Sato, S & Tamiya, N, *Biochem J*, 122: 453, 1971

**Erabutoxin B**

**Synonyms:** Snake Toxin

**Sigma E 4888** *Laticauda semifasciata* FW 6860.7  
Lyophilized powder containing ~65% protein (Lowry); balance potassium phosphate buffer salts | Postsynaptic neurotoxin; Sato, S & Tamiya, N, *Biochem J*, 122: 453, 1971

**Erythropoietin**

**Fluka 45678** Human recombinant, expressed in CHO cells  
Important hormone in erythrocyte production; induces cytosolic protein phosphorylation & dephosphorylation in erythroid cells; Bailey, SC et al, *JBC*, 266: 24121, 1991

**USBio E3455-06** Human recombinant, expressed in CHO cells  
SA ≥100 KIU/mg; 100-120 µg/mL in 20 mM sodium citrate, 150 mM NaCl, pH 7.4, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Principal hormone involved in the regulation of erythrocyte differentiation & the maintenance of a physiological level of circulating erythrocyte mass; indicated for treatment of neutropenia or anemia secondary to ZDV- or Ganciclovir-induced bone marrow suppression

**Fitzgerald 30-AE25** Human recombinant, from cDNA expressed in CHO High purity

**ICN 151073** Human recombinant, from Epo cDNA expressed in transfected cell lines >97% (SDS PAGE & HPLC); sterile filtered solution, 50% glycerol, 25 mM HEPES, pH 7.2; ultra pure grade | Graber, SE & SB Krantz, *Ann Rev Med*, 29:51, 1978; Cotes, PM et al, *J Haematol*, 50:427, 1982

**Sigma E 5627** Human recombinant, produced by cDNA expressed in CHO cells Activity: ~100,000 units/mg protein; reconstitution with 1 mL distilled water contains 0.1 M NaCl, 0.01 M NaH<sub>2</sub>PO<sub>4</sub>, pH 7.0, & 0.1 mg/mL lactose | Glycoprotein that is the principal regulator of red blood cell growth & differentiation; bioassay not run by SigmaMiyake, T et al, *J Biol Chem*, 252: 5558, 1977; Dordal, MS et al, *Endocrinol*, 116: 2293, 1985; Davis, JM et al, *Biochem*, 26: 2633, 1987; Bailey, SC et al, *J Biol Chem*, 266: 24121, 1991; Hanspal, M et al, *J Biol Chem*, 266: 15626, 1991

**ICN 152301** Human urine Lyophilized; ultra pure grade; purified by immunoabsorbent column chromatography using monoclonal Ab; ~80,000 U/mg protein | Sialoglycoprotein which stimulates differentiation & proliferation of cells in the relatively late stages of erythropoiesis

**Sigma E 2514** Human urine Activity: ~100 units/mg solid | See Sigma E 5627

**Sigma E 2639** Human urine Activity: ~500 units/mg solid | See Sigma E 5627

**Cortex CP3039r** Recombinant >95%

**Erythropoietin, Natural**

**USBio E3455-05** Human urine ≥80%; lyophilized; SA: 30-40 IU/mg | Principal hormone involved in the regulation of erythrocyte differentiation & the maintenance of a physiological level of circulating erythrocyte mass; indicated for treatment of neutropenia or anemia secondary to ZDV- or Ganciclovir-induced bone marrow suppression

**Erythropoietin, Soluble Receptor**

**ICN 195782** Human recombinant, NSO-expressed Typically 30-60 ng/mL will inhibit half the biological response in the presence of 0.2 U/mL Epo

**Estrogen Receptor-α**

**Calbiochem 330655** Human recombinant MW 66k ≥80% (SDS-PAGE); liquid in 500 mM KCl, 50 mM Tris, 2 mM DTT, 1 mM EDTA, 1 mM sodium vanadate, 10% glycerol, 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, pH 7.5; specific activity: ≥5000 units/mg protein; one unit is the amount of enzyme that will bind 1.0 pmol of <sup>3</sup>H-estradiol in 2 hours at 22°C, pH 7.5 | Hormone-inducible transcription factor that can positively or negatively regulate expression of many genes involved in tissue growth & differentiation; essential for induction of the oxytocin receptor by estrogen; binds to estradiol (K<sub>d</sub>=300 pM) & to a fluorescein-labeled estrogen response element (ERE; K<sub>d</sub>=10 nM) suitable for *in vitro* transcription assays; Young, LT et al, *NeuroReport*, 9: 933, 1998; Tzukeman, MT et al, *Mol Endocrinol*, 8: 21, 1994; Beekman, JM et al, *Mol Endocrinol*, 7: 1266, 1993; Oboum, JD et al, *Biochemistry*, 32: 6229, 1993

**Alexis 201-015** Recombinant, *Baculovirus*-infected Sf9 cells 50 µg purified active protein in 50 mM Tris, pH 7.5, 10% glycerol, 0.5 M KCl, 1 mM EDTA, 2 mM DTT & 1 mM sodium vanadate containing 0.02% sodium azide | This protein is hormone-binding & estrogen response element binding competent; may be used as a control in Western Blot or for Gel Supershift Assays with an appropriate estrogen response element & an antibody; can be used to screen chemical compounds for agonist or antagonists activity; Tzukerman, MT et al, *Mol Endocrinol*, 8: 21, 1994

**Calbiochem 330657** Human recombinant MW 53k ≥80% (SDS-PAGE); liquid in 400 mM KCl, 50 mM bis-Tris-propane, 2 mM DTT, 1 mM EDTA, 10% glycerol, pH 9.0; specific activity: ≥5000 units/mg protein; one unit is the amount of estrogen receptor that will bind 1.0 pmol of <sup>3</sup>H-estradiol overnight at 4°C as measured by quantitation of estradiol:receptor complexes in a hydroxylapatite assay | Purified, soluble & functionally active protein with post-translational modifications similar to those found in human cells; a hormone-inducible transcription factor that shares high homology with ER-α, especially in the DNA binding protein domain, suggesting that both receptors interact with related DNA response elements; Kuiper, GG et al, *Endocrinology*, 138: 683, 1997; Paech, K et al, *Science*, 277: 1508, 1997; Mosselman, S et al, *FEBS Lett*, 392: 49, 1996; Oboum, JD et al, *Biochemistry*, 32: 6229, 1993

**Alexis 201-033** Human recombinant, from *Baculovirus*-infected Sf9 cells ≥80%; ~40 µg at ~0.36 mg/mL protein; liquid; specific activity: ≥5000 pmole (<sup>3</sup>H)-estradiol bound/mg protein | Kuiper, GGJM et al, *Endocrinology*, 138: 863, 1997; Mosselman, S et al, *FEBS Lett*, 392: 49, 1996; Paech, K et al, *Science*, 277: 1508, 1997

**Excision Repair Cross Complement Group III**

**IBT TA-030-1** Human recombinant, expressed in *E. coli*

**Excision Repair Cross Complement Group VI**

**IBT TA-060-1** Human recombinant, expressed in *E. coli*

**Factor B**

**Cortex CP2036U** >98%

**Biogenesis 4400-9254** Human serum Liquid

**Factor D**

**Cortex CP2037U** >98%

**Biogenesis 4400-9365** Human serum MW 24k Tested negative for HBsAg and antibodies to HIV and HCV; free of related complement & factor proteins; purified; PBS buffer, pH 7.2; liquid

**Factor H**

**Cortex CP2038U** >98%

**Biogenesis 4400-9554** Human serum MW 150k Tested negative for antibodies to HBsAg, HCV, HIV 1 and 2; purified; PBS buffer, pH 7.2; liquid

**Factor I**

**Cortex CP6028** >95% | Inactivator

**Biogenesis 4400-9754** Human serum Liquid

## Proteins

### Factor II

**Sigma F 5132** Human plasma Lyophilized powder; reconstitution with 1 mL DI water contains the indicated activity in 0.5 M NaCl, 0.05 M Tris-HCl, pH 8.0; contains <0.01 unit of Factor X/unit of Factor II; no detectable thrombin; activity: 5-20 units/mg protein ( $E_{280}$  at 1% = 15.5); unit definition: 1 unit is equal to the amount contained in 1 mL normal human plasma | Source material negative for HIV & HBsAgProthrombin

### Factor IX

**Synonyms:** Christmas Factor; Plasma Thromboplastin Component

**Cortex CP2054U** Bovine >98%

**ICN 194089** Bovine Plasma A zymogen precursor to serine protease IXa; Fujikawa, K et al, *Biochem*, 12:4938, 1973

**Cortex CP2053U** Human >98%

**ICN 194193** Human Plasma Highly purified

### Factor P

**Synonyms:** Properdin

**Cortex CP2044U** >98%

**Biogenesis 4400-9954** Human serum Liquid

### Factor V

**Synonyms:** Proaccelerin

**Cortex CP3105U** Bovine >98%

**ICN 194928** Bovine Plasma 50% glycerol,  $\text{CaCl}_2$  | A glycoprotein procofactor activated by thrombin to form the active cofactor, Factor Va; Nesheim, M et al, *Methods Enzymol*, 80:249, 1981

**Cortex CP3104** Human >98%

**ICN 194190** Human Plasma Purified | Activates the conversion of prothrombin to thrombin

**ICN 194927** Human Plasma 50% glycerol,  $\text{CaCl}_2$  | A glycoprotein procofactor activated by thrombin to form the active cofactor, Factor Va; Nesheim, M et al, *JBC*, 254:508, 1979

### Factor VII

**Cortex CP2052U** Human >98%

**Sigma F 6509** Human plasma Frozen solution in 0.02 M sodium citrate, pH 6.0 with 1 mM benzamidine HCl; contains <0.01 unit of Factors II & X/unit of Factor VII; ratio of clotting activity to amidolytic activity (VII activity ratio) is 0.9-1.5; activity: 1000-2000 units/mg protein ( $E_{280}$  at 1% = 13.9); unit definition: 1 unit is equal to the amount contained in 1 mL normal human plasma | Source material negative for HIV & HBsAgProconvertinSeligsohn, U et al, *Blood*, 52: 978, 1978; Bajaj, SP et al, *J Biol Chem*, 256: 253, 1981

**ICN 194191** Human recombinant, expressed in yeast >95% (reversed phase HPLC); 200 µg powder/vial, lyophilized from 100 µL buffer; 3 clot U/µg using one-stage clotting assay; <3% FVIIA (reduced SDS-PAGE) | A vitamin K-dependent glycoprotein synthesized *in vivo* by the liver; participates in the extrinsic coagulation pathway

### Factor X

**Synonyms:** Stuart Prower Factor

**Cortex CP2100U** Bovine >98%

**ICN 194090** Bovine Plasma A precursor to serine protease Xa; Discipio, RG et al, *Biochem*, 16:698, 1977

**Sigma F 4003** Bovine plasma In 0.14 M NaCl, 0.04 M citrate buffer, pH 5.8; contains <0.01 unit of Factors II, V, VII & IX/unit of Factor X; Thrombin- & Activated Factor X-free; activity: ~80 U/mg protein ( $E_{280}$  at 1% = 12.4); unit definition: 1 unit consists of that amount contained in 1 mL normal human plasma

**ICN 153578** Bovine Serum >95% (reversed phase HPLC); <3% Factor Xa | A circulating precursor that is activated to a serine protease (Factor Xa) during coagulation

**Cortex CP2048U** Human >98%

**ICN 194195** Human Plasma Purified

**Sigma F 4634** Human plasma Lyophilized powder; reconstitution with 1 mL water, vial contains the indicated activity in 0.5 M NaCl, 0.05 M Tris-HCl, pH 8.0; activated Factor X-free; <0.01 unit of Factor II & VII/unit of Factor X; activity: ~75 units/mg protein ( $E_{280}$  at 1% = 11.6); unit definition: 1 unit consists of that amount contained in 1 mL normal human plasma | Source material negative for HIV & HBsAg

### Factor X, Gla-Domainless

**Cortex CP2055U** Human >98%

### Factor XI

**Cortex CP2101U** Human >98%

### Factor XII

**Cortex CP2102U** Human >98%

### Factor XIII

**Cortex CP2103U** Human >98%

### FADD, Agarose

**USBio F0019-53** Human recombinant, expressed in *E. coli* 200 µg of FADD-agarose in 66 µL of a 50% slurry of PBS/50% glycerol | Full-length human FADD his-tagged fusion protein expressed in *E. coli* & bound with nickel-chelating resin to agarose; originally isolated as a protein that bound to the cytoplasmic domain of Fas in the yeast two-hybrid system; sequence analysis revealed a region homologous to the death domain of Fas & TNFR-1; subsequent studies show that FADD associates with Fas through interaction of the death domains; when overexpressed in several cell lines, FADD induces apoptosis (can be blocked by CrmA, an inhibitor of Caspase-1); may play a role in Fas-mediated apoptosis

### Fas

**Kamiya** Recombinant intracellular fragment >95% (SDS-PAGE)

### Fas Ligand

**Synonyms:** TNFRSF6

**USBio F0019-65**

**Kamiya** Human MW 32k >95% (SDS-PAGE); soluble, with cross linker

**Oncogene PF033** Human recombinant MW 35k (dimer) >95% (SDS-PAGE); lyophilized | Bacterial recombinant protein corresponding to the extra-cellular domain of human Fas ligand; species reactivity: mouse, rat, human; used in cytotoxicity assays

**R&D Systems 526-SA-050** Recombinant NSO-expressed 95%; lyophilized;  $ED_{50}$ : 0.4-1.2 µg/mL | Species specificity: mouse Fas ligand

### Fas Ligand Control Peptide

**Chemicon AG626** ≥95% | Purified protein for apoptosis & signal transduction

### Fas Ligand Inhibitor

**Synonyms:** CD95 Ligand Inhibitor

**Kamiya** MW 60k

### Fas Ligand Protein

**Kamiya** MW 35k Soluble

**Fas Ligand, Soluble**

**Synonyms:** CD95 Ligand, Soluble

**Alexis 522-001** Human recombinant MW 35k (reducing conditions) Lyophilized containing PBS; affinity purified; >95% (SDS-PAGE); 5 µg protein | The extracellular domain of human Fas ligand (AA 103-281) is fused at the N-terminus to a linker peptide (26 AA) & a tag; glycosylation of recombinant, human sFas ligand is homologous to natural human Fas ligand; recombinant human sFas ligand is produced in the human cell line HEK 293; rFas ligand recognizes human, mouse & rat Fas receptor; Kills Fas-sensitive cells at concentrations <50 ng/mL; Russell, JH et al, *PNAS*, 90: 4409, 1993; Krammer, PH et al, *Curr Opin Immunol*, 6: 279, 1994; Kagi, D et al, *Science*, 265: 528, 1994; lowin, B et al, *Science*, 267: 1449, 1995; Bellgrau, D et al, *Nature*, 377: 630, 1995; Griffith, TS et al, *Science*, 270: 1189, 1995; Tanaka, M et al, *EMBO J*, 14: 1129, 1995; Mariani, SM et al, *Eur J Immunol*, 25: 2303, 1995; Tanaka, M et al, *Nature Med*, 2: 317, 1996; Hahne, M et al, *Science*, 274: 1363, 1996; Hahne, M et al, *Science*, 274: 1363, 1996; French, LE et al, *J Cell Biol*, 133: 335, 1996; Bodmer, JL et al, *Immunity*, 6: 79, 1997; Irmeler, M et al, *Nature*, 388: 190, 1997; Thome, M et al, *Nature*, 386: 517, 1997; Pitti, RM et al, *Nature*, 396: 699, 1998

**Fas Protein**

**Synonyms:** TNFRSF6; Apolipoprotein I/CD95

**ICN 198749** Human recombinant, expressed in *E. coli* >95% | Encompasses the entire Fas sequence

**R&D Systems 326-FS-050** Human recombinant, expressed in NSO >97%; lyophilized with a carrier protein; ED<sub>50</sub>: 10-25 ng/mL | Member of the TNF receptor superfamily; ligation of Fas by FasL or anti-Fas antibody can induce apoptotic cell death in cells expressing Fas; the extracellular domain of human or mouse Fas is fused to the Fc region of human IgG1

**R&D Systems 435-FA-050** Murine recombinant, expressed in Sf21 >97%; lyophilized with a carrier protein | See R&D Systems 326-FS-050

**Fas Protein, Intracellular Death Domain**

**Calbiochem 341288** Human recombinant, expressed in *E. coli* MW 45k Liquid in 200 mM reduced glutathione, 200 mM NaCl, 50 mM Tris, 10% glycerol, pH 8.0; single band purity (SDS-PAGE) | A transmembrane protein of the TNF/NGF receptor family; induces apoptosis in Fas-bearing cells; involved in down-regulation of immune responses & T cell mediated cytotoxicity; produced as a fusion protein of human Fas linked to glutathione-S-transferase; Burke, G, *Cell*, 81: 9, 1995; Nagata, S & Goldstein, P, *Science*, 267: 1449, 1995

**ICN 195861** Human recombinant, expressed in *E. coli* MW 45k Transmembrane protein of the TNF/NGF receptor family that induces apoptosis in Fas-bearing cells; participant in down-regulation of the immune response & in T-cell mediated cytotoxicity

**Fas Protein, Intracellular Fragment**

**Synonyms:** Fas Antigen

**Oncogene PF072** >80% (SDS-PAGE); 100 mg in 1 mL of 50 mM HEPES, pH 7.5 containing 0.5 M NaCl, 0.05% TWEEN® 20, 0.01 M β-mercaptoethanol & 50% ammonium sulfate | Used in western blot or in an ELISA format; reported that Fas antibodies raised against the intracellular domain of Fas will recognize #PF072; Western blot & ELISA

**Fasciculin I**

**Sigma F 3918** *Dendroaspis angusticeps* (Eastern Green Mamba) Protein components of the venom of the eastern green mamba snake Cholinesterase inhibitors that inhibit acetylcholinesterase ~10,000 times more efficiently than butyrylcholinesterase Karlsson, E et al, *J Physiol* (Paris), 79: 232, 1984

**Fasciculin II**

**Sigma F 4293** *Dendroaspis angusticeps* (Eastern Green Mamba) Believed to differ from fasciculin I only by a single AA substitution (Tyr for Asx); see Sigma F 3918

**Fas-hulg Fusion Protein**

**Synonyms:** CD95-hulg Fusion Protein, Human

**Alexis ANC-506-020** Human Purified; liquid; free of azide & carrier protein; stabilized with 0.5 mg/mL gentamycin sulfate; transfectant cell line: CHO | Soluble fusion protein consisting of the extracellular (175AA) domain of human Fas (CD95) fused to human IgG1 Fc (234AA); useful in flow cytometry, immunohistochemistry (frozen sections); Fas-hulg fusion protein blocks binding of anti-human Fas antibody to cells expressing Fas; human Fas is a type 1 cell surface glycoprotein that is strongly unregulated on activated T cells, B cells, NK cells & thymocytes *Leukocyte Typing V* (Schlossman, SF et al, eds) Oxford University Press, Oxford, p. 1142, 1995

**Fas-hulg Fusion Protein R-PE**

**Synonyms:** CD95-hulg Fusion Protein, Human

**Alexis ANC-506-050** Human Liquid; stabilized with 0.04% sodium azide; transfectant cell line: CHO | See Alexis ANC-506-020

**Fas-hulg Fusion Protein, Biotin Conjugated**

**Synonyms:** CD95-hulg Fusion Protein, Human

**Alexis ANC-506-030** Human Liquid; stabilized with 0.04% sodium azide; transfectant cell line: CHO | See Alexis ANC-506-020

**Fas-hulg Fusion Protein, FITC Conjugated**

**Synonyms:** CD95-hulg Fusion Protein, Human

**Alexis ANC-506-040** Human Liquid; stabilized with 0.04% sodium azide; transfectant cell line: CHO | See Alexis ANC-506-020

**Fatty Acid Binding Protein**

**Scipac P196-1** Heart tissue >96%; lyophilized | Cardiac marker protein

**Cortex CP2049** Human >95%

**Fitzgerald 30-AF14** Human cardiac High purity

**Biodesign A86865H** Human heart >98% | Cardiac markers

**USBio F0019-76** Human heart tissue ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Ferredoxin**

**Sigma F 6671** *Clostridium pasteurianum* Lyophilized powder containing ~30% ferredoxin by weight; balance Trizma buffer; isolated by modified procedure of Rabinowitz | Iron containing proteins that serve as electron-transfer catalysts in photosynthesis; sold on the basis of mg ferredoxin based on E<sub>390</sub> at 1% = 34; package sizes are based on ferredoxin content; Rabinowitz, J, *Methods in Enzymology*, 24: 431, 1972

**Sigma F 4029** *Porphyrumbilicalis* (Red marine algae) Chromatographically purified, lyophilized powder | Iron containing proteins that serve as electron-transfer catalysts in photosynthesis; package sizes are based on ferredoxin; Andrew, PW et al, *Eur J Biochem*, 69: 243, 1976

**Sigma F 3013** Spinach Lyophilized powder containing ~25% ferredoxin by weight; balance is Trizma buffer; partially purified per method by Tagawa & Arnon | Iron containing proteins that serve as electron-transfer catalysts in photosynthesis; package sizes are based on ferredoxin; Tagawa & Arnon, *Nature*, 195: 537, 1962

**Sigma F 5875** Spinach Frozen solution containing 1-3 mg ferredoxin/mL of 0.15 M Trizma buffer, pH 7.5; contains NaCl; partially purified per method by Tagawa & Arnon | Iron containing proteins that serve as electron-transfer catalysts in photosynthesis; package sizes are based on ferredoxin; Tagawa & Arnon, *Nature*, 195: 537, 1962

**Sigma F 2513** Spirulina species Chromatographically purified, lyophilized powder | Iron containing proteins that serve as electron-transfer catalysts in photosynthesis; package sizes are based on ferredoxin

## Proteins

### Ferritin

**Biogenesis 4420-5409** Equine spleen MW 500k 30% iron (bipyridyl method); pI: 4.1-5.6; purified; 150 mM NaCl with 0.002% NaN<sub>3</sub>; liquid

**Calbiochem 341475** Equine spleen MW 500k Highly purified; liquid in 150 mM NaCl, 0.02% NaN<sub>3</sub>; >90% (size exclusion chromatography) | Major iron storage protein found in spleen, liver & intestinal mucosa

**Calbiochem 341476** Equine spleen MW 500k Chromatographically purified; cadmium-free; liquid in 150 mM NaCl, 0.1% NaN<sub>3</sub>; >90% (size exclusion chromatography); purified chromatographically without using cadmium precipitation

**USBio F4015-19** Heart ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 2-3 mg/mL supplied in 150 mM NaCl, 0.1% NaN<sub>3</sub>, 10 mM Tris, pH 7.0 | Suitable for antigenic applications in immunological protocols

**Fluka 46230** Horse spleen MW 900k ≥75% (GE); ≥36 mg/mL protein (Lowry); ~16% Fe; ≤0.05% Cd | Fe-saturated ferritin; Crichton, RR & Charl-Wauters, M, *Eur J Biochem*, 164: 485, 1987

**ICN 100646** Horse spleen 6X re-crystallized; Cd removed; solution in 0.15 M NaCl; 100 mg ferritin/mL

**ICN 151119** Horse spleen 2X crystallized; may contain ≤1% Cd (as % of ferritin)

**ICN 960272** Horse spleen 96%; >48 mg/mL; <% Cd | Marker in electron microscopy; species specific but not organ specific

**Biogenesis 4420-4304** Human heart pI: 4.5-4.8; H subunit content is high (50-60%); purified; liquid

**Fitzgerald 30-AF05** Human heart High purity

**ICN 151120** Human heart 0.15 M NaCl, 0.1% NaN<sub>3</sub>; >99% (PAGE); 0.4 mg/mL (Lowry)

**Biodesign A10152H** Human liver Purified

**Biogenesis 4420-4804** Human liver Tested negative for HBsAg, HCV, HIV 1 and 2 and syphilis; purified; 0.05 M Tris, pH 7.5 with 0.1% NaN<sub>3</sub>; liquid | Addison et al, *FEBS Letts*, 164:139, 1983

**Calbiochem 341482** Human liver MW 450k Sterile-filtered; liquid in 150 mM NaCl, 0.1% NaN<sub>3</sub>, pH 7.0; ≥95% (SDS-PAGE); prepared from tissue of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | Major iron storage protein; suitable for use in immunoassays as an immunogen & in enzyme/radiolabeling; Addison, JM et al, *FEBS Lett*, 164: 139, 1983

**Fitzgerald 30-AF10** Human liver High purity

**ICN 151121** Human liver 0.15 M NaCl, 0.1% NaN<sub>3</sub>; >98% (PAGE single peak on sepharose CL-6B); 2.25 mg/mL (Lowry)

**USBio F4015-21** Human liver No contaminants detected; ~1 mg/mL supplied in 0.9% NaCl, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biogenesis 4420-5004** Human placenta 0.15 M NaCl and 0.02% NaN<sub>3</sub>; liquid | Placental ferritin has a high content of the H-subunit (10-20%); its sequence differs in a small number of positions from the major component of spleen ferritin; some of these differences are also found in the liver ferritin; tested and found negative for the HBsAg and HTLV III antibody; Wustefeld & Crichton, *FEBS Letts*, 150:43, 1982; Addison et al, *FEBS Letts*, 164:139, 1983

**USBio F4015-24** Human placenta >95% by PAGE (PI ~ 4.9); chromatographically purified by DEAE; ethanol/thermal denatured; liquid, sterile filtered in 0.15 M NaCl & 0.02% NaN<sub>3</sub> | High content of the H-subunit (10-20%); sequence differs in a small number of positions from the major component of spleen ferritin; some of these differences are also found in liver ferritin; suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AF13** Human placental High purity

**Biogenesis 4420-5204** Human spleen

**Fitzgerald 30-AF15** Human spleen High purity

**USBio F4015-22** Human spleen No contaminants detected (SDS-PAGE); ~3 mg/mL (Lowry) supplied in 0.01 M sodium phosphate, 0.15 M NaCl, pH 7.2, 0.1% Kathon (preservative) | Suitable for antigenic applications in immunological protocols

**Cortex CP1003** Liver >95%

**Scipac P103-9** Liver >96%; in TRIS buffer; sterile filtered through 0.2µm membrane; 3-10 mg/mL | Nutritional protein; tumor marker

**Biogenesis 4420-5519** Rat liver Liquid

**Biogenesis 4420-5539** Rat liver Purified; 0.9% NaCl with 0.02% NaN<sub>3</sub>; liquid

**Cortex CP1004** Spleen >95%

### Ferritin H Chain

**Biogenesis 4420-6009** Human r-DNA Liquid

**Calbiochem 341490** Human recombinant MW 507k Liquid in 150 mM NaCl, 20 mM Tris-HCl, 0.02% NaN<sub>3</sub>; >95% (SDS-PAGE) | Contains the metal binding site of ferritin which confers ferroxidase activity to the protein; Levi, S et al, *J Biol Chem*, 269: 30334, 1994; Levi, S et al, *J Mol Biol*, 238: 649, 1994

### Ferritin L Chain

**Biogenesis 4420-7009** Equine r-DNA Liquid

**Biogenesis 4420-7109** Human r-DNA Liquid

**Calbiochem 341491** Human recombinant MW 478k Liquid in 150 mM NaCl, 20 mM Tris-HCl, 0.02% NaN<sub>3</sub>; >95% (SDS-PAGE) | Lacks detectable ferroxidase activity; Levi, S et al, *J Mol Biol*, 238: 649, 1994

### Ferritin, Apo-

**Calbiochem 178440** Equine spleen MW 460k Lyophilized; ≥90% (SDS-PAGE); iron: <0.01%; soluble in dilute buffers & water | Protein shell of ferritin molecule lacking iron; large amounts are present in pancreatic β-cells where it acts as an antioxidant; Sun, S et al, *J Biol Chem*, 267: 25160, 1992; McDonald, MJ et al, *FASEB J*, 8: 777, 1994; de Silva, D et al, *Arch Biochem Biophys*, 298: 259, 1992; Crichton, RR, *Structure Bonding*, 17: 67, 1974

### Ferritin, Cationized

**ICN 911141** 9.0-12.0 mg/mL in sterile 0.15M NaCl | This polycationic derivative of ferritin is useful for labeling negative charges on cell surfaces; lacks the inherent disadvantages of other cationic dyes such as ruthenium red, alcian blue, thorium hydroxide, & colloidal iron; has the advantage of quantitating the surface charges with greater precision due to its smaller diameter size; effective on a variety of cells, & its geometry permits easy membrane surface counting

### Fes/Fps

**USBio F4050-05** Human recombinant, produced by Baculovirus expression in Sf9 cells ~90% (DEAE chromatography, Mono-Q, FPLC); 250 ng/25 µL; packaged in 4 vials, each vial containing 250 ng in 25 mL of 10 mM Tris-HCl, pH 7.5, containing 0.25 mM EGTA, 0.25 mM EDTA, 0.125 M NaCl with 40% glycerol, & 5 mM β-MSH | Transfers ~16nmole phosphate/min/mg kinase (1 U defined as 1nmole/min); useful in protein kinase assay; undergoes autophosphorylation & catalyzes the phosphorylation of poly-Glu-Tyr (4:1) *in vitro*

### Fetoprotein Cell Line Antigen, α-

**USBio F4100-24** AFP cell line ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in 0.1 M Tris buffer, 0.2 M NaCl, pH 7.4, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**USBio F4100-27** AFP cell line 98%, 50% protein (SDS-PAGE); 0.5-5 mg/mL; 0.2 µm filtered | Suitable for antigenic applications in immunological protocols

### Fetoprotein Receptor, α-

**Biodesign A86886H** Fetal tissue Purified

### Fetoprotein, α-

**Cortex CP1007** >95%

**Cortex CP1007U** >98%

<b>Fitzgerald 30-AA06</b>	AFP cell line	High purity >98%
<b>Scipac P107-1</b>	Amniotic fluid	>96%; lyophilized   Tumor marker
<b>Scipac P107-2</b>	Amniotic fluid	3-12%; lyophilized   Tumor marker
<b>Biodesign A32260H</b>	Cell culture	Antigen grade
<b>USBio F4100-18</b>	Human	95%; contains trace amounts of albumin; 1.1 mg/mL supplied in 0.1 M Tris buffer, 0.2 M NaCl, 0.1% NaN <sub>3</sub> , pH 7.5   Suitable for antigenic applications in immunological protocols
<b>USBio F4100-19</b>	Human	≥98%; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL liquid in 0.1 M Phosphate buffer, pH 7.5, 0.15 M NaCl   Suitable for antigenic applications in immunological protocols as well as calibrators & controls
<b>Fitzgerald 30-AA05</b>	Human cord plasma	High purity >98%
<b>Fitzgerald 30-AA10</b>	Human cord plasma	Standard purity >60%
<b>Biodesign A15108H</b>	Human cord serum	60-80%   Tumor markers, cancer antigens & oncogenes
<b>Calbiochem 341498</b>	Human cord serum	Liquid in 200 mM NaCl, 100 mM Tris-HCl, 0.1% NaN <sub>3</sub> , pH 7.5; >95% (SDS-PAGE); prepared from serum shown to be negative for HBsAg & for antibodies to HIV & HCV   Major fetal serum glycoprotein, classified as an oncofetal protein, synthesized in the liver, yolk sac & developing fetal gastrointestinal tract; serves as a modulator of various cell growth regulatory pathways during embryonic development in vertebrates; a useful tumor marker; higher serum levels aid in the diagnosis, classification & monitoring of non-seminomatous testicular cancer & primary hepatocellular (liver) carcinoma; elevated maternal α-fetoprotein levels are common in chorioangioma; suitable for use in immunoassays & as an immunogen; Jeng, LB et al, <i>Am J Obstet Gynecol</i> , 172: 219, 1995; Ruoslahti, E et al, <i>Methods Enzymol</i> , 84: 3, 1982; Anderson, T et al, <i>Ann Int Med</i> , 90: 373, 1979; Khong, TY & George, K, <i>Am J Perinatol</i> , 11: 245, 1994; Mizejewski, GJ, <i>Life Sci</i> , 56: 1, 1994
<b>Sigma F 1510</b>	Human cord serum	Solution in 0.1 M phosphate buffer, pH 7.2, 15 mM sodium azide & 2.5% sucrose
<b>USBio F4100-26</b>	Human cord serum	60-80% (SDS-PAGE); some major serum proteins; ~0.5 mg/mL   Suitable for antigenic applications in immunological protocols
<b>ICN 195002</b>	Human fetal cord serum	>95%; lyophilized   Suitable for use as an immunogen, iodinated tracer & as a clinical calibrator
<b>ICN 770931 ICN 770932 ICN 770933</b>	Human fetal cord serum	>97%; iodination grade   Ideal for labeling or immunization purposes

#### Fetoprotein, αI-

<b>Biogenesis 4520-5704</b>	Human amniotic fluid	MW ~66k Tested negative for HIV 1 and 2 antibodies, HBsAg and HCV antibodies; purified; PBS buffer, pH 7.2, 0.1% NaN <sub>3</sub> ; liquid
<b>Biogenesis 4520-5804</b>	Human amniotic fluid	MW 66k 3-12% of total protein is alpha fetoprotein by radial immunodiffusion; may contain traces of buffer salts; tested negative for HIV antibodies, HBsAg and for HCV antibodies; semi-pure; PBS buffer, pH 7.2; liquid
<b>Biogenesis 4520-5849</b>	Human fetal serum	Lyophilized
<b>Biogenesis 4520-5869</b>	Human fetal serum	

#### Fetuin

<b>Biogenesis 4430-2204</b>	Bovine serum	Lyophilized
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#### Fetuin I

<b>ICN 104874</b>	Fetal bovine serum	A glycoprotein recovered from the globulin fraction of fresh calf serum by ammonium sulfate fractionation; Pederson, KO J Phys & Colloid Chem, 51:164 1947
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#### Fetuin II

<b>ICN 152410</b>	Neonatal calf serum	A glycoprotein recovered from the globulin fraction of calf serum by ammonium sulfate fractionation; Pederson, KO J Phys & Colloid Chem, 51:164 1947
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#### Fetuin, 10 nm Colloidal Gold Conjugated

**ICN 154032**

#### Fetuin, 20 nm Colloidal Gold Conjugated

**ICN 154033**

#### Fetuin, 5 nm Colloidal Gold Conjugated

**ICN 154031**

#### Fibrin

**ICN 901687** Bovine blood Thrombin treated fibrinogen; washed 6 times

#### Fibrin Degradation Product D-Dimer

**Biogenesis 4440-0256** Human serum Tested negative for HBsAg, HIV-1 and HIV-2 antibodies, HCV and syphilis; purified; essentially salt free; liquid | A specific degradation product of cross-linked fibrin: used as a marker of venous thrombo embolism for the diagnosis of deep venous thrombosis of the lower limbs and pulmonary embolism

#### Fibrin Degradation Product D-Monomer

**Biogenesis 4440-0276** Human serum MW 45k under reducing conditions, 94k under non-reducing conditions Tested negative for HBsAg and HIV-1 antibodies; purified; 50mM TBS, pH 8.0, with 1 mM Tranexamic Acid, 0.05% NaN<sub>3</sub>; liquid | Homogenous by electrophoresis

#### Fibrin Degradation Product E

**Biogenesis 4440-0456** Human serum MW 50k Tested negative for HBsAg and HIV antibodies; E<sub>280</sub> nm (1%): 0.9; purified; 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.5, 0.1% mannitol and residual urea; lyophilized | Marder & Francis, *Ann NY Acad Sci*, 408:397

#### Fibrin Degradation Product X

**Biogenesis 4440-0626** Human serum MW 240k Non-reactive for HBsAg, HIV I/II antibodies and HCV antibody; purified; 50 mM Tris-HCl, pH 8.0, 0.1M NaCl, 10 mM e-amino caproic acid; liquid

#### Fibrin Degradation Product Y

**Biogenesis 4440-0826** Human serum MW 175k Non-reactive for HBsAg and anti HIV I/II and anti-HCV antibodies; purified; 20 mM Tris-HCl, pH 8.0, 0.5M NaCl, 1 mM tranexamic acid, 0.05% NaN<sub>3</sub>; liquid

#### Fibrin, Blue

**Synonyms:** Pepsin Substrate

**ICN 158051** Pepsin substrate at low pH; high blanks result at high pH; Nelson, WL et al, *Anal Biochem*, 2:39, 1961

#### Fibrinogen

**Synonyms:** Coagulation Factor I

**ICN 154165** Bovine >80% clottable protein; >70% protein; <3% moisture

**Fluka 46312** Bovine plasma MW 341k ≥70% protein; clottable protein: ≥80%; 15% NaCl; 10% sodium citrate; ≤10% water; white powder

**ICN 820212 ICN 820215** Bovine Plasma 75%; 75% clottable; lyophilized | Used for preparation of fibrin plates for analysis of fibrinolytic enzymes, as a substrate for clotting assays & for study of fibrinogen degradation products

**ICN 820224 ICN 820225** Bovine Plasma 95%; 95% clottable; lyophilized | Used for preparation of fibrin plates for analysis of fibrinolytic enzymes, as a substrate for clotting assays & for study of fibrinogen degradation products

**ICN 820244** Bovine Plasma Plasminogen free

## Proteins

**USBio F4200** Human Homogeneous by 6% SDS-PAGE, ≥95% clottable; plasminogen has been depleted; ~24 mg/mL supplied in 20 mM citric acid-HCl/glycine, pH 7.4 | Suitable for antigenic applications in immunological protocols

**Fluka 46313** Human plasma MW 341k ~50% protein; contains sodium citrate & NaCl; clottability: ~95% of protein; ≤0.05% plasminogen; ≤0.01% plasmin; ≤6% water | Fuller, GM et al, *Meth Enzymol*, 163: 474, 1988

**Biogenesis 4440-8604** Human plasma (Cohn fraction I) Protein ~45% by Biuret; virtually free from plasminogen and plasmin; tested negative for antibodies to HIV-1, HIV-2, antibodies to HCV, HBsAg, and for HIV-1 antigen; purified; contains ~20% sodium citrate & 30% NaCl; lyophilized | 90-93% of protein is clottable

### Fibrinogen Degradation Product

**Sigma F 9036** Human plasma Frozen solution in 10 mM Tris-HCl, pH 7.4, containing 150 mM NaCl & 2 mM CaCl<sub>2</sub> | Presence of fibrinogen degradation products is a clinical marker for a wide variety of disease states; protein determined by LowrySoria, J & Soria, °C, *Gaz Med Fr*, 86: 1099-1106, 1979

### Fibrinogen Degradation Product D

**ICN 194073** Human Plasma Purified protein; glycine & NaCl stabilizers | Thermolabile protein fragment used as a clinical marker for various states of disease; Amiral, J et al, *Fibrinogen & its Derivatives*, 285, 1986

### Fibrinogen Degradation Product E

**ICN 194074** Human Plasma Purified protein; glycine & NaCl stabilizers | Thermolabile protein fragment used as a clinical marker for various states of disease

### Fibrinogen Fraction I

**ICN 151122** Bovine Plasma ~75% protein

**Sigma F 4753** Bovine plasma Type IV; ~60% protein (~95% of protein clottable); contains ~15% sodium citrate & ~25% NaCl | Protein determined by Biuret method

**Sigma F 8630** Bovine plasma Type I-S; ~75% protein (>75% of protein clottable); contains ~10% sodium citrate & ~15% NaCl | Protein determined by Biuret method

**Sigma F 8513** Cat plasma ~50% protein (>60% of protein clottable); contains ~20% sodium citrate & ~30% NaCl | Protein determined by Biuret method

**Sigma F 7128** Dog plasma ~55% protein (>60% of protein clottable); contains ~20% sodium citrate & ~25% NaCl | Protein determined by Biuret method

**Sigma F 9631** Guinea pig plasma ~50% protein (>90% of protein clottable); contains ~20% sodium citrate & ~30% NaCl | Protein determined by Biuret method

**ICN 151123** Human Plasma ~65% protein

**Sigma F 3879** Human plasma Type I; ~60% protein (>90% of protein clottable); contains ~15% sodium citrate & ~15% NaCl | Protein determined by Biuret method; source material negative for HIV & HBsAg

**Sigma F 4129** Human plasma Type III; ~65% protein (>60% of protein clottable); contains ~15% sodium citrate & ~20% NaCl | Protein determined by Biuret method; source material negative for HIV & HBsAg

**Sigma F 4883** Human plasma Essentially plasmin(ogen) free; ~50% protein (~95% of protein clottable); contains ~20% sodium citrate & ~30% NaCl | Protein determined by Biuret method; source material negative for HIV & HBsAg

**Sigma F 4385** Mouse plasma ~50% protein (>80% of protein clottable); contains ~20% sodium citrate & ~30% NaCl | Protein determined by Biuret method

**Sigma F 2629** Pig plasma ~70% protein (>70% of protein clottable); contains ~12% sodium citrate & ~18% NaCl | Protein determined by Biuret method

**Sigma F 6755** Rat plasma ~70% protein (>60% of protein clottable); contains ~12% sodium citrate & ~18% NaCl | Protein determined by Biuret method

**Sigma F 9754** Sheep plasma ~75% protein (>80% of protein clottable); contains ~10% sodium citrate & ~15% NaCl | Protein determined by Biuret method

### Fibrinogen Reference

**Sigma 880-10** Human plasma ~250 mg/dL; lyophilized citrated human plasma containing buffer & preservative | Fibrinogen value listed on label is determined by clottable protein method; for use in the determination of fibrinogen per Sigma Procedure No. 880

### Fibrinogen, (<sup>125</sup>I)-

**ICN 68033** Human ~1 µCi/µg, ~37kBq/µg; 0.1 M KPO<sub>4</sub>, pH 7.5, 0.5% BSA

### Fibroblast Growth Factor

*Synonyms:* Endothelial Cell Growth Factor, β-

**ICN 160020** Bovine brain Prepared according to Gospodurowicz; membrane filtered before lyophilization; optimal conc: 50-100 ng/mL for Balb/c 3T3 cells | Gospodurowicz, D, *JBC*, 253:3736, 1978

**ICN 160037** Bovine Pituitary Gland Prepared according to Gospodurowicz; membrane filtered before lyophilization; optimal conc: 10-50 ng/mL for Balb/c 3T3 cells | Gospodurowicz, D, *JBC*, 250:2515, 1975

**Sigma F 3133** Bovine pituitary glands Tissue culture grade; 0.2 µm filtered & lyophilized from a solution of sodium phosphate & sodium chloride containing chicken egg albumin as a stabilizer; activity/unit weight of protein is less than that of purified bFGF; endotoxin tested; see Sigma F 5542 | Purified by a modification of the method of Gospodarowicz, D, *J Biol Chem*, 250: 2515, 1975

**Sigma E 1388** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 1.25 mg BSA; proliferative activity is tested in culture using quiescent NR6R-3T3 fibroblasts; endotoxin tested; see Sigma F 5542 | Rizzino, A et al, *Cancer Res*, 48: 4266, 1988

### Fibroblast Growth Factor I

**Sigma F 2897** Human recombinant, expressed in 293T cells MW ~110-120k Provided as a transfected cell extract & is in SDS-PAGE loading buffer; ready-to-use in immunoblotting techniques; see Sigma F 5542 | A predominant doublet detected by specific antibodies to FGFR-1; Recommended use in SDS-PAGE as a positive control is 5-10 µL of undiluted product/gel lane

### Fibroblast Growth Factor II

**Chemicon GF085** Murine ≥95%

### Fibroblast Growth Factor IV

**Chemicon GF098** Human ≥95%

**Biogenesis 0100-0130** Human r-DNA Lyophilized

**Oncogene PF076** Human recombinant MW 14 & 16k >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.05-0.15 ng/mL as determined in a mitogenic assay measuring FGF dependent <sup>3</sup>H-thymidine incorporation in quiescent NR6R-by 3T3 fibroblasts | Species reactivity: human; for proliferation studies

**ICN 160071** Human recombinant, expressed in *E. coli* ≥97%; lyophilized; ED<sub>50</sub> = 0.05-0.15 ng/ml (by stimulation of <sup>3</sup>H-thymidine uptake by quiescent NR6R 3T3 fibroblasts)

**PeptoTech 100-31** Human recombinant, expressed in *E. coli* MW 19.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 182 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors



**Sigma F 2278** Human recombinant, expressed in *E. coli*  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu\text{m}$  filtered & lyophilized from 20 mM sodium phosphate buffer, pH 7.0, containing 1.25 mg human serum albumin; proliferative activity is tested in culture using quiescent NR6R-3T3 fibroblasts; endotoxin tested; see Sigma F 5542 | Rizzino, A et al, *Cancer Res*, 48: 4266, 1988

#### Fibroblast Growth Factor IX

**Synonyms:** Glial Activating Factor

**Biodesign A52030H** *E. coli* MW 23.3k Purified | Species specificity: mouse

**Chemicon GF097** Human  $\geq 95\%$

**Biogenesis 0100-0133** Human r-DNA Lyophilized

**PeptoTech 100-23** Human recombinant, expressed in Human recombinant, expressed in *E. coli* MW 23.4k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 207 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 10^6$  U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

**Sigma F 1168** Human recombinant, expressed in Sf 21 insect cells MW 25k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu\text{m}$  filtered & lyophilized from PBS containing 1.25 mg BSA; bioactivity is measured in a bioassay using BALB/3T3 cells; endotoxin tested; see Sigma F 5542

**ICN 195735** Human recombinant, Sf21 expressed  $\geq 97\%$ ; lyophilized; activity:  $\text{ED}_{50} = 1-2$  ng/mL

**Biogenesis 0100-0134** Mouse r-DNA Lyophilized

**BioSource International PMG0014** Mouse recombinant

**Chemicon GF040** Murine  $\geq 95\%$

**ICN 195006** Murine recombinant, expressed in *E. coli* MW 22k Lyophilized

**PeptoTech 450-30** Murine recombinant, expressed in *E. coli* MW 23.3k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of glial cells & other cells that express FGF receptors; 205 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 2 \times 10^6$  U/mg; SA determined by the dose-dependent stimulation of thymidine uptake by BaF3 expressing FGF receptors

#### Fibroblast Growth Factor Receptor (flg-5) Extracellular Domain

**IBT GR-030-3, GR-030-5** Human recombinant, expressed in *Spodoptera frugiperda* insect cells (Sf9)  $>85\%$ ; 1.0 mg prot/mL, 10 mM Tris-HCl, pH 7.0 | Binds radioiodinated basic FGF; inhibits basic FGF-mediated proliferation of adrenocortically capillary endothelial cells

#### Fibroblast Growth Factor V

**ICN 160172** Human recombinant, expressed in *E. coli*  $\geq 97\%$ ; lyophilized;  $\text{ED}_{50} = 0.05-0.15$  ng/ml (by stimulation of  $^3\text{H}$ -thymidine uptake by quiescent NR6R 3T3 fibroblasts)

**Oncogene PF077** Human recombinant, expressed in *E. coli* MW 27k  $>97\%$  (SDS-PAGE); lyophilized; biological activity:  $\text{EC}_{50}$  of 0.05-0.1  $\mu\text{g}/\text{mL}$  in the presence of 0.1  $\mu\text{g}/\text{mL}$  heparin as determined by FGF dependent  $^3\text{H}$ -thymidine incorporation in quiescent NR6R-by 3T3 fibroblasts | Recombinant human protein based on a DNA sequence encoding mature FGF-5 expressed in *E. coli*; species reactivity: human; for proliferation studies

**PeptoTech 100-34** Human recombinant, expressed in *E. coli* MW 27.6k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 252 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 10^6$  U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

**Sigma F 4537** Human recombinant, expressed in *E. coli*  $\geq 97\%$  (SDS-PAGE); purified by sequential chromatography; 0.2  $\mu\text{m}$  filtered & lyophilized from phosphate buffered solution containing 2.5 mg BSA; bioactivity is determined by measuring the FGF-5 dependent  $^3\text{H}$ -thymidine incorporation in quiescent NR6R-3T3 fibroblasts; endotoxin tested; see Sigma F 5542 | Rizzino, A et al, *Cancer Res*, 48: 4266, 1988

#### Fibroblast Growth Factor VI

**Biogenesis 0100-0131** Human r-DNA Lyophilized

**ICN 160073** Human recombinant, expressed in *E. coli*  $\geq 97\%$ ; lyophilized;  $\text{ED}_{50} = 0.05-0.15$  ng/ml (by stimulation of  $^3\text{H}$ -thymidine uptake by quiescent NR6R 3T3 fibroblasts)

**PeptoTech 100-30** Human recombinant, expressed in *E. coli* MW 18.7k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 168 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 10^6$  U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

**Sigma F 4662** Human recombinant, expressed in *E. coli*  $\geq 97\%$  (SDS-PAGE); purified by sequential chromatography; 0.2  $\mu\text{m}$  filtered & lyophilized from PBS containing 0.05% CHAPS & 2.5 mg BSA; bioactivity is determined by measuring the FGF-5 dependent  $^3\text{H}$ -thymidine incorporation in quiescent NR6R-3T3 fibroblasts; endotoxin tested; see Sigma F 5542 | Rizzino, A et al, *Cancer Res*, 48: 4266, 1988

#### Fibroblast Growth Factor VII

**USBio F4299** Recombinant (FGF-7/KGF) Sterilized through a 0.2m membrane filter & packaged aseptically | Contains 163 AA residues; a potent mitogen for keratinocytes & epithelial cells; 1-10ng/mL produced a 11-fold maximal stimulation of ( $^3\text{H}$ )-thymidine incorporation in mousekeratinocytes;  $\text{ED}_{50} = 0.2-0.8$  ng/mL; optimal KGF concentration in cell culture varies from 0.01-10 ng/mL, depending on cell type

#### Fibroblast Growth Factor VIII

**Synonyms:** Androgen Induced Growth Factor

**Biogenesis 0100-0132** Human r-DNA Lyophilized

**PeptoTech 100-25** Human recombinant, expressed in Human recombinant, expressed in *E. coli* MW 22.4k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 193 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 10^6$  U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

#### Fibroblast Growth Factor VIII $\beta$

**ICN 195783** Murine recombinant, expressed in *E. coli*  $\geq 97\%$ ; lyophilized;  $\text{ED}_{50} =$  typically 1-3 ng/mL in the presence of 0.1  $\mu\text{g}/\text{mL}$  heparin

#### Fibroblast Growth Factor X

**Biogenesis 0100-0135** Human r-DNA Lyophilized

**PeptoTech 100-26** Human recombinant, expressed in *E. coli* MW 19.3k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; most related to KGF/FGF-7; expressed during development & preferentially in adult lungs 170 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 1 \times 10^6$  U/mg; SA determined by the dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

#### Fibroblast Growth Factor XVI

**Biogenesis 0100-0136** Human r-DNA Lyophilized

**PeptoTech 100-29** Human recombinant, expressed in *E. coli* MW 23.7k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 207 AA;  $\text{ED}_{50} \leq 0.5$  ng/mL; SA  $\geq 10^6$  U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

#### Fibroblast Growth Factor XVII

**Biogenesis 0100-0137** Human r-DNA Lyophilized

## Proteins

**PeproTech 100-27** Human recombinant, expressed in *E. coli* MW 22.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 195 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

### Fibroblast Growth Factor XVIII

**Biogenesis 0100-0138** Human r-DNA Lyophilized

**PeproTech 100-28** Human recombinant, expressed in *E. coli* MW 21.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered heparin binding growth factor; stimulates proliferation & activation of cells that express the FGF receptors; 182 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BaF3 cells expressing FGF receptors

### Fibroblast Growth Factor, Acidic

**Synonyms:** Endothelial Cell Growth Factor; Heparin Binding Growth Factor (I or α); Retina Derived Growth Factor; Astroglial Growth Factor I; Endothelial Cell Growth Factor, β-

**Biogenesis 4460-4104** Bovine brain MW 17k & 20k Purified; from 0.5 mL 0.001 M sodium phosphate, pH 7.0; lyophilized | Stimulates growth of bovine capillary endothelial cells by 3-5 fold over 5% calf serum at 10-25 ng/mL FGF and 10 µg/mL heparin; the 17K peptide is derived from the 20K peptide by restricted proteolysis; Burgess et al, *JBC*, 260:11389, 1985; Jaye et al, *Science*, 233:541, 1986; Lobb et al, *JBC*, 261:1924, 1986

**ICN 154132** Bovine brain >95% (SDS-PAGE visualized by silver stain & N-terminus analysis); lyophilized with BSA carrier; ED<sub>50</sub> = 0.1-0.5 ng/mL (by dose-dependent stimulation of <sup>3</sup>H-thymidine incorporation by NR6R 3T3 fibroblasts)

**Sigma F 5267** Bovine brain MW 14-16k ≥90% (SDS-PAGE); 0.2 µm filtered & lyophilized from a solution of sodium phosphate & sodium chloride containing 100 µg BSA; endotoxin tested; see Sigma F 5542 | Protein isolated by a modification of the method of Gospodarowicz, involving heparin affinity chromatography; Gospodarowicz, D et al, *Proc Natl Acad Sci USA*, 81: 6963, 1984

**ICN 152306** Bovine hypothalamus ~95%; lyophilized; reconstitute with 1 ml sterile solution of 0.05 M Na<sub>2</sub>HPO<sub>4</sub>, pH 7; suggested conc in cell culture = 1-20 ng/mL | Stimulates the growth of bovine capillary endothelial cells by 3- to 5-fold over 5% FBS at 10-25 ng FGF & 10 µg/ml heparin; structurally & functionally nearly identical to ECGF (endothelial cell growth factor), eye-derived growth factor II, & RDGF (retina-derived growth factor)

**Biodesign A52117H** *E. coli* MW 15.5k Purified

**Chemicon GF002** Human ≥95%

**Biogenesis 4460-4236** Human r-DNA Lyophilized

**BioSource International PHG0014** Human recombinant

**Oncogene PF002** Human recombinant MW 15.9k >98% (SDS-PAGE); lyophilized; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by 3T3 cells ~1 ng/mL | Species reactivity: human; for proliferation studies & Western blot

**Fitzgerald 30-AF16** Human recombinant, expressed in *E. coli*

**Harlan BT-3002** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cross-reactive with human, mouse, rat, canine, feline, rabbit, bovine, equine, swine, primate, guinea pig, ovine & avian

**Harlan BT-3003** Human recombinant, expressed in *E. coli* Lyophilized; 0.1 mg | Cross-reactive with human, mouse, rat, canine, feline, rabbit, bovine, equine, swine, primate, guinea pig, ovine & avian

**ICN 153482** Human recombinant, expressed in *E. coli* ≥98% (SDS-PAGE); lyophilized; ED<sub>50</sub> = 1.0-2.0 ng/mL (by <sup>3</sup>H-thymidine uptake by Balb/c 3T3 cells) | Heparin binding protein which stimulates the proliferation of a wide variety of cells

**ICN 153509** Human recombinant, expressed in *E. coli* Receptor grade; ≥96%; lyophilized carrier free; unspecified activity, but measured by stimulation of <sup>3</sup>H-thymidine uptake by Balb/c 3T3 cells

**ICN 154570** Human recombinant, expressed in *E. coli* MW ~18k ≥95%; lyophilized; ED<sub>50</sub> = 0.5 ng/mL (by stimulation of <sup>3</sup>H-thymidine uptake by Balb/c 3T3 cells; <0.1 ng endotoxin/µg protein | Goustin, AS et al, *Cancer Res*, 46:1015, 1986; Gospodurowicz, D et al, *PNAS*, 81:6963, 1984; Ross, R et al, *Cell*, 46:155, 1986

**PeproTech 100-17A** Human recombinant, expressed in *E. coli* MW 15.8k >95%; 140 AA; lyophilized from 0.1 M NaCl, 10 mM Tris pH 7.6; ED<sub>50</sub>: 5.0-10.0 ng/mL as determined by the stimulation of thymidine uptake by BaF3 cells expressing the FGF receptors | Heparin binding growth factor; stimulates proliferation of a wide variety of cells including mesenchymal, neuroectodermal & endothelial; 140 AA; ED<sub>50</sub> ≤ 10 ng/mL; SA ≥ 10<sup>5</sup> U/mg; SA determined by stimulation of the proliferation of thymidine uptake by BaF3 cells expressing FGF receptors

**Sigma F 5542** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 1.25 mg BSA; proliferative activity is tested in culture using quiescent NR6R-3T3 fibroblasts; endotoxin tested | Rizzino, A et al, *Cancer Res*, 48: 4266, 1988; Fibroblast Growth Factor Acidic & -Basic exert similar mitogenic actions on a variety of mesoderm-derived cells, including BALB/3T3 fibroblasts, capillary endothelial cells, myoblasts, vascular smooth muscle cells, mesothelial cells, glial & astroglial cells & adrenal cortex cells; they aFGF & bFGF share common cellular receptors, but differ in their specific activities, depending on the individual cell type under study; unless otherwise listed, the mitogenic activities of all FGF preparations are tested in cell culture using fetal bovine heart endothelial cells; Gospodarowicz, D et al, *Endocrine Rev*, 8: 95, 1987; Neufeld, G & Gospodarowicz, D, *J Biol Chem*, 261: 5631, 1986; Lobb, R et al, *Anal Biochem*, 154: 1, 1986

**ICN 195781** Human recombinant, N-terminal extended form expressed in *E. coli* ≥97%; lyophilized; ED<sub>50</sub> = 0.1-0.3 ng/mL in the presence of 10 µg/mL heparin

### Fibroblast Growth Factor, Basic

**Synonyms:** Heparin Binding Growth Factor (II or β); Eye Derived Growth Factor I; Cartilage Derived Growth Factor; Astroglial Growth Factor II; β Heparin Binding Growth Factor (II or β)

**Chemicon FA009-1** ≥95%

**ICN 154147** Bovine Brain >95% (by N-terminus analysis & SDS-PAGE visualized by silver stain); lyophilized with BSA carrier; ED<sub>50</sub> = 0.05 - 0.3 ng/mL (by dose dependent stimulation of <sup>3</sup>H-thymidine incorporation by NR6R 3T3 fibroblasts)

**ICN 152323** Bovine Pituitary Glands >95%; sterile frozen solution | Heparin binding growth factor which exhibits mitogenic activity for fibroblasts, glial cells, & some endothelial cells; may be used to decrease or replace serum in cell cultures; facilitates early passage of fibroblasts & aids in cell proliferation, differentiation & development studies

**Sigma F 5392** Bovine pituitary glands MW 16-18k ≥90% (SDS-PAGE); 0.2 µm filtered & lyophilized from a solution of sodium phosphate & sodium chloride containing 100 µg BSA; endotoxin tested; see Sigma F 5542 | Isolated by a modification of the method of Gospodarowicz involving heparin affinity chromatography; Gospodarowicz, D et al, *Proc Natl Acad Sci USA*, 81: 6963, 1984

**Biodesign A52118H** *E. coli* MW 17k Purified

**Chemicon GF003** Human ≥95%

**Biogenesis 4460-4252** Human r-DNA Lyophilized

**BioSource International PHG0024** Human recombinant

**Fitzgerald 30-AF17** Human recombinant, expressed in *E. coli*

**Harlan BT-3004** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cross-reactive with human, mouse, rat, canine, feline, rabbit, bovine, equine, swine, primate, guinea pig, ovine & avian

**Harlan BT-3005** Human recombinant, expressed in *E. coli* Lyophilized; 0.1 mg | Cross-reactive with human, mouse, rat, canine, feline, rabbit, bovine, equine, swine, primate, guinea pig, ovine & avian

**PeproTech 100-18B** Human recombinant, expressed in *E. coli* MW 17.2k >95%; 155 AA; lyophilized from 150 mM NaCl, 5 mM Tris pH 7.6; ED<sub>50</sub>: 0.5-1.0 ng/mL as determined by the stimulation of thymidine uptake by BaF3 cells expressing the FGF receptors | Heparin binding growth factor; stimulates proliferation of a wide variety of cells including mesenchymal, neuroectodermal & endothelial; 154 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 2 × 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of the proliferation of thymidine uptake by BaF3 cells expressing the FGF receptors

**Sigma F 0291** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from 10 mM Tris, pH 6.0, containing 1.25 mg BSA; proliferative activity is tested in culture using fetal bovine heart endothelial cells; endotoxin tested; see Sigma F 5542 | Gospodarowicz, D et al, *Endocrine Rev*, 8: 95, 1987

**Sigma F 9786** Human recombinant, expressed in *E. coli* Heparin stabilized; 0.67 μg/mL in high salt PBS; cell culture tested; endotoxin tested; see Sigma F 5542 | Gospodarowicz, D et al, *Endocrine Rev*, 8: 95, 1987

**Oncogene PF003** Recombinant MW 18k >98% (SDS-PAGE); lyophilized with 100 μg BSA; reconstitute with sterile dH<sub>2</sub>O; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by 3T3 cells ~0.3 ng/mL | Species reactivity: human; for proliferation studies & Western blot

### Fibroblast Growth Factor, Basic (<sup>125</sup>I)-

**Synonyms:** Fibroblast Growth Factor Cytokine Induced Neutrophil Chemoattractant

**ICN 68104** Human recombinant >50 μCi/μg, >18.5 MBq/μg; 0.1 M KPB, pH 7.5, 75 mM NaCl, 0.5% BSA

### Fibroblast Growth Factor, Basic Human

**IBT GF-030-3, GFR-030-5** Yeast MW 17.5k >97%; lyophilized powder | Mitogen which stimulates cell growth for fibroblasts, endothelial cells, myoblasts, glial cells & smooth muscle cells; 154 AA residues; 55% homologous with acidic FGF, including 2 conserved Cys residues

### Fibronectin

**Synonyms:** Globulin Protein, Cold Insoluble; Fibronectin, Cellular

#### BioSource International PHE0023

**Biogenesis 4470-3729** Bovine plasma Purified; from 0.05 M Tris, 0.001 M CaCl<sub>2</sub>, pH 7.4; lyophilized

**Calbiochem 341631** Bovine plasma MW 440k Liquid in 150 mM NaCl, 20 mM sodium phosphate buffer, pH 7.3; single band purity (SDS-PAGE) | Purified from pooled bovine plasma; effective agent for promoting attachment of cells to commonly-used culture substrates; *Merck Index*, 12: 4119

**Chemicon FC014** Bovine plasma Purified | Extracellular matrix protein

**ICN 150025** BOVINE PLASMA Lyophilized | Used as an attachment factor in cell culture work

**Sigma F 1141** Bovine plasma 0.1% solution; 1 mg protein/mL in 0.5 M NaCl, 0.05 M Tris, pH 7.5; cell culture tested | Homogeneity is evaluated by immunoelectrophoresis

**Sigma F 4759** Bovine plasma Lyophilized from 0.05 M Tris buffered saline, pH 7.5; cell culture tested | Homogeneity is evaluated by immunoelectrophoresis

**Biogenesis 4470-3724** Bovine serum Purified; 30 mM TRIS/Cl, pH 7.8 with 30% glycerol; liquid

**Biogenesis 4470-4104** Equine serum

**Cortex CP3108U** Human >98%

**ICN 55913** Human Lyophilized | Purified antigen

**ICN 158220** Human cellular MW 271k (reduced SDS-PAGE) or 542k Highly purified; aseptically filled & lyophilized; free of tenascin & other large proteins | A component of the extracellular matrix; involved in attachment of cells to their substrate, long-term studies of wound healing & prevention of spread of metastatic tumor cells; unlike plasma fibronectin, this product is excreted into the medium by human cellular fibroblasts

**ICN 771111 ICN 771112** HUMAN CELLULAR MW 256k Highly purified | Cytoskeletal protein used as a high MW marker, as a standard or an antigen for various research procedures

**Calbiochem 341633** Human fibroblast MW 550k Solid lyophilized from 100 mM NaCl, 50 mM sodium phosphate buffer, pH 7.5; ≥95% (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | *Merck Index*, 12: 4119; Krejci, K & Fritz, H, *FEBS Lett*, 64: 152, 1976

**Sigma F 2518** Human foreskin fibroblasts Lyophilized in CAPS buffered saline; sterilized by chloroform dialysis | Homogeneity is evaluated by immunoelectrophoresis; differ from plasma fibronectin in the presence of additional polypeptide segments & in altering morphology of transformed cells & hemagglutination

**Sigma F 6277** Human foreskin fibroblasts Lyophilized from 0.05 M phosphate buffer, pH 7.5, containing 0.1 M NaCl; aseptically processed | Homogeneity is evaluated by immunoelectrophoresis

**Biogenesis 4470-2809** Human plasma Lyophilized

**Calbiochem 341635** Human plasma MW 440k Liquid in PBS; single major band purity (SDS-PAGE); no contaminants detected by IEP with anti-fibronectin & anti-human serum; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Effective agent for promoting attachment of cells to commonly-used culture substrates; *Merck Index*, 12: 4119

**Chemicon FC010** Human plasma Purified | Extracellular matrix protein

**Chemicon FC010-10mg** Human plasma Purified | Extracellular matrix protein

**Chemicon FC010-5mg** Human plasma Purified | Extracellular matrix protein

**ICN 151126** Human plasma Tissue culture grade; >95% (SDS-PAGE); lyophilized | Purified from the Cohn Fraction I of human plasma by a modification of the procedure of Engvall & Ruoslahti, *Int J Cancer*, 20:1, 1977

**ICN 194072** Human plasma Purified; <1 μg factor VIII & fibrinogen | Useful as a substrate for the promotion of attachment & replication of culture cells; Mosesson, MW, *Blood*, 56:145, 1980

**ICN 194931** Human plasma Lyophilized | Mosesson, MW & RA Umfleet, *JBC*, 245:5728, 1970

**Promega G5291** Human plasma Plasma-derived protein; plasma tested & found negative for HIV-1 antibody & Hepatitis B antigen | Used as an attachment for the culture of many cell types under reduced or serum-free conditions; promotes the attachment of fibroblasts & other mesenchymally derived cell types such as human umbilical vein endothelial, capillary endothelial, aortic endothelial & kidney epithelial cells

**Sigma F 0895** Human plasma 0.1% solution; 1 mg protein/mL in 0.05 M Tris buffered saline, pH 7.5 | Homogeneity is evaluated by immunoelectrophoresis; source material tested negative for HBsAg, HCV & HIV antibody

**Sigma F 2006** Human plasma Lyophilized from 0.05 M Tris buffered saline, pH 7.5 | Homogeneity is evaluated by immunoelectrophoresis; source material tested negative for HBsAg & HIV antibody

**Biogenesis 4470-2807** Human serum Liquid

**Biogenesis 4470-4504** Mouse plasma Purified; 50 mM TRIS buffer, pH 7.4, 1 mM CaCl<sub>2</sub>; lyophilized | Engvall & Ruoslahti, *J Cancer*, 20:1, 1977

**Calbiochem 341655** Mouse plasma MW 220k Liquid in 150 mM NaCl, 20 mM sodium phosphate buffer, pH 7.3; single major band purity (SDS-PAGE); no contaminants detected by IEP with anti-fibronectin & anti-mouse serum | Effective agent for promoting attachment of cells to commonly-used culture substrates; *Merck Index*, 12: 4119

**Chemicon FC015** Murine plasma Purified | Extracellular matrix protein

**Calbiochem 341650** Rabbit plasma MW 220k Liquid in 150 mM NaCl, 20 mM sodium phosphate buffer, pH 7.3; single major band purity (SDS-PAGE) | Purified from pooled rabbit plasma; effective agent for promoting attachment of cells to commonly-used culture substrates; *Merck Index*, 12: 4119

**Biogenesis 4470-4904** Rat plasma Purified; 50 mM Tris buffer, pH 7.4 with 1 mM CaCl<sub>2</sub>; aseptically lyophilized | Engvall & Ruoslahti, *J Cancer*, 20:1, 1977

## Proteins

**Calbiochem 341668** Rat plasma MW 220k Liquid in 100 mM NaCl, 20 mM sodium phosphate buffer, pH 7.3, preservative & reductant-free; single major band purity (SDS-PAGE); no contaminants detected by IEP with anti-fibronectin & anti-rat serum | Purified from pooled rat plasma; effective agent for promoting attachment of cells to commonly-used culture substrates; *Merck Index*, 12: 4119

**Sigma F 0635** Rat plasma Lyophilized from 0.05 M Tris buffered saline, pH 7.5 | Homogeneity is evaluated by immunoelectrophoresis

### Fibronectin Fragment III<sub>1</sub>-C

**Sigma F 3542** Human recombinant, expressed in *E. coli* MW ~7k >95% (SDS-PAGE); lyophilized, essentially salt-free; sterile-filtered | Promotes cross-linking of fibronectin to form matrix fibril-like multimers

### Fibronectin Proteolytic Fragment

**Synonyms:** Gelatin Binding Fragment; Heparin & Gelatin Binding Fragment; Fibronectin, 70 k Fragment; Heparin Binding Fragment; Fibronectin, 30 k Fragment

**Sigma F 0162** Human plasma fibronectin >90% (SDS-PAGE); lyophilized from phosphate buffered saline with sucrose as a cryoprotectant | Used for mapping regions, functions & activities of fibronectin; all fragments are purified by affinity chromatography; small proteolytic fragments may be present; source material tested negative for HBsAg & HIV

**Sigma F 0287** Human plasma fibronectin >90% (SDS-PAGE); lyophilized from phosphate buffered saline with sucrose as a cryoprotectant | Used for mapping regions, functions & activities of fibronectin; all fragments are purified by affinity chromatography; small proteolytic fragments may be present; source material tested negative for HBsAg & HIV

**Sigma F 9911** Human plasma fibronectin MW 30k >90% (SDS-PAGE); lyophilized from phosphate buffered saline with sucrose as a cryoprotectant | Used for mapping regions, functions & activities of fibronectin; all fragments are purified by affinity chromatography; small proteolytic fragments may be present; source material tested negative for HBsAg & HIV

### Fibronectin, (<sup>125</sup>I)-

**ICN 68066** ~1 µCi/µg, ~37 kBq/µg; 0.1 M KPO<sub>4</sub>, pH 7.5, 0.5% BSA

### Fibronectin, Cell Attachment

**Chemicon F1904** MW 120k Purified | Extracellular matrix protein

### Fibronectin, Cell Binding Fragment

**USBio F4310** Human serum MW ~110k Single band on SDS-PAGE; lyophilized from 0.02 M Tris, pH 7.4, 0.15 M NaCl | Exists in 3 forms: a soluble dimeric form (plasma fibronectin), oligomers which are transiently attached to the cell surface (cell-surface fibronectin) & highly insoluble fibrils in the extracellular matrix (matrix fibronectin); the 110kD cell-binding fragment serves as a good substrate for cells that attach via the α5β1 integrin receptor & other integrin receptors that recognize the Arg-Gly-Asp sequence; does not contain the Hep-2/CS1 region recognized by α4β1 integrin

### Fibronectin, Cellular

**Calbiochem 341658** Mouse fibroblast MW 550k Solid lyophilized from 100 mM NaCl, 50 mM sodium phosphate buffer, pH 7.5 | *Merck Index*, 12: 4119; Krejci, K & Fritz, H, *FEBS Lett*, 64: 152, 1976

### Fibronectin, Heparin Binding

**Chemicon F1903** MW 40k Purified | Extracellular matrix protein

### Fibronectin-Like Engineered Protein Polymer

**Sigma F 5022** MW 72,738 (gene sequence), ~110k (SDS-PAGE) Lyophilized polymer supplied with diluent in separate vial; diluent contains 4.5 M LiClO<sub>4</sub>; sterilized by autoclaving; cell culture tested | Recombinant polymer that incorporates multiple copies of the RGD attachment ligand of human fibronectin interspaced between repeated structural peptide units; U.S. Patent No. 5,514,581

### Fibronectin-Like Engineered Protein Polymer Plus

**Sigma F 8141** Lyophilized; sterilized by autoclaving; cell culture tested | A positively charged water soluble recombinant polymer similar to Sigma F 5022; U.S. Patent No. 5,514,581

### Fibronogen

**Calbiochem 341573** Bovine plasma MW 330k Solid lyophilized from 150 mM NaCl, 20 mM citrate, 10 mM phosphate buffer, pH 7.4; clottable proteins: >95%; purity homogenous (SDS-PAGE); soluble in water | Plasma glycoprotein synthesized & secreted by hepatic parenchymal cells; *Merck Index*, 12: 4116

**Calbiochem 341576** Human plasma MW 341k Solid lyophilized from 150 mM NaCl, 20 mM citrate, 10 mM phosphate buffer, pH 7.4; clottable proteins: >90%; purity homogenous (SDS-PAGE); soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Plasma glycoprotein, essential for clotting of blood, synthesized & secreted by hepatic parenchymal cells; *Merck Index*, 12: 4116

### Fibronogen Fragment D

**Calbiochem 341600** Human plasma MW 85k Lyophilized from 150 mM NaCl, 400 mM glycine; single-band purity (SDS-PAGE); ≤1% Fragment E; soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Thermolabile fragment; complete proteolysis of single fibrinogen molecule produces two D & one E fragments; D & E fragments have no common antigenic determinants; therefore, no cross-reaction occurs

### Fibronogen Fragment E

**Calbiochem 341605** Human plasma MW 50k Lyophilized from 0.9% NaCl, 3% glycine; single-band purity (SDS-PAGE); ≤2% Fragment D (antigen determination); soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Thermostable fragment

### Fibronogen, Plasminogen Depleted

**Calbiochem 341578** Human plasma MW 341k Solid lyophilized from 150 mM NaCl, 20 mM citrate, 10 mM phosphate buffer, pH 7.4; clottable proteins: >95%; purity homogenous (SDS-PAGE); soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV

### Filamin

**Biodesign A08006C** Chicken gizzard >90%

### FK Binding Protein

**Sigma F 5398** Human recombinant, expressed in *E. coli* Enzyme which catalyzes cis-trans isomerization of X-Pro peptide bonds (ie a peptidyl prolyl isomerase) in synthetic substrates; FK binding protein characterized by binding to, & inhibition by, the immunosuppressant, FK-506; Fischer, G et al, *Biomed Biochim Acta*, 43: 1101, 1984; Handschumacher, RE et al, *Science*, 226: 544, 1984

### Flagellin Antigen, *Helicobacter pylori*

**IBT HPA-5040-4, HPA-5040-5** *E. coli* MW 50k >92%; .50 mg/mL solution 0 in PBS, 0.1% SDS, 1 mM EDTA, pH 7.4 | Covers Met<sup>1</sup> to Thr<sup>511</sup> of *H. pylori* flagellin antigen

### Flavordin Disintegrin

**Sigma F 0412** *Trimeresurus flavoviridis* >95% (SDS-PAGE); lyophilized; sterilized by  $\gamma$ -irradiation | Disintegrins represent a novel family of integrin  $\beta 1$  &  $\beta 3$  inhibitor proteins isolated from viper venoms; low molecular weight, cysteine-rich peptides containing the Arg-Gly-Asp (RGD) sequence; the most potent known inhibitors of integrin function; they interfere with cell adhesion to the extracellular matrix including adhesion of melanoma cells & fibroblasts to fibronectin & are potent inhibitors of platelet aggregation

### Flt-3 Ligand

*Synonyms:* Flk-2 Ligand

**Biodesign A52019H** *E. coli* MW 17.6k Purified

**Chemicon GF038** Human  $\geq 95\%$

**BioSource International PHC1124** Human recombinant

**ICN 195004** Human recombinant, expressed in *E. coli* MW 17k Lyophilized

**PeproTech 300-19** Human recombinant, expressed in *E. coli* MW 17.6k >98%; 155 AA; lyophilized with no additives; ED<sub>50</sub>: 1.0-5.0 ng/mL as determined by the stimulation of Balb/c bone marrow cells that have been depleted of T cells & B cells

### Flt-3 Ligand 78

*Synonyms:* Tyrosine II Ligand, Fms-Like

**Biogenesis 0100-0140** Human r-DNA Lyophilized

### Flt-3/Flk-2 Ligand

**Sigma F 3422** Human recombinant, expressed in NSO cells Lyophilized from 40% acetonitrile/0.1% TFA containing 0.25 mg BSA; cell culture tested; endotoxin tested

### Folate Binding Protein

**Fitzgerald 30-AF20** Bovine High purity

**USBio F5750** Bovine  $\geq 98\%$ ; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~1-2 mg/mL supplied in PBS buffer containing 0.1 M sodium phosphate, 0.03 M NaCl, pH 7.5 | Suitable for antigenic applications in immunological protocols

**Biogenesis 4550-1004** Bovine milk Liquid

**Fluka 47605** Bovine milk ~30% protein; binding capacity: 1  $\mu$ g protein binds ~2 mg folic acid at pH 7.5, 25°C

**Sigma F 0504** Bovine milk Purified over 1000 fold; lyophilized powder containing ~30% protein (modified Warburg-Christian); balance primarily buffer salt as sodium citrate; may contain trace BME; binding capacity: 1 mg protein binds 1.0-3.0  $\mu$ g of folic acid at 25°C at pH 7.5; 1 mg protein sufficient for ~4000 folate assays | May also bind N-methyltetrahydrofolic acid & other folate analogues; this protein may be used to replace the crude preparations previously used as the source for this binding ligand in radioassays for serum folate; Waxman, S et al, *Blood*, 38: 219, 1971; Rothenberg, SP et al, *New England J Med*, 286: 1335, 1972; Dunn, RT & Foster, LB, *Clin Chem*, 19: 1101, 1973

**Cortex CP8104** Human >95%

### Follicle Stimulating Hormone

**Cortex CP1027** >95%

**Cortex CP1027P** >40%

**Cortex CP1027U** >98%

**USBio F5900-32** Bovine  $\geq 98\%$  (SDS-PAGE); bovine TSH: <0%, bovine LH: <0%, bovine GH: <0%, bovine PrL: <0%;  $\geq 2$  IU/mg (25 mg/vial); lyophilized | Suitable for antigenic applications in immunological protocols

**Biogenesis 4561-6604** Bovine pituitary MW 34k <1% bLH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized

**Fitzgerald 30-AF28** Bovine pituitary Immunization grade

**Biogenesis 4561-6804** Equine pituitary MW 34k  $\leq 1\%$  eLH/eTSH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 4560-6104** Human pituitary Lyophilized

**Biogenesis 4560-6139** Human pituitary Tested negative for HCV, HIV-1 and HIV-2 antibodies and HBsAg; semi-pure; 210 IU/vial hLH, 230 mIU/vial hTSH; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 4560-6204** Human pituitary MW 34k 3000 IU/mg; <1% hLH/hTSH/hCG, <0.1% hGH, <0.01% hPRL; tested negative for HBsAg, HCV, HIV 1 and HIV 2; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 4560-6404** Human pituitary

**Calbiochem 869001** Human pituitary MW 35.5k Iodination grade; lyophilized solid; immunopotency:  $\geq 2000$  IU/mg (WHO 1<sup>st</sup> IRP 69/104); soluble in water; hLH, hTSH:  $\leq 0.5\%$ ; hCG:  $\leq 0.1\%$ ; negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Two-chain glycoprotein gonadotropin hormone that induces maturation of the Graafian follicles of the ovary; Promotes the development of germinal cells in males; FSH regulates Sertoli cells by acting on G-protein-linked cell surface FSH receptors; activates cytosolic soluble protein tyrosine kinase (CyPTK); *Merck Index*, 12: 4299; Costicci, N et al, *Endocrinology*, 136: 4705, 1995

**Sigma F 4021** Human pituitary RIA activity: ~7000 IU/mg based on IRP 68/140; also contains 0.1 mg salts from 0.05 M phosphate buffer, pH 7.4 | Two-chain glycoprotein hormone;  $\alpha$ -chain isn't active, biological specificity is attributed to the  $\beta$ -chain; induces maturation of Graafian follicles of the ovary; promotes development of germinal cells in males; activates cytosolic tyrosine kinase; bioassay not run by Sigma

**Biogenesis 4561-7004** Ovine pituitary MW 34k <2% ovine LH, <1% ovine PRL; purified; essentially salt free; lyophilized

**Biogenesis 4561-7204** Porcine pituitary MW 34k <0.3% pPRL, <0.2% pLH/pTSH, <0.1% pGH; purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized | Closset & Hennen, *Eur J Biochem*, 86:105, 1978

**Calbiochem 344115** Porcine pituitary MW 36k Lyophilized solid; FSH/LH ratio: 500:1 (RIA); 1 U = activity in 1 U of the NIH FSH S1 standard; harmful: LD<sub>50</sub>  $\leq 2000$  mg/kg; may be carcinogenic/teratogenic | *Merck Index*, 12: 4299

**Sigma F 2293** Porcine pituitary 50 units/vial by the Steelman-Pohley assay using the Armour FSH Standard G-94 | Steelman, SL & Pohley, FM, *Endocrinology*, 53: 604, 1953

**Biogenesis 4561-7404** Rat pituitary <1.0% rLH/rTSH, <0.1% rPRL/rGH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Boujon et al, *J Comp Path*, 109:163, 1993

**Sigma F 4520** Sheep pituitary 50 units/vial by the Steelman-Pohley assay using NIH-FSH-S17 reference standard; Steelman, SL & Pohley, FM, *Endocrinology*, 53: 604, 1953 | Two-chain glycoprotein hormone;  $\alpha$ -chain isn't active, biological specificity is attributed to the  $\beta$ -chain; induces maturation of Graafian follicles of the ovary; promotes development of germinal cells in males; activates cytosolic tyrosine kinase; bioassay not run by Sigma

### Follicle Stimulating Hormone, Intact

**USBio F5900-25** Human  $\geq 98\%$  (SDS-PAGE); hLH <1.0%, hTSH <0.2%, hCG, hGH, hPrL <0.1%;  $\geq 3800$  IU/mg (2nd IRP 78/549, WHO); lyophilized from human pituitary glands; highly purified | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AF25** Human pituitary Standard purity

**USBio F5900-24** Human pituitary ~95% (SDS-PAGE); hLH  $\leq 1.0\%$ , hTSH  $\leq 1.0\%$ , hCG/hGH/hPrL  $\leq 0.01\%$ ;  $\geq 1000$  IU/mg (2nd IRP 78/549, WHO); lyophilized in 50 mM ammonium bicarbonate | Suitable for antigenic applications in immunological protocols

**USBio F5900-23** Human pituitary glands  $\geq 99\%$  (SDS-PAGE); hLH <1.0%, hTSH <0.5%, hCG/hGH/hPrL <0.1%; 4400 IU/mg; lyophilized from 0.05 M ammonium bicarbonate; affinity purified | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AF31** Postmenopausal urine High purity

### Follicle Stimulating Hormone, $\alpha$ -

**Biogenesis 4561-6629** Bovine pituitary Purified; lyophilized

**USBio F5900-27** Human  $\geq 98\%$  (SDS-PAGE); hFSH beta: <2%; lyophilized | Suitable for antigenic applications in immunological protocols

## Proteins

<b>Fitzgerald 30-AF40</b>	Human pituitary	Affinity purity
<b>Biogenesis 4561-7054</b>	Ovine pituitary	Lyophilized
<b>Biogenesis 4561-7229</b>	Porcine pituitary	Purified; lyophilized
<b>Biogenesis 4561-6649</b>	Bovine pituitary	Purified; lyophilized
<b>Biogenesis 4560-8204</b>	Human pituitary	MW 18.5k Tested negative for HBsAg and HTLV III antibody; <i>Endocrinology</i> , (1984) 114, 2223-2227; purified; from 0.05 M $\text{NH}_4\text{HCO}_3$ , pH 8.0, essentially salt free; lyophilized
<b>Fitzgerald 30-AF45</b>	Human pituitary	Affinity purity
<b>USBio F5900-29</b>	Human pituitary glands	$\geq 98\%$ by HPLC; hFSH Alpha: $<0.13\%$ ; hLH $<0.2\%$ ; lyophilized in 50 mM ammonium bicarbonate   Suitable for antigenic applications in immunological protocols
<b>Biogenesis 4561-7084</b>	Ovine pituitary	Lyophilized
<b>Biogenesis 4561-7249</b>	Porcine pituitary	Purified; lyophilized

### Forskolin

**USBio F6025**  $>99\%$  by HPLC; lyophilized; soluble in DMSO (5 mg/mL) & ethanol (6 mg/mL), insoluble in water | Forskolin is an activator of adenylate cyclase,  $\text{EC}_{50}=4\text{mM}$ , leading to an increase in the intracellular concentration of cAMP

### Fractalkine

*Synonyms:* CX3C

**Biodesign A52331H** *E. coli* MW 8.5k Purified | Chemokine

**PeptoTech 300-31** Human recombinant, expressed in *E. coli* MW 8.5k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Member of the newly discovered CX3C family of chemokines which contains both chemokine & mucin domain; 76 AA, comprising only the chemokine domain of Fractalkine; SA determined by its ability to chemoattract human T cells

### Fyn

**USBio F9500-06** Bovine thymus membrane SA: 1 U/ $\mu\text{L}$ ; essentially free of other protein kinase contamination; frozen solution in 0.1% NP-40 with 10% glycerol | Transfers PO-2kinase to cdc2 (6–20) peptide; useful in the Protein Kinase Assay or to prepare phosphotyrosyl peptides; partially purified by DEAE-sepharose, hydroxyapatite & phenyl sepharose columns, followed by Sephacryl S-200 gel filtration

### F- $\beta$ 1 Cytokine

*Synonyms:* Transforming Growth Factor  $\beta$ 1

**Alexis BMS307** Human recombinant  $>98\%$  (SDS-PAGE & HPLC); 1  $\mu\text{g}$  lyophilized from 5 mM HCl containing 10  $\mu\text{g}$  BSA; biological activity: stimulates the anchorage independent colony formation of NRK49F cells in soft agar at 0.1–2.0 ng/mL, in the presence of 2 ng/mL of EGF or TGF- $\beta$  | Produced by culturing 293 (transformed primary human embryonal kidney) cells transfected with a recombinant plasmid containing the hTGF- $\beta$ 1 cDNA; inhibits the growth of epithelial cells (e.g. hepatocytes or mink lung cells)

### G Protein, G $\alpha$

**Chemicon GPR002** Recombinant  $\geq 95\%$  | Purified protein for apoptosis & signal transduction

### G Protein, G $\beta\gamma$ Dimer

**Chemicon AG600** Bovine brain  $\geq 95\%$  | Purified protein for apoptosis & signal transduction

### Galactosidase, $\beta$ -

**Sigma G 7279** *E. coli* MW 116k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

### Galaptin

**Sigma G 8777** Bovine spleen Lyophilized containing  $\sim 10\%$  protein (Bradford); balance NaCl, Tris buffer salts & DTT | Lectin; endogenous mammalian galactoside-binding lectin; allen, HJ et al, *Arch Biochem Biophys*, 256: 523, 1987

### Gamma Globulin

**USBio G2000** Bovine Total protein  $>95\%$ ; heavy metals:  $<500$  ppm; moisture: 3.0 %; pH (1.0%, 0.15 M NaCl): 7.1; lyophilized | Suitable for antigenic applications in immunological protocols;

### Gamma Globulin Fraction II

**USBio G2000-10** Human Manufactured from human plasma collected & tested in the US.

### GCP-2

**Biodesign A52041H** *E. coli* Purified

**Chemicon GF063** Human  $\geq 95\%$

**PeptoTech 300-41** Human recombinant, expressed in *E. coli*  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Member of the CXC family of chemokines; promotes neutrophil chemotaxis & degranulation; 73 AA; SA determined by its ability to chemoattract human neutrophils

### Gelatin

**Fluka 04055** Porcine skin Powder;  $\leq 15\%$  loss on drying;  $\leq 2\%$  residue on ignition;  $\leq 0.005\%$  heavy metals;  $\leq 0.02\%$   $\text{SO}_2$ ;  $\leq 0.01\%$  peroxides;  $\leq 0.0001\%$  As

### Gelatin, Agarose

**ICN 191300** 5 atoms hydrophilic spacer arm; 3–6 mg gelatin/mL gel; suspension in PBS, 0.02%  $\text{NaN}_3$  | Fibronectin applications

### Gelatin, Amplification Grade

**Amersham US70086** Porcine skin Enzyme stabilizer; functionally tested in PCR

### Gelatin, European Pharmacopoeia

**Fluka 18808** White, foil, "Gold" | Meets analytical specification of European Pharmacopoeia

**Fluka 33223** Foil;  $\leq 15\%$  loss on drying;  $\leq 2\%$  residue on ignition;  $\leq 0.005\%$  heavy metals;  $\leq 0.02\%$   $\text{SO}_2$  | Meets European Pharmacopoeia for bacteriology

**Fluka 48723** Gelatina | Conforms to European Pharmacopoeia

### Gelatin, Glycerol-

**Fluka 49927** Porcine skin 88.7 g/L gelatin from porcine skin, 554 mL/L glycerol, 10.8 g/L phenol | For mounting histochemical slides

### Gelatin, High Gel Strength

**Fluka 48724** Porcine skin 250 g Bloom; 240–270 g Bloom gel strength;  $\leq 15\%$  loss on drying;  $\leq 2\%$  residue on ignition;  $\leq 0.005\%$  Fe, Cu;  $\leq 0.2\%$  Cl, Ca, Na;  $\leq 0.001\%$  Cr, Zn;  $\leq 0.0005\%$  Cd, Co, Mn, Ni, Pb;  $\leq 0.05\%$  K, Mg | For microbiology; Busk Jr, GC, *Food Tech*, 38: 59, 1984; Kozlov, PV & Burdygina, GI, *Polymer*, 24: 651, 1983

### Gelatin, Low Gel Strength

**Fluka 48719** Porcine skin 80 g Bloom; 70–90 g Bloom gel strength;  $\leq 15\%$  loss on drying;  $\leq 2\%$  residue on ignition;  $\leq 0.005\%$  Fe, Cu;  $\leq 0.2\%$  Cl, Ca, Na;  $\leq 0.001\%$  Cr, Zn;  $\leq 0.0005\%$  Cd, Co, Mn, Ni, Pb;  $\leq 0.05\%$  K, Mg | For microbiology

**Fluka 48720** Porcine skin 60 g Bloom; 60-80 g Bloom gel strength; ≤15% loss on drying; ≤2% residue on ignition; ≤0.005% Fe, Cu; ≤0.2% Cl, Ca, Na; ≤0.001% Cr, Zn; ≤0.0005% Cd, Co, Mn, Ni, Pb; ≤0.05% K, Mg | For microbiology

#### Gelatin, Medium Gel Strength

**Fluka 48722** Porcine skin 180 g Bloom; 170-190 g Bloom gel strength; ≤15% loss on drying; ≤2% residue on ignition; ≤0.005% Fe, Cu; ≤0.2% Cl, Ca, Na; ≤0.001% Cr, Zn; ≤0.0005% Cd, Co, Mn, Ni, Pb; ≤0.05% K, Mg | For microbiology; Levine, M & Carpenter, DC, *J Bact*, 8: 297, 1923

#### Gelatin, Medium Inositol

**Fluka 17155** Composition: 120 g/L gelatin, 5 g/L yeast extract, 5 g/L disodium hydrogen phosphate, 10 g/L inositol, 0.05 g/L phenol red | For cultivation of *Plesiomonas shigelloides* from foods

#### Gelatin, Phosphate Buffer

**Fluka 48726** 4 g/L Sodium dihydrogen phosphate & 2 g/L gelatine, pH 6.2 | For microbiology; for qualitative toxin detection in food products eg. when *Cl botulinum* is suspected; Rose, SA et al, *J Appl Bact*, 65: 223, 1988

#### Gelatin, Phosphate Salt/Agar

**Fluka 17149** 10 g/L Gelatin, 10 g/L NaCl, 5 g/L dipotassium phosphate & 15 g/L agar, pH 7.2 | GPS Agar; for microbiology; for characterization of *Vibrio cholerae* from food

#### Gelatin, Salt/Agar

**Fluka 17150** 15 g/L Gelatin, 30 g/L NaCl, 4 g/L peptic digest of animal tissue, 1 g/L yeast extract & 15 g/L agar, pH 7.2 | For microbiology; for the cultivation & differentiation of *Vibrio* species from food

#### Gelatin, Teleostean

**Sigma G 7765** Cold water fish skin ~45% aqueous solution with 0.15% propyl *p*-hydroxybenzoate & 0.2% methyl *p*-hydroxybenzoate as preservatives

#### Gelatin, Type A

*Synonyms:* Prionex

**ICN 960102** Food grade; flaked 50 bloom

**ICN 960317** Food grade; 100 Bloom

**Sigma G 0411** Highly purified; aqueous solution containing ~10% protein (Biuret); aseptically processed | Protein stabilizer offered as an alternative to BSA & HSA

**ICN 901771** Bovine skin Food grade; 225 bloom

**Sigma G 1890** Porcine skin ~300 Bloom; derived from acid-cured tissue; cell culture tested | The higher the Bloom number the stronger the gel; type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 2500** Porcine skin ~300 Bloom | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 2625** Porcine skin ~175 Bloom | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 6144** Porcine skin ~75-100 Bloom | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 8150** Porcine skin ~300 Bloom; protease: None detected | Useful as a blocking reagent for Western blots

**Sigma G 9136** Porcine skin ~300 Bloom; lyophilized; sterilized by  $\gamma$ -irradiation; derived from acid-cured tissue; cell culture tested | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

#### Gelatin, Type B

**Sigma G 1393** Bovine skin 2% Solution; prepared in tissue culture grade water; derived from lime-cured tissue; sterilized by autoclaving; endotoxin tested; cell culture tested | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 6650** Bovine skin ~75 Bloom | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 9382** Bovine skin ~225 Bloom | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

**Sigma G 9391** Bovine skin ~225 Bloom; derived from lime-cured tissue; cell culture tested | The higher the Bloom number the stronger the gel; Type A is derived from acid-cured tissue, Type B from lime-cured tissue

#### Gelonin

**Sigma G 2394** *Gelonium multiflorum* Lyophilized powder containing ~90% protein ( $E_{280}$  at 1% = 6.7); balance primarily NaCl & sodium phosphate buffer salts | Ribosome inactivating protein; Stirpe, F et al, *J Biol Chem*, 255: 6947, 1980; Stirpe F & Barbieri, L, *FEBS Lett*, 195: 1, 1986

#### Gelsolin

**Biogenesis 4628-4030** Bovine plasma 5% protein, remainder buffer salts; purified; NaCl, Tris buffer salt & EGTA; lyophilized

**Sigma G 8032** Bovine plasma >95% (SDS-PAGE); lyophilized powder containing ~5% protein; balance NaCl, Tris buffer salt & EGTA; activity: 20-100 U/mg protein; 1 U reduces viscosity difference between actin solution & buffer by 50% in a 1 mL mixture containing 1-2 mg F-actin, 0.15 M KCl, 20 mM Tris, pH 7.6, 0.2 mM  $CaCl_2$ , 0.2 mM ATP & 1 mM DTT at 28°C | Actin-severing protein found in mammalian cells & blood plasma; reported to decrease the viscosity of cystic fibrosis sputum samples *in vitro* & to suppress human bladder cancer; Wen, D et al, *Biochemistry*, 35: 9700, 1996; Vasconcellos, CA et al, *Science*, 263: 969, 1994; Tanaka, M et al, *Cancer Res*, 55: 3228, 1995

**Sigma G 1538** Human plasma ~90% (SDS-PAGE); lyophilized powder containing ~10% protein (TCA-Lowry); balance Tris buffer salts, pH 7.6, NaCl, DTT & EGTA; activity: 100-300 U/mg protein; 1 U reduces viscosity difference between actin solution & buffer by 50% in a 1 mL mixture containing 1-2 mg F-actin, 0.15 M KCl, 20 mM Tris, pH 7.6, 0.2 mM  $CaCl_2$ , 0.2 mM ATP & 1 mM DTT at 28°C | Actin-severing protein found in mammalian cells & blood plasma; reported to decrease the viscosity of cystic fibrosis sputum samples *in vitro* & to suppress human bladder cancer; Wen, D et al, *Biochemistry*, 35: 9700, 1996; Vasconcellos, CA et al, *Science*, 263: 969, 1994; Tanaka, M et al, *Cancer Res*, 55: 3228, 1995

#### Gelsolin, FITC Conjugated

**Sigma G 1158** Bovine plasma >95% (SDS-PAGE); lyophilized powder containing ~5% protein (Lowry); balance NaCl, Tris buffer salt & EGTA; prepared form gelsolin purified from bovine plasma; 2-6 moles FITC/mole protein

#### GITR Ligand

*Synonyms:* TNFRSF18

**R&D Systems 694-GL-025** SF21-Expressed 97%; lyophilized | Species specificity: human GITR ligand

#### Gliadin

**ICN 101778** Wheat gluten A prolamin

**Sigma G 3375** Wheat gluten Crude

#### Glial Fibrillary Acidic Protein

**ICN 771062** MW 52k Highly purified | High MW marker, standard or antigen for various research purposes

**Biodesign A08007B** Bovine spinal cord Purified

**Biodesign A86823H** Human brain Purified

## Proteins

**Calbiochem 345996** Human brain MW 55k ≥90% (SDS-PAGE); lyophilized solid; soluble in water; prepared from tissue of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | Marker of sclerotic plaques in brain & gliosed brain; component of astroglial intermediate filaments; Liem, RK & Hutchison, SB, *Biochemistry*, 21: 3221, 1982; Massod, K et al, *J Neurochem*, 61: 160, 1993; Dahl, D, *Brain Res*, 57: 343, 1973

**Biogenesis 4650-0717** Human normal brain MW 43-49k (several bands) Tested negative for antibodies to HIV 1 and 2, and HBsAg; purified; sodium phosphate 2.0 mM, 1.33 M urea, 27 mM sodium bicarbonate pH 8.5; liquid | Dahl, *Brain Res*, 57:343, 1973; Liem, *Biochem*, 21:3221, 1982

### Globin

**Sigma G 3633** Human hemoglobin Dialyzed & lyophilized; A<sub>405</sub>/A<sub>280</sub> ~0.1; recombines with hematin in the presence of 0.1 M Tris, pH 11.0 | Ascoli, F et al, *Meth Enzymol*, 76: 75, 1981

### Globin, Gc-

**ICN 153573** Human plasma MW 52k >98%; mixed type; lyophilized

### Globulin

**Sigma EG** Chicken egg white Contains several globulins as demonstrated by strip electrophoresis; substantially free of albumin

**Sigma G 3884** *Cucurbita pepo* (pumpkin) 2X Crystallized & lyophilized | Possible substitute for edestin (a globulin from hemp seed)

### Globulin Cohn Fraction II&III

**Sigma G 2263** Bovine Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily β- & γ-globulins

**Sigma G 6765** Dog Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins

**Sigma G 5640** Goat Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins

**Sigma G 6015** Horse Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins; remainder mostly β-globulins

**Sigma G 2388** Human Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ- & β-globulins | Source material negative for HIV & HBsAg

**Sigma G 4390** Pig Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins

**Sigma G 4765** Rabbit Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins

**Sigma G 4890** Rat Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily β- & γ-globulins

**Sigma G 4265** Sheep Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; primarily γ-globulins

### Globulin Cohn Fraction II, γ-

**Fluka 49030** Bovine blood MW 150k ≥95% (GE); ≤5% loss on drying; ≤2% residue on ignition

### Globulin Cohn Fraction III

**Sigma G 4633** Bovine Lyophilized powder containing ~75% protein (Biuret); balance primarily NaCl; predominantly β- & γ-globulins; plasminogen activity

**Sigma G 6763** Human Predominantly β- & γ-globulins; plasminogen activity | Source material negative for HIV & HBsAg

### Globulin Cohn Fraction IV

**Sigma G 9762** Bovine Coprecipitation of Cohn Fractions IV-1 & IV-4; predominantly α- & β-globulins; remainder ~30% albumin

### Globulin Cohn Fraction IV-1

**Sigma G 8512** Bovine Predominantly α-globulins

**Sigma G 7015** Dog Predominantly α-globulins

**Sigma G 5390** Goat Predominantly α-globulins

**Sigma G 5765** Horse Predominantly α-globulins

**Sigma G 2011** Human Predominantly α-globulins | Source material negative for HIV & HBsAg

**Sigma G 6140** Pig Predominantly α-globulins

**Sigma G 5140** Rat Predominantly α-globulins

### Globulin Cohn Fraction IV-4

**Sigma G 8637** Bovine Predominantly α- & β-globulins; remainder ~30% albumin

**Sigma G 6890** Dog Predominantly α- & β-globulins

**Sigma G 5890** Horse Predominantly α- & β-globulins

**Sigma G 3387** Human Coprecipitation of Cohn Fractions IV-1 & IV-4; predominantly α- & β-globulins

**Sigma G 3637** Human Predominantly α- & β-globulins | Source material negative for HIV & HBsAg

**Sigma G 6265** Pig Predominantly α-globulins

**Sigma G 4640** Rabbit ~50% α- & β-globulins; remainder mostly albumin

**Sigma G 5015** Rat Predominantly α-globulins

**Sigma G 4140** Sheep Predominantly β-globulins

### Globulin Fraction II, γ-

**Fluka 49000** Human blood MW 150k ≥98% (GE); stabilized with 10% glycine; ≤1% residue on ignition

### Globulin, (Me-<sup>14</sup>C)-

**ARC ARC-428** MW 150k Methylated; 30-60 μCi/mg; 0.11-1.11 MBq/mmol; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical; dissociates into subunits of ~22.5 & 53 k Da under reducing conditions

### Globulin, Corticosteroid Binding

**Sigma G 2653** Human plasma MW 56k Lyophilized from 1.25 mM sodium phosphate, pH 7.4, containing 0.05% sodium azide | Glycosylated β-globulin present in serum that regulates the concentration of glucocorticoids & progesterone; Heyns, W, *Adv Steroid Biochem*, 6: 59, 1977; Ghose-Dastidar, J et al, *Proc Natl Acad Sci (USA)*, 88: 6408, 1991

### Globulin, Cortisol Binding

**Cortex CP3040U** >98%

### Globulin, Gc-

*Synonyms:* Vitamin D Binding Protein

**Sigma G 8764** Human plasma ~90% (SDS-PAGE); salt-free lyophilized powder | Group specific component

### Globulin, Sex Hormone Binding

**Cortex CP2020** Human >95%

**Cortex CP2020P** Human >40%

**Sigma G 2778** Human plasma MW 94k Solution in 50 mM Tris, pH 7.4, containing 50 mM calcium, 10% glycerol & 0.01% sodium azide | Produced in the liver that has a high affinity binding site for androgens & estrogens; Heyns, W, *Adv Steroid Biochem*, 6: 59, 1977

**Biodesign A86849H** Human pregnancy serum >90%

### Globulin, Thyro-

**Cortex CP1028** >95%

**Cortex CP1028U** >98%



<b>Fluka 89385</b>	Bovine thyroid glands	MW 660k	≥98% (GE); ≤2% γ-globulin; 0.7% iodine   Iodinated precursor protein of the thyroid hormones; Rawitch, AB et al, <i>JBC</i> , 258: 2079, 1983; Mercken, L et al, <i>Nature</i> , 316: 647, 1985
<b>Fluka 89387</b>	Porcine thyroid glands	≤4% Residue on ignition; 1% iodine	

#### Globulin, Thyroxine Binding

<b>Cortex CP1025</b>	>95%		
<b>Cortex CP1025P</b>	>40%		
<b>Fitzgerald 30-AT30</b>	Human serum	High purity	
<b>Fitzgerald 30-AT35</b>	Human serum	Standard purity	

#### Globulin, α-

<b>ICN 823064</b>	Human plasma	80% protein (nitrogen analyzer); prepared as Cohn Fraction IV	
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#### Globulin, αI Micro

<b>Cortex CP1021</b>	>95%		
<b>Cortex CP1021P</b>	>40%		

#### Globulin, αII Micro

<b>Cortex CP3005</b>	>95%		
<b>Cortex CP1022</b>	Human	>95%	
<b>Cortex CP1022P</b>	Human	>40%	
<b>Cortex CP1022U</b>	Human	>98%	

#### Globulin, β-Thrombo

<b>Cortex CP3097U</b>	Human	>98%	
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#### Globulin, γ-

<b>ICN 55847</b>	Bovine	Purified	
<b>Sigma G 5009</b>	Bovine	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; <4% NaCl	
<b>ICN 191478</b>	Bovine plasma	98%; white crystalline; lyophilized	
<b>ICN 820412 ICN 820412</b>	Bovine plasma	>98%; analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II;   Used as a co-precipitant in RIA methods employing PEG or (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> precipitation procedures; also ideal as a starting material for isolation of bovine IgG subclasses	
<b>ICN 820423 ICN 820421</b>	Bovine plasma	>98%; analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II; labile enzyme free   Used as a co-precipitant in RIA methods employing PEG or (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> precipitation procedures; also ideal as a starting material for isolation of bovine IgG subclasses	
<b>Sigma G 7516</b>	Bovine plasma	Electrophoretic purity ~99%; <5% NaCl	
<b>Sigma G 4904</b>	Bovine serum	16% Solution; ~0.85% NaCl & 0.1% sodium azide as preservative; no stabilizers added	
<b>Sigma G 7515</b>	Cat	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; 2-4% NaCl	
<b>ICN 55851</b>	Goat	Purified	
<b>Sigma G 9513</b>	Goat	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; 2-4% NaCl	
<b>ICN 191479</b>	Goat plasma	95%; white crystalline; lyophilized	
<b>Sigma G 2638</b>	Guinea pig	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; may contains ≤6% NaCl	
<b>ICN 822041</b>	Guinea pig plasma	>90%; analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II; lyophilized, low salt	
<b>Sigma G 2387</b>	Horse	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; 2-4% NaCl	
<b>ICN 55838</b>	Human	Purified antigen; lyophilized	
<b>Sigma G 4386</b>	Human	Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; <4% NaCl   Source material negative for HIV & HBsAg	

**ICN 823101 ICN 823102** Human plasma >95%; analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II

**ICN 55861** Mouse Purified antigen; lyophilized

**Sigma G 9894** Mouse Prepared from Cohn Fraction II, III; electrophoretic purity ≥90%; ≤4% NaCl

**ICN 191480** Mouse plasma ≥90%; white crystalline; lyophilized

**ICN 823541** Mouse plasma >90% analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II

**Sigma G 2512** Pig Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; 2-4% NaCl

**ICN 55867** Rabbit Purified

**Sigma G 0261** Rabbit Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; <4% NaCl

**ICN 191481** Rabbit plasma ≥98%; white crystalline; lyophilized

**ICN 824551** Rabbit plasma >90% analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II

**Sigma G 2018** Rabbit plasma Electrophoretic purity ~99%; <5% NaCl

**ICN 55871** Rat Purified

**Sigma G 2885** Rat Prepared from Cohn Fraction II, III; electrophoretic purity ~98%; 2-4% NaCl

**ICN 825041** Rat plasma >90% analyzed by cellulose acetate electrophoresis; prepared as Cohn Fraction II

**Sigma G 9887** Sheep Prepared from Cohn Fraction II, III; electrophoretic purity ~99%; <4% NaCl

#### Globulin, γ-(<sup>14</sup>C-Me)-

**Sigma G 0647** Bovine plasma MW ~150k (subunit MW 23k & 50k) 5-50 μCi/mg protein; solution in 10 mM sodium phosphate, pH 7.0, containing 0.1% NaCl, in serum bottle | Radiochemical; prepared from Sigma G 7516

#### Glucagon

<b>Sigma G 3157</b>	Porcine pancreas	FW 3482.8	Sterilized by γ-irradiation; cell culture tested
<b>Sigma G 9154</b>	Porcine pancreas	FW 3482.8	Cell culture tested

#### Glucose Dependent Insulinotropic Hormone

**Biogenesis 4665-6404** Porcine synthetic Purified; lyophilized

#### Glucose Oxidase

**Sigma G 7146** *Aspergillus niger* pI 4.2; vial contains ~2 mg | IEF Marker

#### Glucose Regulating Protein 78

**Sigma G 1285** Hamster recombinant, expressed in *E. coli* Solution in 37 mM Tris-HCl, pH 7.5, containing 37 mM NaCl

#### Glutathione S-Transferase Tag

*Synonyms:* GST Tag

**Upstate 12-350** *E. coli* MW 26k Frozen solution | Fusion protein tag; purified from *E. coli* lysate by glutathione-agarose chromatography

#### Gluten

<b>ICN 101815</b>	Wheat	12.3% total N; ~80% protein	
<b>Sigma G 5004</b>	Wheat	Crude; ~80% protein 7% fat	

#### Glycogen Phosphorylase Isoenzyme BB

**USBio G8170-05** Human ≥95%; no contaminants detected; 1 mg/mL liquid in glycerol buffer, 1 mM β-glycerophosphate, 1 mM EDTA, 0.5 M NaCl, pH 7.8 | Suitable for antigenic applications in immunological protocols; single band by SDS-PAGE, IEP, &/or RID

## Proteins

### Glycohemoglobin Control-E

**Sigma G 1012** Human blood Elevated; assayed, freeze-dried preparations of stabilized human blood containing glycosylated hemoglobin, Hb A<sub>1</sub> | For use as controls in the determination of Hb A<sub>1</sub> by Sigma Procedure No. 440

### Glycohemoglobin Control-N

**Sigma G 2012** Human blood Normal; assayed, freeze-dried preparations of stabilized human blood containing glycosylated hemoglobin, Hb A<sub>1</sub> | For use as controls in the determination of Hb A<sub>1</sub> by Sigma Procedure No. 440

### Glycophorin, Blood Type B Negative

**Sigma G 9511** Human blood Lyophilized powder; predominantly glycophorin A; may produce a hazy solution in water

### Glycophorin, Blood Type MM

**Sigma G 7903** Human blood Lyophilized powder; predominantly glycophorin A

### Glycophorin, Blood Type MN

**Sigma G 5017** Human blood Lyophilized powder; predominantly glycophorin A; may produce a hazy solution in water

### Glycoprotein

**ICN 820611** Bovine albumin Isolated from albumin supernatants & prepared as Cohn Fraction VI; lyophilized; >90% by cellulose acetate electrophoresis; ~10% carbohydrate, ≥50% protein by nitrogen analyzer

### Glycoprotein 130

**ICN 195739** Human recombinant, expressed in Sf21 Soluble, ≥97%; lyophilized; ED<sub>50</sub> = 0.5-2.0 µg/mL in the presence of 10 ng/mL of IL-6 sR & 20 ng/mL of IL-6

### Glycoprotein I, β<sub>2</sub>-

**Cortex CP3094U** >98%

**Fitzgerald 30-AB23** Calf thymus High purity

**ICN 194075** Human plasma Purified, containing glycine & NaCl | Possible target of antiphospholipid Ab & a component involved in phospholipid immunogenicity in the APA syndrome; McNeal, HP et al, *PNAS*, 87:4120, 1990

### Glycoprotein, His-Rich

**ICN 194077** Human plasma Purified, containing glycine & NaCl; <0.01 PEU plasminogen & α<sub>2</sub>-antiplasmin | Non-enzymatic single-chain glycoprotein that regulates plasminogen binding to fibrin by interacting at the high-affinity Lys binding site; demonstrates an anti-inflammatory effect; Lijwen, HR et al, *JBC*, 258:3803, 1983

### Glycoprotein, Specific β-1

**USBio S5370** Human ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized in PBS buffer | Suitable for antigenic applications in immunological protocols

**Biogenesis 4732-0307** Human placental serum Lyophilized

### Glycoprotein, Tamm-Horsfall

**Cortex CP1029P** >95%

### Glycoprotein, α<sub>1</sub>-Acid

*Synonyms:* Orosomucoid

**Sigma G 3643** Bovine Purified from serum; 99%

**Sigma G 9885** Human Purified from Cohn Fraction VI; 99% | Hao, YL & Wickerhauser, M, *Biochim Biophys Acta*, 322: 99, 1973

**USBio A0550** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, RID; 1 mg/mL specific protein; lyophilized | Suitable for antigenic applications in immunological protocols

**Biogenesis 4730-2004** Human plasma Lyophilized

**Cortex CP3001U** Plasma >98%

**Sigma G 0514** Rat Purified from Cohn Fraction VI; 99%

**Sigma G 3394** Rat Purified from serum; 99%

**Sigma G 6401** Sheep Purified from Cohn Fraction VI; 99% (agarose electrophoresis)

### Glycoprotein, α<sub>2</sub>-HS

**Biodesign A50107H** Human plasma Purified

### Glycoprotein, α<sub>2</sub>-HS-

**Sigma G 0516** Human plasma ≥95% (SDS-PAGE); lyophilized from 20 mM Tris-HCl, pH 8.0 with 200 mM NaCl | Lebreton, JP et al, *J Clin Invest*, 64: 1118, 1979

### Glycoprotein, β<sub>1</sub>-

**Fitzgerald 30-AS43** Human retroplacental serum High purity

### Gonadotropin, Menopausal

**Biogenesis 6062-1009** Human urine Crude; lyophilized

### Gonadotropin, Pregnant Mare Serum

**Biogenesis 7646-0604** Equine pregnant mare serum MW 43-63k Generally 10-30%, crude preparation; essentially salt free in 50 mM bicarbonate buffer, pH 8.0; lyophilized | Contaminants are typically equine serum proteins

**Calbiochem 367222** Equine pregnant mare serum Lyophilized solid; biopotency: ≥2000 units/mg dry weight; soluble in water; may be carcinogenic/teratogenic | Complex glycoprotein with combined follicle stimulating hormone & interstitial cell-stimulating hormone action; Lapolt, PS et al, *Endocrinology*, 130: 1289, 1992; Sato, EF et al, *FEBS Lett*, 303: 121, 1992

**Biogenesis 7646-0504** Equine serum MW 43-63k Purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, essentially salt free; lyophilized | Moore et al, *JBC*, 255:6923, 1980

### Gonadotropin, α-Pregnant Mare Serum

**Biogenesis 7646-0704** Equine serum Lyophilized

**Biogenesis 7646-0804** Equine serum Lyophilized

### G-Protein G<sub>13</sub>α-Subunit, His-Tagged

**Calbiochem 371718** BHK21 cells recombinant, produced by overexpression of a full-length G<sub>13</sub>α cDNA clone in *E. coli* MW 45.2k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Participates in the regulation of cell movement as well as in development angiogenesis; useful as a positive control or to assay for cross-reactivity by Western blotting; Offermanns, S et al, *Science*, 275: 533, 1997; Strathmann, MP & Simon, MI, *PNAS*, 88: 5582, 1991

### G-Protein G<sub>i</sub>α-III-Subunit

**Calbiochem 371761** Recombinant MW 41k Immunoblot standard; liquid; partially purified by DEAE fractionation of bacterial lysate; use 10 µL/blot | Useful as a positive control or to assay for cross-reactivity with the G<sub>i</sub>α-3-subunit by Western blot

**G-Protein G<sub>i</sub>α-III-Subunit, His-Tagged**

*Synonyms:* Pertussis Toxin Substrate

**Calbiochem 371762** Rat brain recombinant, produced by overexpression of a full-length G<sub>i</sub>α-3 cDNA clone in *E. coli* MW 43.2k Immunoblot standard; ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Functions to couple the activation of receptors to the inhibition of adenylyl cyclase; ubiquitous tissue distribution; useful as a positive control or to assay for cross-reactivity by Western blotting; Simon, MI et al, *Science*, 252: 802, 1991; Jones, DT & Reed, RR, *J Biol Chem*, 262: 14241, 1987; Ioth, H et al, *PNAS*, 83: 3776, 1986

**G-Protein G<sub>i</sub>α-III-Subunit, Myristoylated**

**Calbiochem 371799** Rat recombinant MW 40,528 ≥95% (SDS-PAGE); biologically active & myristoylated preparation of G<sub>i</sub>α-3-subunit; liquid in 3 mM MgCl<sub>2</sub>, 20 mM HEPES, 100 mM NaCl, 1 mM EDTA, pH 8.0 | Functionally interacts with a variety of G<sub>i</sub>-coupled receptors including the adenosine A<sub>1</sub>, angiotensin II, 5-HT<sub>1A</sub> & 5-HT<sub>1Dβ</sub> receptors

**G-Protein G<sub>i</sub>α-II-Subunit**

**Calbiochem 371759** Recombinant MW 40k Immunoblot standard; liquid; partially purified by DEAE fractionation of bacterial lysate; use 10 μL/blot | Useful as a positive control or to assay for cross-reactivity with the G<sub>i</sub>α-2-subunit by Western blot

**G-Protein G<sub>i</sub>α-II-Subunit, His-Tagged**

*Synonyms:* Pertussis Toxin Substrate

**Calbiochem 371760** Human brain recombinant, produced by overexpression of a full-length G<sub>i</sub>α-2 cDNA clone in *E. coli* MW 41.7k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Functions in transducing extracellular signals leading to the inhibition of adenylyl cyclase & may also stimulate certain potassium channels; found in the plasma membranes of all tissues; useful as a positive control or to assay for cross-reactivity by Western blotting; Simon, MI et al, *Science*, 252: 802, 1991; Ioth, H et al, *PNAS*, 83: 3776, 1986

**G-Protein G<sub>i</sub>α-II-Subunit, Myristoylated**

**Calbiochem 371796** Rat recombinant MW 40,505 ≥90% (SDS-PAGE); biologically active & myristoylated preparation of G<sub>i</sub>α-2-subunit; liquid in 3 mM MgCl<sub>2</sub>, 20 mM HEPES, 100 mM NaCl, 1 mM EDTA, pH 8.0 | Functionally interacts with a variety of G<sub>i</sub>-coupled receptors including the adenosine A<sub>1</sub>, angiotensin II, 5-HT<sub>1A</sub> & 5-HT<sub>1Dβ</sub> receptors

**G-Protein G<sub>i</sub>α-I-Subunit**

**Calbiochem 371756** Recombinant MW 41k Immunoblot standard; liquid; partially purified by DEAE fractionation of bacterial lysate; use 10 μL/blot | Useful as a positive control or to assay for cross-reactivity with the G<sub>i</sub>α-1-subunit by Western blot

**G-Protein G<sub>i</sub>α-I-Subunit, His-Tagged**

**Calbiochem 371758** Rat brain recombinant, produced by overexpression of a full-length G<sub>i</sub>α-1 cDNA clone in *E. coli* MW 43.1k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Functions in transducing extracellular signals leading to the inhibition of adenylyl cyclase & may also stimulate certain potassium channels; found mainly in the plasma membranes of neuronal tissues; useful as a positive control or to assay for cross-reactivity by Western blotting; Simon, MI et al, *Science*, 252: 802, 1991; Jones, DT & Reed, RR, *J Biol Chem*, 262: 14241, 1987

**G-Protein G<sub>i</sub>α-I-Subunit, Myristoylated**

**Calbiochem 371793** Rat recombinant MW 40,351 ≥95% (SDS-PAGE); biologically active & myristoylated preparation of G<sub>i</sub>α-1-subunit; liquid in 3 mM MgCl<sub>2</sub>, 20 mM HEPES, 100 mM NaCl, 1 mM EDTA, pH 8.0 | Functionally interacts with a variety of G<sub>i</sub>-coupled receptors including the adenosine A<sub>1</sub>, angiotensin II, 5-HT<sub>1A</sub> & 5-HT<sub>1Dβ</sub> receptors

**G-Protein G<sub>o</sub>α-Subunit**

**Calbiochem 371767** Recombinant MW 39k-40k Immunoblot standard; liquid; partially purified by DEAE fractionation of bacterial lysate; use 10 μL/blot | Useful as a positive control or to assay for cross-reactivity with the G<sub>o</sub>α-subunit by Western blot

**G-Protein G<sub>o</sub>α-Subunit, His-Tagged**

*Synonyms:* Pertussis Toxin Substrate

**Calbiochem 371774** Rat brain recombinant, produced by overexpression of a full-length G<sub>o</sub>α cDNA clone in *E. coli* MW 41.2k Immunoblot standard; ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | A GTP-binding α-subunit of Go that is most abundant in endocrine & neuronal tissues; thought to play a pivotal role in growth cone function, coordinating the effects of both extracellular signals & intracellular growth protein; useful as a positive control or to assay for cross-reactivity by Western blotting; Strathmann, NP et al, *PNAS*, 87: 6477, 1990; Jones, DT & Reed, RR, *J Biol Chem*, 262: 14241, 1987; Ioth, H et al, *PNAS*, 83: 3776, 1986

**G-Protein G<sub>o</sub>α-Subunit, Myristoylated**

**Calbiochem 371790** Rat recombinant MW 40,074 ≥95% (SDS-PAGE); biologically active & myristoylated preparation of G<sub>o</sub>α-subunit; liquid in 3 mM MgCl<sub>2</sub>, 20 mM HEPES, 100 mM NaCl, 1 mM EDTA, pH 8.0 | Functionally interacts with a variety of G<sub>i</sub>-coupled receptors including the adenosine A<sub>1</sub>, angiotensin II, 5-HT<sub>1A</sub> & 5-HT<sub>1Dβ</sub> receptors

**G-Protein G<sub>q/11</sub>α-Subunit, His-Tagged**

**Calbiochem 371781** Human retina recombinant, produced by overexpression of a full-length G<sub>q/11</sub>α cDNA clone in *E. coli* MW 43.1k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Involved in the stimulation of phospholipase C; distributed ubiquitously in tissues; provided as a denatured protein; useful as a positive control or to assay for cross-reactivity by Western blotting; Macrez-Lepretre, N et al, *J Biol Chem*, 272: 5261, 1997; Dippel, E et al, *PNAS*, 93: 1391, 1996; Strathmann, NP et al, *PNAS*, 87: 9113, 1990

**G-Protein G<sub>q</sub>α-Subunit, His-Tagged**

**Calbiochem 371765** Rat brain recombinant, produced by overexpression of a full-length G<sub>q</sub>α cDNA clone in *E. coli* MW 44.9k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Participates in the stimulation of phospholipase C; useful as a positive control or to assay for cross-reactivity by Western blotting; Ku, CY et al, *Endocrinology*, 136: 1509, 1995

**G-Protein G<sub>s</sub>α-Subunit**

**Calbiochem 371764** Recombinant MW 45k Immunoblot standard; liquid; partially purified by DEAE fractionation of bacterial lysate; use 10 μL/blot | Useful as a positive control or to assay for cross-reactivity with the G<sub>s</sub>α-subunit by Western blot

**G-Protein G<sub>s</sub>α-Subunit, His-Tagged**

**Calbiochem 371766** Rat brain recombinant, produced by overexpression of a full-length G<sub>s</sub>α cDNA clone in *E. coli* MW 48.5k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Involved in the regulation of several cellular processes including calcium channel modulation & oocyte maturation; useful as a positive control or to assay for cross-reactivity by Western blotting; Gallo, CJ et al, *J Cell Biol*, 130: 275, 1995; Fong, HKW et al, *J Physiol*, 487: 291, 1987

**G-Protein G<sub>i</sub>α-I-Subunit, His-Tagged**

**Calbiochem 371785** Bovine retina recombinant, produced by overexpression of a full-length G<sub>i</sub>α-1 cDNA clone in *E. coli* MW 41.1k Immunoblot standard; ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Is the 39 kDa GTP-binding α-subunit of rod transducin that functions in coupling rhodopsin to cGMP phosphodiesterase; useful as a positive control or to assay for cross-reactivity by Western blotting; Medynski, DS et al, *PNAS*, 82: 4311, 1985; Fung, BKK et al, *PNAS*, 78: 152, 1981

**G-Protein Gβ-III-Subunit, His-Tagged**

**Calbiochem 371772** Human retina recombinant, produced by overexpression of a full-length Gβ-3 cDNA clone in *E. coli* MW 39.9k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Useful as a positive control or to assay for cross-reactivity by Western blotting; Levine, MA et al, *PNAS*, 87: 2329, 1990

**G-Protein Gβ-II-Subunit, His-Tagged**

**Calbiochem 371771** Human retina recombinant, produced by overexpression of a full-length Gβ-2 cDNA clone in *E. coli* MW 41.1k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Shares 90% AA identity with bovine transducin Gβ-1-subunit; useful as a positive control or to assay for cross-reactivity by Western blotting; Fong, HKW et al, *PNAS*, 84: 3792, 1987

**G-Protein Gβ-V-Subunit, His-Tagged**

**Calbiochem 371775** Rat brain recombinant, produced by overexpression of a full-length Gβ-5 cDNA clone in *E. coli* MW 41.4k β Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Shown to stimulate the activity of the β2 isotype of phospholipase C; useful as a positive control or to assay for cross-reactivity by Western blotting; Watson, AJ et al, *J Biol Chem*, 269: 22150, 1994

**G-Protein Gγ-C-Subunit, His-Tagged**

**Calbiochem 371794** Human retina recombinant, produced by overexpression of a full-length Gγ-c cDNA clone in *E. coli* MW 10.2k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Gγ-8-Subunit; γ-subunit of cone transducin that has been localized exclusively to cone photoreceptors of human retinas by immunostaining; C-terminal CLIS motif for post-translational farnesylation; useful as a positive control or to assay for cross-reactivity by Western blotting; Ong, OC et al, *J Biol Chem*, 270: 8495, 1995

**G-Protein Gγ-III-Subunit, His-Tagged**

**Calbiochem 371789** Rat brain recombinant, produced by overexpression of a full-length Gγ-3 cDNA clone in *E. coli* MW 9.4k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | γ-Subunit of the heterotrimeric G-proteins that is expressed exclusively in brain; C-terminal CALL motif for post-translational geranylgeranylation; useful as a positive control or to assay for cross-reactivity by Western blotting; Cali, JJ et al, *J Biol Chem*, 267: 24023, 1992; Gautam, N et al, *PNAS*, 87: 7973, 1990

**G-Protein Gγ-II-Subunit, His-Tagged**

**Calbiochem 371788** Human retina recombinant, produced by overexpression of a full-length Gγ-2 cDNA clone in *E. coli* MW 10.3k Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | Dimerizes with the Gβ-1- & Gβ-2-subunits; useful as a positive control or to assay for cross-reactivity by Western blotting; Meister, M et al, *Eur J Biochem*, 234: 171, 1995; Ray, K & Ganguly, R, *J Biol Chem*, 267: 6086, 1992; Wall, MA et al, *Cell*, 83: 1047, 1995

**G-Protein Gγ-VII-Subunit, His-Tagged**

**Calbiochem 371792** Rat brain recombinant, produced by overexpression of a full-length Gγ-7 cDNA clone in *E. coli* MW 8640 Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | γ-Subunit of the heterotrimeric G-proteins that is expressed in brain & to a lesser extent in heart, kidney, spleen & lung; C-terminal CIIL motif for post-translational geranylgeranylation; useful as a positive control or to assay for cross-reactivity by Western blotting; Cali, JJ et al, *J Biol Chem*, 267: 24023, 1992

**G-Protein Gγ-V-Subunit, His-Tagged**

**Calbiochem 371791** Rat brain recombinant, produced by overexpression of a full-length Gγ-5 cDNA clone in *E. coli* MW 8430 Immunoblot standard; ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | γ-Subunit of the heterotrimeric G-proteins that is expressed in a number of tissues, including kidney, liver & lung; C-terminal CSFL motif for post-translational geranylgeranylation; useful as a positive control or to assay for cross-reactivity by Western blotting; Cali, JJ et al, *J Biol Chem*, 267: 24023, 1992; Fisher, KJ & Aronson, NN, *Mol Cell Biol*, 12: 1585, 1992

**G-Protein βγ-Subunit**

**Calbiochem 371768** Bovine brain Liquid; purified G-protein βγ-subunit in 1 mM DTT, 50 mM HEPES, 1 mM EDTA, 0.1% LUBROL, pH 7.6 | Diluted form gives sufficient G-protein βγ-subunit for six standard curves; βγ-subunit is biologically active & can be used in reconstitution experiments

**G-Protein, Functional**

**Calbiochem 371739** Bovine brain Mixture of purified pertussis toxin-sensitive G-proteins from bovine brain; the following heterotrimeric γ-proteins: G<sub>o</sub>α (4-5 μM), G<sub>i</sub>α-1 (1-2 μM), G<sub>i</sub>α-2 (1-2 μM) & G<sub>i</sub>α-3 (<1 μM); liquid in 50 mM HEPES, 1 mM DTT, 1 mM EDTA, 0.1% LUBROL, pH 7.6 | Suitable for functional studies of G-proteins; βγ-subunit complex associated with these α-subunits represents the predominant form found in bovine brain; characterized by GTPγS binding activity & by immunoblotting using subunit-specific antisera

**G-Protein, Immunoblot Standard**

**Calbiochem 371736** Bovine brain Purified liquid; subunits: G<sub>α</sub>-1, G<sub>α</sub>-2, G<sub>α</sub>-3, G<sub>α</sub>, G<sub>α</sub>, G<sub>α</sub>, G<sub>β</sub>-1, G<sub>β</sub>-2 & G<sub>γ</sub>; amount loaded for detection depends on the antisera used & the blotting protocol followed; generally 0.2-1.0 μL/lane will suffice | G-protein useful as an immunoblot standard or positive control; characterized by immunoblotting with subunit-specific antisera

#### Granzyme B

**Kamiya** Purified enzyme

#### GRB2 SH2-Domain-Protein A Fusion Protein

**Sigma G 5650** Recombinant, expressed in *E. coli* MW 37k ≥90% (SDS-PAGE); lyophilized powder containing 3-5% protein (Bradford); balance potassium phosphate & NaCl | Fusion protein containing the SH2 domain of mouse GRB2 (AA 50-161) fused to protein A; key protein in signal transduction, GRB2 transfers the signal from tyrosine kinases such as EGF receptor to the small G protein Ras. GRB2 contains an SH2 (Src homology 2) domain enabling binding to tyrosine-phosphorylated receptors; fusion protein enables detection & purification of tyrosine-phosphorylated proteins (ie tyrosine-phosphorylated EGF receptor) utilizing the affinity of protein A for the Fc domain of IgG; Olivier, JP et al, *Cell*, 73: 179, 1993; Margolis, B, *Progr Biophys Molec Biol*, 62: 223, 1994

#### GRB2, Agarose

**USBio G8960-05** Recombinant MW ~52k 50μg bound to 25μL of agarose beads & suspended to a final volume of 50μL (50% gel slurry) in PBS containing 2 mM DTT and 10% glycerol; frozen suspension | Used to precipitate mouse Sos 1 (175kD) from a RIPA lysate (500 μg) of NIH 3T3 cells; binds EGFR, SHC & Sos proteins

#### Growth Factor

**Fitzgerald 30-AH05** Human pituitary High purity >98%

**Fitzgerald 30-AH06** Human pituitary Standard purity >60%

#### Growth Factor, Hepatocyte

**Synonyms:** Scatter Factor; Hepatopoietin A

**Sigma H 1404** Human recombinant, expressed in Sf 21 insect cell lines ≥95% (SDS-PAGE); 0.2 μm filtered & lyophilized from 20 mM sodium phosphate & 0.35 M NaCl, pH 7.0, containing 250 μg BSA; endotoxin tested | Potent mitogen for epithelial cells; stimulates the growth of hepatocytes, renal tubular epithelial cells, epidermal keratinocytes, epidermal melanocytes, Mv1Lu (mink lung epithelial cells) & BALB/MK (mouse keratinocytes); inhibits the growth of B6/F1 (mouse melanoma) cells, KB (human squamous carcinoma cells) & HepG2 (human hepatoma) cells; has molecular mass of 82-85 kD; HGF gene spans ~70 kb & consists of 18 exons, interrupted by 17 introns; organization of the human HGF gene highly homologous to that of human plasminogen; HGF maps to the long arm of chromosome 7, 7q21.1; mitogenic activity is tested in culture using the monkey epithelial cell line 4MBr-5; Furlong, RA et al, *BioEssays*, 14: 613, 1992; Nakamura, T et al, *Progress in Growth Factor Research*, 3: 67, 1991; Petersen, TE et al, *J Biol Chem*, 265: 6104, 1990; Weidner, KM et al, *Proc Natl Acad Sci USA*, 88: 7001, 1991; Fukuyama, R et al, *Genomics*, 11: 410, 1991; Rubin JS et al, *Proc Natl Acad Sci USA*, 88: 415, 1991

**PeproTech 100-39** Human recombinant expressed in Baculovirus-infected High-5 cells MW 80k (disulfide linked heterodimer) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent mitogen for mature parenchymal hepatocyte cells; growth factor for a broad spectrum of tissues & cell types; α-chain (463 AA) + β-chain (234 AA); ED<sub>50</sub> ~ 20-40 ng/mL; SA determined by dose-dependant stimulation of monkey 4MBr-5 cell proliferation

#### Growth Hormone

**Synonyms:** Somatotropin

**Cortex CP2042** Bovine >95%

**Biogenesis 4750-1504** Bovine pituitary MW 22k Purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Closset et al, *Biochem*, 214:885, 1983

**USBio G8999-05** Bovine pituitary ≥95% (SDS-PAGE); lyophilized

**Biogenesis 4750-2059** Equine pituitary Lyophilized

**Chemicon GC065** Human ≥95%

**Cortex CP1042** Human >95%

**Cortex CP1042P** Human >40%

**USBio G9000-12** Human ≥98% (SDS-PAGE); hPrl ≤ 1.1%, hLH ≤ 0.1%, hFSH ≤ 0.1%, hTSH ≤ 0.1%; 2.6 IU/mg; lyophilized from 0.05 M ammonium bicarbonate | Suitable for antigenic applications in immunological protocols

**USBio G9000-14** Human ≥70% (SDS-PAGE); hPrl <1.1%, hLH <0.1%, hFSH <0.1%, hTSH <0.1%; 1.4 IU/mg specific activity (1st IRP, WHO); lyophilized from 0.05 M ammonium bicarbonate; | Suitable for antigenic applications in immunological protocols

**Biodesign A81555M** Human pituitary 97%

**Biogenesis 4750-0504** Human pituitary Lyophilized

**Biogenesis 4750-0509** Human pituitary MW 22k 0.02% hLH/hFSH/hTSH, 0.01% hPRL; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Closset et al, *Biochem*, 214:885, 1983

**Biogenesis 4750-0704** Human pituitary 0.4% hPRL, 0.004% hLH; tested negative for HBsAg, HCV, Syphilis and HIV I and II; semi-pure; from 50 mM ammonium bicarbonate; lyophilized

**Biogenesis 4750-0759** Human pituitary MW 22k 20 K <0.5%; tested negative for HBsAg, HCV and HIV 1 and 2; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized | Closset et al, *Biochem*, 214:885, 1983

**Calbiochem 869008** Human pituitary MW 21.7k Iodination grade; lyophilized solid; immunopotency: ≥5 IU/mg (WHO 1<sup>st</sup> IRP); soluble in sodium bicarbonate; hLH, hTSH, hFSH, hPRL: <0.5%; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Single chain polypeptide hormone essential for growth of all tissues; increases fat mobilization; *Merck Index*, 12: 8864

**Biogenesis 4750-3004** Ovine pituitary Semi-pure; lyophilized

**Biogenesis 4750-4104** Porcine pituitary MW 22k Purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Closset et al, *Biochem*, 214:885, 1983

**Biogenesis 4750-5204** Rat pituitary <0.1% rLH/rTSH/rPRL/rFSH; 2 IU/mg immunological potency; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0. Essentially salt free; lyophilized

**Biogenesis 4750-5204-50ug** Rat pituitary <0.1% rLH/rTSH/rPRL/rFSH; 2 IU/mg immunological potency; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0. Essentially salt free; lyophilized

#### Growth Hormone, *Acanthopagrus butcheri* (Bream)

**IBT GHU020** Recombinant, expressed in *E. coli* MW 21,410 Dried under dry nitrogen at a slight vacuum (-25kPa) from 5 mM sodium phosphate buffer, pH 8.5, containing m-brGH/mannitol/glycine (1:5:1 w/w) | Shares 97% AA sequence identity with gilthead sea bream (*Sparus aurata*), 94% with red sea bream (*Pagrus major*), 93% with tuna (*Thunnus thynnus*), 91% with barramundi (*Lates calcarifer*), 63% with salmon (*Oncorhynchus keta*) & 32% with human GH

#### Growth Hormone, Rat

**IBT GHU020** Recombinant, expressed in *E. coli* MW 22k 97%; dried under dry nitrogen at a slight vacuum (-25kPa) from 10 mM sodium phosphate buffer, pH 8.8, containing m-rGH/mannitol/glycine (1:5:1 w/w)

#### Growth Hormone, Salmon/Trout

**IBT GHU020** Recombinant, expressed in *E. coli* Dried under dry nitrogen at a slight vacuum (-25kPa) from a solution containing salmon-trout GH/mannitol/sodium bicarbonate (1:2:1 w/w) | Stimulates growth in salmon/trout & enhances the adaptability of salmon parr moving from fresh to sea H<sub>2</sub>O; GH levels increase naturally during the parr-smolt transformation in Atlantic salmon (*Salmo salar*)

#### Growth Related Oncogene

## Proteins

**BioSource International PRC1065** Rat recombinant

### Growth Related Oncogene ES Protein

**Calbiochem 368610** *E. coli* MW 41k Liquid in 100 mM NaCl, 50 mM Tris, 1 mM DTT, 50% glycerol, pH 7.5; DNases, proteases, RNases: none detected | Heat shock protein that is a member of the chaperonin family; consists of a single ring of six to eight identical subunits of MW 10,000; plays an integral role in protein folding & in mediating protein-protein interactions in both normal & stressed cells; in the presence of ATP binds GroEL inhibiting its ATPase activity; mayhew, M et al, *Nature*, 379: 420, 1996; Gething, MJ & Sambrook, J, *Nature*, 355: 33, 1992; Chen, S et al, *Nature*, 371: 261, 1994; Hemmingsen, SM et al, *Nature*, 333: 330, 1988

### Growth Related Oncogene α/KC

**Biodesign A52011M** *E. coli* MW 7.8k Purified | Species specificity: mouse

**PeproTech 250-11** Murine recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Belongs to the C-X-C family of chemokines; 72 AA; SA determined by its ability to chemoattract human neutrophil population

### Growth Related Oncogene α/Melanoma Growth Stimulating Activity

**Sigma G 0657** Human recombinant, expressed in *E. coli* MW 7.9k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized in 10% acetonitrile, 0.1% trifluoroacetic acid containing 500 μg BSA; activity tested in culture using human neutrophils; endotoxin tested | GROα gene initially cloned from T24 cells & the gene in melanoma cells encoding melanoma growth stimulating protein (MGSA) are identical; Human cells contain 3 closely related but distinct GRO genes: GROα, GROβ & GROγ; GROβ & GROγ share 93% & 82% identity respectively, with GROα at the nucleotide level; GROs are members of the chemokine α subfamily characterized by the separations with 1 AA of the first 2 cysteine residues: C-X-C in the AA sequence; in normal cells, human mRNA GRO expression found in foreskin fibroblasts, in synovial fibroblasts, chondrocytes & bone cells; characterization of the GROα receptor indicates the presence of low & high affinity receptors on human neutrophils; Schroder, J et al, *J Immunol* 139: 3474, 1987 General References for GRO: Anisowicz, A et al, *Proc Natl Acad Sci USA*, 84: 7188, 1987; Richmond, A et al, *EMBO J*, 7: 2025, 1988; Haskill, S et al, *Proc Natl Acad Sci USA*, 87: 7732, 1990; Sager, R et al, *Cytokines*, 4: 96, 1992; Goldring, M et al, *J Bone Miner Res*, 4: 402, 1989

### Growth Related Oncogene α/KC

**Synonyms:** Cytokine Induced Neutrophil Chemoattractant

**PeproTech 400-10** Rat recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Promotes neutrophil chemotaxis & degranulation; 72 AA; SA determined by its ability to chemoattract rat neutrophils

### Growth Related Oncogene α/Melanoma Growth Stimulating Activity

**BioSource International PHC1065** Human recombinant

**PeproTech 300-11** Human recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Promotes neutrophil chemotaxis & degranulation; stimulates mitogenesis in certain human melanoma cells; 73 AA; SA determined by its ability to chemoattract human neutrophils

### Growth Related Oncogene β

**Biodesign A52039H** *E. coli* MW 7.9k Purified

**Chemicon GF064** Human ≥95%

**PeproTech 300-39** Human recombinant, expressed in *E. coli* MW 7.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the CXC family of chemokines; promotes neutrophil & basophil chemotaxis & degranulation; specifically inhibits growth factor-stimulated proliferation of capillary endothelial cells in a dose-dependent manner; 73 AA; SA determined by its ability to chemoattract CXCR2 transfected 293 cells

**Sigma G 7909** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 μg BSA; activity tested in culture by its ability to induce myeloperoxidase release from cytochalasin B treated neutrophils; endotoxin tested; see Sigma G 0657 | Schroder, J et al, *J Immunol* 139: 3474, 1987

### Growth Related Oncogene β/Macrophage Inflammatory Peptide II

**BioSource International PRC1074** Rat recombinant

**PeproTech 400-11** Rat recombinant, expressed in *E. coli* MW 7.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Promotes neutrophil chemotaxis & degranulation; 73 AA; SA determined by its ability to chemoattract rat neutrophils

### Growth Related Oncogene β/Macrophage Inflammatory Protein II

**Biodesign A52410H** *E. coli* MW 8k Purified | Species specificity: rat

**Chemicon GF036** Rat ≥95%

### Growth Related Oncogene γ

**Biodesign A52040H** *E. coli* MW 7.9k Purified

**Chemicon GF065** Human ≥95%

**PeproTech 300-40** Human recombinant, expressed in *E. coli* MW 7.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the CXC family of chemokines; promotes neutrophil & basophil chemotaxis & degranulation; 73 AA; SA determined by its ability to chemoattract CXCR2 transfected 293 cells

**Sigma G 7784** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 μg BSA; activity tested in culture by its ability to induce myeloperoxidase release from cytochalasin B treated neutrophils; endotoxin tested; see Sigma G 0657 | Schroder, J et al, *J Immunol* 139: 3474, 1987

### Growth Related Oncogene/KC

**Biodesign A52401H** *E. coli* MW 8k Purified | Species specificity: rat

**Chemicon GF034** Rat ≥95%

### Growth Related Oncogene/Melanoma Growth Stimulating Activity

**Biodesign A52311H** *E. coli* MW 8.5k Purified

**Chemicon GF005** Human ≥95%

**Fitzgerald 30-AG19** Human recombinant, expressed in *E. coli*

### GrpE Protein

**Calbiochem 368650** *E. coli* MW 41k Liquid in 100 mM NaCl, 50 mM Tris, 1 mM DTT, 50% glycerol, pH 7.5; DNases, proteases, RNases: none detected | Molecular chaperone; plays an integral role in protein folding & in mediating protein-protein interactions in both normal & stressed cells; enhances the ATPase activity of DnaK in the presence of DnaJ *in vivo*; useful for *in vitro* protein folding studies; Gething, MJ & Sambrook, J, *Nature*, 355: 33, 1992; Liberek, K et al, *PNAS*, 88: 2874, 1991

**Haptoglobin**

**USBio H1820-10** Human ≥90%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg; lyophilized, salt free preparation | Suitable for antigenic applications in immunological protocols; phenotypes: 1-1, 2-1, 2-2

**Biodesign A50150H** Human plasma Purified

**Fitzgerald 30-AH02** Human plasma High purity

**Sigma H 1511** Human plasma From pooled plasma; 98-100%; essentially salt-free lyophilized powder; biological activity: 1 mg haptoglobin binds 0.5-0.9 mg hemoglobin | Occurs as 3 major phenotypes: type 1-1, type 2-1, type 2-2; Javid & Liang, *J Lab Clin Med*, 82: 991, 1973

**Biogenesis 4890-0504** Human serum Lyophilized

**ICN 823351** Human serum Sterile filtered; isolated from Cohn Fraction IV proteins by selective precipitation & then purified by ion-exchange; a low-salt, lyophilized powder

**Cortex CP3018** Plasma/Mixed Type >95%

**Scipac P119-1** Serum/plasma >96%; lyophilized; standard mix of phenotypes | Acute phase protein

**Scipac P119-2** Serum/plasma 40-90%; lyophilized; standard mix of phenotypes; available on request | Acute phase protein

**Haptoglobin, Phenotype 1-1**

**Sigma H 0138** Human plasma Phenotype 1-1; 98-100%; essentially salt-free lyophilized powder; biological activity: 1 mg haptoglobin binds 0.5-0.9 mg hemoglobin | Occurs as 3 major phenotypes: type 1-1, type 2-1, type 2-2; Javid & Liang, *J Lab Clin Med*, 82: 991, 1973

**Haptoglobin, Phenotype 2-1**

**Sigma H 9887** Human plasma Phenotype 2-1; 98-100%; essentially salt-free lyophilized powder; biological activity: 1 mg haptoglobin binds 0.5-0.9 mg hemoglobin | Occurs as 3 major phenotypes: type 1-1, type 2-1, type 2-2; Javid & Liang, *J Lab Clin Med*, 82: 991, 1973

**Haptoglobin, Phenotype 2-2**

**Sigma H 9762** Human plasma Phenotype 2-2; 98-100%; essentially salt-free lyophilized powder; biological activity: 1 mg haptoglobin binds 0.5-0.9 mg hemoglobin | Occurs as 3 major phenotypes: type 1-1, type 2-1, type 2-2; Javid & Liang, *J Lab Clin Med*, 82: 991, 1973

**Haptoglobulin, Types 1 & 2 Mixture**

**ICN 191334** Human plasma MW Hp-1: 86k, Hp-2: 400k, Hp-2-1: 200k 98% (PAGE); salt-free, lyophilized; negative for HBsAg & HIV Ab | Polymorphic & identical the to untreated form in human serum; Smithies, O, *Biochem J*, 61:629, 1955; Bowman, BH & A Kurosky, *Adv Hum Genet*, 12:189, 1982

**HBeAg**

**USBio H1826** Recombinant expressed in *E. coli* ≥90%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/vial; lyophilized; reconstitute with dH<sub>2</sub>O | Suitable for antigenic applications in immunological protocols

**Heat Shock Factor I**

**Alexis 201-024** Human recombinant, expressed in *E. coli* extracts transformed with an expression plasmid 150 µg sonicated *E. coli* extract at a total protein concentration of 6 mg/mL in 25 mM HEPES, pH 7.9, 12.5 mM MgCl<sub>2</sub>, 0.1 mM EDTA, 10% glycerol, 1 mM DTT, 0.1% NP-40 & 300 mM KCl & protease inhibitors | Positive control for 25 Gel Shift Assays or 50 Western Blots with antiserum to heat shock factor 1

**Heat Shock Protein 25**

**Sigma H 1154** Mouse recombinant, expressed in *E. coli* Lyophilized powder | Homologous to crystallin, an abundant protein of eye lens; Engel, K et al, *Biomed Biochem Acta*, 50: 1065, 1991

**Heat Shock Protein 27**

**Sigma H 1273** Human recombinant, expressed in *E. coli* Lyophilized powder; composition of buffer salts given on data sheet | Engel, K et al, *Biomed Biochem Acta*, 50: 1065, 1991

**Heat Shock Protein 32**

**Synonyms:** Heme Oxygenase I

**Sigma H 9028** Rat recombinant, expressed in *E. coli* Lyophilized from 50 mM ammonium bicarbonate, pH 8.0 | Shibahara, S et al, *Proc Natl Acad Sci Usa*, 82: 7865, 1985

**Heat Shock Protein 60**

**Sigma H 8903** Human recombinant, expressed in *E. coli* Lyophilized; Tris buffer salts, NaCl, DTT | Jindal, S et al, *Mol Cell Biol*, 9: 2279, 1989; assists in synthesis, translocation, correct folding & subunit assembly of proteins while consuming ATP. Shows some ATPase activity even in the absence of other peptides.; homologous to GroEL of *E. coli* (also called chaperonin)

**Heat Shock Protein 70**

**Sigma H 1648** Bovine brain Biotin labeled; lyophilized; actual composition of buffer salts on data sheet | Schlossman, DM, *J Cell Biology*, 99: 723, 1984; assists in synthesis, translocation, correct folding & subunit assembly of proteins while consuming ATP. Shows some ATPase activity even in the absence of other peptides.; homologous to DnaK of *E. coli* (also called chaperonin)

**Sigma H 9776** Bovine brain Lyophilized powder; >95% (SDS-PAGE); containing ~10% protein (Lowry); balance Tris buffer salts | Welch, WJ, *Physiol Rev*, 72: 1063, 1992; assists in synthesis, translocation, correct folding & subunit assembly of proteins while consuming ATP. Shows some ATPase activity even in the absence of other peptides.; homologous to DnaK of *E. coli* (also called chaperonin)

**Sigma H 8778** Human recombinant, expressed in *E. coli* >90% (SDS-PAGE); lyophilized from 50 mM Tris-HCl, pH 7.5, 100 mM NaCl, 0.1 mM PMSF & 1 mM DTT | Gething, M-J & Sambrook, J, *Cell*, 355: 33, 1992; assists in synthesis, translocation, correct folding & subunit assembly of proteins while consuming ATP. Shows some ATPase activity even in the absence of other peptides.; homologous to DnaK of *E. coli* (also called chaperonin)

**Sigma H 9651** *Mycobacterium smegmatis* ~85% (SDS-PAGE); lyophilized; Tris buffer salts | Strong affinity for ATP & a low ATPase activity; in many pathogens, HSP 70 considered & important antigen; Welch, WJ, *Physiol Rev*, 72: 1063, 1992; Palleros, DR et al, *FEBS Lett*, 336: 124, 1993; Young, D et al, *Proc Natl Acad Sci USA*, 85: 4267, 1988; assists in synthesis, translocation, correct folding & subunit assembly of proteins while consuming ATP; shows some ATPase activity even in the absence of other peptides; homologous to DnaK of *E. coli* (also called chaperonin)

**Heat Shock Protein 90**

**Sigma H 6774** Bovine brain Lyophilized; ≥95% (SDS-PAGE); Tris buffer salt | Plays a pivotal role in regulating steroid receptors

**Heat Shock Protein DnaJ**

**Sigma D 4419** *E. coli* ≥85% (SDS-PAGE); solution in 40 mM Tris, pH 7.5, 80 mM NaCl, 0.8 mM DTT & 20% (v/v) glycerol | Bardwell, JCA & Craig, EA, *Proc Natl Acad Sci*, 81: 848, 1984

**Sigma D 4928** *E. coli* MW 41k ≥80% (SDS-PAGE); solution in 25 mM HEPES, pH 7.2, containing 100 mM KCl, 25 mM NaCl, 1 mM DTT & 10% (v/v) glycerol | Basic heat shock protein referred to as a "co-chaperone" because it is known to assist DnaK-dependent chaperone activities

**Hemocyanin**

**Synonyms:** Hemolymph Plasma Powder

## Proteins

**Sigma H 4506** From horseshoe crab blood after the amoebocyte lysate (E-Toxate®) has been removed Crude; lyophilized; ~60% protein (Biuret) which is predominantly hemocyanin; balance is NaCl & other naturally occurring components, including lectins | Oxygen-exchange protein of crustaceans

**Biogenesis 4860-0602** Keyhole limpet Lyophilized

**USBio K0300** Keyhole limpet (*Megathura crenulata*) ≥90%, ≥60% protein; light gray to blue; lyophilized in buffer; slightly soluble in H<sub>2</sub>O, readily soluble in saline | Protein composed of five subunits; used as an immunological carrier for mammalian Ab production, specifically rabbits & mice; since KLH is Lys rich, primary amines will promote peptide attachment after dissociation

**ICN 193550** *Limulus polyphemus hemolymph* (horseshoe crab) Lyophilized

**Sigma H 3009** *Limulus polyphemus hemolymph* (horseshoe crab) Biotin-labeled; solution in 50% glycerol containing ~ 0.08 M NaCl, 1 mM calcium chloride, 0.01% sodium azide; 3-6 mg protein (E<sub>280</sub> at 1%)/mL; 40-100 moles biotin/mole protein (12-30 nmoles biotin/mg protein)

**ICN 151233** *Megathura crenulata* (keyhole limpet) >99%; lyophilized

**Sigma H 2133** *Megathura crenulata* (keyhole limpets) Lyophilized powder containing ~90% protein (Biuret); ~0.2% copper; prepared by ultracentrifugation

**Sigma H 5654** *Megathura crenulata* (keyhole limpets) Succinylated; highly water soluble; lyophilized with stabilizing buffer; reconstitution with 2 mL DI water yields an opalescent solution of KLH at 5 mg/mL in sodium phosphate buffer, pH 7.4, containing 0.32 M NaCl & 20 mM sucrose; no preservatives added | Provides a large number of available carboxyl groups for conjugation

**Sigma H 7017** *Megathura crenulata* (keyhole limpets) Lyophilized with stabilizing buffer; reconstitution with 2 mL DI water yields an opalescent solution of KLH at 10 mg/mL in 31 mM sodium phosphate buffer, pH 7.4, containing 0.46 M NaCl & 41 mM sucrose; no preservatives added

### Hemocyanin Type VIII

**Sigma H 1757** *Limulus polyphemus hemolymph* (horseshoe crab) Lyophilized powder containing ~95% protein (Biuret); ~0.15% copper; a peak eluted from a DEAE Sephadex column with a buffer containing EDTA

### Hemocyanin, Cross-Linked Molecular Weight Standard for SDS-PAGE

**Sigma H 2757** *Limulus polyphemus* MW 70k (monomer), 140k (dimer), 210k (trimer), 280k (tetramer) Lyophilized; ~2.5 mg/vial | See Sigma MW-SDS-280

### Hemocyanin, Keyhole Limpet

**Fluka 51522** *Megathura crenulata* (keyhole limpet) ≥90% (GE); ≥85% protein; 0.2% Cu; prepared by ultracentrifugation | Carrier protein, used as antigen; Kyewski, BA et al, *Nature*, 308: 196, 1984; Bennett, AP et al, *Ann Clin Biochem*, 24: 374, 1987

### Hemofiltrate CC Chemokine

**Synonyms:** Colony Inhibition Factor, Macrophage

**Sigma H 0656** Human recombinant, expressed in *E. coli* MW 8.7k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 500 µg BSA; activity tested in culture by its ability to chemoattract cultured human monocytes; endotoxin tested | Non-glycosylated polypeptide of 74 AA; member of the CC or β chemokine class; originally isolated from the hemofiltrate of patients with chronic renal failure; the precursor form of HCC-1 consists of 93 AA; to generate the mature HCC-1 (74 AA), the precursor cleaves a 19 AA signal peptide; expressed constitutively in normal tissues & is present in high concentrations in human plasma; shows ~46% AA identity with MIP-1α & MIP-1β & 29-37% sequence identity with other CC chemokines

### Hemofiltrate CC Chemokine I

**Chemicon GF066** Human ≥95%

**PeproTech 300-38** Human recombinant, expressed in *E. coli* MW 8.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | First isolated from the hemofiltrate of patients with chronic renal failure; 46% AA sequence homology with MIP-1a/MIP-1b & 29%-37% homology with other CC chemokines; 72 AA; SA determined by its ability to chemoattract human monocytes

### Hemoglobin

**Synonyms:** Methemoglobin; Ferrohemoglobin; Oxyhemoglobin

**ICN 10049J7** 2% solution | Used with GC Agar Base

**ICN 1004817** Beef blood Autoclavable preparation | Used with GC Agar Base

**Amersham US16891** Bovine 2x crystallized; ≥99.0%

**ICN 100714** Bovine Standardized for protease assay

**Sigma H 2500** Bovine Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Fluka 51290** Bovine blood MW 64.5k ≥94% (GE); ≤2% loss on drying; ≤5% residue on ignition; 2X crystallized; lyophilized; salt-free powder | Oxygen carrier protein; Brunori, M et al, *Top Mol Struct Biol*, 7: 263, 1985

**Calbiochem 3745** Bovine erythrocytes MW 64.5k Lyophilized; ≥95% (SDS-PAGE); soluble in water; primarily ferric-hemoglobin & must be reduced to the ferrous form to bind molecular oxygen | Major oxygen-transporting component of red blood cells; a nitric oxide scavenger; blocks carbachol-stimulated cGMP production; Bredt, DS & Snyder, SH, *PNAS*, 86: 9030, 1989; Castoldi, AF et al, *Brain Res*, 610: 57, 1993; *Merck Index*, 12: 4682

**Sigma H 2625** Bovine erythrocytes Substrate powder; prepared from washed, lysed & dialyzed erythrocytes | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin; useful as a protease substrate

**Sigma H 3760** Bovine erythrocytes Dried erythrocytes; methemoglobin & oxyhemoglobin content is not determined | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Biogenesis 4870-2002** Bovine RBCs Lyophilized

**ICN 151234** Bovine red blood cells MW 64.5k >98% (electrophoresis); VAT mixed with ether; lyophilized | *Ann Rev Biochem*, 12:327, 1979

**ICN 151235** Bovine red blood cells MW 64.5k >98% (electrophoresis); VAT mixed with ether; spray dried; 40% iron by weight | *Ann Rev Biochem*, 12:327, 1979

**Sigma H 4632** Horse Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Sigma H 7379** Human Lyophilized powder | Negative for HIV & Hepatitis B antigen; oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Biogenesis 4870-7056** Human RBCs Lyophilized

**Sigma H 5633** Mouse Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Biogenesis 4870-5004** Ovine RBCs Lyophilized

**Sigma H 4131** Pig Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Sigma H 0256** Pigeon Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Sigma H 7255** Rabbit Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin



**Sigma H 3883** Rat Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Sigma H 2750** Sheep Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

**Sigma H 0142** Turkey Lyophilized powder | Oxygen transporter, NO scavenger; since native hemoglobin is readily oxidized in air, these preparations may be predominantly methemoglobin

### Hemoglobin A<sub>0</sub>, Ferrous

**Sigma H 0267** Human, stabilized Chromatographically purified & lyophilized from ammonium bicarbonate containing ~50% nonionic stabilizers; ~98% by agarose electrophoresis; reconstitution with buffer gives >90% ferrous hemoglobin | Suitable for electrophoresis & chromatography standard, but has not been tested for functional equivalence against native preparations (unlyophilized ferrous hemoglobins); Package size indicates the amount of hemoglobin as determined by the procedure of Drabkin, DL, *J Biol Chem*, 164: 703, 1946

### Hemoglobin A1c

**Cortex CP1048U** >98%

**Fitzgerald 30-AH31** Erythrocyte lysates Immunogen grade

**Scipac P186-2** Erythrocytes >98% hemoglobin; 25-50% HbA1c; lyophilized; available on request | Diabetes protein

**Scipac P186-4** Erythrocytes >98% hemoglobin; 25-50% HbA1c; frozen in sodium phosphate buffer; 150-200 mg Hb/mL | Diabetes protein

**Scipac P186-7** Erythrocytes >90%; frozen in sodium phosphate buffer | Diabetes protein

**USBio H1850-15** Human erythrocyte lysates No reaction against any glycohemoglobins, including Hb A1a, HbA1b, HbF, & HbAo; 5-10 mg/mL liquid in 1 mM KCN, pH 7.5 | Suitable for antigenic applications in immunological protocols; 1 glyco group per β chain monomer N-terminal Val

### Hemoglobin A<sub>2</sub>, Ferrous

**Sigma H 0266** Human, stabilized Chromatographically purified & lyophilized from ammonium bicarbonate containing ~50% nonionic stabilizers; ~98% by agarose electrophoresis; reconstitution with buffer gives >90% ferrous hemoglobin | Suitable for electrophoresis & chromatography standard, but has not been tested for functional equivalence against native preparations (unlyophilized ferrous hemoglobins); Package size indicates the amount of hemoglobin as determined by the procedure of Drabkin, DL, *J Biol Chem*, 164: 703, 1946

### Hemoglobin A<sub>0</sub>

**Fitzgerald 30-AH32** Erythrocyte lysates Immunogen grade

**USBio H1850-18** Human No reaction against any glycohemoglobins, including Hb A1a, HbA1b, HbF, & HbA1c; 1 mg/mL; lyophilized preparation | Suitable for antigenic applications in immunological protocols; <0.05 glyco group per monomer hemoglobin

### Hemoglobin Controls, High Level

**Sigma H 4268** Human plasma Assayed values for hemoglobin, data sheet included

### Hemoglobin Controls, Low Level

**Sigma H 3268** Human plasma Assayed values for hemoglobin, data sheet included

### Hemoglobin F

**Cortex CP1089** >95%

### Hemoglobin S, Ferrous

**Sigma H 0392** Human, stabilized Chromatographically purified & lyophilized from ammonium bicarbonate containing ~50% nonionic stabilizers; ~98% by agarose electrophoresis; reconstitution with buffer gives >90% ferrous hemoglobin | Sickle cell hemoglobin; all other comments same as for Sigma H 0267

### Hemoglobin Standards

**Sigma 525-18** Reconstitutes to 50 mL | For the colorimetric determination of total hemoglobin in blood per Sigma Procedure No. 525

**Sigma 527-11** Set contains 3 mL each of standards with hemoglobin levels of 15, 30 & 45 mg/dL in human plasma

**Sigma 527-30** 30 mg/dL | For the colorimetric determination of hemoglobin in plasma per Sigma Procedure No. 527

### Hemoglobin, (<sup>14</sup>C-Me)-

**Sigma H 4390** Bovine MW ~64.5k 5-50 μCi/mg protein; solution in 40 mM potassium phosphate, pH 7.0, in Combi-vial | Radiochemical; prepared from Sigma H 2500

### Hemoglobin, (<sup>3</sup>H(G))-

**ARC ART-707** Human 1-5 Ci/mmol; 37-185 GBq/mmol; in sterile water | Radiochemical

### Hemoglobin, Cross-Linked Molecular Weight Standard for SDS-PAGE

**Sigma H 2507** Bovine MW 16k (monomer), 32k (dimer), 48k (trimer), 64k (tetramer) Lyophilized; ~3 mg/vial | See Sigma MW-SDS-280

### Hemoglobin, Glycated

**Fitzgerald 30-AH33** Erythrocyte lysates Immunogen grade; glycated

**USBio H1850-22** Human erythrocyte lysates No reaction against Hb A1a, HbA1b, HbF, HbAo & HbA1c; 1 mg/mL; lyophilized preparation | Suitable for antigenic applications in immunological protocols; ~1 glyco group per hemoglobin tetramer; glycated in non A1c positions at E-amino groups of lysines residues

### Hemoglobin, HbA1c Free

**Scipac P211-1** Erythrocytes >98%; lyophilized; no HbA1c visible by FPLC | Diabetes protein

**Scipac P211-3** Erythrocytes >98%; frozen in sodium phosphate buffer; no HbA1c visible by FPLC | Diabetes protein

### Hemoglobin, N,N-Dimethylated

**Sigma H 9891** Bovine blood Lyophilized, essentially salt-free powder; retains ~20% reactivity with TNBS when compared with nonmethylated hemoglobin; prepared by reductive methylation of Sigma H 2500 by method of Cabacungan | Cabacungan, JC et al, *Anal Biochem*, 124: 272, 1982

### Hemoglobin, Oxy-

**Biogenesis 4870-4056** Human erythrocytes MW 66k (including 0.34% iron) 62% oxyhemoglobin, 7% methemoglobin; tested negative for Hepatitis and HIV; semi-pure; lyophilized

## Proteins

### Hemolysin, Kanagawa

**Sigma H 3142** *Vibrio parahaemolyticus* Lyophilized powder containing ~50% protein (Lowry); balance Tris-HCl, EDTA, phenylmethylsulfonyl fluoride & sodium azide; activity: ≥400 U/mg protein; 1 hemolytic U causes 50% lysis of a 1% suspension of human red blood cells in phosphate buffered saline, pH 7.0, after 2 hrs incubation at 37°C followed by refrigeration for 12-24 hrs at 4°C | Cherwonogrodzky, JW & Clark, AG, *FEMS Microbiol Lett*, 15: 175, 1982

### Hemolysin, α-

**Synonyms:** Toxin, α-

**Sigma H 9395** *Staphylococcus aureus* ~60% protein (Lowry); balance primarily sodium citrate buffer; activity: ≥10,000 U/mg protein; 1 hemolytic U causes 50% lysis of a 1% suspension of rabbit red blood cells in phosphate buffered saline, pH 7.0, containing 1% bovine serum albumin after 30 min at 37°C followed by refrigeration for 30 min at 4°C | Channel-forming protein similar to complement & perforin, penetrating the cell membrane & creating a defined size pore; stimulates cellular phospholipase activity; Thelestam, M & Blomqvist, L, *Toxicon*, 26: 51, 1988; Fink, D et al, *Cellular Signalling*, 1: 387, 1989

### Hemopexin

**P180-5** Serum/plasma >90%; lyophilized; available on request | Serum protein

### Heparan Sulfate

**Synonyms:** Heparitin Sulfate; Heparin Monosulfate

**Sigma H 5393** Bovine intestinal mucosa MW<sub>AVE</sub> ~7.5k Fast-moving fraction; sodium salt; 90+% (electrophoresis)

**Sigma H 7640** Bovine kidney Sodium salt; similar to Sigma H 9637

**Sigma H 9637** Bovine kidney Sodium salt

**Sigma H 9902** Porcine intestinal mucosa Fast-moving fraction: sodium salt; 90+% (electrophoresis)

### Heparan Sulfate Proteoglycan

**Sigma H 4777** Engelbreth-Holm-Swarm mouse sarcoma In 50 mM Tris HCl, 150 mM NaCl, 1 mM EDTA, 0.1 mM PMSF, pH 7.4; protein: ≥400 µg/mL; glycosaminoglycan: ≥400 µg/mL; uronic acid: ≥100 µg/mL; sterile-filtered | Isolated from basement membrane of Engelbreth-Holm-Swarm mouse sarcoma; composed of a core protein covalently bound to heparan sulfate chains; sold on the basis of µg protein; for cell culture use

### Heparin

**Sigma 210-6** Sodium salt; endotoxin-free; preweighed vial: 300 USP units; no preservatives | Bioassay not run by Sigma; sufficient anti-coagulant for 5 mL of blood; not for injection; suitable for use in gram negative endotoxin detection per Sigma Technical Bulletin No. 210

**Sigma 840-20** Sodium salt; siliconized glass vials each containing 20 USP units; no preservatives | For use in the histochemical demonstration of nitro blue tetrazolium reduction in neutrophils by procedure in Sigma Procedure No. 840; bioassay not run by Sigma

**Sigma H 0777** Bovine intestinal mucosa Sodium salt; no preservatives; activity: ≥140 USP units/mg | Bioassay not run by Sigma

**Sigma H 4898** Bovine lung Sodium salt; contains no preservatives; activity: ≥140 USP units/mg | Bioassay not run by Sigma

**Sigma H 9266** Ovine intestinal mucosa Sodium salt; no preservatives; activity: ~160 USP units/mg | Bioassay not run by Sigma

**Sigma H 0878** Porcine intestinal mucosa Lithium salt; activity: ≥150 USP U/mg; no preservatives | Bioassay not run by Sigma

**Sigma H 1636** Porcine intestinal mucosa Sodium salt; low calcium content; prepared from Sigma H 3393; activity: ~170 USP U/mg; no preservatives | Bioassay not run by Sigma

**Sigma H 2149** Porcine intestinal mucosa MW<sub>AVE</sub> ~6k Sodium salt; low molecular weight; no preservatives; prepared by enzymatic depolymerization | Bioassay not run by Sigma

**Sigma H 3393** Porcine intestinal mucosa Sodium salt; grade I-A Typical activity: ~170 USP U/mg; no preservatives | Bioassay not run by Sigma

**Sigma H 3400** Porcine intestinal mucosa MW<sub>AVE</sub> ~3k Sodium salt; low MW; no preservatives; activity: Anti-X<sub>a</sub> 75-125 IU/mg; anticlotting 30-50 USP units/mg | Bioassay not run by Sigma; depolymerized by peroxidolysis (free-radical induced cleavage)

**Sigma H 5152** Porcine intestinal mucosa MW<sub>AVE</sub> ~4k Sodium salt; Tyramine & FITC labeled; low MW; no preservatives; solution: 1 µg/mL in water; activity: Anti-X<sub>a</sub> ~100 U/mg; Anti II<sub>a</sub> ~45 U/mg | Bioassay not run by Sigma

**Sigma H 5277** Porcine intestinal mucosa MW<sub>AVE</sub> ~4k Sodium salt; tyramine labeled low MW; no preservatives; solution: 1 µg/mL in water; activity: Anti-X<sub>a</sub> ~100 U/mg; Anti II<sub>a</sub> ~45 U/mg | Bioassay not run by Sigma

**Sigma H 5515** Porcine intestinal mucosa Sodium salt; crude; unbleached; no preservatives; activity: ≥160 IU/mg | Bioassay not run by Sigma

**Sigma H 6279** Porcine intestinal mucosa Ammonium salt; activity: ~140 USP U/mg; no preservatives | Bioassay not run by Sigma

**Sigma H 7155** Porcine intestinal mucosa Zinc salt; no preservatives; activity: ≥140 USP units/mg | Bioassay not run by Sigma

**Sigma H 7405** Porcine intestinal mucosa Sodium salt; deaminated; low molecular weight (mean >5 kD) mono-aldehyde; heparin activity: >100 USP units/mg; antithrombin activity: >100 U/mg | Prepared by nitrous acid deamination of porcine mucosal heparin by a modification of the method of Kosakai, M et al, *J Biochem*, 83: 1567, 1978

**Sigma H 8398** Porcine intestinal mucosa Calcium salt; activity: ≥140 USP U/mg; no preservatives | Bioassay not run by Sigma

**Sigma H 9399** Porcine intestinal mucosa Sodium salt; activity: ≥140 USP U/mg; no preservatives | Bioassay not run by Sigma

### Heparin Binding Epidermal Growth Factor-Like Growth Factor

**Oncogene PF078** Human recombinant MW 9.5k (SDS-PAGE) >97% (SDS-PAGE); lyophilized in a sterile-filtered PBS (pH 7.4) solution containing 50 mg of BSA per 1 mg of cytokine | Heterogeneously O-glycosylated; migrates as an approximately 12k protein in SDS-PAGE; activity measured as ability to stimulate (<sup>3</sup>H)thymidine incorporation in the EGF-responsive mouse fibroblast cell line, Balb/3T3; the ED<sub>50</sub> for this effect is typically 2.0-5.0 ng/mL

**Sigma E 4643** Human recombinant, expressed in *Spodoptera frugiperda* 21 ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 2.5 mg BSA; activity is measured by its ability to stimulate <sup>3</sup>H-thymidine incorporation in the EGF-responsive BALB/3T3 cell line; endotoxin tested; see Sigma E 1264 | originally purified from the conditioned medium of human U-937 histiocytic lymphoma cells based on its ability to bind heparin; member of the EGF family & accordingly named heparin binding EGF-like growth factor; produced in the insect cell line *Sf 21* by infection with a recombinant baculovirus containing a DNA sequence which encodes the first 148 of the human HB-EGF precursor; purified HB-EGF is mitogenic for the BALB/3T3 cell line & is a very potent mitogen for smooth muscle cells; Higashiyama, S et al, *Science*, 251: 936, 1991

### Heparin, Benzalkonium

**Sigma H 7280** Prepared from porcine mucosal heparin & alkyl (C<sub>12</sub>-C<sub>14</sub>) dimethylbenzylammonium chloride; activity: ~60 USP units/mg; benzalkonium content: ~60%

### Heparin-Albumin

**Sigma H 0403** Lyophilized powder containing ~50% protein (Biuret); balance is primarily heparin; 3-6 moles heparin/mole albumin | Albumin may be further derivatized through available primary amines for labeling in different detection systems; heparin, ~170 USP units/mg, coupled through terminal formyl by reductive amination to BSA

#### Heparin-Albumin, Biotin Conjugated

**Sigma H 4016** Lyophilized powder containing ~50% protein (Biuret); balance is primarily heparin & ~5% citrate buffer salts; contains 4-6 moles biotin/mole protein | Heparin-albumin coupled to biotin by amide bond through aminocaproyl spacer; Grulich-Henn, J et al, *Thrombosis & Haemostasis*, 64: 420, 1990; Zou, S et al, *Comp Biochem Physiol*, 1038: 889, 1992

#### Heparin-Albumin, Gold Conjugated

**Sigma H 3278** 20 nm Colloidal Gold Labeled; mean particle diameter 17-23 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, pH 7.2, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Heparin covalently linked to albumin as carrier, adsorbed to colloidal gold for detection of heparin-binding compounds

**Sigma H 5641** 10 nm Colloidal Gold Labeled; MEAN particle diameter 8-12 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.0, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Heparin covalently linked to albumin as carrier, adsorbed to colloidal gold for detection of heparin-binding compounds

**Sigma H 9516** 5 nm Colloidal Gold Labeled; mean particle diameter 3.5-6.5 nm; monodisperse; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.0, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Heparin covalently linked to albumin as carrier, adsorbed to colloidal gold for detection of heparin-binding compounds

#### Hepatitis A Virus Antigen

**Biodesign R9A001** Antigen Strain pHM175 Purified | Infectious disease antigen

#### Hepatitis B Virus Antigen e Epitope

**Biodesign R65915** Recombinant MW 17k Purified; AA 160 | Infectious disease antigen

#### Hepatitis B Virus Core Antigen

**IBT HBA-020-4, HBA-020-5, HBA-020-7** *E. coli* >90%; 0.50 mg/mL in 100 mM NaCO<sub>3</sub>, pH 9.3

**Biodesign R3B601** Recombinant Purified; AA 183 | Infectious disease antigen

**Biodesign R65914** Recombinant MW 2500k Purified; AA 180 | Infectious disease antigen

**USBio H1905-02** Recombinant expressed in *E. coli* ≥95% (SDS-PAGE, 280 nm, Bradford); 10 mg/mL liquid in 7.5 mM phosphate buffer, pH 7.2, 75 mM NaCl, 50% glycerol | Suitable for antigenic applications in immunological protocols HBV core antigen HBcAg (recombinant) 1 to 183 of HBV core antigen (18kD, ayw); cloned from HBV 320 genome; Reacts strongly with human HBV positive serum

**Fitzgerald 30-AH39** Recombinant, Ecto-Domain (modified yeast)

**USBio H1905** Yeast (*Pichia pastoris*) recombinant MW 24k (protein), 27k (glycoprotein) ≥95% (SDS-PAGE); 1 mg/mL frozen liquid in 0.4 M NaCl, 0.05 M sodium acetate, pH 4.5 | Suitable for antigenic applications in immunological protocols; reacts with HB core Ag sera & human monoclonals in ELISA & Western blot; a capsid structure in excess of 2 million Daltons

#### Hepatitis B Virus e Antigen

**Fitzgerald 30-AH18** Recombinant, expressed in *E. coli*

#### Hepatitis B Virus Pre-S1 Antigen

**Biodesign R65913** Recombinant MW 13.5k Purified; AA 108 | Infectious disease antigen

#### Hepatitis B Virus Surface Antigen

**IBT HBA-010-4, HBA-010-5, HBA-010-7** Genetically engineered CHO cells >95%; 1.0 mg/mL solution in 10mM Tris-HCl, pH 7.5 | Contains the preS<sub>2</sub> region

**Cortex CP2019r** Recombinant >95%

**Fitzgerald 30-AH38** Recombinant, expressed in *E. coli*

#### Hepatitis B Virus Surface Antigen, Subtype ad

**Biodesign R36001** Purified | Infectious disease antigen

**USBio H1910-27** Human plasma MW 24k (protein), 27k (glycoprotein) ≥99% (HPLC); complete virions are not detected; heat inactivated (10 hours @ 60°C); 2.0 mg/mL (OD 280 nm) liquid in PBS buffer, 5% sucrose, 0.01% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AH16** Human plasma human-ad Affinity purified

**USBio H1910-20** Human recombinant, from modified yeast MW 24k (protein), 27k (glycoprotein) ≥98% (SDS-PAGE); ~1 mg/mL (OD 280 nm) liquid in PBS, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols; reacts with HBsAg sera & human monoclonals in ELISA & Western blot; 226 AA

#### Hepatitis B Virus Surface Antigen, Subtype adw

**Biodesign R3B602** Recombinant Purified; AA 226 | Infectious disease antigen

#### Hepatitis B Virus Surface Antigen, Subtype ay

**Biodesign R36002** Purified | Infectious disease antigen

**USBio H1910-28** Human plasma MW 24k (protein), 27k (glycoprotein) ≥99%; complete virions are not detected; heat inactivated (10 hours @ 60°C); 2.0 mg/mL (OD 280 nm) supplied in PBS buffer, 5% sucrose, 0.01% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AH17** Human plasma human-ay Affinity purified

#### Hepatitis B Virus Surface Antigen, Subtype ayw

**USBio H1910-21** Human recombinant, expressed in *Saccharomyces cerevisiae* containing the plasmid pCGA7 Purity: ≥98% (SDS-PAGE) supplied in 0.05 M phosphate buffer, 0.2 M NaCl, pH 7.2 | Suitable for use with pRc/CMV-HBs(S) or other plasmids to validate DNA-based immunization methods; can be used in ELISA & other immunological assays; purified by clarification, microfiltration, ultrafiltration, adsorption chromatography, ion-exchange chromatography, ultracentrifugation, sterile filtration; tested in ELISA with anti-HBsAg antibodies; MW: 2 million Daltons; morphologically HBsAg possesses a subunit diameter of 18-22nm

**Biodesign R86870** Recombinant Purified | Infectious disease antigen

#### Hepatitis C Virus Core Antigen

**IBT HCA-070-3, HCA-070-4** Yeast cells MW 36k >90%; 0.7 mg/mL solution in sodium borate, 10 mM thiocyanate, 10 mM DTT, 5 mM EDTA, pH 9.5 | Covers Met<sup>1</sup> to Gly<sup>120</sup> of HCV polyprotein; fusion protein with human Superoxide Dismutase; reacts in ELISA with serum from HCV positive individuals

#### Hepatitis C Virus eII Antigen

**IBT HCA-090-2** CHO cells MW 55k >90%; 0.2 mg/mL solution in 10 mM sodium phosphate, 0.1 M NaCl, 1% Triton X-100 | Covers Ala<sup>384</sup> to Lys<sup>715</sup> of HCV polyprotein; runs anomalously on PAGE

#### Hepatitis C Virus NS3 Antigen

**IBT HCA-110-3, HCA-110-4** *E. coli*, as a fusion protein with human superoxide dismutase MW 45k >95%; 1 mg/mL solution in 50 mM Tris-HCl, 50 mM NaCl, 10 mM DTT, 1 mM EDTA, pH 7.4 | Covers Ala<sup>1192</sup> to Cys<sup>1457</sup> of HCV polyprotein; equivalent to c33c antigen

## Proteins

### Hepatitis C Virus NS3/NS4 Antigen

**IBT HCA-100-3, HCA-100-4** Yeast cells, as a fusion with human superoxide dismutase MW 53k >95%; 0.50 mg/mL solution in 20 mM Tris-HCl, 0.1% SDS, 10 mM DTT, pH 7.0 | Covers Asp<sup>1569</sup> to Pro<sup>1931</sup> of HCV polyprotein; equivalent to C-100 antigen

### Hepatitis C Virus NS4 Antigen

**IBT HCA-120-3, HCA-120-4** *E. coli*, as a fusion protein with human superoxide dismutase MW 29k >95%; 1 mg/mL solution in 50 mM sodium borate, 0.5 M NaCl, 20 mM DTT, 2 mM EDTA, pH 8.4 | Covers Ile<sup>1694</sup> to Leu<sup>1735</sup> of HCV polyprotein; equivalent to 5-1-1 antigen

### Hepatitis C Virus NS5 Antigen

**IBT HCA-130-3, HCA-130-4** Yeast cells, as a fusion with human superoxide dismutase MW 150k >95%; 0.8mg/mL solution in 20 mM MES, 100 mM NaCl, 10 mM DTT, 1 mM EDTA, 0.1% SDS, pH 6.0). | Covers Asn<sup>2054</sup> to Cys<sup>2995</sup> of HCV polyprotein

### Hepatitis C Virus Nucleocapsid p22

**USBio H1920-20** Recombinant expressed in *Pichia pastoris* ≥97%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in Tris, saline, pH 8.0 | Suitable for antigenic applications in immunological protocols; 173 AA; mature nucleocapsid core protein

### Hepatitis D Virus p24

**Biodesign R65892** Recombinant Purified | Infectious disease antigen

### Heregulin

**Oncogene PF048** Human recombinant MW 7k >97% (SDS-PAGE); lyophilized in 15% acetonitrile & 0.1% TFA containing 50 mg of BSA per 1 mg of cytokine; biological activity: EC<sub>50</sub> of 20-40 µg/mL as determined by its inhibitory effect on human breast cancer cell line SK-BR-3 or in a serum-free proliferation assay using human MCF7 cells | Mitogenic for Schwann & various epithelial cells; species reactivity: human; for proliferation studies; shown to be mitogenic for Schwann cells & various epithelial cells

### Heregulin α Epidermal Growth Factor

**Sigma H 5529** Human recombinant, expressed in *E. coli* MW 7k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 15% acetonitrile & 0.1% trifluoroacetic acid solution containing 2.5 mg BSA; bioactivity is measured in a bioassay using SK-BR-3 cells; endotoxin tested; see Sigma E 1264 | Has an EGF-like domain

### Heregulin β, Epidermal Growth Factor Domain

**USBio H2030-50**

### Herpes Simplex Virus I HF

**Biodesign R86871** Purified | Infectious disease antigen

### Herpes Simplex Virus I McIntyre

**Biodesign R57145** Purified | Infectious disease antigen

**Biodesign R70002** Lysate | Infectious disease antigen

### Herpes Simplex Virus I N-Terminal Glycoprotein D

**Biodesign R3B501** Recombinant Purified; glycosylated | Infectious disease antigen

### Herpes Simplex Virus II Glycoprotein G

**IBT HS2A-470-3, HS2A-470-4** Yeast cells, as a fusion with human superoxide dismutase MW 50k >90%; 1 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.4 | Comprises Met<sup>1</sup> to Asp<sup>190</sup>

### High Density Lipoprotein

**USBio H2038** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~1-5 mg/mL supplied in borate/saline buffer | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AH08** Human plasma High purity

### Hirudin

**Fluka 53287** Leech MW 7027 ~100 U/mg; ≥90% protein; 1 U corresponds to the amount of inhibitor which reduces the thrombin activity by 1 U at pH 7.5, 37°C, 0.274 mM Tos-Gly-Pro-Arg-4NA•AcOH as substrate, 1.348 U/L thrombin | Thrombin specific inhibitor; Chang, JY, *FEBS Lett*, 164: 307, 1983

**Sigma H 9022** Leech Lyophilized; activity: ≥6000 U/mg protein; 1 U neutralizes 1 NIH U of thrombin using a fibrinogen assay at 37°C | Markwardt, F, *Meth Enz*, 19: 924, 1970; Bagdy, D et al, *Meth Enz*, 45: 669, 1976

**Sigma H 0393** Leech recombinant (Lys<sup>47</sup>)-rHV2 variant, produced by cDNA expressed in *Saccharomyces cerevisiae* Activity: 7000-14,000 U/mg protein; 1 U neutralizes 1 NIH U of thrombin at 37°C based on direct comparison to an NIH thrombin reference standard (Lot J) | Markwardt, F, *Meth Enz*, 19: 924, 1970; Bagdy, D et al, *Meth Enz*, 45: 669, 1976; Loison, G et al, *Bio/Technology*, 6: 72, 1988

**Sigma H 7016** Leeches Activity: ≥1000 U/mg protein; 1 U neutralizes 1 NIH U of thrombin at 37°C based on direct comparison to an NIH thrombin reference standard (Lot J) | Markwardt, F, *Meth Enz*, 19: 924, 1970; Bagdy, D et al, *Meth Enz*, 45: 669, 1976

**Sigma H 7380** Leeches Lyophilized from 0.045 M NaCl-0.02 M Tris buffer, pH 7.5; activity: 300-1000 U/mg protein; 1 U neutralizes 1 NIH U of thrombin at 37°C based on direct comparison to an NIH thrombin reference standard (Lot J) | Markwardt, F, *Meth Enz*, 19: 924, 1970; Bagdy, D et al, *Meth Enz*, 45: 669, 1976

### Hirudin, (Lys<sup>47</sup>)-

**Fluka 53288** Leech recombinant, from *S. cerevisiae* ~600 U/mg; ≥90% protein; 1 U corresponds to the amount of inhibitor which reduces the thrombin activity by 1 U at pH 7.5, 37°C, 0.274 mM Tos-Gly-Pro-Arg-4NA•AcOH as substrate, 1.348 U/L thrombin | Loison, G et al, *Biotechnology*, 6: 72, 1988

### Hirudin, (Tyr<sup>63</sup>)-

*Synonyms:* Hirudin, Desulfato-; Hirudin, Desulfo-

**Fluka 53289** Leech recombinant, from yeast C<sub>287</sub>H<sub>440</sub>N<sub>80</sub>O<sub>110</sub>S<sub>6</sub> ~600 U/mg; ≥95% (HPLC); ≥90% protein; 1 U corresponds to the amount of inhibitor which reduces the thrombin activity by 1 U at pH 7.5, 37°C, 0.274 mM Tos-Gly-Pro-Arg-4NA•AcOH as substrate, 1.348 U/L thrombin; ≤10% water; ≤0.05 U/mg endotoxin | Most potent, specific inhibitor of thrombin; Meyhack, B et al, *Thromb Res Suppl*, 7: 33, 1987; Grossenbacher, H et al, *ibid*, 7: 34, 1987; Markwardt, F et al, *Pharmazie*, 43: 202, 1988

### Histone Core

**USBio H5110-10A** Chicken erythrocytes ≥90% (SDS PAGE & coomassie blue staining) lyophilized; aseptically reconstituted to 1 mg/mL in sterile water & aliquot to avoid repeated freezing & thawing | Purified by acid extraction & TCA precipitation from chicken erythrocytes for use as a substrate in histone acetyl-transferase (HAT); an effective substrate for a number of lysine acetyl-transferases

### Histone H1

**USBio H5110-02** ≥95%; frozen solution in 1ml sterile water, sterilized through a 0.2µm membrane filter & packaged aseptically | An effective substrate for a number of serine/threoninekinases; tested by using PKCa to phosphorylate 10 µg histone H1; purified as a Lys-rich fraction

### Histone Type II-A

**Sigma H 9250** Calf thymus Lyophilized powder; unfractionated whole histone | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960

**Histone Type II-AS**

**Sigma H 7755** Calf thymus Prepared by extraction in 1 M NaCl solution, precipitation in water, acid extraction & dialysis & lyophilization | Do not confuse Sigma "Type" designations with the "Fraction" designations used by Luck & co-workers; Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960

**Histone Type III-S**

**Sigma H 5505** Calf thymus Lysine-rich fraction as isolated & described by de Nooij; characterized as mainly subgroup f<sub>1</sub> by SDS-PAGE | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960; nooij, EH & Westenbrink, HGK, *Biochim Biophys Acta*, 62: 608, 1962

**Histone Type III-SS**

**Sigma H 4524** Calf thymus Isolated as a lysine-rich fraction; characterized as mainly subgroup f<sub>1</sub> by SDS-PAGE | Tested & found suitable as a substrate for protein kinase C; phosphorylation of this histone may also be suitable in other protein kinase systems; commonly used for chromosome-reconstitution studies; Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960; nooij, EH & Westenbrink, HGK, *Biochim Biophys Acta*, 62: 608, 1968; Cicirelli, MF et al, *J Biol Chem*, 263: 2009, 1988; Cole, RD, *Int J Peptide Protein Res*, 30: 433, 1987

**Histone Type II-S**

**Sigma H 6005** Calf thymus Prepared by extraction in 1 M NaCl solution, precipitation in water, acid extraction & reprecipitation with alcohol | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960

**Histone Type VIII-S**

**Sigma H 4380** Calf thymus Arginine-rich subgroup f<sub>3</sub> isolated by a modification of the method of Johns; other subgroups | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960; Johns, EW, *Biochem J*, 92: 55, 1964

**Histone Type VII-S**

**Sigma H 4255** Calf thymus Slightly Lysine-rich subgroup f<sub>2b</sub> as isolated & described by Johns; other subgroups | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960; Johns, EW, *Biochem J*, 92: 55, 1964

**Histone Type VI-S**

**Sigma H 6881** Calf thymus Mixture of arginine-rich subgroup f<sub>2a1</sub> & slightly Lysine-rich subgroup f<sub>2a2</sub> as isolated & described in Johns; other subgroups | Luck, JM et al, *J Biol Chem*, 233: 1407, 1958; Satake, K et al, *J Biol Chem*, 235: 2801, 1960; Johns, EW, *Biochem J*, 105: 611, 1967

**HIV I & II C-Terminal gp120 + gp41/gp36**

**Biodesign R49132** Recombinant Purified | Infectious disease antigen

**HIV I C-Terminal gp120 + gp41**

**Biodesign R49550** Recombinant Purified | Infectious disease antigen

**HIV I Envelope Protein 101, SF-2 Isolate**

**IBT HI1A-610-4, HI1A610-5** Yeast cells, as a fusion with human superoxide dismutase MW 41.7k >90%; 1 mg/mL solution in PBS, 20 mM DTT, 0.1% SDS, 2 mM EDTA, pH 7.4 | Covers Ala<sup>548</sup> to Leu<sup>767</sup> of HIV-1 (SF2 isolate) envelope protein

**HIV I Envelope Protein 131, SF-2 Isolate**

**IBT HI1A-620-4, HI1A-620-5** Yeast cells, as a fusion with human superoxide dismutase MW 35.6k >90%; 1 mg/mL solution in PBS, 10 mM EDTA, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Val<sup>473</sup> to Leu<sup>668</sup> (D Ala<sup>518</sup> to Val<sup>546</sup>) of HIV-1 (SF-2 isolate) envelope protein

**HIV I Envelope Protein gag p17, SF-2 Isolate**

**IBT HI1A-710-4, HI1A-710-5** Yeast cells MW 14.9k >90%; 1 mg/mL solution in PBS, 1 mM EDTA, pH 7.5 | Covers Met<sup>5</sup> to Tyr<sup>138</sup> of HIV-1 gag protein (SF-2 isolate)

**HIV I Envelope Protein gp101, SF-2 Isolate**

**USBio H6003-05** Recombinant from CHO cells ≥95% purified by ion-exchange chromatography & gel filtration; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; contains the SF2 isolate AA 39-517

**HIV I Envelope Protein gp120**

**Biodesign R65906** Recombinant Purified | Infectious disease antigen

**Biodesign R65919** Recombinant Purified | Infectious disease antigen

**USBio H6003-08** Recombinant from CHO cells MW 120k (Glycosylated) ≥95% purified by ion-exchange chromatography & gel filtration; ~1 mg/mL liquid in 2X PBS, 1 mM EDTA, 1 mM EGTA (pH 7.4) | Suitable for antigenic applications in immunological; contains the SF2 isolate AA 39-517

**HIV I Envelope Protein gp120, SF-2 Isolate**

**IBT HI1A-600-4, HI1A-600-5** CHO cells MW 120k >95%; 1.0 mg/mL solution in 2X PBS, 1 mM EDTA, 1 mM EGTA, pH 7.4 | Covers Glu<sup>39</sup> to aa Arg<sup>517</sup> of HIV 1 (SF2 isolate) envelope protein

**HIV I Envelope Protein gp131**

**USBio H6003-10** Recombinant by the fusion between yeast cells & human superoxide dismutase from an isolate of HIV-1 (SF-2) envelope protein MW 35.6k ≥90% purified by ion-exchange chromatography & gel filtration; 1 mg/mL liquid in PBS, 10 mM EDTA, 0.1%SDS, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; corresponds to Val<sup>473</sup>-Leu<sup>668</sup> (D-Ala<sup>518</sup>-Val<sup>546</sup>)

**HIV I Envelope Protein gp31, SF-2 Isolate**

**IBT HI1A-700-4, HI1A-700-5** Yeast cells, as a fusion with human superoxide dismutase MW 46k >85%; 1 mg/mL solution in PBS, 10 mM DTT, 0.1% SDS, 2 mM EDTA, pH 7.3 | Covers Met<sup>737</sup> to Asp<sup>1003</sup> of HIV-1 envelope protein (SF-2 isolate)

**HIV I Envelope Protein gp41**

**Biodesign R65908** MW 146k Purified | Infectious disease antigen

**Biodesign R65907** Recombinant Purified | Infectious disease antigen

**USBio H6003-16** Recombinant ≥95% (SDS-PAGE, 280 nm, Bradford); 1 mg/mL liquid in 8 M urea, 20 mM Tris-HCl, pH 8.0, 10 mM β-MSH | Suitable for antigenic applications in immunological protocols; HIV I Envelope region AA 466-753; β-galactosidase (114kD) fused at the N-terminus; reacts strongly with human HIV positive serum

**HIV I Envelope Protein p31, SF-2 Isolate**

**USBio H6003-15** Recombinant in genetically engineered yeast cells as a fusion protein with human superoxide dismutase ≥85%; ~1 mg/mL liquid in PBS, 10 mM DTT, 0.1% SDS, 2 mM EDTA (pH7.3) | Suitable for antigenic applications in immunological protocols; covers Met<sup>737</sup>-Asp<sup>1003</sup> of the HIV-1 envelope protein (SF-2 isolate); purified by ion-exchange chromatography & gel filtration

## Proteins

### HIV I gag gp24

**Biodesign R65909** Recombinant Purified | Infectious disease antigen

**Biodesign R65910** Recombinant Purified | Infectious disease antigen

### HIV I gag p17, SF-2 Isolate

**USBio H6003-20** Recombinant yeast MW 14.9k ≥90%; 0.4 mg/mL liquid in PBS at 0.4 mg/mL in PBS, 1 mM EDTA (7.5) | Covers Met<sup>5</sup>-Tyr<sup>138</sup> of the HIV-1 gag protein (SF-2 isolate); the p17 protein is from Met<sup>5</sup>-Tyr<sup>138</sup> of the gag region of the SF2 isolate of HIV1; suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

### HIV I gag p24, SF-2 Isolate

**USBio H6005-11** Recombinant yeast (*Pichia pastoris*) ≥90%; 1 mg/mL liquid in PBS, 1 mg/mL in 30 mM Tris-HCl, 1 mM EDTA, (pH 9.0) | Suitable for antigenic applications in immunological protocols; 231 AA; covers Pro<sup>139</sup>-Leu<sup>369</sup> of the HIV-1 gag protein (SF-2 isolate); purified by ion-exchange chromatography & gel filtration

**IBT HI1A-720-4, HI1A-720-5** Yeast cells MW 27k >90%; 1 mg/mL solution in 30 mM Tris-HCl, 1 mM EDTA, pH 9.0 | Covers Pro<sup>139</sup> to Leu<sup>369</sup> of HIV-1 gag protein (SF-2 isolate)

### HIV I gag p24, Strain IIIB

**USBio H6003-25** Recombinant ≥95% (SDS-PAGE, 280 nm, Bradford); 1 mg/mL; liquid in 8 M urea, 20 mM Tris-HCl, pH 8.0, 10 mM β-MSH | Suitable for antigenic applications in immunological protocols; HIV-1 gag region AA 77-436; β-galactosidase (114kD) fused at the N-terminus; reacts strongly with human HIV positive serum

### HIV I gag Protein

**ICN 158377** Recombinant, expressed in *E. coli* >95% | Reacts with HIV positive serum; used to elicit reactive Ab

### HIV I gp160 Envelope Protein

**ICN 198752** Recombinant, expressed in *E. coli* >95% | Reacts strongly with HIV positive serum; used to elicit reactive Ab

### HIV I gp36 Envelope Protein

**ICN 198753** Recombinant, expressed in *E. coli* >95% | Reacts strongly with HIV positive serum; used to elicit reactive Ab

### HIV I gp41-1

**USBio H6004** Recombinant ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in Tris, PBS, pH 8.0 | Suitable for antigenic applications in immunological protocols; glycosylated recombinant ecto-domain of gp41 (546-682 of HxB2); heterogeneously glycosylated & is seen predominately as a series of bands from 16,000 to 28,000 Daltons on Western blot; recommended that the product be incubated at 40°C for 30 minutes for SDS PAGE

### HIV I nef

**USBio H6004-14** Recombinant ≥95% (SDS-PAGE, 280 nm, Bradford); 1 mg/mL liquid in 0.01 M sodium carbonate, 0.01 M EDTA, 0.01 M β-MSH | Suitable for antigenic applications in immunological protocols; HIV-1 nef region AA 3-190; β-galactosidase (114kD) fused at the N-terminus; reacts strongly with human HIV positive serum

### HIV I nef Protein

**ICN 198754** Recombinant, expressed in *E. coli* >95% | Reacts strongly with HIV positive serum; used to elicit reactive Ab

### HIV I N-Terminal gp24

**Biodesign R3B304** Recombinant Purified | Infectious disease antigen

### HIV I N-Terminal gp41-1

**Biodesign R3B301** Recombinant Purified; glycosylated | Infectious disease antigen

### HIV I p24

**Biodesign R49301** Recombinant Purified | Infectious disease antigen

### HIV II Envelope Protein (390-702)

**Biodesign R8A114** Recombinant MW 34k Purified | Infectious disease antigen

### HIV II Envelope Protein 201

**USBio H6009-10** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

**USBio H6009-11** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Purified by ion-exchange chromatography & gel filtration

**IBT HI2A-800-4, HI2A-800-5** Yeast cells, as a fusion with human superoxide dismutase MW 33k >92%; 1 mg/mL solution in PBS, 0.1% SDS, 2 mM EDTA, pH 7.5 | Covers Ala<sup>548</sup> to Lys<sup>708</sup> (D Val<sup>686</sup>-Ala<sup>704</sup>) of the envelope antigen of HIV-2 isolate UC1.

### HIV II Envelope Protein 300

**USBio H6009-12** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

**IBT HI2A-810-4, HI2A-810-5** Yeast cells, as a fusion with human superoxide dismutase MW 37k Covers Tyr<sup>457</sup> to Asp<sup>654</sup> (D Gly<sup>509</sup>-Ala<sup>530</sup>) of the envelope protein of HIV-2 (ISYR isolate)

### HIV II Envelope Protein 310

**USBio H6009-14** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

### HIV II Envelope Protein 310, ISYR Isolate

**IBT HI2A-820-4, HI2A-820-5** Yeast cells, as a fusion with human superoxide dismutase MW 37k >90%; 1.0 mg/mL solution in PBS, 0.10% SDS, 2 mM EDTA, pH 7.5 | Covers Tyr 457 to Asp 654 (D Gly 509-Ala 530) of the envelope protein of HIV-2 (ISYR isolate)

### HIV II Envelope Protein 320

**USBio H6009-16** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

### HIV II Envelope Protein 320, UC2 Isolate

**IBT HI2A-830-4, HI2A-830-5** Yeast cells, as a fusion with human superoxide dismutase MW 37k >90% | Covers Tyr<sup>469</sup> to Asp<sup>666</sup> (D Gly<sup>521</sup>-Ala<sup>542</sup>) of the envelope protein of HIV-2 (UC2 isolate)

### HIV II Envelope Protein gp36

**Biodesign R65911** Recombinant MW 148k Purified | Infectious disease antigen

### HIV II gag p26

**USBio H6009-20** Recombinant ≥95%; ~1 mg/mL liquid in PBS, 1 mM EDTA, 1 mM EGTA | Suitable for antigenic applications in immunological protocols; purified by ion-exchange chromatography & gel filtration

**HIV II gag p26, UC-1 Isolate**

**IBT HI2A-850-4, HI2A-850-5** Yeast cells, as a fusion with human superoxide dismutase MW 26k >90% | Covers Val<sup>132</sup> to Leu<sup>360</sup> of HIV-2 gag protein (UC-1 isolate)

**HIV II gp36**

**USBio H6009-40** Recombinant ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in Tris, PBS, pH 8.0 | Suitable for antigenic applications in immunological protocols; glycosylated recombinant ecto-domain of gp 36 (534-654 of ST)

**HIV II N-Terminal gp36**

**Biodesign R3B306** Recombinant Purified | Infectious disease antigen

**HIV Inhibitory Protein**

**ICN 159836** *Oxyuranus scutellatus* (Australian taipan) venom MW 13k Purified (single band by SDS-PAGE) | Inhibits replication of HIV-1 & -2 viruses in cell culture

**HTLV I Envelope Protein 701**

**USBio H7950-10** Recombinant Suitable for antigenic applications in immunological protocols

**HTLV I Envelope Protein 701, ATK-1 Isolate**

**IBT HTIA-900-4, HTIA-900-5** Yeast cells, as a fusion with human superoxide dismutase MW 46k >90%; 0.5 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Asp<sup>166</sup> to Arg<sup>440</sup> of HTLV-I envelope protein (isolate ATK-1)

**HTLV I Envelope Protein 702**

**USBio H7950-20** Recombinant Suitable for antigenic applications in immunological protocols

**HTLV I Envelope Protein 702, ATK-1 Isolate**

**IBT HTIA-910-4, HTIA-910-5** Yeast cells, as a fusion with human superoxide dismutase MW 44.5k >90%; 0.5 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Asp<sup>166</sup> to Arg<sup>440</sup> (D Ala<sup>313</sup> to Ala<sup>331</sup>) of HTLV-I envelope protein (isolate ATK-1)

**HTLV I Envelope Protein RE1**

**ICN 158369** MT-2 isolate, expressed in *E. coli* Immunoreactive with ATL(+) patient sera | Spans the envelope region; includes regions unique to the transmembrane & 175 AA from the highly immunogenic external portions of the HIV envelope, as well as the junction portion of the envelope

**HTLV I Envelope Protein RE3**

**ICN 158370** MT-2 isolate, expressed in *E. coli* Immunoreactive with ATL(+) patient sera | Spans the envelope region; includes regions unique to the transmembrane & 142 AA from the highly immunogenic external portions of the HIV envelope, as well as the junction portion of the envelope

**HTLV I Envelope Protein RE5**

**ICN 158371** MT-2 isolate, expressed in *E. coli* Immunoreactive with ATL(+) patient sera | Spans the envelope region; includes 128 AA from the immunogenic regions unique to the transmembrane & 6 AA from the highly immunogenic external portions of the HIV envelope, as well as the junction portion of the envelope

**HTLV I Envelope Protein RE6**

**ICN 158372** MT-2 isolate, expressed in *E. coli* Immunoreactive with ATL(+) patient sera | Spans the envelope region; includes 128 AA from the immunogenic regions unique to the transmembrane & 6 AA from the highly immunogenic external portions of the HIV envelope, as well as the junction portion of the envelope (RE3 + RE5)

**HTLV I gag p19**

**USBio H7950-30** Recombinant Suitable for antigenic applications in immunological protocols

**HTLV I gag p19, ATK-1 Isolate**

**IBT HTIA-980-4, HTIA-980-5** Yeast cells, as a fusion with human superoxide dismutase MW 30.7k >90%; 0.50 mg/mL solution in PBS, 1 mM EDTA, pH 7.4 | Covers Met<sup>1</sup> to Leu<sup>130</sup> of HTLV-I gag protein (isolate ATK-1)

**HTLV I gag p24**

**USBio H7950-40** Recombinant Suitable for antigenic applications in immunological protocols

**HTLV I gag p24, ATK-1 Isolate**

**IBT HTIA-990-4, HTIA-990-5** Yeast cells MW >95%; 1 mg/mL solution in PBS, 0.1% SDS, 2 mM EDTA, pH 7.5 | Covers Pro<sup>131</sup> to Leu<sup>344</sup> of HTLV-I gag protein (isolate ATK-1)

**HTLV I gp46**

**Biodesign R49142** Recombinant Purified | Infectious disease antigen

**HTLV I p24**

**Biodesign R49152** Recombinant Purified | Infectious disease antigen

**HTLV II Envelope Protein 801**

**USBio H7951-10** Suitable for antigenic applications in immunological protocols

**HTLV II Envelope Protein 801, H6.0/MO Isolate**

**IBT HTIIA-1160-4, HTIIA-1160-5** Yeast cells, as a fusion with human superoxide dismutase MW >90%; 1 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Ala<sup>163</sup> to Arg<sup>436</sup> of HTLV-II envelope protein (H6.0/MO isolate)

**HTLV II Envelope Protein 802**

**USBio H7951-20** Suitable for antigenic applications in immunological protocols

**IBT HTIIA-1170-4, HTIIA-1170-5** Yeast cells, as a fusion with human superoxide dismutase MW 30k >90%; 1 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.4 | Covers Ala<sup>309</sup> to Gln<sup>440</sup> of HTLV-II envelope protein (lambda H6.0 isolate)

**HTLV II gag p19**

**USBio H7951-30** Suitable for antigenic applications in immunological protocols

**HTLV II gag p19, Lambda H6.0 Isolate**

**IBT HTIIA-1200-4, HTIIA-1200-5** Yeast cells, as a fusion with human superoxide dismutase MW 15k >90%; 1 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Met<sup>1</sup> to Phe<sup>136</sup> of HTLV-II gag protein (lambda H6.0 isolate)

**HTLV II gag p24**

**USBio H7951-40** Suitable for antigenic applications in immunological protocols

**HTLV II gag p24, Lambda H6.0 Isolate**

## Proteins

**IBT HTIIA-1190-4, HTIIA-1190-5** Yeast cells, as a fusion with human superoxide dismutase MW 24k >90%; 1 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, pH 7.5 | Covers Pro<sup>137</sup> to Leu<sup>350</sup> of HTLV-II gag protein (lambda H6.0 isolate)

### HVEM/Fc Chimera

**Synonyms:** TNFRSF14

**R&D Systems 356-HV-100** Human recombinant, NSO-expressed >95%; lyophilized; ED<sub>50</sub>: 0.5-2 µg/mL | Species specificity: human HVEM; LIGHT, a member of the TNF family can trigger apoptosis of cells expressing both HVEM & LTβR & its cytotoxicity can be blocked by HVEM- or LTβR-Fc fusion proteins; Zhai, Y et al, *J Clin Invest*, 63: 1142, 1998

### I-309

**Biodesign A52037H** *E. coli* >99%

**Chemicon GF067** Human >95%

**PeproTech 300-37** Human recombinant, expressed in *E. coli* MW 8.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Small glycoprotein secreted by activated T lymphocytes; structurally related to other CC chemokines; 74 AA; SA determined by its ability to chemoattract total human T cell population

### Immunoglobulin A

**Sigma I 0633** Human Reagent grade; lyophilized; purified from pooled colostrum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 1010** Human Reagent grade; lyophilized; purified from pooled colostrum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 2636** Human Reagent grade liquid; purified from pooled colostrum; ≥95%; supplied in buffered solution with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1890-10** Human ≥50%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 3.4 mg/mL protein; supplied in 0.1 M NaCl, 0.1 M phosphate, 0.1% NaN<sub>3</sub>, pH 7.5 | Suitable for antigenic applications in immunological protocols

**USBio I1890-12** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1.65 mg/mL supplied in 0.1 M Tris, pH 8.0, 0.1 M NaCl & 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biogenesis 5111-5504** Human colostrum Tested negative for Ab to HIV and HBsAg; <10% moisture; purified; essentially salt free; lyophilized | Useful as a antigen, standard, blocking agent or coating protein in a variety of immunoassays including ELISA, dot immunobinding, Western immunoblotting, immunodiffusion and immunoelectrophoresis

**Biogenesis 5104-6017** Human myeloma serum Lyophilized

**Biogenesis 5104-6004** Human serum Purified; 0.02 M potassium phosphate, 0.15 M NaCl, pH 7.2 with 0.01% NaN<sub>3</sub>; sterile filtered; liquid

**Biogenesis 5107-1004** Human serum Liquid

**USBio I1890-13** Human, secretory (colostrum) Suitable for antigenic applications in immunological protocols; single band in immunoelectrophoresis with anti-IgA antibodies; reconstitute to 1 mg/mL in 150mM NaCl

**Biogenesis 5105-1004** Mouse ascites Purified; phosphate buffer, pH 7.0; liquid

**Biogenesis 5107-5004** Rat myeloma Liquid

### Immunoglobulin A, α-

**Dako X0594** >95% | Antigen useful as an immunogen

### Immunoglobulin A, κ- (TEPC 15)

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 1421** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 7269** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin A, λ- (MOPC 315)

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 2046** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 2396** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin D

**Biogenesis 5112-0506** Human serum Lyophilized

### Immunoglobulin E

**Biogenesis 5118-6316** Human Serum; liquid

**Biogenesis 5118-6004** Human myeloma serum No detectable IgG, IgM or IgA; may contain ≤2% IgE fragments; SA: 1.24 x 10<sup>6</sup> IU/mL; tested negative for HIV 1 and 2, HBV and HCV; purified; 10 mM potassium phosphate, 100 mM NaCl, 0.1 % NaN<sub>3</sub>, pH 8.0; liquid

**Biogenesis 5118-6104** Human myeloma serum Tested negative for HIV 1 and 2, HBsAg and Hepatitis C; serum; with 0.1% NaN<sub>3</sub>; liquid

**USBio I1900-51** Human myeloma serum ≥95% (SDS-PAGE); ~1 mg/mL supplied in PBS, pH 7.5, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biogenesis 5118-8704** Rat >80% by agarose electrophoresis; purified; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid | Bazin et al, *J Immunol Meth*, 71:9, 1984

**Biogenesis 5118-8710** Rat myeloma Purified; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid | *Eur J Immunol*, 4:44, 1974; *Immunology*, 26:713, 1974

**Biogenesis 5118-7204** Rat myeloma serum Purified Ig

### Immunoglobulin E, κ-

**USBio I1900-50** Human myeloma serum (Thomas) ≥99%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~1 mg/mL supplied in 0.1 M Tris, 0.2 M NaCl, pH 7.5, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Immunoglobulin G

**Sigma I 5506** Bovine Reagent grade; lyophilized; purified immunoglobulin from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents



**Sigma I 9640** Bovine Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1903-07** Bovine Protease: none detected; 98% protein purity; lyophilized, pH 7.0 | Suitable for antigenic applications in immunological protocols;

**USBio I1903-09** Bovine Protease: none detected; 98% protein purity; lyophilized, pH 7.0 | Suitable for antigenic applications in immunological protocols;

**USBio I1903** Bovine normal sera Highly purified; lyophilized; white; total protein: 5.0 ± 1.0g/dL; OD: 0.01 to 0.03; γ-globulin: ≥99.0%; Na: ≤20 mEq/L; K: ≤0.5 mEq/L; Cl: ≤1 mEq/L; pH: 7.0 ± 0.3; microbial: 0 cf U/mL; moisture: ≤2.0%; ash: ≤2.0%; protease: none detected | Suitable for antigenic applications in immunological protocols; isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation

**Biogenesis 5124-5004** Bovine serum Purified; 0.01 M phosphate buffer with 15 mM NaCl, pH 7.2; lyophilized

**Sigma I 4256** Cat Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 4881** Chicken Reagent grade; lyophilized from phosphate buffer (~80% protein); purified from pooled normal serum; ≥95%; preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1903-17** Chicken ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 10 mg/mL supplied in PBS, pH 7.2, preservative-free | Suitable for antigenic applications in immunological protocols

**USBio I1903-15** Chicken pooled normal sera Highly purified; lyophilized; purity (SDS PAGE): 98 ± 2%; pH: 7.0 ± 0.2 after reconstitution; essentially salt free (≤ 1.0%) | Suitable for antigenic applications in immunological protocols; isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Sigma I 4006** Dog Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1903-20** Equine pooled normal sera Purity (SDS PAGE): 98 ± 2%; pH: 7.0 ± 0.2 after reconstitution; lyophilized; essentially salt free (≤ 1.0%) | Suitable for antigenic applications in immunological protocols; isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Sigma I 5256** Goat Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 9140** Goat Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1903-31** Goat ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 20 mg/mL supplied in 0.05 M PBS | Suitable for antigenic applications in immunological protocols

**Biogenesis 5160-5004** Goat n/a serum Purified; 10 mM sodium phosphate, 15 mM NaCl, pH 7.2; lyophilized

**USBio I1903-25** Goat pooled normal sera Purity (SDS PAGE): 98 ± 2%; pH: 7.0 ± 0.2 after reconstitution; lyophilized; essentially salt free (≤ 1.0%) | Suitable for antigenic applications in immunological protocols; isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Sigma I 4756** Guinea pig Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1903-44** Guinea pig ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 20 mg/mL supplied in 0.05 M PBS | Suitable for antigenic applications in immunological protocols; highly purified solution used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation

**USBio I1903-40** Guinea pig pooled normal sera Purity (SDS PAGE): ≥90%; pH: 7.0 ± 0.2 after reconstitution; lyophilized; essentially salt free | Suitable for antigenic applications in immunological protocols; isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Biogenesis 5166-5029** Guinea pig serum Lyophilized

**USBio I1903-50** Hamster ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 25 mg/mL; lyophilized from 0.01 M sodium phosphate, 0.14 M NaCl, pH 7.4; no preservative added | Suitable for antigenic applications in immunological protocols

**Sigma I 4631** Horse Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 2511** Human Reagent grade; liquid; purified from pooled normal serum; ≥95%; supplied in buffered solution with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 4506** Human Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 8640** Human Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Biogenesis 5172-9017** Human myeloma serum Tested negative for HBsAg and HIV antibody; purified; lyophilized

## Proteins

**Biogenesis 5172-9007** Human serum Tested negative for HBsAg, HCV, HIV-1, HIV-2; purified; essentially salt free, from 50 mM NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 5175-5004** Human serum Liquid

**Biogenesis 5212-3004** Human serum Purified; 0.02 M potassium phosphate, 0.15 M NaCl, pH 7.2; liquid

**Fluka 56834** Human serum ≥95% (GE); ≥95% protein | Standard in solid-phase radioimmunoassay specific for human IgG; Gorevic, PD et al, *Meth Enzymol*, 116: 3, 1985; Frade, R et al, *Meth Enzymol*, 93: 155, 1983; Creswick, P, *Meth Enzymol*, 108: 254, 1984; Lindstrom, J et al, *Meth Enzymol*, 74: 432, 1981

**Sigma I 5381** Mouse Reagent grade; lyophilized from phosphate buffer (~80% protein); purified from pooled normal serum; ≥95%; preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 8765** Mouse Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1904-24** Mouse pooled normal sera Single band (SDS-PAGE); supplied in 10 mg/mL, 10 mM sodium phosphate, 0.15 M NaCl, no preservative, pH 7.2 | Suitable for antigenic applications in immunological protocols; highly purified & isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation

**USBio I1904-26** Mouse pooled normal sera Purity (SDS PAGE): 98 ± 2%; pH: 7.0 ± 0.2 after reconstitution; lyophilized; essentially salt free | Suitable for antigenic applications in immunological protocols; highly purified & isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Biogenesis 5183-1504** Mouse serum Affinity purified Ig; PBS buffer, pH 7.2; liquid

**USBio I1904-12** Murine ascites 10 mg/mL supplied in 10 mM sodium phosphate, 0.15 M NaCl, pH 7.2, no preservative added | Suitable for antigenic applications in immunological protocols

**Fluka 56832** Murine serum ≥95% (GE); ≥80% protein; lyophilized from 10 mM sodium phosphate & 15 mM NaCl solution, pH 7.2; ≤5% water | Used in preparation of anti-mouse Ig for bridging primary monoclonal antibodies to PAP or APAAP complexes; Lansdorp, PM et al, *Meth Enzymol*, 121: 855, 1986; Soloski, MJ & Vitetta, ES, *Meth Enzymol*, 108: 549, 1984

**Biogenesis 5184-4006** Ovine serum Lyophilized

**Sigma I 4382** Pig Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Biogenesis 5190-5004** Porcine serum Affinity purified Ig; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, salt free; lyophilized

**Sigma I 5006** Rabbit Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 8140** Rabbit Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1904-30** Rabbit Purity (SDS PAGE): 98 ± 2%; pH: 7.0 ± 0.2 after reconstitution; lyophilized; essentially salt free | Suitable for antigenic applications in immunological protocols; highly purified & isolated by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation; purified by ion exchange or gel filtration chromatography

**Biogenesis 5196-5004** Rabbit serum Affinity purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Fluka 56830** Rabbit serum ≥95% (GE); ≥90% protein; ≤10% water | Used in production of anti-rabbit immunoglobulin G; white, ME, *J Animal Sci*, 67: 3144, 1989

**Sigma I 4131** Rat Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 8015** Rat Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1904-52** Rat ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 10 mg/mL supplied in PBS with NaCl, pH 7.2 | Suitable for antigenic applications in immunological protocols

**USBio I1904-50** Rat pooled normal sera Highly purified; ≥90% (SDS PAGE): pH: 7.0 ± 0.2 after reconstitution, stable; lyophilized; essentially salt free lyophilized | Suitable for antigenic applications in immunological protocols; highly purified lyophilized isolated from by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation

**Biogenesis 5207-3004** Rat serum Purified; PBS buffer, pH 7.2; lyophilized

**Sigma I 4385** Rhesus (monkey) Reagent grade; lyophilized; purified from pooled normal serum; ≥95%; essentially salt-free preparation may be reconstituted with 150 mM NaCl | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Sigma I 8265** Sheep Technical grade; liquid; purified immunoglobulin from pooled normal serum; ≥80%; supplied in 0.01 M phosphate buffered saline, pH 7.2, with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1904-64** Sheep No contaminants detected by IEP; 70 mg/mL; lyophilized; 20 mM sodium phosphate, 150 mM NaCl, pH 7.3; no preservative | Suitable for antigenic applications in immunological protocols

**USBio I1904-56** Sheep pooled normal sera 98 ± 2% (SDS PAGE); pH: 7.0 ± 0.2 after reconstitution, stable; lyophilized; essentially salt free | Suitable for antigenic applications in immunological protocols; highly purified lyophilized isolated from by an exclusive fractionation process & further processed by ion exchange or gel filtration chromatography; used for *in vitro* diagnostics as a blocking agent, reference standard, antigen or coating protein & in biological systems for immunogen preparation

### Immunoglobulin G, Affinity Purified

**USBio I1904-38** Rabbit Filtration: 0.2um | Suitable for antigenic applications in immunological protocols

### Immunoglobulin G, Fc

**USBio I1903-64** Human ≥60%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 7.5 mg/mL supplied in 0.1 M buffer, 0.2 M NaCl, 0.1% NaN<sub>3</sub> as preservative, pH 7.6 | Suitable for antigenic applications in immunological protocols

**USBio I1903-74** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~2 mg/mL supplied in 0.05 M Tris, 0.2 M NaCl, pH 8.0, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**USBio I1904-16** Mouse ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.7 mg/mL supplied in PBS, pH 7.5, 0.01% NaN<sub>3</sub> used as a preservative | Suitable for antigenic applications in immunological protocols; prepared from highly purified mouse serum- delipidated & fractionated, purified ion-exchange chromatography & papain digestion

#### Immunoglobulin G, FITC Conjugated

**Sigma F 7381** Goat FITC conjugated to goat IgG; purified; liquid at ~20 mg/mL protein concentration in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as preservative | Non-reactive with human IgG, IgA, IgM, Bence Jones Kappa & Lambda, normal human serum & the appropriate animal serum proteins by immunoassay

**Sigma F 9636** Human FITC conjugated to human IgG; purified; liquid at ~20 mg/mL protein concentration in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as preservative | Non-reactive with human IgG, IgA, IgM, Bence Jones Kappa & Lambda, normal human serum & the appropriate animal serum proteins by immunoassay

**Sigma F 7256** Rabbit FITC conjugated to rabbit IgG; purified; liquid at ~20 mg/mL protein concentration in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as preservative | Non-reactive with human IgG, IgA, IgM, Bence Jones Kappa & Lambda, normal human serum & the appropriate animal serum proteins by immunoassay

#### Immunoglobulin G, H&L

**USBio I1903-90** Human ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 80 mg/mL (OD 280 nm) supplied in 0.1 M sodium phosphate buffer, 0.2 M NaCl, pH 7.4 | Suitable for antigenic applications in immunological protocols

#### Immunoglobulin G, γ

**Dako X0593** >95% | Antigen useful as an immunogen

#### Immunoglobulin G1

**Biogenesis 5219-3004** Human myeloma serum or urine Tested negative for HBsAg, and antibodies to HIV and HCV; purified serum; Tris buffer (see s); liquid

**Biogenesis 5220-3059** Mouse Affinity purified Ig; PBS buffer, pH 7.2, 10 mM NaN<sub>3</sub>, 1 mg/mL BSA; liquid | Negligible cross reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful for estimating non-specific binding of mouse monoclonals to cell surface antigens; useful as an isotype control for indirect immunofluorescence when using mouse monoclonal antibodies; suitable for whole blood, Ficoll-separated preparations, frozen and paraffin embedded tissue sections

**Biogenesis 5220-3062** Mouse FITC conjugated; PBS buffer, pH 7.2, 10 mM NaN<sub>3</sub>, 1 mg/mL BSA; liquid | Negligible cross reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful for estimating non-specific binding of mouse monoclonals to cell surface antigens; useful as an isotype control for direct immunofluorescence when using mouse monoclonal antibodies. Suitable for whole blood, Ficoll-separated preparations, frozen and paraffin embedded tissue sections

**Biogenesis 5220-3067** Mouse PE conjugated

**Biogenesis 5220-2959** Mouse clone MOPC-21 Liquid

**Biogenesis 5221-3059** Rat Affinity purified Ig; PBS buffer, pH 7.2, 1% BSA, 0.1% NaN<sub>3</sub>; liquid | Negligible cross-reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful as an isotype control for indirect immunofluorescence when using rat monoclonal antibodies; suitable for whole blood, Ficoll-separated preparations, frozen and paraffin embedded sections

#### Immunoglobulin G1, FITC Conjugated

**Biogenesis 5221-3062** Rat

#### Immunoglobulin G1, PE Conjugated

**Biogenesis 5221-3067** Rat

#### Immunoglobulin G1, κ-

**USBio I1904-77** Human myeloma ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 3-4 mg/mL supplied in 0.02 M Phosphate buffer, 0.15 M NaCl, pH 7.5 & 0.05% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Sigma I 3889** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

#### Immunoglobulin G1, κ- (MOPC 21)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 7894** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 9269** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

#### Immunoglobulin G1, κ- (MOPC 31C)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 1398** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 9035** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

#### Immunoglobulin G1, λ-

**Sigma I 4014** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

#### Immunoglobulin G2

**Biogenesis 5225-3004** Human myeloma serum

#### Immunoglobulin G2, α-

**USBio I1904-17** Murine ascites 1 mg/mL sterile-filtered liquid in PBS, pH 7.2, 0.01% NaN<sub>3</sub> | Suitable for use as a control or standard in flow cytometry & immunohistochemistry; prepared from immunodeficient murine ascites by protein A chromatography; exhibits <1% purity cross reactivity against other murine & human heavy or light chains isotypes by ELISA

#### Immunoglobulin G2, α- FITC Conjugated

## Proteins

**USBio I1904-17A** Murine ascites MW 390k 1 mg/mL; lyophilized in PBS, pH 7.2, 10 mg/mL BSA, 0.01% Thimerosal, conjugated to FITC | Suitable for use as a control or standard in flow cytometry; fluorochrome/protein ratio: 2.1 moles FITC per mole of murine IgG2a; prepared from immunodeficient murine ascites by Protein A chromatography; exhibits less than 1% purity cross reactivity against other murine & human heavy or light chains isotypes by ELISA

### Immunoglobulin G2, κ-

**USBio I1904-79** Human myeloma ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 2 mg/mL supplied in 0.02 M Phosphate buffer, 0.15 M NaCl, pH 7.4 & 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Suitable for antigenic applications in immunological protocols; the heavy chain of myeloma IgG may appear as either a single or double band on gel electrophoresis

**Sigma I 4139** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

**Sigma I 4264** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

### Immunoglobulin G2a

**Biogenesis 5230-3062** Mouse FITC conjugated; PBS buffer, pH 7.2, 1% BSA, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Negligible cross-reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful as isotope control (non-specific binding) for direct and indirect immunofluorescence when using mouse monoclonal antibodies; suitable for whole blood, Ficol separated preparations, frozen and paraffin embedded sections

**Biogenesis 5230-3029** Mouse clone RPC-5 Liquid

**Biogenesis 5230-3004** Mouse monoclonal myeloma (2031/13) Purified; PBS buffer, pH 7.2, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | IgG2a is the only subclass detected in ELISA subclass assay

**Biogenesis 5231-2559** Rat monoclonal

**Biogenesis 5230-3059** Unconjugated monoclonal Affinity purified Ig

### Immunoglobulin G2a, FITC Conjugated

**Biogenesis 5231-2562** Rat

### Immunoglobulin G2a, PE Conjugated

**Biogenesis 5230-3067** Mouse Affinity purified Ig

**Biogenesis 5231-2567** Rat

### Immunoglobulin G2a, κ- (UPC 10)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 7769** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 9144** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin G2a, λ- (HOPC 1)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 6034** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin G2b

**Biogenesis 5236-3059** Mouse Affinity purified Ig; PBS buffer, pH 7.2, 1 mg/mL BSA, 10 mM Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Negligible cross-reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful for estimating non-specific binding of mouse monoclonals to cell surface antigens; useful as an isotype control for indirect IF when using mouse monoclonal antibodies; suitable for whole blood, Ficol-separated preparations and frozen and paraffin embedded tissue sections

**Biogenesis 5236-3062** Mouse FITC conjugated; PBS buffer, pH 7.2, 1 mg/mL BSA, 10 mM Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Negligible cross-reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful as an isotype control for direct IF when using mouse monoclonal antibodies; suitable for whole blood, Ficol-separated preparations, frozen and paraffin embedded tissue sections

**Biogenesis 5236-3067** Mouse PE conjugated

**Biogenesis 5236-3004** Mouse clone MOPC-195

**Biogenesis 5237-2562** Rat FITC conjugated

**Biogenesis 5237-2567** Rat PE conjugated

### Immunoglobulin G2b, κ- (MOPC 141)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 7644** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 8894** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin G2b, κ- (MOPC 195)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 1395** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin G3

**Biogenesis 5248-3004** Human myeloma serum Liquid

**Biogenesis 5249-3004** Mouse myeloma serum Liquid

### Immunoglobulin G3, κ- (FLOPC 21)

*Synonyms:* Myeloma Protein, Mouse

**Sigma M 1645** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 3645** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

**Immunoglobulin G3, λ-**

**USBio I1904-85** Human myeloma ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~2.0 mg/mL supplied in 0.02 M Phosphate buffer, 0.15 M NaCl, pH 7.5 | Suitable for antigenic applications in immunological protocols

**Sigma I 4514** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

**Immunoglobulin G3, λ- (Y5606)**

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 7519** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 9019** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.02 M Tris buffered saline, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

**Immunoglobulin G4**

**Biogenesis 5254-3004** Human myeloma plasma Tested negative for HBsAg, anti-HCV, anti-HBc and anti HIV; purified; 20 mM sodium phosphate buffer, pH 7.4, with 150 mM NaCl and 0.05% NaN<sub>3</sub>; liquid

**Immunoglobulin G4, κ-**

**USBio I1904-91** Human myeloma ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 3.2 mg/mL supplied in 0.02 M Phosphate buffer, 0.15 M NaCl, pH 7.5 & 0.05% NaN<sub>3</sub> as preservative | Suitable for antigenic applications in immunological protocols

**Sigma I 4389** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; lyophilized from phosphate buffer, pH 7.2 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

**Sigma I 4639** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; frozen liquid in 0.02 M Tris buffered saline, pH 8.0 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

**Sigma I 4764** Human myeloma plasma Purified & isolated by fractionation, ion-exchange &/or affinity chromatography; purity & identity determined by immunoelectrophoresis, indirect ELISA & SDS-PAGE; frozen liquid in 0.02 M Tris buffered saline, pH 8.0 | IgG subclass; each purified immunoglobulin represents a single subclass & light chain type

**Immunoglobulin Heavy Chain Binding Protein**

**Synonyms:** GRP78

**Sigma B 1174** Calf liver MW 78k Lyophilized powder containing 20 mM HEPES, pH 7.5, 25 mM KCl, 5 mM MgCl<sub>2</sub> & 100 mg/mL trehalose | Molecular chaperone found in endoplasmic reticulum lumen; involved in protein folding & translocation through the ER membranes; low basal level of ATPase activity which is stimulated by various peptides; Gething, M-J & Sambrook, J, *Nature*, 355: 33, 1992; Wei, J et al, *J Biol Chem*, 270: 26677, 1995; Blond-Elguindi, S et al, *J Biol Chem*, 268: 12730, 1993; Shirai, N et al, *J Biochem*, 121: 787, 1997

**Immunoglobulin M**

**Sigma I 8135** Bovine Reagent grade; liquid; purified from pooled normal serum; ≥95%; supplied in buffered solution with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**Biogenesis 5272-3004** Bovine serum Purified; 0.1 M Tris chloride, 0.5 M NaCl, pH 8.0, 0.1% NaN<sub>3</sub>; liquid (sterile)

**Biogenesis 5273-3004** Canine Purified; 0.1 M TRIS Chloride, 0.5 M NaCl and 0.1% NaN<sub>3</sub>, pH 8.0; liquid

**Biogenesis 5273-5509** Feline serum Liquid

**Sigma I 8260** Human Reagent grade; liquid; purified from pooled normal serum; ≥95%; supplied in buffered solution with 15 mM sodium azide as preservative | Human & animal proteins may be used as antigens, standards, coating proteins & blocking agents; also used as starting materials for the preparation of immunogens & solid-phase immunoabsorbents

**USBio I1905-25** Human myeloma ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; hImmunoglobulin M: 100%, hIgG: 0%, hIgA: 0%, hIgE: 0%, hIgD: 0%; 10 mg/mL; lyophilized from 0.05 M Tris, pH 8.0, 0.2 M NaCl, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biogenesis 5275-5504** Human myeloma serum Tested negative for HBsAg and HIV antibody; purified; lyophilized

**Biogenesis 5275-5004** Human plasma Tested negative for HIV-1, HBsAg and anti HCV; purified; PBS buffer, pH 7.2, 0.01% NaN<sub>3</sub>; liquid

**Biogenesis 5278-8704** Human serum Liquid

**Biogenesis 5276-5059** Mouse Unconjugated

**Biogenesis 5276-5062** Mouse FITC conjugated

**Biogenesis 5276-5067** Mouse PE conjugated

**Biogenesis 5276-4930** Mouse clone ABPC-22

**Biogenesis 5276-4950** Mouse clone MOPC-104E

**Biogenesis 5276-5004** Mouse serum Purified Ig; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid

**Biogenesis 5276-6504** Porcine serum Purified; 0.1 M Tris chloride, 0.5 M NaCl, pH 8.0 with 0.1% NaN<sub>3</sub>; sterile filtered; liquid

**Biogenesis 5277-5059** Rat Purified Ig; PBS buffer, pH 7.2, 10 mM NaN<sub>3</sub>; liquid | Negligible cross-reactivity with human cell surface antigens on tissue sections or in cellular preparations; useful for estimation of non-specific binding of rat monoclonals to cell surface antigens; useful as an isotype control for indirect immunofluorescence when using rat monoclonal antibodies. Suitable for whole blood, Ficoll-separated preparations, frozen and paraffin embedded sections

**Biogenesis 5277-5062** Rat FITC conjugated

**Biogenesis 5277-5067** Rat PE conjugated

**Biogenesis 5277-5004** Rat serum Purified; 0.1 M Tris Chloride, 0.5 M NaCl, pH 8.0, 0.1% NaN<sub>3</sub>; sterile filtered; liquid

**Immunoglobulin M, κ- (ABPC 22)**

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 7394** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Immunoglobulin M, κ- (TEPC 183)**

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 1520** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains ≥5 mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

## Proteins

**Sigma M 3795** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.05 M Tris & 0.5 M NaCl, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin M, $\lambda$ - (MOPC 104E)

**Synonyms:** Myeloma Protein, Mouse

**Sigma M 2521** Mouse Clarified ascites fluid prepared by centrifugation & filtration; characterized by immunoelectrophoresis; each vial contains  $\geq 5$  mg specific myeloma immunoglobulin as determined by immunoelectrophoresis & quantitative densitometry; lyophilized from 0.01 phosphate buffered saline, pH 7.2 | Potter, M, *Phy Rev*, 52: 631, 1972

**Sigma M 5170** Mouse Purified immunoglobulin prepared from ascites fluid by fractionation & ion-exchange or affinity chromatography; tested by immunoelectrophoresis & SDS-PAGE; each vial contains 1 mg protein (by extinction); liquid in 0.05 M Tris & 0.5 M NaCl, pH 8.0 with 0.02% sodium azide as preservative | Potter, M, *Phy Rev*, 52: 631, 1972

### Immunoglobulin M, $\mu$ -

**Dako X0595**  $>95\%$  | Antigen useful as an immunogen

### Immunoglobulin $\kappa$ Light Chain

**Biogenesis 5268-6307** Human myeloma urine Tested negative for HBsAg and HIV antibody; purified; lyophilized

**Biogenesis 5269-6207** Human myeloma urine Tested negative for HBsAg and antibody to HIV; purified; lyophilized

### Immunoglobulin $\mu$

**USBio I1905-10** Human normal plasma  $\geq 98\%$ ; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 10.0 mg/mL supplied in 0.05 M Tris, 0.2 M NaCl, pH 8.0 & 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Inhibin

**Synonyms:** Follicle Stimulating Hormone Suppressing Protein

**Sigma I 9149** Porcine ovaries 2 k IU/vial | Bioassay not run by Sigma

### Inhibitor I

**Chemicon AG649** Recombinant  $\geq 95\%$  | Purified protein for apoptosis & signal transduction

### Insulin

**Fluka 57590** Bovine pancreas C<sub>254</sub>H<sub>377</sub>N<sub>65</sub>O<sub>75</sub>S<sub>6</sub>  $\geq 90\%$  (GE); 25 U/mg;  $\leq 10\%$  loss on drying;  $\leq 0.003\%$  proinsulin-like immunoreactivity; 0.5% Zn; 1 U corresponds to the efficiency of 0.04167 mg international standard substance | Standard for MALDI-MS; Homan, JDH & Terpstra, J, *Discoveries Pharmacol*, 2: 429, 1984

**Sigma I 1882** Bovine pancreas FW 5733.5 Lyophilized; sterilized by  $\gamma$ -irradiation; cell culture tested

**Sigma I 5500** Bovine pancreas  $\geq 27$  USP U/mg; anhydrous (HPLC); zinc content:  $\sim 0.5\%$

**Sigma I 6634** Bovine pancreas FW 5733.5 Crystalline; cell culture tested

**Sigma I 0259** Human recombinant, expressed in *E. coli* FW 5807.6  $\sim 28$  USP U/mg | Insulin regulates the cellular uptake, utilization, & storage of glucose, AA & fatty acids & inhibits the breakdown of glycogen, protein & fat; Smith, *Amer J Med*, 40: 662, 1966; Kono, T, *Vitamins & Hormones*, 7: 1003, 1988

**Sigma I 2767** Human recombinant, expressed in *E. coli* FW 5733.5 Sodium salt; crystalline; cell culture tested

**Fitzgerald 30-AI51** Human recombinant, expressed in yeast High purity

**Sigma I 1507** Human synthetic, from porcine insulin FW 5807.6  $\sim 24$  IU/mg protein; 95-98% (HPLC); crystalline | Morihara, I et al, *Nature*, 280: 412, 1979

**Fitzgerald 30-AI49** Ovine pancreas High purity

**Biogenesis 5330-1002** Porcine pancreas Lyophilized

**Fluka 57595** Porcine pancreas C<sub>256</sub>H<sub>381</sub>N<sub>65</sub>O<sub>76</sub>S<sub>6</sub>  $\geq 85\%$  (GE); 25 U/mg;  $\leq 10\%$  loss on drying;  $\leq 0.003\%$  proinsulin-like immunoreactivity; 0.4% Zn; 1 U corresponds to the efficiency of 0.04167 mg international standard substance | Kaarsholm, NC et al, *Biochemistry*, 28: 4427, 1989; Markussen, J, *Human Insulin by Tryptic Transpeptidation of Porcine Insulin & Biosynthetic Precursors*, MTP Press Ltd, 240, 1987, Lancaster UK

**Sigma I 5523** Porcine pancreas FW 5777.6  $\sim 24$  IU/mg; crystalline; zinc content:  $\sim 0.5\%$

**Cortex CP1041r** Recombinant  $>98\%$

**USBio I7660-29** Sheep  $\geq 95\%$ ; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID;  $\sim 20$  IU/mg | Suitable for antigenic applications in immunological protocols

### Insulin Like Growth Factor I

**Oncogene PF015** Human recombinant MW 7.5k  $>97\%$  (SDS-PAGE); lyophilized; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by Balb/C 3T3 cells  $\sim 1.0$  ng/mL; reconstitute in 10mM acetic acid | Species reactivity: human; for proliferation studies & Western blot

**PeproTech 100-11** Human recombinant, expressed in *E. coli* MW 7.6k  $>97\%$ ; 70 AA; lyophilized with no additives; ED<sub>50</sub>: 0.5-1.0 ng/mL as determined by the stimulation of thymidine uptake by Balb/c 3T3 cells

### Insulin Like Growth Factor I Soluble Receptor

**Oncogene PF061** Human recombinant MW 100k (non-glycosylated),  $>200$ k (following glycosylation & tetramerization)  $>95\%$  (SDS-PAGE); lyophilized; biological activity: binds IGF-I in solution but is not an effective antagonist | Species reactivity: human; for binding studies; the IGF-I sR is highly expressed in all cell types & tissues

### Insulin Receptor

**Sigma I 9266** Rat liver Purified by affinity chromatography on wheat germ agglutinin; solution in 50% glycerol containing 50 mM HEPES, pH 7.6, 150 mM NaCl, 0.1% Triton; vial contains 250 U; 1 U catalyzes the incorporation of 1 pmol/min of phosphate from  $\gamma$ -<sup>32</sup>P-ATP into poly(Glu,Tyr), 4:1 at 30°C | Zick, Y et al, *J Biol Chem*, 258: 75, 1983

### Insulin Receptor Substrate I

**Synonyms:** Phosphatidylinositol-3-Kinase Activator

**Upstate 12-335** Recombinant, Produced in Sf9 insect cells MW 170k Frozen solution

### Insulin, Agarose

**Sigma I 2508** Bovine Bovine insulin, Sigma I 5500, coupled preferentially through the  $\alpha$ -amino via active ester of diaminodipropylaminosuccinyl linked 4% beaded agarose at pH 6.0; contains 2-5 mg insulin (E<sub>280</sub> at 1%)/mL gel; suspension in 0.1 M phosphate buffered saline containing 0.02% sodium azide | Sold on the basis of packed gel volume

**Sigma I 9635** Porcine Porcine insulin, Sigma I 3505, coupled preferentially through the  $\alpha$ -amino via active ester to epichlorohydrin-activated diaminodipropylaminosuccinyl; contains 1-2 mg insulin by BCA/mL gel; suspension in 0.15 M NaCl, 0.01 M Tris, 0.4 mM ZnCl<sub>2</sub>, 0.02% sodium azide, pH 7.4, 50% glycerol | Sold on the basis of packed gel volume; Cuatrecasas, P & Parikh, I, *Meth Enz*, 34: 653, 1974; Fujita-Yamaguchi, Yoko, et al, *J Biol Chem*, 258: 5045, 1983

### Insulin, Arg-

**Sigma I 5389** Human recombinant, expressed in *E. coli* FW 5963.8 ≥97% (HPCL) | Can replace bovine or human insulin in mammalian cell culture; ~1/3<sup>rd</sup> the binding capacity of human or bovine insulin to human placental insulin receptors

#### Insulin, Biotin Conjugated

**Sigma I 2258** Bovine pancreas Lyophilized powder containing ~50% insulin ( $E_{280}$  at 1%); balance primarily sodium phosphate buffer salts; ~1 mole biotin/mole insulin; prepared from bovine insulin, Sigma I 5500, coupled preferentially through 1 or both  $\alpha$ -amino groups via active ester to biotin at pH 6.0 | Cuatrecasas, P & Parikh, I, *Biochemistry*, 11: 2291, 1972

#### Insulin, Biotinamidocaproyl Conjugated

**Sigma I 5636** Bovine pancreas Lyophilized powder containing ~80% insulin ( $E_{280}$  at 1%); balance primarily sodium phosphate buffer salts; ~1 mole biotin/mole insulin; prepared from bovine insulin, Sigma I 5500, coupled preferentially through 1 or both  $\alpha$ -amino groups via active ester to biotinamidocaproic acid at pH 6.0 | Cuatrecasas, P & Parikh, I, *Biochemistry*, 11: 2291, 1972; Kohanski, AR & Lane, MD, *J Biol Chem*, 260: 5014, 1985

#### Insulin, FITC Conjugated

**Sigma I 2383** Bovine pancreas Lyophilized powder containing ~90% insulin (Biuret); balance primarily sodium phosphate buffer salts; ~1 mole FITC/mole insulin; prepared from bovine insulin, Sigma I 5500, coupled preferentially through the  $\alpha$ -amino to FITC | Tietz, F et al, *Biochim Biophys Acta*, 59: 336, 1962

#### Insulin, Gold Conjugated

**Sigma I 0391** Porcine pancreas 10 nm colloidal gold labeled; mean particle diameter 8-12 nm; monodisperse; from porcine insulin, Sigma I 3505, coupled through spacer to albumin coated colloidal gold; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, 0.02% PEG 20 & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0 | Moll, UM et al, *Histochemistry*, 86: 83, 1986

#### Insulin, Hybri-Max®

**Sigma I 4011** Bovine pancreas ≥27 USP U/mg; anhydrous (HPLC); zinc content: ~0.5%; endotoxin tested; hybridoma tested

#### Insulin, Peroxidase Conjugated

**Sigma I 2133** Bovine pancreas Lyophilized powder containing ~90% insulin ( $E_{280}$  at 1%); balance primarily Tris-citrate buffer salts; 0.7-1.4 moles peroxidase/mole insulin; prepared from bovine insulin, Sigma I 5500, coupled preferentially through the  $\alpha$ - or  $\epsilon$ -amino via active ester to Type VI peroxidase, Sigma P 8375, at pH 7.0; affinity purified to substantially remove unlabeled insulin; peroxidase activity: 200-300 U/mg protein; unit definition: 1 U forms 1 mg purpurogallin/20 sec from pyrogallol at pH 6.0 at 20°C | Cuatrecasas, P & Parikh, I, *Biochemistry*, 11: 2291, 1972

#### Insulin, Zinc

**Calbiochem 40769** Bovine MW 5733.5 White solid; activity: ≥27 USP U/mg dry weight; soluble in 0.01 N HCl; bioburden: ≤300 organisms/g; endotoxin: ≤20 EU/mg; may be carcinogenic/teratogenic | *Merck Index*, 12: 5011

**Calbiochem 407694** Human recombinant MW 5807.7 ≤95% (HPLC); white solid; activity: ≥24 USP U/mg dry weight; soluble in 0.01 N HCl; may be carcinogenic/teratogenic | *Merck Index*, 12: 5011

**Calbiochem 407693** Porcine MW 6k White solid; activity: ≥25 USP U/mg dry weight; soluble in 0.01 N HCl; may be carcinogenic/teratogenic | *Merck Index*, 12: 5011

#### Insulin-Like Growth Factor Binding Protein I

**Biogenesis 5345-5029** Amniotic fluid Lyophilized

**Sigma I 0524** Human hepatoma, cell line HepG2 MW 30k ~90% (SDS-PAGE); solution in Tris buffered saline, pH 7.4; unit definition: 1 U binds 1 ng IGF at IGF concentrations of 10 ng/mL at pH 6.0 at 25°C; phosphorylated activity: ≥250 U/vial | Binds IGF-I & IGF-II with very high affinity; *in vivo*, IGFBP-1 is phosphorylated on Ser residues; affinity towards IGF increases with the degree of phosphorylation; has both stimulatory & inhibitory effects on IGF-induced DNA synthesis; effects appear to correlate with the degree of phosphorylation; Baxter, RC & Martin, JL, *Prog in Growth Factor Res*, 1: 49, 1989; Clemmons, DR, *Growth Regul*, 2: 80, 1992; Frost, RA & Cheng, L, *J Biol Chem*, 266: 18082, 1991; Jones, JI et al, *Proc Natl Acad Sci USA*, 88: 7481, 1991; Koistinen, R et al, *Clin Chim Acta*, 215: 189, 1993

**Sigma I 1649** Human hepatoma, cell line HepG2 MW 30k ~90% (SDS-PAGE); solution in Tris buffered saline, pH 7.4; unit definition: 1 U binds 1 ng IGF at IGF concentrations of 10 ng/mL at pH 6.0 at 25°C; dephosphorylated activity: ≥200 U/vial | Made by dephosphorylation of IGFBP-1; binds IGF-I & IGF-II with very high affinity; *in vivo*, IGFBP-1 is phosphorylated on Ser residues; affinity towards IGF increases with the degree of phosphorylation; has both stimulatory & inhibitory effects on IGF-induced DNA synthesis; effects appear to correlate with the degree of phosphorylation; Baxter, RC & Martin, JL, *Prog in Growth Factor Res*, 1: 49, 1989; Clemmons, DR, *Growth Regul*, 2: 80, 1992; Frost, RA & Cheng, L, *J Biol Chem*, 266: 18082, 1991; Jones, JI et al, *Proc Natl Acad Sci USA*, 88: 7481, 1991; Koistinen, R et al, *Clin Chim Acta*, 215: 189, 1993

**USBio I7661-16B** Human recombinant >98%; lyophilized; rehydrate in 10 mM acetic acid because IGF adheres to container surfaces | Purified by Phenyl-Sepharose chromatography, IGF-BP1 affinity chromatography, Reverse Phase HPLC C-4 column

**Upstate 12-129** Human recombinant, expressed in CHO cells MW 25k Lyophilized powder > 98%

#### Insulin-Like Growth Factor Binding Protein I, Human

**Synonyms:** Placental Protein 12

**IBT BP1BU020** Human amniotic fluid MW 25.3k >95% (FPLC, SDS-PAGE) | 218 AA protein; one of 6 circulating proteins that bind Insulin-like Growth Factors (IGF-I & IGF-II) with high affinity, modulating their metabolic & mitogenic effects; produced by the liver, ovarian granulosa cells, decidualised endometrium & other cell types; binds both IGF-I & IGF-II; serum levels regulated by insulin-induced inhibition of IGFBP-1 production; inhibits smooth muscle migration in response to IGF-I or IGF-II; stimulates wound healing in response to IGF-II

#### Insulin-Like Growth Factor Binding Protein II, Bovine

**IBT BP2A2U100** >95% (animal/media grade) | Contains genuine recombinant bIGFBP-2 as the major species, along with a 4 AA N-terminal extension & a 3 AA C-terminal deletion

**IBT BP2A1U020** Recombinant, receptor grade, expressed in CHO cells MW 30,776 >95% (HPLC, N-terminal sequencing, MS) | 284 AA protein; one of 6 high affinity IGF binding proteins; important role in stabilizing & regulating IGFs *in vivo*; binds IGF-I & -II;  $ED_{50}$  for IGF-I < 10 nM

#### Insulin-Like Growth Factor Binding Protein II, Gly-Ala-Arg-Ala-

**IBT BP2AG1U020** Recombinant, expressed in CHO cells MW 31,131 >95% (HPLC) | 288 AA variant of bovine IGFBP-2; generated by alternative processing of the signal sequence by host mammalian cells; 4 AA longer than bIGFBP-2 at the N-terminus; binds IGF-II with a similar affinity to bIGFBP-2; 4-times the affinity for IGF-I

#### Insulin-Like Growth Factor Binding Protein II, Human

**IBT BP2BU020** Human recombinant receptor grade, expressed in CHO cells MW 31k >95% | 289 AA protein; one of 6 'classical' IGF binding proteins; important role in stabilizing & regulating activity of IGFs *in vivo*; binds IGF-I & -II & modifies their biological activity & bioavailability

## Proteins

**IBT rIGFBP2-5** Recombinant, expressed in insect cells (*Spodoptera frugiperda*, Sf9) infected with recombinant viruses MW 31k >90% (SDS-PAGE) | Purified by affinity chromatography & HPLC

### Insulin-Like Growth Factor Binding Protein III

**Upstate 12-131** Human recombinant, expressed in CHO cells MW 47k Lyophilized

**USBio I7661-16J** Human recombinant, expressed in CHO cells Lyophilized from 0.04% TFA containing a trace of acetonitrile | IGFBP-3 will adhere to container surfaces: dissolve with low volumes of 10mM acetic acid; purified by phenyl-sepharose chromatography, gel filtration, IGF-BP3 affinity chromatography, reverse phase HPLC

**IBT BP3BU015** Human recombinant, expressed in human cells MW 43-45k >95% | Glycoprotein; most abundant IGFBP in serum & milk; produced by non-parenchymal hepatic cells; circulates in serum; binds IGF-I or IGF-II with an acid labile subunit (ALS) to form a 150k circulating complex at a serum concentration of ~100 nM; the half-life of IGF-I in serum is increased from ~10-25 min if bound to IGFBP-3 & to ~15 h if complexed with IGFBP-3 & ALS

**IBT IGFBP3-5** Human recombinant, expressed in mouse myeloma cells MW 43-45k >98%; contains BSA as carrier protein for stabilisation

### Insulin-Like Growth Factor Binding Protein III (N109D)

**USBio I7661-16K** DsbA(mut) recombinant protein expressed in *E. coli* & cleaved with 3C protease; the protein was renatured & further purified using ion exchange & hydrophobic interaction chromatography; binding Activity: IGFBP-3 (N109D) binds IGF-I like wild type; the N109D substitution makes the protein more soluble when expressed in *E. coli*

### Insulin-Like Growth Factor Binding Protein III (N109D, K228E, R230G)

**USBio I7661-16L** DsbA(mut) recombinant protein expressed in *E. coli* & cleaved with 3C protease; the N109D substitution makes the protein more soluble when expressed in *E. coli*; binding Activity: This IGFBP-3 mutant binds IGF-I like the wild type; the K228E & R230G mutations cause the protein to lose its ability to bind collagen

### Insulin-Like Growth Factor Binding Protein IV

**IBT BP4BU020** Human recombinant, expressed in CHO cells MW 24-28k (glycosylated) >95% | 237 AA glycosylated protein; one of 6 'classical' IGF binding proteins; important role in stabilizing & regulating IGF *in vivo*

**IBT rIGFBP4-5** Human recombinant, expressed in insect cells (*Spodoptera frugiperda*, Sf9) infected with recombinant viruses MW 24k >90% (SDS-PAGE) | Purified by affinity chromatography & HPLC

**IBT BP4CU015** Rat recombinant, expressed in *E. coli* MW 25.7k (non-glycosylated) >95%; non-glycosylated | 233 AA protein

### Insulin-Like Growth Factor Binding Protein V

**USBio I7661-16T** Human recombinant, expressed in CHO cells Lyophilized | Purified by phenyl-sepharose, IGF-I affinity & reverse phase HPLC C-4 column chromatography

**IBT rIGFBP5-5** Human recombinant, expressed in insect cells (*Spodoptera frugiperda*, Sf9) infected with recombinant viruses MW 30k >90% (SDS-PAGE); forms a double band in PAGE, indicating a possible carbohydrate heterogeneity; ~50% of the product lacks the first 2 AA | Purified by affinity chromatography & HPLC

**IBT BP5BU10** Human, expressed in mammalian cells MW 31-32k >95%; glycosylated | 252 AA protein; one of 6 'classical' IGF binding proteins; stabilizes & regulates IGF *in vivo*; like IGFBP-3, forms a ternary complex with acid-labile subunit (ALS); preferentially binds IGF-II; also binds with high affinity to extracellular matrix components which protect it from proteolysis; has a nuclear targeting sequence; independent of the presence of IGF-I, fluorescently labelled IGFBP-5 is translocated to the nucleus of actively dividing cells

**Upstate 12-333** Recombinant, expressed in CHO cells MW 30k Lyophilized

### Insulin-Like Growth Factor Binding Protein VI

**IBT 1 BP6BU015** Human recombinant, expressed in CHO cells MW 28-30k (glycosylated) >95% (HPLC) | Major glycosylated protein species contains 216 AA; minor isoform with a 2 AA N-terminal extension is produced as a result of alternative processing by CHO cells used for rhIGFBP-6 production

**IBT rIGFBP6-5** Human recombinant, expressed in insect cells (*Spodoptera frugiperda*, Sf9) infected with recombinant viruses MW 28k >95% (SDS-PAGE) | Purified by affinity chromatography & HPLC

### Insulin-Like Growth Factor I

**Biogenesis 5345-0654** Human r-DNA *E. coli* MW 7.6k Endotoxin: <0.1 ng/μg of IGF-1; ED<sub>50</sub> ≤1.0 ng/mL; purified; no preservatives; lyophilized

**BioSource International PHG0074** Human recombinant

**BioSource International PMG0071** Mouse recombinant

### Insulin-Like Growth Factor I (Y60L), Null

**USBio N8000** DsbA(mut) recombinant protein expressed in *E. coli* Cleaved with 3C protease; renatured & further purified using ion exchange & hydrophobic interaction chromatography; binds IGF binding proteins like wild type IGF-I, however, the Y60L mutation results in an approximate 20-fold loss in affinity for the IGF-I receptor & little affinity for the IGF-2 receptor

### Insulin-Like Growth Factor I Binding Protein I

**Sigma I 2024** A complex of IGF-I & dephosphorylated IGFBP-1; solution in Tris buffered saline, pH 7.4 | Essential for the coordination & regulation of the biological activities of the IGFs; could be a powerful tool for studying those activities both *in vitro* & *in vivo*; Jones, JI & Clemmons, DR, *Endocrine Reviews*; 16: 3, 1995

### Insulin-Like Growth Factor II

**Biogenesis 5345-3004** Human r-DNA Lyophilized

**BioSource International PHG0084** Human recombinant

### Insulin-Transferrin, Sodium Selenite Media Supplement

**Sigma I 1884** Lyophilized; each vial contains: 25 mg insulin from bovine pancreas, 25 mg human transferrin (substantially iron free) & 25 μg sodium selenite; each vial prepares 5 L medium; sterilized by γ-irradiation; cell culture tested

### Integrin α1β1

**Synonyms:** VLA-1

**Chemicon CC1012** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1015** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

### Integrin α5β1



*Synonyms:* VLA-5

**Chemicon CC1026** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1027** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1052** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1055** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

### Integrin $\alpha$ VB3

**Chemicon CC1018** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1019** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1020** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1021** Human Highly purified using collagen-sepharose, fibronectin-sepharose & immunoaffinity chromatography; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

### Integrin $\alpha$ V $\beta$ 5

**Chemicon CC1022** Human Purified; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1023** Human Purified; formulated with octyl- $\beta$ -D-glucopyranoside | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1024** Human Purified; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

**Chemicon CC1025** Human Purified; formulated with Triton X-100 | For ligand binding studies & as a positive control for electrophoresis or immunoblotting

### Interferon

**Sigma I 2396** Human leukocyte Aseptically filled; solution in phosphate buffered saline, pH ~7.3; unit definition: 1 U is that amount of interferon which protects 50% of the indicator cells from viral cytopathology | Potency determined by viral plaque reduction method using human epithelial cells & vesicular stomatitis virus; not assayed by Sigma;  $\alpha$ IFN, Le

**Sigma I 4268** Rabbit Produced in RK13 Rabbit kidney cell cultures by stimulation with Parainfluenza 1 virus; lyophilized, composition of buffer salts given in accompanying data sheet; reconstitute to 1 mL; activity: 1-3X10<sup>5</sup> International Reference Units/vial; unit definition: see that for Sigma I 2396; potency: established by multiple comparative assays with the interferon reference reagents provided by the Antiviral Substances Program, NIAID, NIH, using a modified vital dye-uptake assay | Finter, NB, *J Gen Virol*, 5: 419, 1969

**Sigma I 4023** Rat Produced in rat kidney cell cultures by stimulation with Poly I:C; lyophilized from 0.4 M glycine HCl, pH 3.5; non-irradiated, sterile-filtered; reconstitute to 1 mL; activity:  $\geq 1 \times 10^5$  International Reference Units/mg protein; unit definition: see that for Sigma I 2396; potency: established by multiple comparative assays with the interferon reference reagents provided by the Antiviral Substances Program, NIAID, NIH, using a modified vital dye-uptake assay; protein concentration determined by Coomassie blue binding assay with bovine albumin as standard | Finter, NB, *J Gen Virol*, 5: 419, 1969; Bradford, M, *Anal Biochem*, 72: 248, 1976

### Interferon Inducible T-Cell $\alpha$ -Chemoattractant

**Biodesign A52046H** *E. coli* MW 15.6k Purified

**Chemicon GF088** Human  $\geq 95\%$

**PeproTech 300-46** Human recombinant, expressed in *E. coli* MW 8.3k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Novel non-ELR CXC chemokine; regulated by interferon; potent chemoattractant activity for IL-2 activated T cells, but not for freshly isolated unstimulated T cells, neutrophils, or monocytes; 73 AA; SA determined by its ability to chemoattract IL-2 activated human T cells

### Interferon- $\alpha$

**Fitzgerald 30-AI90** Human recombinant, expressed in *E. coli*

**Calbiochem 407293** Mouse recombinant, expressed in *E. coli* MW 19,323  $\geq 95\%$  (SDS-PAGE); liquid in PBS containing 0.1% BSA; activity:  $\geq 3.5 \times 10^4$  U/mL; 1 U of interferon/mL of medium causes a 50% inhibition of EMCV-induced cytopathic effect on mouse L929 cells; units are determined with respect to the NIH international reference standard for mouse IFN- $\alpha$  | Antiviral & anti-neoplastic agent; suppresses bone marrow function & induces apoptotic cell death in non-melanoma skin cancer; IFN- $\alpha$  signaling is mediated by JAK1 & TYK2 tyrosine kinases; *Merck Index*, 12: 5016; Krishnan, K et al, *Eur J Biochem*, 247: 298, 1997; Rodriguez-Villanueva, S & McDonnell, TJ, *Int J Cancer*, 61: 110, 1995; Familletti, PC et al, *Methods Enzymol*, 78: 387, 1981

**BioSource International PRC4014** Rat recombinant

### Interferon- $\alpha$ & - $\beta$

**Sigma I 1258** Mouse Produced in mouse L929 cell cultures by stimulation with Poly I:C; lyophilized, composition of buffer salts given in accompanying data sheet; reconstitute to 1 mL; non-irradiated; sterile-filtered; activity:  $\geq 1 \times 10^5$  International Reference Units/vial; potency: established by multiple comparative assays with the interferon reference reagents provided by the Antiviral Substances Program, NIAID, NIH, using a modified vital dye-uptake assay | Finter, NB, *J Gen Virol*, 5: 419, 1969

### Interferon- $\alpha$ A

**BioSource International PHC4014** Human recombinant Pure

**Sigma I 4276** Human recombinant, expressed in *E. coli* Solution in phosphate buffered saline; endotoxin tested; cell culture tested

**BioSource International PMC4016** Mouse recombinant Pure

**Fitzgerald 30-AI96** Murine recombinant, expressed in *E. coli*

### Interferon- $\alpha$ A Subtype

**BioSource International PHC4814** Human recombinant

### Interferon- $\alpha$ A/D

**BioSource International PHC4044** Human recombinant Liquid

**BioSource International PHC4045** Human recombinant

**Sigma I 4401** Human recombinant, expressed in *E. coli* Solution in phosphate buffered saline containing 0.1% BSA; endotoxin tested; cell culture tested

### Interferon- $\alpha$ A-p1

## Proteins

**BioSource International PHC4114** Human recombinant

### Interferon- $\alpha$ B-p1

**BioSource International PHC4124** Human recombinant

### Interferon- $\alpha$ D

**BioSource International PHC4054** Human recombinant

### Interferon- $\alpha$ 2c

**Alexis BMS305** Human recombinant, produced in *E. coli* MW 19.3k >98% (SDS-gel electrophoresis prior to addition of human serum albumin); 16.5  $\mu$ g lyophilized powder at 15  $\mu$ g/mL; lyophilized in phosphate-buffered saline containing 20 mg/mL BSA; specific activity:  $3.2 \times 10^8$  NIH G0 23-901-527 units/mg;  $2.3 \times 10^8$  NIH Gxa 01-901-535 units/mg

### Interferon- $\beta$

**BioSource International PHC4024** Human recombinant

**Calbiochem 407297** Human recombinant, expressed in *E. coli* MW 20,027 >95% (SDS-PAGE); liquid in PBS containing 0.1% BSA; activity:  $\geq 1 \times 10^5$  U/mL; SA:  $\geq 2.0 \times 10^7$  U/mg protein; 1 U of interferon/mL of medium causes a 50% inhibition of VSV-induced cytopathic effect on WISH cells; units are determined with respect to the NIH international reference standard for human IFN- $\beta$  | Antiviral & anti-neoplastic agent; used as a therapeutic agent in multiple sclerosis; has higher anti-proliferative effects on breast cancer cells than  $\alpha$ - &  $\gamma$ -interferon; inhibits mitogen-induced astrocyte proliferation; expressed during the triggering stage of macrophage cytotoxic activation; *Merck Index*, 12: 5017; Malik, O et al, *Neuroimmunology*, 86: 155, 1998; Runkel, L et al, *J Biol Chem*, 273: 8003, 1998; Familletti, PC et al, *Methods Enzymol*, 78: 387, 1981; Dhib-Jalbut, S, *Mult Scler*, 3: 397, 1997

**Fitzgerald 30-AI72** Human recombinant, expressed in *E. coli*

**Sigma I 4151** Human recombinant, expressed in *E. coli* Solution in phosphate buffered saline containing 0.1% BSA; endotoxin tested; cell culture tested

**BioSource International PMC4024** Mouse recombinant

**Calbiochem 407298** Mouse recombinant, expressed in *E. coli* MW 19,735 >90% (SDS-PAGE); liquid in PBS containing 0.1% BSA; activity:  $\geq 2 \times 10^5$  U/mg; 1 U of interferon/mL of medium causes a 50% inhibition of EMCV-induced cytopathic effect on mouse L929 cells; units are determined with respect to the NIH international reference standard for mouse IFN- $\beta$  | Antiviral & anti-neoplastic agent; has higher anti-proliferative effects on breast cancer cells than  $\alpha$ - &  $\gamma$ -interferon; *Merck Index*, 12: 5017; Dianzani, F, *Gut*, 34: 574, 1993; Familletti, PC et al, *Methods Enzymol*, 78: 387, 1981

**Sigma I 5143** Natural human, produced in MG 63 osteosarcoma cells Produced by superinduction; >90% (SDS-PAGE); 0.2  $\mu$ m filtered in phosphate buffered saline containing 0.1% human serum albumin; activity  $\geq 1 \times 10^5$  U/vial; units are evaluated by a bioassay comparing the inhibition of cytopathic effects caused by a challenge virus (vesicular stomatitis virus, VSV) in indicator fibroblast cells against the NIH/NIAID International Standard, Gb 23-902-531; endotoxin tested | Van Damme, J & Billiau, A, *Meth Enzymol*, 78: 101, 1981

**BioSource International PRC4024** Rat recombinant

**Biodesign A52302H** *E. coli* MW 17k Purified

**Biodesign A52420H** *E. coli* MW 15.6k Purified | Species specificity: rat

**Chemicon IF002** Human >95%

**Sigma I 6507** Human Produced from human buffy coats by induction with A23187 & mezerein; solution in phosphate buffered saline adjusted to 2-4mg/mL total protein with human serum albumin; non-irradiated; sterile-filtered; activity:  $\geq 1 \times 10^6$  International Reference Units/mg protein; unit definition: see that for Sigma I 2396; activity determined by inhibitions of Sindbis virus-induced cytopathic effect in FL cells; titer is reciprocal of dilution at which 50% cells exhibit cytopathic effect; WHO reference material used as standard; each vial contains  $\sim 1 \times 10^6$  U; protein concentration determined by Coomassie blue method | Sedmak & Grossberg, *Anal Biochem*, 79: 544, 1977

**Chemicon IF3** Human leukocyte Purified

**Chemicon IF6** Human leukocyte Purified

**Biogenesis 5362-5204** Human r-DNA Lyophilized

**BioSource International PHC4031** Human recombinant

**BioSource International PHC4834** Human recombinant

**Calbiochem 407306** Human recombinant, expressed in *E. coli* MW 17k >97% (SDS-PAGE); lyophilized from sterile-filtered 100 mM NH<sub>4</sub>OAc, pH 7.0 containing 50  $\mu$ g BSA/ $\mu$ g IFN- $\gamma$ ; biological activity: ED<sub>50</sub>=8-15 U/mL as measured by inhibition of cytopathic effects in HeLa cells infected with EMC virus; SA:  $\geq 1 \times 10^7$  U/mg protein; endotoxin:  $\leq 100$  pg/ $\mu$ g IFN- $\gamma$  | A multifunctional protein consisting of 144 AA; exhibits antiviral & antitumor properties; regulates the development of specific immune responses; *Merck Index*, 12: 5018; Kohji, K et al, *J Int J Cancer*, 58: 380, 1994; Meager, A, *Lymphokines & Interferons, A Practical Approach* (Clemens, MJ et al, eds), IRL Press, Oxford, p. 129, 1987

**Fitzgerald 30-AI71** Human recombinant, expressed in *E. coli*

**Harlan BT-3008** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg

**Harlan BT-3009** Human recombinant, expressed in *E. coli* Lyophilized; 0.1 mg

**PeproTech 300-02** Human recombinant, expressed in *E. coli* MW 16.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Lymphoid factor which possesses potent anti-viral activity; stimulates macrophages & NK cells; 143 AA; ED<sub>50</sub>  $\leq 0.05$  ng/mL; SA  $\geq 2 \times 10^7$  U/mg; SA determined in a viral resistance assay

**Sigma I 1520** Human recombinant, expressed in *E. coli* >97% (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from 0.1 M ammonium acetate, pH 7.0; activity measured in an anti-viral assay using HeLa cells infected with EMC virus; endotoxin tested | Produced by activated T cells & natural killer cells stimulated by alloantigens, tumors & mitogens; exerts a variety of biological effects including antiviral activity, inhibition of cell or tumor growth & promotion of terminal differentiation of B cells into immunoglobulin-producing cells; activates macrophages, boosts cytotoxicity of natural killer cells & stimulates T cell cytotoxicity; synergistic with TNF- $\alpha$  in its cytotoxicity, but acts on cells via specific cell surface receptors; Hibino, Y et al, *J Biol Chem*, 266: 6948, 1991; Vilcek, J et al, *Lymphokines*, 11: 1, 1985; Gresser, I et al, *Proc Natl Acad Sci USA*, 66: 1052, 1970; Knight, E Jr, *Nature*, 262: 302, 1976; Perussia, B et al, *J Exp Med*, 158: 1092, 1983; Opdenakker, G et al, *Experimenta (Basel)*, 45: 513, 1989; Friedman, RM et al, *Adv Immunol*, 34: 97, 1983; Vilcek, J et al, *Interferon & the Immune System*, Elsevier, North Holland, Amsterdam, 1984; Fransen, L et al, *Cell Immunol*, 100: 260, 1986; Pestka, S et al, *Ann Rev Biochem*, 56: 727, 1987; Meager, A, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press

### Interferon- $\gamma$

**Sigma I 3265** Human recombinant, expressed in *E. coli* MW 15.5k >97% (SDS-PAGE); lyophilized from phosphate buffered saline; proliferative activity tested in culture using WiDr human colon adenocarcinoma cells in a MTT dye assay which is a modification of the method of Pfizenmaier, K et al, *Cancer Research*, 45: 3503, 1985; endotoxin tested | Produced by activated T cells & natural killer cells stimulated by alloantigens, tumors & mitogens; exerts a variety of biological effects including antiviral activity, inhibition of cell or tumor growth & promotion of terminal differentiation of B cells into immunoglobulin-producing cells; activates macrophages, boosts cytotoxicity of natural killer cells & stimulates T cell cytotoxicity; synergistic with TNF- $\alpha$  in its cytotoxicity, but acts on cells via specific cell surface receptors; Hibino, Y et al, *J Biol Chem*, 266: 6948, 1991; Vilcek, J et al, *Lymphokines*, 11: 1, 1985; Gresser, I et al, *Proc Natl Acad Sci USA*, 66: 1052, 1970; Knight, E Jr, *Nature*, 262: 302, 1976; Perussia, B et al, *J Exp Med*, 158: 1092, 1983; Opdenakker, G et al, *Experimenta (Basel)*, 45: 513, 1989; Friedman, RM et al, *Adv Immunol*, 34: 97, 1983; Vilcek, J et al, *Interferon & the Immune System*, Elsevier, North Holland, Amsterdam, 1984; Fransen, L et al, *Cell Immunol*, 100: 260, 1986; Pestka, S et al, *Ann Rev Biochem*, 56: 727, 1987

**Alexis BMS303** Human recombinant, produced in *E. coli* MW 33k (dimer composed of two identical 16.5k monomers) >98% (SDS-gel electrophoresis prior to addition of human serum albumin); 110 µg lyophilized powder at 100 µg/mL; lyophilized in phosphate-buffered saline containing 10 mg/mL BSA; specific activity:  $2 \times 10^7$  NIH Gg 23-901-530 units/mg; biological activity: assessed in a bioassay using inhibition of the cytopathic encephalomyocarditis virus effect on human lung carcinoma cell line A549 as test parameter

**Biogenesis 5362-5226** Mouse r-DNA Lyophilized

**BioSource International PMC4034** Mouse recombinant

**Calbiochem 407303** Mouse recombinant, expressed in *E. coli* MW 15,521 ≥95% (SDS-PAGE); liquid in PBS containing 0.1% BSA; activity:  $\geq 2 \times 10^5$  U/mL; SA:  $\geq 5 \times 10^7$  U/mg protein; 1 U of interferon/mL of medium causes a 50% inhibition of EMCV-induced cytopathic effect on mouse L929 cells; units are determined with respect to the NIH international reference standard for mouse IFN- $\gamma$  | A multifunctional protein exhibiting antiviral & antitumor properties; regulates the development of specific immune responses; protects against bacterial sepsis in murine models; *Merck Index*, 12: 5018; Zantl, N et al, *Infect Immun*, 66: 2300, 1998; Familletti, PC et al, *Methods Enzymol*, 78: 387, 1981

**Sigma I 5517** Mouse recombinant, expressed in *E. coli* ≥95% (SDS-PAGE); 0.2 µm filtered solution containing 0.1% BSA; 1 U is the amount of IFN- $\gamma$  required to induce half-maximal inhibition of proliferation of WEHI-279 cells; tested in culture using a modification of the method of Reynolds, DS et al, *J Immunol*, 139: 767, 1987; endotoxin tested | Produced by activated T cells & natural killer cells stimulated by alloantigens, tumors & mitogens; exerts a variety of biological effects including antiviral activity, inhibition of cell or tumor growth & promotion of terminal differentiation of B cells into immunoglobulin-producing cells; activates macrophages, boosts cytotoxicity of natural killer cells & stimulates T cell cytotoxicity; synergistic with TNF- $\alpha$  in its cytotoxicity, but acts on cells via specific cell surface receptors; Hibino, Y et al, *J Biol Chem*, 266: 6948, 1991; Vilcek, J et al, *Lymphokines*, 11: 1, 1985; Gresser, I et al, *Proc Natl Acad Sci USA*, 66: 1052, 1970; Knight, E Jr, *Nature*, 262: 302, 1976; Perussia, B et al, *J Exp Med*, 158: 1092, 1983; Opdenakker, G et al, *Experimenta (Basel)*, 45: 513, 1989; Friedman, RM et al, *Adv Immunol*, 34: 97, 1983; Vilcek, J et al, *Interferon & the Immune System*, Elsevier, North Holland, Amsterdam, 1984; Fransen, L et al, *Cell Immunol*, 100: 260, 1986; Pestka, S et al, *Ann Rev Biochem*, 56: 727, 1987

**Chemicon IF005** Murine ≥95%

**Alexis BMS312** Murine recombinant, expressed in *E. coli* MW 15.6k >98% (SDS-gel electrophoresis, before addition of human serum albumin); lyophilized in bicarbonate buffer containing human serum albumin; bioactivity:  $10^7$  U/mg

**Fitzgerald 30-A174** Murine recombinant, expressed in *E. coli*

**PeptoTech 315-05** Murine recombinant, expressed in *E. coli* MW 15.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Regulatory protein produced by activated NK cells & CD4<sup>+</sup>TCRab<sup>+</sup>, CD8<sup>+</sup>TCRab<sup>+</sup>, & TCRgd<sup>+</sup> T cells; specifically binds to a single class of high affinity receptors; 134 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥  $1 \times 10^7$  U/mg; SA determined by a cytopathic effect inhibition assay with murine L929 cells challenged with EMC virus

**Biogenesis 0100-0105** Rat r-DNA Lyophilized

**BioSource International PRC4034** Rat recombinant, expressed in *E. coli*

**BioSource International PRC4035** Rat recombinant, expressed in *E. coli*

**Calbiochem 407304** Rat recombinant, expressed in *E. coli* MW 15,635 ≥95% (SDS-PAGE); liquid in PBS containing 0.1% BSA; activity:  $\geq 2 \times 10^5$  U/mL; SA:  $\geq 5 \times 10^6$  U/mg protein; 1 U of interferon/mL of medium causes a 50% inhibition of EMCV-induced cytopathic effect on mouse L929 cells; units are determined with respect to the NIH international reference standard for mouse IFN- $\gamma$  | A multifunctional protein exhibiting antiviral & antitumor properties; regulates the development of specific immune responses; inhibits rat Leydig cell steroidogenesis; *Merck Index*, 12: 5018; Lin, T et al, *Endocrinology*, 139: 2217, 1998; Familletti, PC et al, *Methods Enzymol*, 78: 387, 1981

**Fitzgerald 30-A178** Rat recombinant, expressed in *E. coli*

**PeptoTech 400-20** Rat recombinant, expressed in *E. coli* MW 15.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Lymphoid factor with potent anti-viral activity; stimulates macrophages & NK cells; 135 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥  $1 \times 10^7$  U/mg; SA determined by a cytopathic effect inhibition assay with murine L929 cells challenged with EMC virus

**Sigma I 2651** Rat recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered in 30% acetonitrile, 0.1% trifluoroacetic acid containing 5 mg BSA; activity measured in an anti-viral assay using L-929 cells infected with EMC virus; endotoxin tested | Produced by activated T cells & natural killer cells stimulated by alloantigens, tumors & mitogens; exerts a variety of biological effects including antiviral activity, inhibition of cell or tumor growth & promotion of terminal differentiation of B cells into immunoglobulin-producing cells; activates macrophages, boosts cytotoxicity of natural killer cells & stimulates T cell cytotoxicity; synergistic with TNF- $\alpha$  in its cytotoxicity, but acts on cells via specific cell surface receptors; Hibino, Y et al, *J Biol Chem*, 266: 6948, 1991; Vilcek, J et al, *Lymphokines*, 11: 1, 1985; Gresser, I et al, *Proc Natl Acad Sci USA*, 66: 1052, 1970; Knight, E Jr, *Nature*, 262: 302, 1976; Perussia, B et al, *J Exp Med*, 158: 1092, 1983; Opdenakker, G et al, *Experimenta (Basel)*, 45: 513, 1989; Friedman, RM et al, *Adv Immunol*, 34: 97, 1983; Vilcek, J et al, *Interferon & the Immune System*, Elsevier, North Holland, Amsterdam, 1984; Fransen, L et al, *Cell Immunol*, 100: 260, 1986; Pestka, S et al, *Ann Rev Biochem*, 56: 727, 1987

**BioSource International PSC4034** Swine recombinant

**Biodesign A52355H** T.ni cells MW 35k Purified | Species specificity: mouse

### Interferon- $\gamma$ Inducible Protein 10

**BioSource International PHC1084** Human recombinant

**BioSource International PMC1084** Mouse recombinant

### Interferon- $\gamma$ Inducible Protein-10

**Biodesign A52016M** *E. coli* MW 8.7k Purified | Species specificity: mouse

**Biodesign A52312H** *E. coli* MW 9k Purified

**Chemicon GF033** Human ≥95%

**Fitzgerald 30-AI95** Human recombinant, expressed in *E. coli*

**PeptoTech 300-12** Human recombinant, expressed in *E. coli* MW 8.5k >98%; 78 AA; lyophilized with no additives; activity determined by its ability to chemoattract human T-lymphocytes using a concentration range of 10.0-50.0 ng/mL

**Sigma I 3400** Human recombinant, expressed in *E. coli* MW ~8.7k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 500 µg BSA; activity measured in a cell proliferation assay using the factor-dependent human erythroleukemic cell line, TF-1; endotoxin tested | Member of the C-X-C or  $\alpha$  chemokine class; doesn't contain the ELR domain immediately preceding the first cysteine residue near the amino terminus; other chemokines in this group include mouse CRG, Mig, PBSF/SDF-1 & PF4; originally identified as an IFN- $\gamma$ -inducible gene in monocytes, fibroblasts & endothelial cells; chemoattractant for activated T lymphocytes; potent inhibitor of angiogenesis & displays a thymus-dependent anti-tumor effect; polypeptide of 78 AA, precursor form of human IP-10 is 98 AA; to generate the mature IP-10, the precursor cleaves its 21 AA signal peptide; 67% AA homology to mouse CRG-2

**Chemicon GF093** Murine ≥95%

**PeptoTech 250-16** Murine recombinant, expressed in *E. coli* MW 8.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Produced by several cell types during the delayed-type hypersensitivity response; acts as a chemoattractant towards monocytes, lymphocytes & certain T cells; 77 AA; SA determined by its ability to chemoattract IL-2 activated T cells

### Interferon- $\gamma$ Type I (Universal)

**Fitzgerald 30-AI73** Human recombinant, expressed in *E. coli*

### Interferon- $\gamma$ , Monokine Induced

**Biodesign A52026H** *E. coli* MW 11.7k Purified

### Interferon- $\alpha$

**Alexis BMS304** Human recombinant, produced in *E. coli* MW 20k >95% (SDS-gel electrophoresis prior to addition of human serum albumin); 25  $\mu$ g lyophilized powder at 23  $\mu$ g/mL; lyophilized in phosphate-buffered saline containing 20 mg/mL BSA; specific activity:  $1 \times 10^8$  NIH Gxa 01-901-535 units/mg; biological activity: assessed in a bioassay using inhibition of the cytopathic encephalomyocarditis virus effect on human lung carcinoma cell line A549 as test parameter

### Interleukin gp130 Soluble Fragment

**Sigma G 7534** Human recombinant, expressed in Sf 21 insect cells  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline containing 500  $\mu$ g BSA; activity is measured in culture by its ability to inhibit IL-6 soluble receptor enhancement of IL-6 activity with the mouse myeloid leukemia cell line, M1; endotoxin tested | IL-6 receptor (IL-6R) consists of 2 chains: IL-6R & gp130; interaction of IL-6 with the IL-6R initiates the association of gp130 with the IL-6R & a signal is transduced through gp130; Saito, T et al, *J Immuno*, 147: 168, 1991; multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF- $\alpha$  in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, A, *Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

### Interleukin I Receptor

**Biogenesis 5375-5175** r-DNA

### Interleukin I Soluble Receptor Type II

**Sigma I 8148** Human recombinant, expressed in Sf 21 insect cells  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; receptor mediated activity measured by its ability of D10.G4.1 cells; endotoxin tested | Activates T cell lymphocytes which then proliferate & secrete Interleukin-2; released primarily from stimulated macrophages & monocytes but has been shown to be released from several other cell types & plays a key role in inflammatory & immune responses; closely related agents IL-1 $\alpha$  & IL-1 $\beta$  share 62% homology in AA sequence & elicit nearly identical biological responses; both are  $\sim 17$ k with some heterogeneity in the amount of glycosylation; Symons, JA et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 272, 1987; Gery, I et al, *J Exp Med*, 136: 128, 1972; Oppenheim, J et al, *Immunol Today*, 7: 45, 1986; Durum, S et al, *Ann Rev Immunol*, 3: 263, 1985; Aarden, L et al, *J Immunol*, 123: 2928, 1979

### Interleukin I $\alpha$

**Synonyms:** Endogenous Pyrogen; Mitogenic Protein Helper Peak I; T-Cell Replacing Factor III; B-Cell Activating Factor; B-Cell Differentiation Factor; Lymphocyte Activating Factor; IL-1 $\alpha$

**Biodesign A52011H** *E. coli* MW 17.9k Purified | Species specificity: mouse

**Biodesign A52201H** *E. coli* MW 18k Purified

**Chemicon IL001** Human  $\geq 95\%$

**Biogenesis 5375-0005** Human r-DNA Lyophilized

**BioSource International PHC0014** Human recombinant

**Oncogene PF012** Human recombinant MW 17k >98% (SDS-PAGE); with 100  $\mu$ g BSA; reconstitute in sterile PBS; biological activity: half maximal stimulation of  $^3$ H-thymidine uptake by murine C3H/HeJ thymocytes  $\sim 0.1$  ng/mL | Species reactivity: human; for proliferation studies & Western blot

**Calbiochem 407611** Human recombinant, expressed in *E. coli* MW 17.5k  $\geq 97\%$  (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50  $\mu$ g BSA/ $\mu$ g IL-1 $\alpha$ ; biological activity: ED<sub>50</sub>=3-10 pg/mL as measured in a cell proliferation assay; endotoxin:  $\leq 100$  pg/ $\mu$ g IL-1 $\alpha$  | Potent stimulator of bone resorption & stimulator of nuclear phospholipase C; induces nitric oxide synthase; *Merck Index*, 12: 5019; Kilbourn, RG et al, *J Natl Cancer Inst*, 84: 1008, 1992; Tsan, MF & White, JE, *Am J Physiol*, 266: L316, 1994

**Fitzgerald 30-AI56** Human recombinant, expressed in *E. coli*

**Harlan BT-2 k** Human recombinant, expressed in *E. coli* Lyophilized; 0.002 mg | Cytokine

**Harlan BT-2001** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**PeproTech 200-01A** Human recombinant, expressed in *E. coli* MW 18.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses; 159 AA; ED<sub>50</sub>  $\leq 0.001$  ng/mL; SA  $\geq 10^9$  U/mg; SA determined by the dose-dependent stimulation of murine D10S cells

**Sigma I 3894** Human recombinant, expressed in *E. coli* MW  $\sim 17$ k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline solution containing 100  $\mu$ g human serum albumin; proliferative activity tested in culture using the T cell line D10.G4.1; endotoxin tested | Activates T cell lymphocytes which then proliferate & secrete Interleukin-2; released primarily from stimulated macrophages & monocytes but has been shown to be released from several other cell types & plays a key role in inflammatory & immune responses; closely related agents IL-1 $\alpha$  & IL-1 $\beta$  share 62% homology in AA sequence & elicit nearly identical biological responses; both are  $\sim 17$ k with some heterogeneity in the amount of glycosylation; Symons, JA et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 272, 1987; Gery, I et al, *J Exp Med*, 136: 128, 1972; Oppenheim, J et al, *Immunol Today*, 7: 45, 1986; Durum, S et al, *Ann Rev Immunol*, 3: 263, 1985; Aarden, L et al, *J Immunol*, 123: 2928, 1979

**Biogenesis 5375-0025** Mouse r-DNA Lyophilized

**BioSource International PMC0014** Mouse recombinant

**Calbiochem 407613** Mouse recombinant, expressed in *E. coli* MW 18k  $\geq 97\%$  (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50  $\mu$ g BSA/ $\mu$ g IL-1 $\alpha$ ; biological activity: ED<sub>50</sub>=3-7 pg/mL as measured in a cell proliferation assay; endotoxin:  $\leq 100$  pg/ $\mu$ g IL-1 $\alpha$  | Affects the differentiation & function of cells involved in inflammatory & immune responses; potent stimulator of bone resorption; *Merck Index*, 12: 5019; Weidmann, B et al, *Nature*, 370: 434, 1994; Dinarello, CA & Wolff, SM, *N Engl J Med*, 328: 106, 1993

**Sigma I 5396** Mouse recombinant, expressed in *E. coli*  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline containing 250  $\mu$ g BSA; proliferative activity tested in culture using the mouse helper T cell line D10.G4.1; endotoxin tested | Activates T cell lymphocytes which then proliferate & secrete Interleukin-2; released primarily from stimulated macrophages & monocytes but has been shown to be released from several other cell types & plays a key role in inflammatory & immune responses; closely related agents IL-1 $\alpha$  & IL-1 $\beta$  share 62% homology in AA sequence & elicit nearly identical biological responses; both are  $\sim 17$ k with some heterogeneity in the amount of glycosylation; Symons, JA et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 272, 1987; Gery, I et al, *J Exp Med*, 136: 128, 1972; Oppenheim, J et al, *Immunol Today*, 7: 45, 1986; Durum, S et al, *Ann Rev Immunol*, 3: 263, 1985; Aarden, L et al, *J Immunol*, 123: 2928, 1979

**Chemicon IL023** Murine  $\geq 95\%$

**Fitzgerald 30-AI41** Murine recombinant, expressed in *E. coli*

**PeproTech 211-11A** Murine recombinant, expressed in *E. coli* MW 17.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses; 156 AA; ED<sub>50</sub> ≤ 0.002 ng/mL; SA ≥ 5 × 10<sup>9</sup> U/mg; SA determined by the dose-dependent stimulation of murine D10S cells

**PeproTech 400-01A** Rat recombinant, expressed in *E. coli* MW 17.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses; 155 AA; the ED<sub>50</sub> ≤ 0.005 ng/mg; SA ≥ 2 × 10<sup>9</sup> U/mg; SA determined by the dose-dependent proliferation of murine D10S

**Sigma I 3901** Rat recombinant, expressed in *E. coli* Lyophilized from phosphate buffered saline containing 250 µg BSA; endotoxin tested; cell culture tested

**BioSource International PSC0014** Swine recombinant

**BioSource International PSC0015** Swine recombinant

**Biodesign A52121H** *E. coli* MW 17k Purified | Species specificity: mouse

**Biodesign A52400H** *E. coli* MW 17.3k Purified | Species specificity: rat

**Biogenesis 5375-5005** Human r-DNA *E. coli* Purified; PBS buffer, pH 7.0; lyophilized

**BioSource International PHC0814** Human recombinant

**Oncogene PF013** Human recombinant MW 17k >98% (SDS-PAGE); lyophilized with 100 µg BSA.; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by murine C3H/HeJ thymocytes ~0.1 ng/mL | Species reactivity: human & mouse; for proliferation studies & Western blot; will act on both human & mouse cells

**Alexis 520-001** Human recombinant, expressed in *E. coli* MW ~17k Cell culture grade; ≥98% (SDS-PAGE); lyophilized powder; salt-free; soluble in water, PBS or most aqueous buffers; activity: 2x10<sup>8</sup> U/mg protein; biological activity: the ED<sub>50</sub> as the dose-dependent stimulation of thymidine uptake by murine C3H/HeJ thymocytes is 0.1 ng/mL; lyophilized powder can be reconstituted in sterile water to a concentration of 10 µg/100 µL; for further dilution carrier protein should be added to avoid loss of bioactivity | For most *in vitro* applications, exerts its biological activity in the concentration range of 0.1 to 10 ng/mL

**Calbiochem 407615** Human recombinant, expressed in *E. coli* MW 17k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-1β; biological activity: ED<sub>50</sub>=3-10 pg/mL as measured in a cell proliferation assay; endotoxin: ≤100 pg/µg IL-1β | Major form of interleukin-1 secreted by monocytes & macrophages; induces nitric oxide synthase in pancreatic & smooth muscle cells & suppresses apoptosis in rat ovarian follicles; involved in inflammatory & immune responses & promotes wound healing; *Merck Index*, 12: 5019; Chun, SY et al, *Endocrinology*, 136: 3120, 1995; Kunz, D et al, *Biochem J*, 304: 337, 1994; Eizirik, DL et al, *FEBS Lett*, 317: 62, 1993

**Fitzgerald 30-A157** Human recombinant, expressed in *E. coli*

**PeproTech 200-01B** Human recombinant, expressed in *E. coli* MW 17.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses including activation of B & T cells; 153 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of thymidine uptake by murine C3H/HeJ thymocytes

**Sigma I 4019** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE & N-terminal sequence analysis); lyophilized from phosphate buffered saline containing 100 µg human serum albumin; endotoxin tested; cell culture tested

**Biogenesis 5375-5026** Mouse r-DNA Lyophilized

**BioSource International PMC0814** Mouse recombinant

**Calbiochem 407617** Mouse recombinant, expressed in *E. coli* MW 17k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-1β; biological activity: ED<sub>50</sub>=5-10 pg/mL as measured in a cell proliferation assay; endotoxin: ≤100 pg/µg IL-1β | Suppresses apoptosis in rat ovarian follicles; involved in inflammatory & immune responses & promotes wound healing; *Merck Index*, 12: 5019; Chun, SY et al, *Endocrinology*, 136: 3120, 1995; Weidmann, B et al, *Nature*, 370: 434, 1994; Dinarello, CA & Wolff, SM, *N Engl J Med*, 328: 106, 1993

**Sigma I 5271** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 250 µg BSA; proliferative activity measured in culture using the mouse helper T cell line D10.G4.1; endotoxin tested | Activates T cell lymphocytes which then proliferate & secrete Interleukin-2; released primarily from stimulated macrophages & monocytes but has been shown to be released from several other cell types & plays a key role in inflammatory & immune responses; closely related agents IL-1α & IL-1β share 62% homology in AA sequence & elicit nearly identical biological responses; both are ~17k with some heterogeneity in the amount of glycosylation; Symons, JA et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 272, 1987; Gery, I et al, *J Exp Med*, 136: 128, 1972; Oppenheim, J et al, *Immunol Today*, 7: 45, 1986; Durum, S et al, *Ann Rev Immunol*, 3: 263, 1985; Aarden, L et al, *J Immunol*, 123: 2928, 1979

**Chemicon IL014** Murine ≥95%

**Fitzgerald 30-AI58** Murine recombinant, expressed in *E. coli*

**Harlan BT-5100** Murine recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-5101** Murine recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 211-11B** Murine recombinant, expressed in *E. coli* MW 17.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses; 153 AA; ED<sub>50</sub> ≤ 0.002 ng/mL; SA ≥ 5 × 10<sup>9</sup> U/mg; SA determined by the dose-dependent stimulation of murine D10S cells

**Chemicon IL024** Rat ≥95%

**Biogenesis 0100-0096** Rat r-DNA Lyophilized

**BioSource International PRC0814** Rat recombinant

**Fitzgerald 30-AI42** Rat recombinant, expressed in *E. coli*

**PeproTech 400-01B** Rat recombinant, expressed in *E. coli* MW 17.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses, including the activation of B & T cells; 153 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 1 × 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of murine D10S cells

**Sigma I 2393** Rat recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; biological activity measured by its ability to stimulate proliferation in the mouse T cell line D10.G4.1; endotoxin tested | Activates T cell lymphocytes which then proliferate & secrete Interleukin-2; released primarily from stimulated macrophages & monocytes but has been shown to be released from several other cell types & plays a key role in inflammatory & immune responses; closely related agents IL-1α & IL-1β share 62% homology in AA sequence & elicit nearly identical biological responses; both are ~17k with some heterogeneity in the amount of glycosylation; Symons, JA et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 272, 1987; Gery, I et al, *J Exp Med*, 136: 128, 1972; Oppenheim, J et al, *Immunol Today*, 7: 45, 1986; Durum, S et al, *Ann Rev Immunol*, 3: 263, 1985; Aarden, L et al, *J Immunol*, 123: 2928, 1979

### Interleukin 1β

*Synonyms:* IL-1β

**BioSource International PSC0814** Swine recombinant

### Interleukin II

*Synonyms:* IL-2; T-Cell Growth Factor

**Biodesign A52202H** *E. coli* MW 5k Purified

**Biodesign A52222M** *E. coli* Purified | Species specificity: mouse

**Chemicon IL002** Human ≥95%

**Biogenesis 5376-1127** Human r-DNA Lyophilized

**BioSource International PHC0024** Human recombinant

**Oncogene PF004** Human recombinant MW 15k >98% (SDS-PAGE); lyophilized with 100 µg BSA; biological activity: 4x10<sup>5</sup> U/mg as measured in the CTLL-2 cell proliferation assay | Species reactivity: human; for proliferation studies & Western blot; 4 X 10<sup>5</sup> U/mg protein measured in the CTLL-2 cell proliferation assay

**Calbiochem 407623** Human recombinant, expressed in *E. coli* MW 14.7k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-2; biological activity: ED<sub>50</sub>=250-500 pg/mL as measured in a cell proliferation assay with an IL-2-dependent murine cytotoxic T cell line; endotoxin: ≤100 pg/µg IL-2 | Variety of immunological functions; acts as an autocrine agent to promote proliferation & maturation of activated T cells; active in murine cell lines; exhibits ~60% AA homology with murine IL-2; inhibits dexamethasone-induced apoptosis in T lymphocytes; induces nitric oxide synthase; *Merck Index*, 12: 5020; Migliorati, G et al, *Pharmacol Res*, 30: 43, 1994; Nakamura, Y et al, *Cancer Res*, 54: 5757, 1994; Karanth, S et al, *PNAS*, 90: 3383, 1993

**Fitzgerald 30-AI59** Human recombinant, expressed in *E. coli*  
**Fluka 57600** Human recombinant, expressed in *E. coli* MW 15.5k ≥98% (GE); 10 k U/mL; solution in Dulbecco-PBS containing 1 mg BSA/mL; 1 U corresponds to the U activity in the colorimetric MTT-assay with CTLL-2 cells; Gillis, S et al, *J Immunol*, 120: 2027, 1978 | For tissue culture; promotes the growth of IL-2 dependent lymphocytes; Smith, KA, *Ann Rev Immunol*, 2: 319, 1984; Robb, RJ et al, *PNAS*, 81: 6486, 1984

**Harlan BT-2004** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Harlan BT-2005** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg | Cytokine

**PeproTech 200-02** Human recombinant, expressed in *E. coli* MW 15.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent immuno-modulator; mediates a wide range of immune & inflammatory responses; 134 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by dose-dependent stimulation of murine CTLL-2 cells

**Sigma I 2644** Human recombinant, expressed in *E. coli* MW 15.5k 0.2 µm filtered & lyophilized from 50 mM sodium acetate, pH 4.0, containing 500 µg BSA; endotoxin tested | Glycoprotein purified from conditioned media of a human T leukemic cell line; an immunomodulatory factor produced by certain subsets of T lymphocytes; has been isolated from a variety of cell cultures & recombinant systems; has been shown to promote long term growth of activated T cells, activation & proliferation of NK cells & induction of γ-interferon & B cell growth factor secretion; IL-2 proliferative activity is tested in culture using a modification of a biological assay, whereby 1 U is the amount required to induce half-maximal proliferation of CTLL-2 cells as measured in a MTT dye assay or in a <sup>3</sup>H-thymidine biological assay; Smith, K, *Science*, 240: 1169, 1988; Morgan, D et al, *Science*, 193: 1007, 1976; Ortaldo, J et al, *J Immuno*, 133: 779, 1984; Farrar, J et al, *J Immunol Res*, 63: 129, 1982; inaba, K et al, *J Exp Med*, 158: 2040, 1983; Coligan, J et al, ed, *Current Protocols in Immunology*, 1: 6.3.1, 1991; Gearing A et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 296, 1987

**Sigma T 3267** Human recombinant, expressed in *E. coli* MW 15.5k 0.2 µm filtered solution containing 0.1% BSA in 1 mL phosphate buffered saline; endotoxin tested | Glycoprotein purified from conditioned media of a human T leukemic cell line; an immunomodulatory factor produced by certain subsets of T lymphocytes; has been isolated from a variety of cell cultures & recombinant systems; has been shown to promote long term growth of activated T cells, activation & proliferation of NK cells & induction of γ-interferon & B cell growth factor secretion; IL-2 proliferative activity is tested in culture using a modification of a biological assay, whereby 1 U is the amount required to induce half-maximal proliferation of CTLL-2 cells as measured in a MTT dye assay or in a <sup>3</sup>H-thymidine biological assay; Smith, K, *Science*, 240: 1169, 1988; Morgan, D et al, *Science*, 193: 1007, 1976; Ortaldo, J et al, *J Immuno*, 133: 779, 1984; Farrar, J et al, *J Immunol Res*, 63: 129, 1982; inaba, K et al, *J Exp Med*, 158: 2040, 1983; Coligan, J et al, ed, *Current Protocols in Immunology*, 1: 6.3.1, 1991; Gearing A et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 296, 1987

**Biogenesis 5376-1205** Mouse r-DNA Lyophilized

**BioSource International PMC0024** Mouse recombinant

**Calbiochem 407627** Mouse recombinant, expressed in *E. coli* MW 17.2k >97% (SDS-PAGE); lyophilized from sterile-filtered 50 mM NH<sub>4</sub>OAc, 1 mM DTT, pH 4.0 containing 50 µg BSA/µg IL-2; biological activity: ED<sub>50</sub>=100-400 pg/mL as measured in a cell proliferation assay using an IL-2-dependent mouse cytotoxic T cell line, CTLL-2 | Lymphokine that functions as an autocrine factor, driving the expansion of antigen-specific cells; also acts as a paracrine factor, influencing the activity of other cells, both within & outside of the immune system; mediates the regression of metastatic cancers & increases phagocytic activity of kupffer cells; *Merck Index*, 12: 5020; Umlauf, SW et al, *Mol Cell Biol*, 15: 3197, 1995; Kashima, K et al, *Nature*, 313: 402, 1985

**Sigma I 0523** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 50 mM ammonium acetate & 1 mM DTT, pH 4.0, containing 1 mg BSA; activity is tested in culture by a cell proliferation assay using the mouse helper T cell line CTLL-2; endotoxin tested | Glycoprotein purified from conditioned media of a human T leukemic cell line; an immunomodulatory factor produced by certain subsets of T lymphocytes; has been isolated from a variety of cell cultures & recombinant systems; has been shown to promote long term growth of activated T cells, activation & proliferation of NK cells & induction of γ-interferon & B cell growth factor secretion; IL-2 proliferative activity is tested in culture using a modification of a biological assay, whereby 1 U is the amount required to induce half-maximal proliferation of CTLL-2 cells as measured in a MTT dye assay or in a <sup>3</sup>H-thymidine biological assay; Smith, K, *Science*, 240: 1169, 1988; Morgan, D et al, *Science*, 193: 1007, 1976; Ortaldo, J et al, *J Immuno*, 133: 779, 1984; Farrar, J et al, *J Immunol Res*, 63: 129, 1982; inaba, K et al, *J Exp Med*, 158: 2040, 1983; Coligan, J et al, ed, *Current Protocols in Immunology*, 1: 6.3.1, 1991; Gearing A et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 296, 1987

**Chemicon IL031** Murine ≥95%

**PeproTech 212-12** Murine recombinant, expressed in *E. coli* MW 17.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized from 10 mM Na Citrate pH 4.0 | Potent lymphoid cell growth factor; exerts its biological activity primarily on T cells; 149 AA; ED<sub>50</sub> ≤ 1.5 ng/mL; SA ≥ 6.6 x 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of murine CTLL-2 cells

**Sigma I 6013** Natural human MW 15-17k 0.2 µm filtered solution containing 0.1% BSA in 1 mL phosphate buffered saline; endotoxin tested | Glycoprotein purified from conditioned media of a human T leukemic cell line; an immunomodulatory factor produced by certain subsets of T lymphocytes; has been isolated from a variety of cell cultures & recombinant systems; has been shown to promote long term growth of activated T cells, activation & proliferation of NK cells & induction of γ-interferon & B cell growth factor secretion; IL-2 proliferative activity is tested in culture using a modification of a biological assay, whereby 1 U is the amount required to induce half-maximal proliferation of CTLL-2 cells as measured in a MTT dye assay or in a <sup>3</sup>H-thymidine biological assay; Smith, K, *Science*, 240: 1169, 1988; Morgan, D et al, *Science*, 193: 1007, 1976; Ortaldo, J et al, *J Immuno*, 133: 779, 1984; Farrar, J et al, *J Immunol Res*, 63: 129, 1982; inaba, K et al, *J Exp Med*, 158: 2040, 1983; Coligan, J et al, ed, *Current Protocols in Immunology*, 1: 6.3.1, 1991; Gearing A et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 296, 1987

**Sigma T 0892** Natural rat MW 15-17k 0.2 µm filtered solution & lyophilized from a solution of phosphate buffered saline containing 1 mg BSA; endotoxin tested | Glycoprotein purified from conditioned media of a rat splenocyte culture stimulated by Concanavalin A; immunomodulatory factor produced by certain subsets of T lymphocytes; has been isolated from a variety of cell cultures & recombinant systems; has been shown to promote long term growth of activated T cells, activation & proliferation of NK cells & induction of  $\gamma$ -interferon & B cell growth factor secretion; IL-2 proliferative activity is tested in culture using a modification of a biological assay, whereby 1 U is the amount required to induce half-maximal proliferation of CTLL-2 cells as measured in a MTT dye assay or in a  $^3\text{H}$ -thymidine biological assay; Smith, K, *Science*, 240: 1169, 1988; Morgan, D et al, *Science*, 193: 1007, 1976; Ortaldo, J et al, *J Immunol*, 133: 779, 1984; Farrar, J et al, *J Immunol Res*, 63: 129, 1982; Inaba, K et al, *J Exp Med*, 158: 2040, 1983; Coligan, J et al, ed, *Current Protocols in Immunology*, 1: 6.3.1, 1991; Gearing A et al, in: *Lymphokines & Interferons, A Practical Approach*, Clemens, MJ et al, eds, IRL Press, Oxford, p. 296, 1987

**BioSource International PRC0024** Rat recombinant

**BioSource International PSC0024** Swine recombinant

### Interleukin II, Human

**IBT CI-420-3** Recombinant, expressed in *E. coli* MW 15k >95%; lyophilized in the presence of stabilizer (mannitol), low levels of SDS (preventing aggregation), & sodium phosphate | Lymphokine; activates & proliferates T cells, B cells & other lymphokine activated killer cells; 133 AA, including 3 Cys residues, 2 of which are involved in a disulfide bond essential for biological activity; 62% homology with murine IL-2; active on murine cell lines

### Interleukin III

**Synonyms:** Hemopoietin, Pan-Specific; Multicolony Stimulating Factor; Mast Cell Growth Factor Burst Promoting Activity; Histamine Producing Cell Stimulating Factor; P-Cell Stimulating Factor; WEHI-3 Factor; Colony Forming U-Stimulating Activity; IL-3

**Biodesign A52131H** *E. coli* MW 15k Purified | Species specificity: mouse

**Biodesign A52203H** *E. coli* MW 15k Purified

**Chemicon IL003** Human ≥95%

**Biogenesis 5377-3002** Human r-DNA Lyophilized

**BioSource International PHC0034** Human recombinant

**Calbiochem 407629** Human recombinant, expressed in *E. coli* MW 17.5k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-3; biological activity:  $\text{ED}_{50}$ =100-400 pg/mL as measured in a cell proliferation assay with a human IL-3-dependent cell line; endotoxin: ≤100 pg/µg IL-3 | Stimulates the production & differentiation of macrophages, neutrophils, basophils, mast cells & eosinophils; as hematopoietic colony-stimulating factor, IL-3 interacts with very early multipotent hematopoietic progenitor cells; supports colony formation in soft agar of bone marrow cells of the granulocyte, macrophage, megakaryocyte & erythrocyte lineages; *Merck Index*, 12: 5021; Dercksen, MW et al, *Br J Cancer*, 68: 996, 1993; Theodossiou, C et al, *Cancer*, 74: 2808, 1994

**Fitzgerald 30-AI60** Human recombinant, expressed in *E. coli*

**Harlan BT-2007** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Harlan BT-2008** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg | Cytokine

**PeproTech 200-03** Human recombinant, expressed in *E. coli* MW 15.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Species-specific colony-stimulating factor; stimulates colony formation of megakaryocytes, neutrophils, & macrophages from bone marrow cultures; 133 AA;  $\text{ED}_{50}$  ≤ 0.1 ng/mL; SA ≥  $10^7$  U/mg; SA determined by dose-dependent stimulation of human TF-1 cell proliferation

**Sigma I 1646** Human recombinant, expressed in *E. coli* MW 15k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; proliferative activity is tested in culture using human TF-1 cells; endotoxin tested | Multifunctional protein, originally called colony forming U-stimulating activity (CFU-SA) & is produced by activated T lymphocytes; supports the formation of multilineage colonies in the early development of multipotent hematopoietic progenitor cells; shown to induce colony formation of macrophages, neutrophils, mast cells & megakaryocytes from agar-suspended bone marrow cells; also interacts with IL-2 to stimulate growth of T lymphocytes & to induce IgG secretion from activated B cells; Cerny, J et al, *Nature*, 249: 63, 1974; Luger, T et al, *J Immunol*, 134: 915, 1985; Schrader, J et al, *Immunol Rev*, 76: 79, 1983; Santoli, D et al, *J Immunol*, 141: 519, 1988; Tadmori, W et al, *J Immunol*, 142: 1950, 1989; Schrader, J et al, *Ann Rev Immunol*, 4: 205, 1986; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Kuwaki, T et al, *Biochem Biophys Res Commun*, 161: 16, 1989

**Sigma I 7389** Human recombinant, expressed in *E. coli* MW 15k ≥95% (SDS-PAGE); 0.2 µm filtered & lyophilized; proliferative activity is tested in culture using human TF-1 cells whereby 1 U is the amount required to induce half-maximal incorporation of  $^3\text{H}$ -thymidine; activity expressed in Reference U (NIBSC reference preparation for IL-3 code 88/87); SA is given in the lot specific data sheet; endotoxin tested | Multifunctional protein, originally called colony forming U-stimulating activity (CFU-SA) & is produced by activated T lymphocytes; supports the formation of multilineage colonies in the early development of multipotent hematopoietic progenitor cells; shown to induce colony formation of macrophages, neutrophils, mast cells & megakaryocytes from agar-suspended bone marrow cells; also interacts with IL-2 to stimulate growth of T lymphocytes & to induce IgG secretion from activated B cells; Cerny, J et al, *Nature*, 249: 63, 1974; Luger, T et al, *J Immunol*, 134: 915, 1985; Schrader, J et al, *Immunol Rev*, 76: 79, 1983; Santoli, D et al, *J Immunol*, 141: 519, 1988; Tadmori, W et al, *J Immunol*, 142: 1950, 1989; Schrader, J et al, *Ann Rev Immunol*, 4: 205, 1986; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Kuwaki, T et al, *Biochem Biophys Res Commun*, 161: 16, 1989

**Biogenesis 5377-3055** Mouse r-DNA Lyophilized

**BioSource International PMC0034** Mouse recombinant

**Calbiochem 407631** Mouse recombinant, expressed in *E. coli* MW 15k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-3; biological activity:  $\text{ED}_{50}$ =50-100 pg/mL as measured in a cell proliferation assay with a factor-dependent murine myeloblastic cell line; endotoxin: ≤100 pg/µg IL-3 | Stimulates production & differentiation of macrophages, neutrophils, basophils, mast cells & eosinophils; *Merck Index*, 12: 5021; Muther, H et al, *Growth Factors*, 10: 17, 1994

**Sigma I 4144** Mouse recombinant, expressed in *E. coli* MW 28k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; activity is measured in cell proliferation assay using the NFS-60 cell line; endotoxin tested | Glycoprotein; Holmes, K et al, *Proc Natl Acad Sci USA*, 82: 6687, 1985; general comments & references are the same as for Sigma I 7389

**Chemicon IL015** Murine ≥95%

**Fitzgerald 30-AI61** Murine recombinant, expressed in *E. coli*

**Harlan BT-5102** Murine recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-5103** Murine recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 213-13** Murine recombinant, expressed in *E. coli* MW 15.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Species-specific; stimulates colony formation of megakaryocytes, neutrophils, & macrophages from bone marrow cultures; 135 AA;  $\text{ED}_{50}$  ≤ 0.1 ng/mL; SA ≥  $10^7$  U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine IL-3-dependent FDC-P1 cells

### Interleukin IIIβ

**PeproTech 400-03** Rat recombinant, expressed in *E. coli* MW 16.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Species-specific colony-stimulating factor; stimulates colony formation of megakaryocytes, neutrophils & macrophages from bone marrow cultures; 144 AA; ED<sub>50</sub> ≤ 10 ng/mL; SA ≥ 1.0 × 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of thymidine uptake by murine MC-9 cells

### Interleukin IV

**Synonyms:** B-Cell Stimulatory Factor I; T-Cell Growth Factor II; Mast Cell Growth Factor II; IL-4

**Biodesign A52141H** *E. coli* MW 13k Purified | Species specificity: mouse

**Biodesign A52204H** *E. coli* MW 14k Purified

**Biodesign A52404R** *E. coli* MW 14k Purified | Species specificity: rat

**Chemicon IL004** Human ≥95%

**Biogenesis 5377-6002** Human r-DNA *E. coli* MW 14.9k SA: ≥5 × 10(e)6 U/mg; ED<sub>50</sub> ≤0.2 ng/mL; endotoxin <0.1 ng/μg (1 EU/μg); purified; lyophilized

**BioSource International PHC0044** Human recombinant

**Calbiochem 407635** Human recombinant, expressed in *E. coli* MW 14k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-4; biological activity: ED<sub>50</sub>=50-200 pg/mL as measured in a TF-1 proliferation assay with PHA-activated human peripheral blood lymphocytes; endotoxin: ≤100 pg/μg IL-4 | Has profound effects on proliferation & differentiation of T & B lymphocytes; also affects a number of other cell types, including immature erythroid precursors, bone marrow & induced macrophages, myelomonocytic precursors, megakaryocyte precursors & mast cells; activity is species-specific; inhibits dexamethasone-induced apoptosis in thymocytes & peripheral T lymphocytes; not active on murine cells; Migliorati, G et al, *Pharmacol Res*, 30: 43, 1994

**Fitzgerald 30-AI62** Human recombinant, expressed in *E. coli*

**Harlan BT-2009** Human recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-2010** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 200-04** Human recombinant, expressed in *E. coli* MW 14.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; stimulates growth & survivability of certain B & T cells; 129 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 2 × 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of human TF-1 cell proliferation

**Sigma I 4269** Human recombinant, expressed in *E. coli* MW 14k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 250 μg BSA; proliferative activity is tested in culture using human PHA activated human peripheral blood lymphocytes; endotoxin tested | Lymphokine with profound effects on the growth & differentiation of immunologically competent cells; complex glycoprotein released by a subset of activated T cells; treatment of IL-4 with specific glycosidases yields an active 15-16kD polypeptide; human & mouse IL-4 share a 50% AA sequence homology but their biological actions are species-specific; Howard, M et al, *J Exp Med*, 155: 914, 1982; Mosmann, T et al, *Proc Natl Acad Sci USA*, 83: 5654, 1986; Howard, M et al, *Immunol Rev*, 78: 185, 1984; Park, L et al, *J Exp Med*, 166: 476, 1987; Paul W & Ohara, J, *Ann Rev Immunol*, 5: 429, 1987

**Biogenesis 5377-6025** Mouse r-DNA Lyophilized

**BioSource International PMC0044** Mouse recombinant

**Calbiochem 407637** Mouse recombinant, expressed in *E. coli* MW 14k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-4; biological activity: ED<sub>50</sub>=1.0-2.0 ng/mL as measured in a cell proliferation assay with a factor-dependent murine cell line; endotoxin: ≤100 pg/μg IL-4 | Induces the differentiation of CD4+ T cells into T-helper-2 like cells; exhibits anti-neoplastic & anti-inflammatory properties; overproduction of IL-4 is linked to osteoporosis in murine models; induces MAP-kinase activation & Shc phosphorylation inkeratinocytes; Wery, S et al, *J Biol Chem*, 271: 8529, 1996; Lacey, DL et al, *J Cell Biochem*, 53: 122, 1993; Lewis, DB et al, *PNAS*, 90: 11618, 1993

**Sigma I 1020** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 250 μg BSA; proliferative activity is tested in culture using mouse HT-2 cells; endotoxin tested | Lymphokine with profound effects on the growth & differentiation of immunologically competent cells; complex glycoprotein released by a subset of activated T cells; treatment of IL-4 with specific glycosidases yields an active 15-16kD polypeptide; human & mouse IL-4 share a 50% AA sequence homology but their biological actions are species-specific; Howard, M et al, *J Exp Med*, 155: 914, 1982; Mosmann, T et al, *Proc Natl Acad Sci USA*, 83: 5654, 1986; Howard, M et al, *Immunol Rev*, 78: 185, 1984; Park, L et al, *J Exp Med*, 166: 476, 1987; Paul W & Ohara, J, *Ann Rev Immunol*, 5: 429, 1987

**Chemicon IL016** Murine ≥95%

**Fitzgerald 30-AI63** Murine recombinant, expressed in *E. coli*

**Harlan BT-5104** Murine recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Harlan BT-5105** Murine recombinant, expressed in *E. coli* Lyophilized; 0.05 mg | Cytokine

**PeproTech 214-14** Murine recombinant, expressed in *E. coli* MW 13.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; stimulates growth & survivability of certain B & T cells; 120 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; dose-dependent proliferation of the IL-4-dependent murine CT.4S cells

**Chemicon IL037** Rat ≥95%

**Biogenesis 0100-0098** Rat r-DNA Lyophilized

**BioSource International PRC0044** Rat recombinant

**PeproTech 400-04** Rat recombinant, expressed in *E. coli* MW 14k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; growth & survivability of certain B & T cells; 121 AA; ED<sub>50</sub> ≤ 1.5 ng/mL; SA ≥ 6.6 × 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of con A activated rat spleen cells

**Sigma I 3650** Rat recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 250 μg BSA; biological activity is measured by its ability to stimulate proliferation of rat splenocytes; endotoxin tested | Lymphokine with profound effects on the growth & differentiation of immunologically competent cells; complex glycoprotein released by a subset of activated T cells; treatment of IL-4 with specific glycosidases yields an active 15-16kD polypeptide; human & mouse IL-4 share a 50% AA sequence homology but their biological actions are species-specific; Howard, M et al, *J Exp Med*, 155: 914, 1982; Mosmann, T et al, *Proc Natl Acad Sci USA*, 83: 5654, 1986; Howard, M et al, *Immunol Rev*, 78: 185, 1984; Park, L et al, *J Exp Med*, 166: 476, 1987; Paul W & Ohara, J, *Ann Rev Immunol*, 5: 429, 1987

**BioSource International PSC0044** Swine recombinant



**Interleukin IV Receptor Soluble Fragment**

**Sigma I 6021** Human recombinant, expressed in Sf 21 insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; receptor mediated activity is measured by its ability to inhibit the IL-4 proliferation of TF-1 cells | Lymphokine with profound effects on the growth & differentiation of immunologically competent cells; complex glycoprotein released by a subset of activated T cells; treatment of IL-4 with specific glycosidases yields an active 15-16kD polypeptide; human & mouse IL-4 share a 50% AA sequence homology but their biological actions are species-specific; Howard, M et al, *J Exp Med*, 155: 914, 1982; Mosmann, T et al, *Proc Natl Acad Sci USA*, 83: 5654, 1986; Howard, M et al, *Immunol Rev*, 78: 185, 1984; Park, L et al, *J Exp Med*, 166: 476, 1987; Paul W & Ohara, J, *Ann Rev Immunol*, 5: 429, 1987; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989

**Interleukin V**

**Synonyms:** B-Cell Growth Factor II; T-Cell Replacing Factor; Eosinophil Differentiating Factor; Immunoglobulin A Enhancing Factor; Eosinophil Colony Stimulating Factor; IL-5

**Chemicon IL005** Human ≥95%

**Biogenesis 5377-9002** Human r-DNA Lyophilized

**BioSource International PHC0054** Human recombinant

**Fitzgerald 30-AI91** Human recombinant, expressed in *E. coli*

**PeptoTech 200-05** Human recombinant, expressed in *E. coli* MW 26.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent T cell derived factor; stimulates growth of certain B cells & the differentiation of eosinophils; 232 AA; ED<sub>50</sub> ≤ 0.15 ng/mL; SA ≥ 6 × 10<sup>6</sup> U/mg; SA determined by dose-dependant stimulation of human TF-1 cell proliferation

**Sigma I 5273** Human recombinant, expressed in Sf 21 cells MW 45-50k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 100 µg BSA; proliferative activity is tested in culture using human TF-1 cells; endotoxin tested | Product of activated T lymphocytes & exhibits activity on eosinophils, B cells & thymocytes; dimeric glycoprotein although glycosylation is not required for activity; human & mouse IL-5 exhibit homology at the nucleotide & AA levels & show species cross-reactivity; Sanderson, CJ et al, *J Exp Med*, 162: 60, 1985; Yokota, T et al, *Proc Natl Acad Sci USA*, 84: 7388, 1987; Takatsu, K et al, *Immunol Rev*, 102: 107, 1988; Clutterbuck, E et al, *Blood*, 73: 1504, 1989; Ramos, T, *Immunol Lett*, 21: 277, 1989; McKenzie, DT et al, *J Immunol*, 139: 2661, 1987; tominaga, A et al, *J Immunol*, 140: 1175, 1988; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Kuwaki, T et al, *Biochem Biophys Res Commun*, 161: 16, 1989;

**Calbiochem 407641** Human recombinant, expressed in *Spodoptera frugiperda* MW 32-34k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-5; biological activity: ED<sub>50</sub>=100-200 pg/mL as measured in a cell proliferation assay with the IL-5-dependent human cell line TF-1; endotoxin: ≤100 pg/µg IL-5 | Stimulates growth & differentiation of eosinophils; a potent primer of eosinophil migration; activates a 45-k MAP kinase & jak2 tyrosine kinase; Bates, ME et al, *J Immunol*, 156: 711, 1996; Bozza, PT et al, *Immunopharmacol*, 27: 131, 1994

**Biogenesis 5377-9025** Mouse r-DNA Liquid

**Sigma I 1145** Mouse recombinant, expressed in Sf 21 cells using a recombinant *baculovirus* expression vector containing a mIL-5 cDNA ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 250 µg BSA; proliferative activity is tested in culture using TF-1 cells; endotoxin tested | Product of activated T lymphocytes & exhibits activity on eosinophils, B cells & thymocytes; dimeric glycoprotein although glycosylation is not required for activity; human & mouse IL-5 exhibit homology at the nucleotide & AA levels & show species cross-reactivity; Sanderson, CJ et al, *J Exp Med*, 162: 60, 1985; Yokota, T et al, *Proc Natl Acad Sci USA*, 84: 7388, 1987; Takatsu, K et al, *Immunol Rev*, 102: 107, 1988; Clutterbuck, E et al, *Blood*, 73: 1504, 1989; Ramos, T, *Immunol Lett*, 21: 277, 1989; McKenzie, DT et al, *J Immunol*, 139: 2661, 1987; tominaga, A et al, *J Immunol*, 140: 1175, 1988; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Kuwaki, T et al, *Biochem Biophys Res Commun*, 161: 16, 1989

**Calbiochem 407647** Mouse recombinant, expressed in *Spodoptera frugiperda* MW 32-34k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-5; biological activity: ED<sub>50</sub>=200-600 pg/mL as measured in a cell proliferation assay with the IL-5-dependent human cell line TF-1; endotoxin: ≤100 pg/µg IL-5

**Interleukin V Receptor α-Chain Soluble Fragment**

**Sigma I 5646** Human recombinant, expressed in Sf 21 insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; receptor mediated activity is measured by its ability to inhibit the IL-5 proliferation of TF-1 cells | Lymphokine with profound effects on the growth & differentiation of immunologically competent cells; complex glycoprotein released by a subset of activated T cells; treatment of IL-4 with specific glycosidases yields an active 15-16kD polypeptide; human & mouse IL-4 share a 50% AA sequence homology but their biological actions are species-specific; Howard, M et al, *J Exp Med*, 155: 914, 1982; Mosmann, T et al, *Proc Natl Acad Sci USA*, 83: 5654, 1986; Howard, M et al, *Immunol Rev*, 78: 185, 1984; Park, L et al, *J Exp Med*, 166: 476, 1987; Paul W & Ohara, J, *Ann Rev Immunol*, 5: 429, 1987; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989

**Interleukin VI**

**Synonyms:** Plasmacytoma Growth Factor; Interferon-β2; Monocyte Derived Human B-Cell Growth Factor; B-Cell Stimulating Factor; Hepatocyte Stimulating Factor; IL-6; Interleukin Hybridoma/Plasmacytoma I

**Biodesign A52006H** *E. coli* MW 21.7k Purified | Species specificity: rat

**Biodesign A52161H** *E. coli* MW 21k Purified | Species specificity: mouse

**Biodesign A52206H** *E. coli* MW 20.5k Purified

**Chemicon IL006** Human ≥95%

**Biogenesis 5378-2002** Human r-DNA Lyophilized

**BioSource International PHC0064** Human recombinant

**Fitzgerald 30-AI64** Human recombinant, expressed in *E. coli*

**Harlan BT-2012** Human recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-2013** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeptoTech 200-06** Human recombinant, expressed in *E. coli* MW 20.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; affects B-lymphocytes, T lymphocytes, & hybridoma cells; also affects cytotoxic T cells in combination with other factors such as IL-2 & γ-interferon; 184 AA; ED<sub>50</sub> ≤ 0.15 ng/mL; SA ≥ 6 × 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of IL-6-dependent murine 7TD1 cells

**Sigma I 1395** Human recombinant, expressed in *E. coli* MW 26k ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 500 µg BSA; biological activity measured in cell proliferation assay using the T1165.85.2.1 cell line; endotoxin tested | Multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF-α in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, A, *Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

**Sigma I 7764** Human recombinant, expressed in *E. coli* MW 26k ≥98% (SDS-PAGE); 0.2 µm filtered solution in 1 mL phosphate buffered saline containing 0.1% BSA; endotoxin tested | Multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF-α in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, *A, Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

**Biogenesis 5378-2105** Mouse r-DNA Lyophilized

**BioSource International PMC0064** Mouse recombinant, expressed in *E. coli*

**Calbiochem 407652** Mouse recombinant, expressed in *E. coli* MW 20.3k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-6; biological activity: ED<sub>50</sub>=200-800 pg/mL as measured in a cell proliferation assay with a factor-dependent murine plasmacytoma cell line; endotoxin: ≤100 pg/µg IL-6 | Stimulates production of acute phase proteins by hepatocytes; also known to induce skeletal muscle protein breakdown; induces growth & differentiation of B cells, T cells & hepatocytes; stimulates growth & inhibits constitutive, protein synthesis-independent apoptosis of murine B cell hybridoma 7TD1; active on murine cells; Goodman, MN et al, *Proc Soc Exp Biol Med*, 205: 182, 1994; Liu, J et al, *Cell Immunol*, 155: 229, 1994

**Calbiochem 407654** Mouse recombinant, expressed in *E. coli* MW 20.6k >97% (SDS-PAGE); lyophilized from sterile-filtered NaOAc & NaCl, pH 4.0 containing 50 µg BSA/µg IL-6; biological activity: ED<sub>50</sub>=50-200 pg/mL as measured in a cell proliferation assay using a factor-dependent plasmacytoma cell line; endotoxin: ≤100 pg/µg IL-6 | Stimulates the production of acute phase proteins by hepatocytes; induces growth & differentiation of B cells, hepatocytes, keratinocytes & nerve cells; Matsuda, T et al, *Biochem Biophys Res Comm*, 202: 637, 1994

**Sigma I 9646** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 250 µg BSA; proliferative activity is measured in culture using the mouse plasmacytoma cell line T1165.85.2.1; endotoxin tested | Multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF-α in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, *A, Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

**Chemicon IL017** Murine ≥95%

**Fitzgerald 30-AI65** Murine recombinant, expressed in *E. coli*

**Harlan BT-5106** Murine recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-5107** Murine recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeptoTech 216-16** Murine recombinant, expressed in *E. coli* MW 21.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; stimulates growth & survivability of certain B & T cells; 187 AA; ED<sub>50</sub> ≤ 0.02 ng/mL; SA ≥ 5 × 10<sup>8</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of IL-6-dependent murine 7TD1 cells

**Sigma I 3268** Natural human, produced in MG-63 osteosarcoma cells induced with IL-1β MW 26k ≥90% (SDS-PAGE); 0.2 µm filtered solution in 1 mL phosphate buffered saline containing 0.1% BSA; activity is ≥1×10<sup>4</sup> U/vial; endotoxin tested | Multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF-α in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, *A, Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

**Chemicon IL025** Rat ≥95%

**Biogenesis 0100-0103** Rat r-DNA Lyophilized

**Biogenesis 0100-0104** Rat r-DNA Lyophilized

**BioSource International PRC0064** Rat recombinant

**PeptoTech 400-06** Rat recombinant, expressed in *E. coli* MW 21.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; growth & survivability of certain B & T cells; 187 AA; ED<sub>50</sub> ≤ 0.01 ng/mL; SA ≥ 10<sup>8</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of IL-6-dependent murine 7TD1 cells

**BioSource International PSC0064** Swine recombinant

### Interleukin VI Receptor Soluble Fragment

**Sigma I 5771** Human recombinant, expressed in *Sf 21* insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 250 µg BSA; receptor mediated activity is measured by its ability to increase the IL-6 inhibition of M1 cells | Multifunctional protein originally discovered in the media of cells stimulated with double stranded RNA; appears to be directly involved in the responses that occur after infection & injury & may prove to be as important as IL-1 & TNF-α in regulating the acute phase response; reported to be produced by fibroblasts, activated T cells, activated monocytes or macrophages & endothelial cells; acts upon a variety of cells including fibroblasts, myeloid progenitor cells, T cells, B cells & hepatocytes; appears to interact with IL-2 in the proliferation of T lymphocytes; also potentiates the proliferative effect of IL-3 on multipotential hematopoietic progenitors; Billiau, *A, Immunol Today*, 8: 84, 1987; Gaudie, J et al, *Proc Natl Acad Sci USA*, 84: 7251, 1987; Van Snick, J, *Ann Rev Immunol*, 8: 253, 1990; nordan, R & Potter, M, *Science*, 233: 566, 1986; Van Snick, J et al, *Proc Natl Acad Sci USA*, 83: 9679, 1986; Van Damme, J et al, *Eur J Immunol*, 17: 1, 1987

### Interleukin VI Receptor, Soluble

**Calbiochem 407653** Human recombinant, expressed in *Spodoptera frugiperda* MW 38k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-6 receptor; biological activity: ED<sub>50</sub>=5-15 ng/mL as measured by its ability to enhance IL-6-induced growth inhibition of mouse M1 myeloid leukemic cells; endotoxin: ≤100 pg/µg IL-6 receptor | Soluble form of the IL-6 receptor that binds IL-6 & mediates IL-6 signaling through interaction with gp 130; elevated serum levels of soluble IL-6 receptors have been shown to be associated with a number of pathological states including multiple myelomas, adult T cell leukemia, interstitial lung infection & HIV infection; Schobitz, B et al, *FASEB J*, 9: 659, 1995; Yokoyama, A et al, *Clin Exp Immunol*, 100: 325, 1995; Suzuki, H et al, *Eur J Immunol*, 23: 1078, 1993; Lust, JA et al, *Cytokine*, 4: 96, 1992; Sugita, T et al, *J Exp Med*, 171: 2001, 1990; Yamasaki, K et al, *Science*, 241: 825, 1988

**Interleukin VI, Human**

**IBT CI-460-33** Recombinant, expressed in *Spodoptera frugiperda* insect cells (Sf9) MW 20-25k (glycoprotein) >85%; frozen 0.5 mg/mL solution in PBS; 50 µL/vial | Role in mediating inflammatory & immune responses initiated by infection or injury; acts on B cells by stimulating differentiation & Ab secretion; exhibits growth factor activity for mature thymic or peripheral T cells; enhances differentiation of cytotoxic T cells in the presence of IL-2 or IFN $\gamma$ ; glycoprotein composed of 184 AA; 42% homology with murine IL-6

**Interleukin VII**

*Synonyms:* IL-7

**Biodesign A52171H** *E. coli* MW 14.5k Purified | Species specificity: mouse

**Biodesign A52207H** *E. coli* MW 17k Purified

**Chemicon IL007** Human  $\geq$ 95%

**Biogenesis 5378-4005** Human r-DNA Lyophilized

**BioSource International PHC0074** Human recombinant

**Calbiochem 407658** Human recombinant, expressed in *E. coli* MW 17k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg HSA/µg IL-7; biological activity: ED<sub>50</sub>=200-500 pg/mL measured as T cell growth factor activity in a cell proliferation assay with PHA-activated human peripheral blood lymphocytes; endotoxin:  $\leq$ 100 pg/µg IL-7 | Growth & differentiation factor for human & murine T cells & an important factor in regulation of B cell & T cell development; acts on human CD8<sup>+</sup> T cells to augment toxicity; Rich, BE & Leder, P, *J Exp Med*, 181: 223, 1995

**Fitzgerald 30-A166** Human recombinant, expressed in *E. coli*

**Harlan BT-2014** Human recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-2015** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 200-07** Human recombinant, expressed in *E. coli* MW 17.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; affects Pre-B, Pro-B & early T cells; also affects mature T cells in combination with other factors such as IL-2; 152 AA; ED<sub>50</sub>  $\leq$  0.5 ng/mL; SA  $\geq$  2  $\times$  10<sup>6</sup> U/mg; SA determined by the dose-dependant stimulation of the proliferation of murine IXN/2B cells

**Sigma I 5896** Human recombinant, expressed in *E. coli* MW25k  $\geq$ 97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 250 µg BSA; activity measured in cell proliferation assay using PHA activated human peripheral blood lymphocytes | Lymphoid cell growth factor which affects pre-B, pro-B & early T cells; first isolated by Namen in 1988; supports the growth of early B cells from long-term lymphoid bone marrow cultures; mitogenic for thymocytes & co-mitogenic with PHA & Con A; also stimulates the proliferation of CD4/CD8 cells; proliferative response of thymocytes to IL-7 is not affected by antibodies to the T cell growth factors such as IL-2, IL-4 & IL-6; mature T cells respond to IL-7 & Con A but not to IL-7 alone; Ab against IL-2 affect its activity suggesting that it functions through IL-2 production; glycoprotein that has 6 Cys residues which are important for biological activity; human & mouse IL-7 have 60% AA sequence homology; Henney, CS, *Immunol Today*, 10: 170, 1989; Namen, AE et al, *Nature*, 333: 57, 1988; Namen, AE et al, *J Exp Med*, 167: 988, 1988; Conlon, PJ et al, *Blood*, 74: 1368, 1989; Suda, T et al, *J Immunol*, 144: 3039, 1990; Morrissey, PJ et al, *J Exp Med*, 169: 707, 1989; Goodmin, AG et al, *Proc Natl Acad Sci USA*, 86: 302, 1989

**Biogenesis 5378-4025** Mouse r-DNA Lyophilized

**BioSource International PMC0074** Mouse recombinant

**Sigma I 4892** Mouse recombinant, expressed in *E. coli*  $\geq$ 97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 250 µg BSA; activity measured in cell proliferation assay using PHA activated human peripheral blood lymphocytes; endotoxin tested | Lymphoid cell growth factor which affects pre-B, pro-B & early T cells; first isolated by Namen in 1988; supports the growth of early B cells from long-term lymphoid bone marrow cultures; mitogenic for thymocytes & co-mitogenic with PHA & Con A; also stimulates the proliferation of CD4/CD8 cells; proliferative response of thymocytes to IL-7 is not affected by antibodies to the T cell growth factors such as IL-2, IL-4 & IL-6; mature T cells respond to IL-7 & Con A but not to IL-7 alone; Ab against IL-2 affect its activity suggesting that it functions through IL-2 production; glycoprotein that has 6 Cys residues which are important for biological activity; human & mouse IL-7 have 60% AA sequence homology; Henney, CS, *Immunol Today*, 10: 170, 1989; Namen, AE et al, *Nature*, 333: 57, 1988; Namen, AE et al, *J Exp Med*, 167: 988, 1988; Conlon, PJ et al, *Blood*, 74: 1368, 1989; Suda, T et al, *J Immunol*, 144: 3039, 1990; Morrissey, PJ et al, *J Exp Med*, 169: 707, 1989; Goodmin, AG et al, *Proc Natl Acad Sci USA*, 86: 302, 1989

**Chemicon IL018** Murine  $\geq$ 95%

**Fitzgerald 30-A167** Murine recombinant, expressed in *E. coli*

**Harlan BT-5108** Murine recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-5109** Murine recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 217-17** Murine recombinant, expressed in *E. coli* MW 15.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; affects Pre-B, Pro-B & early T cells; also affects mature T cells in combination with other factors such as IL-2; 129 AA; ED<sub>50</sub>  $\leq$  0.2 ng/mL; SA  $\geq$  5  $\times$  10<sup>6</sup> U/mg; SA determined by the dose-dependant stimulation of the proliferation of murine IXN/2B cells

**Interleukin VIII**

*Synonyms:* rNAP-1; IL-8

**Biodesign A52208H** *E. coli* MW 9k Purified | IL-8; species specificity: endothelial

**Biodesign A52280H** *E. coli* MW 8.5k Purified | IL-8

**Chemicon IL008** Human  $\geq$ 95%

**Oncogene PF006** Human recombinant MW 8919 (AA analysis) Lyophilized with 100 µg BSA; reconstitute with sterile PBS; biological activity: half maximal activity as determined by elastase release from cytochalasin B treated neutrophils; 10 ng/mL | Species reactivity: human; for proliferation studies & Western blot

**BioSource International PHC0084** Human recombinant endothelial

**BioSource International PHC0884** Human recombinant monocyte

**Alexis 520-003** Human recombinant, expressed in *E. coli* Cell culture grade; >98% (HPLC & SDS-PAGE); lyophilized from 200 µL in PBS containing 137 mM NaCl, 2.7 mM KCl, 4.3 mM Na<sub>2</sub>HPO<sub>4</sub>, 1.4 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.18 & 4 mg/mL D-mannitol; soluble in water; biological & SA: 1.9-2.5 nM measured by induction of myeloperoxidase release from neutrophils | 8-80 ng/mL (tissue culture); suitable for cell culture application; neutrophil chemotactic factor produced by LPS-stimulated human blood mononuclear leukocytes & other cell types, including fibroblasts, epithelial cells, chondrocytes & endothelial cells; Matsushima, K & Oppenheim, JJ, *Cytokine*, 1: 2, 1989; Holmes, WE et al, *Science*, 253: 1278, 1991; Murphy, PM & Tiffany, HL, *Science*, 253: 1280, 1991; Kishikawa, K et al, *Prostaglandins*, 44: 261, 1992; Chwalisz, K et al, *Human Reproduction*, 9: 2173, 1994

## Proteins

**Calbiochem 407673** Human recombinant, expressed in *E. coli* MW 8k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-8; biological activity: ED<sub>50</sub>=150-300 ng/mL as measured by induction of myeloperoxidase release from human neutrophils; endotoxin: ≤100 pg/µg IL-8 | Potent proinflammatory cytokine is produced by monocytes, fibroblasts and keratinocytes in response to stimulation by LPS, IL-1 or TNF-α & by T lymphocytes in response to PHA stimulation; induces adhesion of neutrophils to endothelial cells; may be involved in chronic inflammation; Mazzucchelli, L et al, *Am J Pathol*, 144: 997, 1994; Harada, A et al, *J Leukoc Biol*, 56: 559, 1994

**Fitzgerald 30-A192** Human recombinant, expressed in *E. coli*

**Harlan BT-2016** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Harlan BT-2017** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg | Cytokine

**Sigma I 1645** Human recombinant, expressed in *E. coli* MW 8k ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 500 µg BSA; biological activity is tested in culture using human neutrophils; endotoxin tested | formerly called monocyte-derived neutrophil chemotactic factor; belongs to the chemokine α or C-X-C family; mature form has 4 Cys residues as do the other members of the chemokine family & the first 2 Cys residues are separated by Gln; mature human IL-8 consists of 72 AA with a molecular mass of 8kD; exhibits chemotactic activity *in vitro* for T cells, basophils, as measured by enzymes including myeloperoxidase, α-mannosidase & β-glucuronidase; white, M et al, *Immunol Lett*, 22: 151, 1989; Larsen, CG et al, *Science*, 243: 1464, 1989; Mukaida, N et al, *Microbiol Immunol*, 36(8): 773, 1992; Yoshimura, T et al, *Proc Natl Acad Sci USA*, 84: 9233, 1987

**Biogenesis 5378-6045** r-DNA Lyophilized

**Biogenesis 5378-6055** r-DNA Lyophilized

**BioSource International PSC0884** Swine recombinant

### Interleukin VIII (72a.a)

*Synonyms:* IL-8 (72a.a)

**PeproTech 200-08M** Human recombinant, expressed in *E. coli* MW 8.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Promotes neutrophil chemotaxis & degranulation; 72 AA IL-8 is the predominant form secreted by monocytes & lymphocytes; SA determined by ability to chemoattract human peripheral blood neutrophils

### Interleukin VIII (77a.a)

**PeproTech 200-08** Human recombinant, expressed in *E. coli* MW 8.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Promotes neutrophil chemotaxis & degranulation; 77 AA IL-8 is the predominant form secreted by endothelial cells; SA determined by ability to chemoattract human peripheral blood neutrophils

### Interleukin IX

*Synonyms:* IL-9

**Chemicon IL009** Human ≥95%

**Biogenesis 0100-0102** Human r-DNA Lyophilized

**BioSource International PHC0094** Human recombinant

**Fitzgerald 30-A169** Human recombinant, expressed in *E. coli*

**Harlan BT-2018** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Harlan BT-2019** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg | Cytokine

**PeproTech 200-09** Human recombinant, expressed in *E. coli* MW 14k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | T-cell derived growth factor produced preferentially by CD4+ helper cells; a pleiotropic cytokine with multiple functions on cells of lymphoid, myeloid, & mast cell lineages; 114 AA; ED<sub>50</sub> ≤ 0.2 ng/mL; SA ≥ 5 × 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of human MO7e cells

**Sigma I 3394** Human recombinant, expressed in *Sf* 21 cells using a recombinant *baculovirus* expression vector MW 8k ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 500 µg human serum albumin; proliferative activity is tested in culture using MO7e cells; endotoxin tested | First identified as a T cell derived growth factor; high affinity receptors for IL-9 on a variety of hematopoietic cells including T cells, mast cells & macrophages; high sequence homology between mouse & human IL-9; overall sequence homology between human & mouse IL-9 cDNA's is 56% & 67% identity at the AA & nucleotide levels, respectively; MO7e cells are responsive to both mouse & human IL-9 while only mouse IL-9 can stimulate mouse P40-responsive cell lines; mouse IL-9 enhances erythroid burst formation by normal mouse bone marrow cells; mouse IL-9 induces day 15 fetal thymocyte proliferation in the presence of IL-2 & enhances the mast cell growth elicited by IL-3 or IL-4; mouse IL-9 supports the growth of certain helper T cell clones; human IL-9 supports erythroid colony formation & synergizes with IL-4 in the production of IgE & IgG; Yang, Y-C, *Leukemia & Lymphoma*, 8: 441, 1992; Van Snick, J et al, *J Exp Med*, 169: 363, 1989; Suda, T et al, *J Immunol*, 144: 1783, 1990; Hultner, L et al, *J Immunol*, 142: 3440, 1989; Donahue, RE et al, *Blood*, 75: 2271, 1990; Petit-Frere, C et al, *Cytokine*, 3: 466, 1991; Uyttenhove, C et al, *Proc Natl Acad Sci USA*, 85: 6934, 1988

**Calbiochem 407681** Human recombinant, expressed in *Spodoptera frugiperda* MW 16-25k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg HSA/µg IL-9; biological activity: ED<sub>50</sub>=500-1 k pg/mL measured as cell proliferation assay with an IL-9-dependent human megakaryocytic leukemic cell line; endotoxin: ≤100 pg/µg IL-9 | Cytokine with pleiotropic effects on mast cells & T cell lines; can enhance the survival of human T cell lines & in synergy with EPO supports erythroid colony formation; exhibits 56% & 67% homology with murine IL-9 at the AA & nucleotide levels, respectively; not active on murine cells; Bauer, JH et al, *J Biol Chem*, 273: 9255, 1998; Houssiau, FA et al, *J Immunol*, 154: 2624, 1995

**Biogenesis 0100-0093** Mouse r-DNA Lyophilized

**BioSource International PMC0094** Mouse recombinant

**Sigma I 3269** Mouse recombinant, expressed in *Sf* 21 cells using a recombinant *baculovirus* expression vector ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 500 µg BSA; proliferative activity is tested in culture using TS-1 cells; endotoxin tested | First identified as a T cell derived growth factor; high affinity receptors for IL-9 on a variety of hematopoietic cells including T cells, mast cells & macrophages; high sequence homology between mouse & human IL-9; overall sequence homology between human & mouse IL-9 cDNA's is 56% & 67% identity at the AA & nucleotide levels, respectively; MO7e cells are responsive to both mouse & human IL-9 while only mouse IL-9 can stimulate mouse P40-responsive cell lines; mouse IL-9 enhances erythroid burst formation by normal mouse bone marrow cells; mouse IL-9 induces day 15 fetal thymocyte proliferation in the presence of IL-2 & enhances the mast cell growth elicited by IL-3 or IL-4; mouse IL-9 supports the growth of certain helper T cell clones; human IL-9 supports erythroid colony formation & synergizes with IL-4 in the production of IgE & IgG; Yang, Y-C, *Leukemia & Lymphoma*, 8: 441, 1992; Van Snick, J et al, *J Exp Med*, 169: 363, 1989; Suda, T et al, *J Immunol*, 144: 1783, 1990; Hultner, L et al, *J Immunol*, 142: 3440, 1989; Donahue, RE et al, *Blood*, 75: 2271, 1990; Petit-Frere, C et al, *Cytokine*, 3: 466, 1991; Uyttenhove, C et al, *Proc Natl Acad Sci USA*, 85: 6934, 1988

**Chemicon IL019** Murine ≥95%

**Fitzgerald 30-A170** Murine recombinant, expressed in *E. coli*

**PeproTech 219-19** Murine recombinant, expressed in *E. coli* MW 14.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; stimulates growth of certain T cells, mast cells, & megakaryoblastic cells; 127 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine TS1.C3 cells

### Interleukin X

*Synonyms:* Cytokine Synthesis Inhibitory Factor; IL-10

**Biodesign A52019R** *E. coli* MW 18.7k Purified | Species specificity: rat

<b>Biodesign A52101H</b>	<i>E. coli</i>	MW 18.5k	Purified	Species specificity: mouse
<b>Biodesign A52210H</b>	<i>E. coli</i>	MW 18.5k	Purified	
<b>Chemicon IL010</b>	Human	≥95%		
<b>Biogenesis 5378-7550</b>	Human r-DNA	Lyophilized		
<b>BioSource International PHC0104</b>	Human recombinant			
<b>Fitzgerald 30-AI53</b>	Human recombinant, expressed in <i>E. coli</i>			
<b>Harlan BT-2020</b>	Human recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.005 mg   Cytokine
<b>Harlan BT-2021</b>	Human recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.025 mg   Cytokine
<b>PeproTech 200-10</b>	Human recombinant, expressed in <i>E. coli</i>	MW 18.6k	>98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives	160 AA; > 80% sequence homology with Epstein-Barr Virus protein BCRF1; inhibits macrophage-mediated cytokine synthesis; suppresses the delayed-type hyper-sensitivity response; stimulates the Th2 cell response which results in elevated antibody production; ED <sub>50</sub> ≤ 2.0 ng/mL; SA ≥ 5 × 10 <sup>5</sup> U/mg; SA determined by the dose-dependent co-stimulation (with murine IL-4) of MC/9 cells
<b>USBio I8432</b>	Human recombinant, expressed in <i>E. coli</i>	MW 18.6k	Sterile filtered, lyophilized, additive-free; soluble in water & most aqueous buffers	Suitable for antigenic applications in immunological protocols; equivalent to native Interleukin-10; 160 AA residues; shares >80% purity sequence homology with the Epstein-Barr Virus protein BCRF1; biological activities include inhibition of macrophage-mediated cytokine synthesis, suppression of the delayed-type hypersensitivity response & stimulation of the Th2 cell response (which results in elevated Ab production); exerts its biological activity in the concentration range of 0.2 to 20 ng/mL
<b>Sigma I 3519</b>	Human recombinant, expressed in <i>Sf 21</i> cells using a recombinant <i>baculovirus</i> expression vector		≥97% (SDS-PAGE); 0.2 μm filtered solution & lyophilized from phosphate buffered saline containing 250 μg human serum albumin;	proliferative activity is tested in culture using MC/9 cells; endotoxin tested   Important regulator of the functions of lymphoid & myeloid cells; blocks the activation of cytokine synthesis & several accessory functions of macrophages; human & mouse IL-10 share a 73% sequence homology, however human acts on both human & mouse target cells while mouse has species-SA; in the mouse, the cellular sources of IL-10 consist of Th0 & Th2 T cell clones, thymocytes, B cells, B cell lymphomas, macrophages, mast cell lines and keratinocytes; in the human, the cellular sources of IL-10 consist of CD4+ T cells & T cell clones, thymocytes, B cells, B cell lymphomas, macrophages, mast cell lines and keratinocytes; stimulates the growth of stem cells, mast cells & thymocytes; enhances cytotoxic T cell development & co-stimulates B cell differentiation & Ig secretion; biological activity is determined in a cell proliferation assay using MC/9 cells; Rousset, F et al, <i>Proc Natl Acad Sci USA</i> , 89: 1890, 1992; Thompson-Snipes, L et al, <i>J Exp Med</i> , 173: 507, 1991; Chen, W-F et al, <i>J Immunol</i> , 147: 528, 1991; Moore, K et al, <i>Ann Rev Immunol</i> , 11: 165, 1993; Rennick, D et al, <i>Progress in Growth Factor Research</i> , 4: 207, 1992; Vieira, P et al, <i>Proc Natl Acad Sci USA</i> , 88: 1172, 1991
<b>Calbiochem 407700</b>	Human recombinant, expressed in <i>Spodoptera frugiperda</i>	MW 18.6k	>97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-10;	biological activity: ED <sub>50</sub> =0.5-1.0 ng/mL measured as cell proliferation assay using a mouse mast cell line MC/9; endotoxin: <100 pg/μg IL-10   Pleiotropic cytokine that exerts either immunosuppressive or immunostimulatory effects on a variety of cell types; exhibits anti-inflammatory effects by suppressing macrophage proliferation; potent modulator of monocyte/macrophage function; Wang, CQ et al, <i>J Cell Physiol</i> , 166: 305, 1996; Fleming, SD et al, <i>J Immunol</i> , 156: 1143, 1996; Niro, H et al, <i>Int Immunol</i> , 6: 661, 1994; Moore, K et al, <i>Ann Rev Immunol</i> , 11: 165, 1993; Vieira, P et al, <i>PNAS</i> , 88: 1172, 1991
<b>Biogenesis 5378-8050</b>	Mouse r-DNA	Lyophilized		
<b>BioSource International PMC0104</b>	Mouse recombinant			

**Sigma I 3019** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered solution & lyophilized from phosphate buffered saline containing 250 μg BSA; proliferative activity is tested in culture using MC/9 cells; endotoxin tested | Important regulator of the functions of lymphoid & myeloid cells; blocks the activation of cytokine synthesis & several accessory functions of macrophages; human & mouse IL-10 share a 73% sequence homology, however human acts on both human & mouse target cells while mouse has species-SA; in the mouse, the cellular sources of IL-10 consist of Th0 & Th2 T cell clones, thymocytes, B cells, B cell lymphomas, macrophages, mast cell lines and keratinocytes; in the human, the cellular sources of IL-10 consist of CD4+ T cells & T cell clones, thymocytes, B cells, B cell lymphomas, macrophages, mast cell lines and keratinocytes; stimulates the growth of stem cells, mast cells & thymocytes; enhances cytotoxic T cell development & co-stimulates B cell differentiation & Ig secretion; biological activity is determined in a cell proliferation assay using MC/9 cells; Rousset, F et al, *Proc Natl Acad Sci USA*, 89: 1890, 1992; Thompson-Snipes, L et al, *J Exp Med*, 173: 507, 1991; Chen, W-F et al, *J Immunol*, 147: 528, 1991; Moore, K et al, *Ann Rev Immunol*, 11: 165, 1993; Rennick, D et al, *Progress in Growth Factor Research*, 4: 207, 1992; Vieira, P et al, *Proc Natl Acad Sci USA*, 88: 1172, 1991

**Calbiochem 407702** Mouse recombinant, expressed in *Spodoptera frugiperda* MW 18k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-10; biological activity: ED<sub>50</sub>=0.3-0.6 ng/mL measured as cell proliferation assay using a mouse mast cell line MC/9; endotoxin: <100 pg/μg IL-10 | Pleiotropic cytokine that exerts either immunosuppressive or immunostimulatory effects on a variety of cell types; potent modulator of monocyte/macrophage function; Wang, CQ et al, *J Cell Physiol*, 166: 305, 1996; Fleming, SD et al, *J Immunol*, 156: 1143, 1996; Niro, H et al, *Int Immunol*, 6: 661, 1994; Moore, K et al, *Ann Rev Immunol*, 11: 165, 1993; Vieira, P et al, *PNAS*, 88: 1172, 1991; Moore, K et al, *Science*, 248: 1230, 1990

<b>Chemicon IL020</b>	Murine	≥95%		
<b>Fitzgerald 30-AI54</b>	Murine recombinant, expressed in <i>E. coli</i>			
<b>Harlan BT-5110</b>	Murine recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.005 mg   Cytokine
<b>Harlan BT-5111</b>	Murine recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.025 mg   Cytokine
<b>PeproTech 210-10</b>	Murine recombinant, expressed in <i>E. coli</i>	MW 18.7k	>98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives	160 AA; > 80% sequence homology with the Epstein-Barr Virus protein BCRF1; ED <sub>50</sub> ≤ 2.0 ng/mL; SA ≥ 5 × 10 <sup>5</sup> U/mg; SA determined by the dose-dependent co-stimulation (with IL-4) of the proliferation of murine MC/9 cells
<b>Chemicon IL035</b>	Rat	≥95%		
<b>Biogenesis 0100-0100</b>	Rat r-DNA	Lyophilized		
<b>BioSource International PRC0104</b>	Rat recombinant			
<b>PeproTech 400-19</b>	Rat recombinant, expressed in <i>E. coli</i>	MW 18.7k	>98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized	160 AA; > 80% sequence homology with the Epstein-Barr Virus protein BCRF1; the ED <sub>50</sub> ≤ 10 ng/mL; SA determined by the dose-dependent inhibition of antigen-specific T cell proliferation
<b>BioSource International PSC0104</b>	Swine recombinant			

### Interleukin XI

*Synonyms:* Adipogenesis Inhibitory Factor; IL-11

<b>Biodesign A52211H</b>	<i>E. coli</i>	MW 19.5k	Purified	
<b>Chemicon IL011</b>	Human	≥95%		
<b>Biogenesis 5378-8150</b>	Human r-DNA	Lyophilized		
<b>BioSource International PHC0114</b>	Human recombinant			
<b>Fitzgerald 30-AI55</b>	Human recombinant, expressed in <i>E. coli</i>			
<b>Harlan BT-2022</b>	Human recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.01 mg   Cytokine; cross-reactive with primate cells
<b>Harlan BT-2023</b>	Human recombinant, expressed in <i>E. coli</i>			Lyophilized; 0.05 mg   Cytokine; cross-reactive with primate cells

**PeproTech 200-11** Human recombinant, expressed in *E. coli* MW 19.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; stimulates growth & survivability of certain B & T cells; 178 AA; ED<sub>50</sub> ≤ 10 ng/mL; SA ≥ 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine 7TD1 cells

**Sigma I 3644** Human recombinant, expressed in Sf 21 cells using a recombinant *baculovirus* expression vector containing the cDNA sequence for human IL-11 MW 19k, migrates as a 23k band in SDS-PAGE ≥97% (SDS-PAGE); 0.2 μm filtered solution & lyophilized from phosphate buffered saline containing 250 μg human serum albumin; biological activity is measured in a cell proliferation assay using T11 cells, a subline of the IL-6 dependent murine plasmacytoma cell line T1165.85.1 | Acts on hematopoietic progenitor cells & stromal cells; human IL-11 gene consists of 5 exons & 4 introns & was mapped on chromosome 19 at band 19q13.3-q13.4; enhances the proliferation of IL-6 dependent plasmacytoma cells; stimulates the production of erythrocytes, megakaryocytes & stimulates T cell development of antibody producing B cells; biological activity is measured in a cell proliferation assay using T11 cells, a subline of the IL-6 dependent murine plasmacytoma cell line T1165.85.1; Paul, SR et al, *Proc Natl Acad Sci USA*, 87: 7512, 1990; Kawashima, I et al, *Progress in Growth Factor Research*, 4: 191, 1992; nordan, RP et al, *J Immunol*, 139: 813, 1987; Paul, SR et al, *Leukemia Research*, 16: 247, 1992; Quesniaux, VFJ et al, *Blood*, 80: 1218, 1992

**Calbiochem 407705** Human recombinant, expressed in *Spodoptera frugiperda* MW 18.6k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-11; biological activity: ED<sub>50</sub>=60-240 pg/mL measured as cell proliferation assay using T11 a subline of the IL-6-dependent mouse plasmacytoma cell line T1165.85.2.1 that has been adapted to grow in IL-11; endotoxin: <100 pg/μg IL-11 | Pleiotropic cytokine thought to be involved in hematopoiesis, lymphopoiesis, acute phase responses & in the development of adipocytes, neurons & osteoclasts; acts as a synergistic factor for the proliferation of human myeloid leukemia cells; activates MAP kinases, JAK tyrosine kinases & pp90<sup>sk</sup>; Lemoli, RM et al, *Br J Haematol*, 91: 319, 1995; Yang, YC & Yin, T, *Ann NY Acad Sci*, 762: 40, 1995; Du, XX & Williams, DA, *Blood*, 83: 2023, 1994; Yang, YC, *Stem Cells*, 11: 474, 1993; Paul, SR et al, *PNAS*, 87: 7512, 1990

### Interleukin XII

**Synonyms:** Natural Killer Cell Stimulatory Factor; Cytotoxic Lymphocyte Maturation Factor; IL-12

**Chemicon IL029** Human ≥95%

**Biogenesis 5378-8350** Human r-DNA sf21 insect cells MW 70k ED<sub>50</sub> ≤ 0.1 ng/mL; endotoxin: <0.1 ng/μg; purified; from 20 mM Tris pH 7.6, 0.12 M NaCl, HSA; lyophilized | 70k disulfide linked heterodimeric protein comprised of disulfide-bonded 35k (p35) and 40k (p40) subunits

**BioSource International PHC0124** Human recombinant

**Fitzgerald 30-AI86** Human recombinant, expressed in CHO cells

**Harlan BT-3036** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg | Cytokine

**Sigma I 2276** Human recombinant, expressed in Sf 21 insect cells Lyophilized from phosphate buffered saline containing 250 μg BSA; endotoxin tested; cell culture tested | Identified as a factor secreted by human Epstein-Barr (EBV)-transformed B cell lines; 75kD disulfide-linked heterodimer of a 35kD subunit & 40kD subunit; produced predominantly by monocytes & NK cells & induces T cells & NK cells to produce IFN-γ; human IL-12 is not active on mouse cells but murine IL-12 is active on both murine & human lymphocytes; Stern, A et al, *Proc Natl Acad Sci USA*, 87: 6808, 1990; Trinchieri, G et al, *Progress in Growth Factor Research*, 4: 355, 1992; Schoenhaut, DS et al, *J Immunol*, 148: 3433, 1992; Kobayashi, M et al, *J Exp Med*, 170: 827, 1989

**PeproTech 200-12** Human recombinant, expressed in sf21 insect cells MW 75k >95%; lyophilized from 20 mM Tris pH 7.6, 0.12 N NaCl & 50 μg human serum albumin (protease-free)/mg of IL-12; ED<sub>50</sub>: 0.1-0.2 ng/mL as determined by a cell proliferation assay using PHA-activated human lymphoblast

**Calbiochem 407711** Human recombinant, expressed in *Spodoptera frugiperda* MW 75k ≥95% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-12; biological activity: ED<sub>50</sub>=50-200 pg/mL measured by its ability to stimulate the proliferation of PHA-activated human lymphoblasts; endotoxin: ≤100 pg/μg IL-12 | Pleiotropic cytokine produced by monocytes/macrophages, B cells & connective tissue-type mast cells; potent inducer of IFN-γ production & T cell differentiation & function; Kobayashi, M et al, *J Exp Med*, 170: 827, 1989; Kang, K et al, *J Immunol*, 156: 1402, 1996; Riemann, H et al, *J Immunol*, 156: 1799, 1996; Brunda, MJ et al, *J Leukoc Biol*, 55: 280, 1994; Smith, TJ et al, *Eur J Immunol*, 24: 822, 1994; Gubler, U et al, *PNAS*, 88: 4143, 1991; Stern, AS et al, *PNAS*, 87: 6808, 1990

**Biodesign A52212H** Insect cells Purified

**Biogenesis 5378-8450** Mouse r-DNA Lyophilized

**BioSource International PMC0124** Mouse recombinant

**Sigma I 8523** Mouse recombinant, expressed in Sf 21 insect cells MW 1254k ≥97% (SDS-PAGE); 0.2 μm filtered solution & lyophilized from phosphate buffered saline containing 50 μg BSA per 1 μg of the cytokine; bioactivity is measured in a bioassay using PHA-activated human lymphoblasts; endotoxin tested | Identified as a factor secreted by human Epstein-Barr (EBV)-transformed B cell lines; 75kD disulfide-linked heterodimer of a 35kD subunit & 40kD subunit; produced predominantly by monocytes & NK cells & induces T cells & NK cells to produce IFN-γ; human IL-12 is not active on mouse cells but murine IL-12 is active on both murine & human lymphocytes; Stern, A et al, *Proc Natl Acad Sci USA*, 87: 6808, 1990; Trinchieri, G et al, *Progress in Growth Factor Research*, 4: 355, 1992; Schoenhaut, DS et al, *J Immunol*, 148: 3433, 1992; Kobayashi, M et al, *J Exp Med*, 170: 827, 1989

**Calbiochem 407713** Mouse recombinant, expressed in *Spodoptera frugiperda* MW 54k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg IL-12; biological activity: ED<sub>50</sub>=50-200 pg/mL measured by its ability to stimulate the proliferation of PHA-activated human lymphoblasts; endotoxin: ≤100 pg/μg IL-12 | Pleiotropic cytokine produced by monocytes/macrophages, B cells & connective tissue-type mast cells; Zou, JJ et al, *J Biol Chem*, 270: 5864, 1995; Schoenhaut, DS et al, *J Immunol*, 148: 3433, 1992; Gillesen, S et al, *Eur J Immunol*, 25: 200, 1995; Brunda, MJ et al, *J Leukoc Biol*, 55: 280, 1994; Smith, TJ et al, *Eur J Immunol*, 24: 822, 1994; Wolf, SF et al, *Stem Cells*, 12: 154, 1994

**Chemicon IL032** Murine ≥95%

**PeproTech 210-12** Murine recombinant, expressed in CHO cells (Chinese Hamster Ovarian cells) MW 70k disulfide-linked heterodimer with 35k (p35) & 40k (p40) subunits >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized; 0.5xPBS+1.5 mg/mL BSA pH 6.0; ED<sub>50</sub>: 0.05-0.1 ng/mL as determined by the stimulation of IFN-γ production by murine splenocytes co-stimulated with IL-12 | Regulatory protein produced by activated B-lymphocytes & macrophages; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by the stimulation of IFN-γ production by murine splenocytes co-stimulated with IL-12

### Interleukin XIII

**Synonyms:** IL-13

**Biodesign A52213H** *E. coli* MW 13k Purified

**Chemicon IL012** Human ≥95%

**Biogenesis 5378-8550** Human r-DNA Lyophilized

**BioSource International PHC0134** Human recombinant

**Calbiochem 407715** Human recombinant, expressed in *E. coli* MW 12k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-13; biological activity: ED<sub>50</sub>=3.0-6.0 ng/mL measured as cell proliferation assay using a human factor-dependent cell line TF-1; endotoxin: <100 pg/µg IL-13 | Pleiotropic cytokine that shares many of the properties of IL-4; exhibits IL-4 like activities on monocytes/macrophages & human B cells but has no effect on T cells; potent regulator of STAT6 & JAK3 in NK & T cells; regulates inflammatory & immune responses; inhibits inducible nitric oxide synthase in human mesangial cells; Y, CR et al, *J Immunol*, 161: 218, 1998; Saura, M et al, *Biochem J*, 313: 641, 1996; Xi, X et al, *Br J Haematol*, 90: 921, 1995; Zurawski, G & DeVries, JE, *Stem Cells*, 12: 169, 1994; McKenzie, ANJ et al, *PNAS*, 90: 3735, 1993; Minty, A et al, *Nature*, 362: 248, 1993

**Fitzgerald 30-AI93** Human recombinant, expressed in *E. coli*

**Harlan BT-2026** Human recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**Harlan BT-2027** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg | Cytokine

**PeproTech 200-13** Human recombinant, expressed in *E. coli* MW 12.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Immunoregulatory protein produced by activated T-lymphocytes; stimulates B cell proliferation & immunoglobulin production; 114 AA; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by the dose-dependant stimulation of the proliferation of human TF-1 cells

**Sigma I 1771** Human recombinant, expressed in *E. coli* MW 10k ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 250 µg BSA; proliferative activity is tested in culture using human TF-1 cells; endotoxin tested | Pleiotropic cytokine produced by activated Th2 cells in the mouse & human; secreted mainly as an unglycosylated protein of 132 AA; 4.3-kb DNA fragment of the mouse IL-13 gene was sequenced & occurs as a single copy mapping to chromosome 11; in the human, a 4.6-kb DNA segment of the IL-13 gene occurs as a single copy & maps to chromosome 5; induces B cell proliferation & also induces IgE switching; both mouse & human IL-13 induce proliferation of the human erythroleukemic cell line TF-1; McKenzie, A et al, *Proc Natl Acad Sci USA*, 90: 3735, 1993; Defrance, T et al, *J Exp Med*, 179: 135, 1994; McKenzie, A et al, *J Immunol*, 150: 5436, 1993; Cock, B et al, *International Immunology*, 5: 657, 1993; Thomson, AW et al, in: *The Cytokine Handbook*, Thomson, A, ed, Academic Press, London, p. 257, 1994

**Calbiochem 407717** Mouse recombinant, expressed in *E. coli* MW 11.5k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg IL-13; biological activity: ED<sub>50</sub>=3.0-6.0 ng/mL measured as cell proliferation assay using a human factor-dependent cell line TF-1; endotoxin: ≤100 pg/µg IL-13 | Pleiotropic cytokine that shares many of the properties of IL-4; exhibits IL-4 like activities on monocytes/macrophages & human B cells but has no effect on T cells; regulates inflammatory & immune responses; inhibits bone resorption by suppressing cyclooxygenase-2-dependent prostaglandin synthesis in osteoblasts; potent inhibitor of inducible nitric oxide synthase in smooth muscle cells; Onoe, Y et al, *J Immunol*, 156: 758, 1996; Ruetten, H & Thiemermann, C, *Shock*, 8: 409, 1997; Label-Binay, S et al, *Eur J Immunol*, 25: 2340, 1995; Zurawski, G & DeVries, JE, *Stem Cells*, 12: 169, 1994; Brown, KD et al, *J Immunol*, 142: 679, 1989; Minty, A et al, *Nature*, 362: 248, 1993; Cherwinski, HM et al, *J Exp Med*, 166: 1229, 1987

**Sigma I 1896** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline containing 250 µg BSA; proliferative activity is tested in culture using TF-1 cells; endotoxin tested | Pleiotropic cytokine produced by activated Th2 cells in the mouse & human; secreted mainly as an unglycosylated protein of 132 AA; 4.3-kb DNA fragment of the mouse IL-13 gene was sequenced & occurs as a single copy mapping to chromosome 11; in the human, a 4.6-kb DNA segment of the IL-13 gene occurs as a single copy & maps to chromosome 5; induces B cell proliferation & also induces IgE switching; both mouse & human IL-13 induce proliferation of the human erythroleukemic cell line TF-1; McKenzie, A et al, *Proc Natl Acad Sci USA*, 90: 3735, 1993; Defrance, T et al, *J Exp Med*, 179: 135, 1994; McKenzie, A et al, *J Immunol*, 150: 5436, 1993; Cock, B et al, *International Immunology*, 5: 657, 1993; Thomson, AW et al, in: *The Cytokine Handbook*, Thomson, A, ed, Academic Press, London, p. 257, 1994

**PeproTech 210-13** Murine recombinant, expressed in *E. coli* MW 12.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Immunoregulatory protein produced by activated T-lymphocytes; stimulates B cell proliferation & immunoglobulins production; 111 AA; ED<sub>50</sub> ≤ 4.0 ng/mL; SA ≥ 2.5 × 10<sup>5</sup> U/mg; SA determined by the dose-dependant stimulation of the proliferation of human TF-1 cells

**BioSource International PRC0134** Rat recombinant

### Interleukin XV

*Synonyms:* IL-15

**Biodesign A52215H** *E. coli* MW 13k Purified

**Chemicon IL013** Human ≥95%

**Biogenesis 5378-8950** Human r-DNA MW 12.9k Purified; no preservatives; lyophilized; SA: ≥2 × 10<sup>6</sup> U/mg; ED<sub>50</sub> ≤0.5 ng/mL

**BioSource International PHC0154** Human recombinant

**Fitzgerald 30-AI94** Human recombinant, expressed in *E. coli*

**Harlan BT-2024** Human recombinant, expressed in *E. coli* Lyophilized; 0.005 mg | Cytokine

**PeproTech 200-15** Human recombinant, expressed in *E. coli* MW 12.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Potent lymphoid cell growth factor; exerts its biological activities primarily on T cells; 114 AA; ED<sub>50</sub> ≤ 0.5 ng/mL; SA ≥ 2 × 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of murine CTLL-2 cells

**Sigma I 8648** Human recombinant, expressed in *E. coli* MW 12.5k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from an acetonitrile & trifluoroacetic acid solution containing 500 µg BSA; bioactivity is tested with M07e cells; endotoxin tested | First isolated from the supernatant of a cultured simian kidney epithelial cell line; cDNA encodes a 162 AA peptide with a 48 AA leader sequence; no sequence homology with any other known cytokine; competes for binding sites with IL-2 as both IL-2 & IL-15 stimulate the growth of cells through the IL-2 receptor; Grabstein, K et al, *Science*, 264: 965, 1994

**BioSource International PMC0154** Mouse recombinant

**PeproTech 210-15** Murine recombinant, expressed in *E. coli* MW 13.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid cell growth factor; exerts biological activities primarily on T cells; 115 AA; ED<sub>50</sub> ≤ 20 ng/mL; SA ≥ 5 × 10<sup>4</sup> U/mg; SA determined by the stimulation of the proliferation of murine CTLL-2 cells

**BioSource International PSC0154** Swine recombinant

### Interleukin XVI

*Synonyms:* Lymphocyte Chemoattractant Factor; IL-16

**Biodesign A52216H** *E. coli* MW 13.5k Purified

**Chemicon IL021** Human ≥95%

**Biogenesis 5378-9150** Human r-DNA Lyophilized

**BioSource International PHC0164** Human recombinant

**Fitzgerald 30-AI76** Human recombinant, expressed in *E. coli*

**PeproTech 200-16** Human recombinant, expressed in *E. coli* MW 13.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized from PBS | Stimulates a migratory response in CD4<sup>+</sup> T cells, CD4<sup>+</sup> monocytes & eosinophils; 130 AA; SA determined by its ability to chemoattract human CD4<sup>+</sup> T-lymphocytes

### Interleukin XVII

*Synonyms:* CTLA-8; IL-17

**Biodesign A52217H** *E. coli* MW 15.5k Purified

**Chemicon IL022** Human ≥95%

**Biogenesis 5378-9350** Human r-DNA Lyophilized

**BioSource International PHC0174** Human recombinant

**Fitzgerald 30-AI77** Human recombinant, expressed in *E. coli*

## Proteins

**PeproTech 200-17** Human recombinant, expressed in *E. coli* MW 15.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Identified from a CD4<sup>+</sup> T cell DNA library; can be induced from primary peripheral blood CD4<sup>+</sup> T cells upon stimulation; cytokine exhibiting a high degree of AA identity with HVS13, an open reading frame from a T lymphotropic *Herpesvirus saimiri* & with murine CTLA8; a disulfide-linked homodimer of two subunits, each containing 136 AA; ED<sub>50</sub> ≤ 2.0 ng/mL; SA ≥ 5 × 10<sup>5</sup> U/mg; SA determined by the dose-dependent induction of IL-6 in primary human foreskin fibroblasts

**Sigma I 3525** Human recombinant, expressed in *E. coli* MW ~ 16k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized in phosphate buffered saline containing 2.5 mg BSA; bioactivity is measured by its ability to induce IL-6 production by NHDF cells; endotoxin tested | T cell-derived hematopoietic cytokine originally cloned from a T cell hybridoma produced by the fusion of a mouse cytotoxic T cell clone & a rat T lymphoma; exhibits multiple biological activities on a variety of cells including: the induction of IL-6, IL-8 & G-CSF production in fibroblasts, the enhancement of surface expression of ICAM-1 in fibroblasts, activation of NF-κB & co-stimulation of T cell proliferation; polypeptide of 136 AA; precursor form consists of 155 AA; to generate the mature IL-17 (136 AA) the precursor cleaves a 19 AA signal peptide; human IL-17 shows ~62.5% AA homology to mouse IL-17 & 58% AA homology to rat IL-17

**Sigma I 4026** Mouse recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 1.25 mg BSA; endotoxin tested; cell culture tested | T cell-derived hematopoietic cytokine originally cloned from a T cell hybridoma produced by the fusion of a mouse cytotoxic T cell clone & a rat T lymphoma; exhibits multiple biological activities on a variety of cells including: the induction of IL-6, IL-8 & G-CSF production in fibroblasts, the enhancement of surface expression of ICAM-1 in fibroblasts, activation of NF-κB & co-stimulation of T cell proliferation; polypeptide of 136 AA; precursor form consists of 155 AA; to generate the mature IL-17 (136 AA) the precursor cleaves a 19 AA signal peptide; human IL-17 shows ~62.5% AA homology to mouse IL-17 & 58% AA homology to rat IL-17

### Interleukin XVIII

**Synonyms:** Interferon-γ Inducing Factor; IL-18

**Biodesign A52218H** *E. coli* MW 18.3k Purified

**Biodesign A52504M** *E. coli* MW 18.1k Purified | Species specificity: mouse

**Chemicon IL030** Human ≥95%

**Biogenesis 5378-9550** Human r-DNA Lyophilized

**PeproTech 200-18** Human recombinant, expressed in *E. coli* MW 18.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Pleiotropic cytokine produced by monocyte/macrophage cells; like IL-12, plays an important role in cell-mediated immune responses; ED<sub>50</sub> ≤ 5.0 ng/mL; SA ≥ 2 × 10<sup>4</sup> U/mg; SA determined by the dose-dependent stimulation of IFN-γ production by human PBMC co-stimulated with human IL-12

**PeproTech 210-18** Human recombinant, expressed in *E. coli* MW 18.3k >98%; 158 AA; lyophilized from 5 mM Tris pH 8.0, 75 mM NaCl; ED<sub>50</sub>: 5.0-10.0 ng/mL as determined by the stimulation of IFN-γ production using human PBMC co-stimulated with IL-12

**Biogenesis 5378-9650** Mouse r-DNA Lyophilized

**BioSource International PMC0184** Mouse recombinant

**Chemicon IL033** Murine ≥95%

**PeproTech 315-04** Murine recombinant, expressed in *E. coli* MW 18.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Pleiotropic cytokine produced by monocyte/macrophage cells; like IL-12, plays an important role in cell-mediated immune responses; 158 AA; exhibits biological activities in its monomeric form; ED<sub>50</sub> = 12ng/mL; SA determined by the dose-dependent stimulation of IFN-γ production by murine lymph node cells

### Interleukin XVIII Binding Protein

**Biogenesis 0100-0106** Mouse r-DNA Lyophilized

### Intracellular Adhesion Molecule I Protein

**Synonyms:** Intracellular Adhesion Molecule I, rh Soluble; Intracellular Adhesion Molecule I, rhs-

**Alexis BMS313** Human recombinant MW 82k >99% (SDS-gel electrophoresis); 50 μg in phosphate-buffered saline | Adhesion molecule produced in CHO cells; corresponds in structure with natural human circulating ICAM-1, truncated at the ectodomain side of the beginning of the transmembrane region (AA 472)

### Intrinsic Factor

**Cortex CP8103** Porcine >95%

**Fitzgerald 30-AI15** Porcine gastric mucosa High purity

**Sigma I 6006** Porcine gastric mucosa Contains <5% non-intrinsic factor (R-protein); activity: 10 k-25 k U/mg protein; lyophilized powder containing 20-40% protein (Lowry); balance primarily potassium phosphate; unit definition: 1 U binds 1 ng Vitamin B<sub>12</sub> at pH 7.5 at 25°C using a modification of the procedure of Allen; | Allen, RH & Mehman, CS, *J Biol Chem*, 248: 3670, 1973

**USBio I8445** Porcine gastric mucosa ≥98% (SDS-PAGE); ≤2% R protein | Suitable for antigenic applications in immunological protocols

**Biogenesis 5390-0004** Porcine stomach >98% pure based on a B12-binding assay using cobinamide and anti-intrinsic factor blocking antibodies; purified; distilled H<sub>2</sub>O; liquid

**Sigma I 7140** Rat stomach Contains <5% non-intrinsic factor (R-protein); activity: 10 k-25 k U/mg protein; lyophilized powder containing 20-40% protein (Lowry); balance primarily potassium phosphate; unit definition: 1 U binds 1 ng Vitamin B<sub>12</sub> at pH 7.5 at 25°C using a modification of the procedure of Allen | Allen, RH & Mehman, CS, *J Biol Chem*, 248: 3670, 1973

### IRS-1

**USBio I8700-05** Rat recombinant produced in Sf9 insect cells MW ~170k Frozen solution in 50 mM Tris-HCl, pH 7.8, containing 1 mM NaCl | Not phosphorylated; immunoblot positive control; chromatographically purified (Sephacryl S-200HR);

### jak2 Immune Complex, Agarose

**USBio J0901-06** Murine recombinant, expressed by baculovirus in Sf9 insect cells MW 130k Frozen suspension in 150 mM NaCl, 50 mM Tris-HCl, pH 8.0, 10% glycerol, 0.1 mM EDTA, 0.1 mM sodium orthovanadate, 50 mM NaF, 0.5% NP-40 | Purified by immunoprecipitation using jak2 antibody bound to Protein A agarose

### JE/MCP-1

**Chemicon GF077** Murine ≥95%

### Jo-1

**Fitzgerald 30-AJ75** Calf thymus High purity

### Jo-1 Antigen

**Biodesign A07302B** Bovine/Rabbit mixture Purified | Autoimmune reagent

**Biodesign A2A450R** Rabbit thymus Purified | Autoimmune reagent

### Kallikrein

**Biodesign A50190H** Human plasma Purified

**Fitzgerald 30-AK10** Human plasma High purity

**USBio K0005** Human plasmakallikrein ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.5-1 mg/mL; liquid in 20 mM Tris HCl, 100 mM NaCl, pH 7.8 | Suitable for antigenic applications in immunological protocols

**Biogenesis 5543-6207** Human urine MW 34k/41k >98% (SDS-PAGE); SA: 4.9 U/mg; 50 mM TRIS/HCl, pH 7.75; liquid

**Cortex CP3024** Plasma >95%

**Biogenesis 5543-6257** Porcine pancreas Lyophilized



**Biogenesis 5543-6307** Rat urine Liquid

### KC

**Chemicon GF078** Murine ≥95%

### Keratan Sulfate Proteoglycan

**Sigmak 3009** Bovine cornea Lyophilized from a sterile-filtered, essentially salt-free solution | KSPG together with dermatan/chondroitin sulfate PG (decorin) represents the major class of proteoglycans in the corneal stroma; both are thought to play important roles in corneal transparency by modulating collagen fibril formation; Lumican also acts as a filler in the extracellular matrix of the cornea; bovine KSPG consists of 3 isoforms each with a different core protein & pattern of glycosylation; two 37k & one 25k core proteins (designated 37A, 37B & 25); the 37B isoform is homologous to chicken, mouse & human lumican & is referred to as lumican; Axelsson, I & Heingard, D, *Biochem J*, 145: 491, 1975; Rada, JA et al, *Exp Eye Res*, 56: 635, 1993; Uma, L et al, *Biochim Biophys Acta*, 1294: 8, 1996; Funderburgh, JL et al, *Biochem Soc Trans*, 19: 871, 1991; Funderburgh, JL et al, *Invest Ophthalmol Vis Sci*, 36: 2296, 1995; Chakravarti, S et al, *Genomics*, 27: 481, 1995

### Keratin

**ICN 902111** Hooves, horns Purified protein powder

**ICN 151390** Human epidermis ~94%; 1-5 mg/mL in 8 M urea, 25 mM Tris, 0.1 M BME, 1 mM EDTA, pH 7.4

**ICN 151391** Human epidermis ~96%; 3-4 mg protein/mL in 8 M urea, 50 mM Tris, 0.1 M BME, 0.1% NaN<sub>3</sub>, pH 7.4

**Sigma K 0253** Human epidermis ~8 mg protein (Biuret TCA)/mL; solution in 8 M urea, 50 mM Tris, 0.1 M BME & 0.1% sodium azide as preservative

### Keratin Azure

**Sigma K 8500**

### Keratin Sulfate

**ICN 190220** Bovine cornea Sodium salt

### Keratinocyte Growth Factor

*Synonyms:* Fibroblast Growth Factor VII

**Biodesign A52119H** *E. coli* MW 19k Purified

**Chemicon GF008** Human ≥95%

**BioSource International PHG0094** Human recombinant

**Fitzgerald 30-AK20** Human recombinant, expressed in *E. coli*

**Harlan BT-3014** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3015** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**PeptoTech 100-19** Human recombinant, expressed in *E. coli* MW 18.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent mitogen for keratinocytes & epithelial cells; 163 AA; ED<sub>50</sub> ≤ 10 ng/mL; SA ≥ 10<sup>7</sup> U/mg; SA determined by the dose-dependent stimulation of thymidine uptake by KGF-responsive BaF3 cells

**Sigma K 1757** Human recombinant, expressed in *E. coli* MW 19k ≥97% (SDS-PAGE); 0.2 μm filtered solution & lyophilized from phosphate buffered saline containing 500 μg BSA; proliferative activity is tested in culture using monkey epithelial cell line 4MBR-5; endotoxin tested | Epithelial cell specific mitogen, responsible for the normal proliferation & differentiation of human epithelial cells; member of the family of fibroblast growth factors; secreted by stromal fibroblasts, derived from major epithelial organs including skin & gastrointestinal tract, in culture; & is expressed *in vivo* in dermis, but not epidermis; KGF transcripts are found in dermal fibroblasts, epidermal melanocytes & malignant melanoma cells; acts as a potent mitogen for human keratinocytes in culture, equivalent to EGF; Particularly active as a mitogen for BALB/MK cells, a continuous mouse keratinocyte line; has a molecular mass of 19kD; has been tested in culture using a modification of the biological assay of Rubin; Rubin, JS et al, *Proc Natl Acad Sci USA*, 86: 802, 1989; Marchese, C et al, *J Cellular Physiology*, 144: 326, 1990; Finch, PW et al, *Science*, 245: 752, 1989; Albino, AP et al, *Cancer Research*, 51: 4815, 1991; Weissman, BE et al, *Cell*, 32: 599, 1983

### Keratinocyte Growth Supplement

**Biogenesis 5560-5004** Bovine pituitary Lyophilized

### Kininogen

**Sigma K 1632** Human plasma High Lyophilized from 4 mM sodium acetate, pH 5.3, 0.15 M NaCl; prepared by kallikrein digestion of human kininogen; purified to remove kallikrein and kinin

### Kininogen, HMW-

**Biogenesis 5575-5559** Human Liquid

**Biogenesis 5575-5539** Human plasma MW 110k Tested negative for HBsAg and antibodies against HCV, HBV, HIV 1, HIV 2 and HTLV I/II; purified; 4 mM Sodium acetate-HCl, 0.15 M NaCl, pH 5.3; liquid

### Kistrin Disintegrin

*Synonyms:* ADAM/Disintegrins Protein

**Chemicon CC1032** ≥95%

**Sigma K 4755** *Agkistrodon rhodostoma* >95% (SDS-PAGE); lyophilized; sterilized by γ-irradiation | Disintegrins represent a novel family of integrin β1 & β3 inhibitor proteins isolated from viper venoms; low molecular weight, cysteine-rich peptides containing the Arg-Gly-Asp (RGD) sequence; the most potent known inhibitors of integrin function; they interfere with cell adhesion to the extracellular matrix including adhesion of melanoma cells & fibroblasts to fibronectin & are potent inhibitors of platelet aggregation

### Lactalbumin

*Synonyms:* Agglutinin, *Laburnum alpinum*

**Amersham US18035** Bovine

**ICN 102128** Milk Denatured, non-soluble

**Sigma L 7252** Milk ~80% protein, 4% lactose | Non-soluble denatured protein fraction from milk

### Lactalbumin, α-

**Fluka 61289** Bovine milk Calcium depleted; ≥90% (GE); 85% protein content; 0.1% calcium | McKenzie, HA & White, FA, *Adv Prot Chem*, 41: 173, 1991

**Sigma L 7263** Bovine milk (Tetraethyl)rhodamine B isothiocyanate-labeled α-lactalbumin; lyophilized powder; essentially salt-free; ~0.15-0.55 μmole RITC/mg solid | Useful reagent for fluorescent labeling of hormones, surface antigens, lectins & other biologically active molecules; Shechter, Y et al, *Proc Natl Acad Sci USA*, 75: 2135, 1978

## Proteins

**Sigma L 8151** Bovine milk MW 14.2k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

**Fluka 61288** Human milk Salt-free; ≥90% (GE) | Stimulator for lactose synthase

**Sigma L 7269** Human milk ≥90% (electrophoresis); lyophilized | Alters substrate specificity of galactosyltransferase to increase the rate of lactose formation; complex of galactosyltransferase & α-lactalbumin is called lactose synthase; Brodbeck, U et al, *J Biol Chem*, 242: 1391, 1967

### Lactalbumin, α-Carboxymethyl

**Sigma L 5888** Bovine Dialyzed & lyophilized powder; contains ≥6 moles of S-carboxymethylcysteine/mole α-lactalbumin | <1% active as native α-lactalbumin in stimulating galactosyltransferase to produce lactose

### Lactalbumin, α-Type I

**Sigma L 5385** Bovine milk ~85% by polyacrylamide gel electrophoresis; calcium saturated; lyophilized powder which may contain traces of ammonium sulfate & sodium phosphate; literature reports the existence of both a high & a low affinity site for binding calcium | Alters substrate specificity of galactosyltransferase to increase the rate of lactose formation; complex of galactosyltransferase & α-lactalbumin is called lactose synthase; Brodbeck, U et al, *J Biol Chem*, 242: 1391, 1967; Hiraoka, Y et al, *Biochem Biophys Res Commun*, 95: 1098, 1980; Permyakov, EA et al, *Biochem Biophys Res Commun*, 100: 191, 1981; Kronman, MJ et al, *J Biol Chem*, 256: 8582, 1981

### Lactalbumin, α-Type III

**Sigma L 6010** Bovine milk ~85% (PAGE); calcium depleted; lyophilized powder which may contain traces of ammonium sulfate & sodium phosphate; contains <0.3 moles of calcium/mole α-lactalbumin | Alters substrate specificity of galactosyltransferase to increase the rate of lactose formation; complex of galactosyltransferase & α-lactalbumin is called lactose synthase; Brodbeck, U et al, *J Biol Chem*, 242: 1391, 1967

### Lactoferrin

**Sigma L 4765** Bovine colostrum ~90%; essentially salt-free; purity by SDS gel electrophoresis

**ICN 151535** Bovine milk ~98% | Growth factor for cell & tissue culture studies; source of iron for certain cell lines

**ICN 1522333** Bovine milk Purified; free-flowing powder; 96-98% protein; 17% iron saturation | Antimicrobial activity against a variety of microorganisms; useful cell culture growth factor; source of iron to certain cell lines

**Sigma L 9507** Bovine milk ~90%; purity by SDS gel electrophoresis

**ICN 55839** Human Purified Ag; lyophilized

**ICN 150203** Human colostrum MW ~77k >99% (sequence HPLC); free of lysozyme & secretory immunoglobulin | Antimicrobial activity against a variety of microorganisms; useful cell culture growth factor; source of iron to certain cell lines

**Biogenesis 5605-2011** Human milk Purified; essentially salt free; lyophilized

**ICN 160046** Human milk ≥98%; lyophilized | Source of iron for certain cell lines

**ICN 194692** Human milk Cell culture reagent; ≥98%; lyophilized | Growth factor for cell & tissue culture studies; a source of iron for certain cell lines

**Sigma L 0520** Human milk ~90%; purity by SDS gel electrophoresis; chromatographically purified; lyophilized powder containing ~90% protein (Biuret); balance NaCl

**Sigma L 3770** Human milk ~90%; purity by SDS gel electrophoresis; iron saturated; iron content ≥0.15% (w/w)

**Sigma L 4894** Human milk ~90% (SDS gel electrophoresis); cell culture tested

### Lactoferrin, Gold Conjugated

**Sigma L 3647** Bovine colostrum 10 nm colloidal gold labeled; mean particle diameter 8-12 nm; monodisperse; lactoferrin from bovine colostrum (Sigma L 4765) coupled through spacer to albumin coated colloidal gold; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, pH 7.0, 0.25% BSA & 0.02% sodium azide; concentration: A<sub>520</sub>~5.0 | Particularly useful in detection of DNA; Benhamou, N, *J Electron Micr Tech*, 12: 1, 1989

### Lactogen, Placental

**Biogenesis 7400-0509** Human placenta MW 22k <0.1% hGH/hCG, <0.01% human placental GH; tested negative for HBsAg, HCV, HIV-1 and 2; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>; lyophilized

**Cortex CP1015** Human placenta >95%

**Cortex CP1015P** Human placenta >40%

### Lactoglobulin A, β-

**Sigma L 5137** Bovine milk pI 5.1; vial contains ~2 mg | IEF Marker

**Sigma L 8005** Bovine milk ≥90% (PAGE)

### Lactoglobulin A, β-(<sup>14</sup>C-Me)-

**ARC ARC-429** MW 18,367 3-30 μCi/mg; 111-1111kBq/mg; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical

### Lactoglobulin, β-

**ICN 100363** Bovine 3X crystallized

**Fluka 61329** Bovine milk MW 17.5k ~90% (GE) | Mediates the asymmetric self-condensation of β-ionylideneacetaldehyde, retinal & related compounds; Asato, AE et al, *Tetrahedron Lett*, 33: 3105, 1992

**ICN 151536** Bovine milk Lyophilized powder; 1 mg solid binds 10-15 ng folate, Dunn method | Dunn & foster, *Clin Chem*, 19:1101, 1973

**Sigma L 0130** Bovine milk ~90% (PAGE); 3X crystallized & lyophilized; a further purification of Sigma L 6879; contains β-lactoglobulins A & B which can be isolated chromatographically | May not contain folate binding protein; not recommended for folate analysis; Piez, KA et al, *J Biol Chem*, 236: 2912, 1961

**Sigma L 2506** Bovine milk ~80% (PAGE); lyophilized powder; 1 mg solid binds 3-15 ng folate; contains β-lactoglobulins A & B which can be isolated chromatographically | Suitable for analysis of folate by method of Dunn & Foster, *Clin Chem*, 19: 1101, 1973; Piez, KA et al, *J Biol Chem*, 236: 2912, 1961

**Sigma L 3908** Bovine milk ~90% (PAGE); chromatographically purified & lyophilized; contains β-lactoglobulins A & B which can be isolated chromatographically | May not contain folate binding protein; not recommended for folate analysis; Piez, KA et al, *J Biol Chem*, 236: 2912, 1961

**Sigma L 6879** Bovine milk ~85% (PAGE); crystallized & lyophilized; contains β-lactoglobulins A & B which can be isolated chromatographically | May not contain folate binding protein; not recommended for folate analysis; Piez, KA et al, *J Biol Chem*, 236: 2912, 1961

### Laminin

**Biogenesis 5620-0604** Human placenta MW 170k-190k Purified; tested negative for HBsAg and HIV and HCV antibodies; 50 mM Tris-HCl, pH 8.2, 300 mM NaCl; liquid | Useful in quantitative and qualitative immunochemical methods (eg ELISA), for production of antibodies, neurite stimulation assay and as an attachment factor in cell culture; Wever et al, *JBC*, 258:12654, 1983; Engvall et al, *J Cell Biol*, 103:2457, 1986

**Calbiochem 428012** Human placenta MW 170k & 190k  
Liquid in 300 mM NaCl, 50 mM Tris-HCl, pH 8.2; ≥95% (SDS-PAGE); prepared from tissue of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Multi-functional non-collagenous glycoprotein found in extracellular matrix; involved in promotion of cellular adhesion, platelet adhesion & neurite regeneration & binding to Type IV collagen, glycoaminoglycan & heparin; useful for antiserum production, ELISA, Ouchterlony, cell-attachment & neurite-stimulation assays; biologically & immunologically identical to intact laminin; *Merck Index*, 12: 5364; Timpl, R & Brown, JC, *Matrix Biol*, 14: 274, 1994; Engvall, E et al, *J Cell Biol*, 103: 2457, 1986

**BioSource International PHE0033** Mouse

**Biogenesis 5620-2004** Mouse EHS sarcoma Purified; 0.05 M Tris, 0.15 M NaCl, pH 7.4 with 50 µg/mL gentamycin; liquid | Can be used in cell culture, especially in the attachment and/or spreading of epithelial, endothelial and neuronal cells

**USBio L1225** Mouse, purified from basement membrane of the Engelbreth-Holm-Swarm (EHS) mouse tumor Purified using salt precipitation & IX chromatography; tested negative for bacteria, fungi & mycoplasma; frozen liquid in 0.05 M Tris-HCl, pH 7.4, 0.15 M NaCl

**Chemicon CC095** Murine Purified | Extracellular matrix protein

### Laminin, Pepsinized

**Chemicon AG56P** Human placenta Purified; pepsinized | Extracellular matrix protein

### Laminin-Like Engineered Protein Polymer

**Sigma L 6515** Recombinant MW 75,639 (gene sequence), ~110k (SDS-PAGE) Lyophilized polymer supplied with diluent in separate vial; diluent contains 4.5 M LiClO<sub>4</sub>; sterilized by autoclaving; cell culture tested | Incorporates multiple copies of the IKVAV ligand from the laminin alpha chain interspersed between repeated structural peptide U; U.S. Patent No. 5,211,657

### Latrotoxin, α-

*Synonyms:* Ltx, α-

**Alexis 630-027** *Latrodectus tredecimguttatus* MW 130k ≥97%; white lyophilized powder; soluble in water; potent neurotoxin | Causes massive neurotransmitter release from a wide variety of central & peripheral synaptic junctions of vertebrates using Ca<sup>2+</sup>-dependent & Ca<sup>2+</sup>-independent pathways; useful pharmacological tool in the studies of synaptic vesicles exocytosis of different neurotransmitters; Frontali, N et al, *J Cell Biol*, 68: 462, 1976; Stahl, B et al, *J Biol Chem*, 269: 24770, 1994; Grasso, A, *Biochim Biophys Acta*, 439: 406, 1976; Valtorta, F et al, *J Cell Biol*, 107: 2717, 1988; Osipenko, ON et al, *Toxicol*, 31: 1123, 1993; Parpura, V et al, *FEBS Lett*, 360: 266, 1995

**Calbiochem 428025** *Latrodectus tredecimguttatus* MW 130k Lyophilized solid; one distinct band purity (SDS-PAGE); biological activity: stimulates neurotransmitter release in both Ca<sup>2+</sup>-free & Ca<sup>2+</sup>-containing media; soluble in water; LD<sub>50</sub> ≤ 2 k mg/kg | Causes massive release of exocytotic neurotransmitter synaptic vesicles from a wide variety of central & peripheral synaptic junctions of vertebrates via Ca<sup>2+</sup>-dependent & -independent parallel mechanisms at concentrations as low as 100 pM; stimulates Ca<sup>2+</sup>-independent GABA & glutamate release from cortical astrocytes in culture; Parpura, V et al, *FEBS Lett*, 360: 266, 1995; Storchak, LG et al, *FEBS Lett*, 351: 267, 1994; Osipenko, ON et al, *Toxicol*, 31: 1123, 1993; Valtorta, F et al, *J Cell Biol*, 107: 2717, 1988

### Lck (p56)

**USBio L1565-06** Bovine thymus Purified by DEAE-Sepharose, hydroxyapatite, & phenyl-Sepharose columns, followed by Sephacryl S-200 gel filtration; essentially free of other protein kinase contamination; frozen solution in 75 mL of 25 mM HEPES, pH 7.0, 10% glycerol, 0.1% IGEPAL CA-630

### Lectin

**Sigma L 1277** *Lens culinaris* (lentil) pI 8.2, 8.6, 8.8; vial contains ~1 mg | IEF Marker

### Lectin Mixture

**Sigma L-7S** 7 Lectins: *Arachis hypogaea* (Peanut, Sigma L 0881, affinity: galactose), *Canavalia ensiformis* (Jack bean, Sigma C 2010, affinity: glucose, mannose), *Lens culinaris* (Lentil, Sigma L 9267, affinity: glucose, mannose), *Lotus tetragonolobus* (Winged pea, Sigma L 9254, affinity: L-fucose), *Ricinus communis* (Castor bean, Sigma L 8508, Toxin RCA<sub>60</sub>, affinity: GalNAc), *Ricinus communis* (Castor bean, Sigma L 7886, Agglutinin RCA<sub>120</sub>, affinity: galactose), *Triticum vulgaris* (Wheat germ, Sigma L 9640, affinity: GlcNAc); extremely hazardous! Be aware of the risks & familiar with safety procedures before you use this product

### Lens Proteins

**Sigma L 2394** Bovine eye lens Water soluble; lyophilized preparation of a water extract

### Leptin

*Synonyms:* Anti-Obesity Protein

**Biodesign A52327H** *E. coli* Purified

**Chemicon GF052** Human ≥95% | Cellular biochemistry/regulatory protein

**Biogenesis 5633-1439** Human r-DNA *E. coli* MW 16k Endotoxin <0.1 ng/µg; purified; 10 mM Sodium citrate, pH 4.0; lyophilized | Biological activity in the ob/ob and NZO mouse obesity models

**BioSource International PHP0013** Human recombinant

**Alexis 201-034** Human recombinant, expressed in *E. coli* MW 16k ≥95% (SDS-PAGE & HPLC); lyophilized from 0.5 mg leptin/mL in 10 mM sodium citrate, pH 4.0; endotoxin <0.1 ng/µg leptin | Leptin; product of the ob (obese) gene; a protein consisting of 146 AA residues; produced in the adipose tissue & considered to play an important role in appetite control, fat metabolism & regulation of body weight; targets the central nervous system, particularly hypothalamus, affecting food intake; leptin levels are high in most obese individuals; Zhang, Y et al, *Nature*, 372: 425, 1994; Considine, RV et al, *J Clin Invest*, 95: 2986, 1995; Pelleymounter, MA, *Science*, 269: 540, 1995; Lonqvist, F et al, *Nature Med*, 1: 950, 1995; Maffei, M et al, *Nature Med*, 1: 1155, 1995; Considine, RV et al, *New Engl J Med*, 334: 292, 1996; Considine, RV et al, *BBRC*, 220: 735, 1996

**Calbiochem 429700** Human recombinant, expressed in *E. coli* MW 16k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS, carrier-free; biological activity: ED<sub>50</sub> = 0.4-2 ng/mL as measured by its ability to induce proliferation of leptin-dependent rOB-R transfected murine BAF3 cells; endotoxin: ≤100 pg/µg leptin | Product of the obese (ob) gene; a ligand for the OB receptor (OB-R); mice with mutations of the ob gene have been found to be obese & diabetic & to have reduced activity, metabolism & body temperature; *Merck Index*, 12: 5466; Ookuma, M et al, *Diabetes*, 47: 219, 1998; Campfield, LA et al, *Science*, 269: 546, 1995; Halaas, JL et al, *Science*, 269: 543, 1995; Pelleymounter, MA et al, *Science*, 269: 540, 1995; Zhang, Y et al, *Nature*, 372: 425, 1994

**Fitzgerald 30-AL12** Human recombinant, expressed in *E. coli*

**ICN 195807** Human recombinant, expressed in *E. coli* >95%; lyophilized

**PeproTech 300-27** Human recombinant, expressed in *E. coli* MW 16k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1 EU/mg); lyophilized | Protein product of the ob (obese) gene in mice; involved in appetite control; the ob gene is expressed in adipose tissue & is thought to regulate the body's fat stores; mice with the ob/ob genotype also develop a form of diabetes similar to type II (non-insulin dependent); 146 AA; biologically active in two different mouse obesity models, ob/ob and NZO

**Sigma L 4146** Human recombinant, expressed in *E. coli* MW ~16k ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline; biological activity is measured by its ability to lower body weight & food intake in the mutant obese C57BL/6J mice (ob/ob) following daily intraperitoneal injection; endotoxin tested | Product of the ob gene; suppresses feeding & leads to body weight reduction; the only cell currently reported to secrete leptin is the mature adipocyte; factors reported to induce leptin secretion include insulin & inflammatory mediators such as LPS, IL-1β & TNF-α; feedback loop may exist where insulin stimulates OB secretion & circulating OB inhibits insulin production; insulin-producing pancreatic β-cells have OB receptors & it is suspected that adipose cell size is a major determinant of OB mRNA expression; non-glycosylated polypeptide of 146 AA; precursor form of leptin consists of 167 AA; to generate the mature leptin (146 AA) the precursor cleaves a 21 AA signal peptide; human leptin shows ~85% AA homology to mouse leptin & 84% AA homology to rat leptin; mouse & rat leptin show ~96% AA homology with each other; Stephens, TW et al, *Nature*, 377: 530, 1995; Zhang, Y et al, *Nature*, 372: 425, 1994; Leroy, P et al, *J Biol Chem*, 271: 2365, 1996; Gettys, TW et al, *Endocrinology*, 137: 4054, 1996; Malmstrom, R et al, *Diabetologia*, 39: 993, 1996; Grunfeld, C et al, *J Clin Invest*, 97: 2152, 1996; Mizuno, TM et al, *Proc Natl Acad Sci USA*, 93: 3434, 1996; Kieffer, TJ et al, *Biochem Biophys Res Commun*, 224: 522, 1996; Collins, S & Surwit, RS, *J Biol Chem*, 271: 9437, 1996; Cohen, SL et al, *Nature*, 382: 589, 1996; Ogawa, Y et al, *J Clin Invest*, 96: 1647, 1996

**Biogenesis 5633-1479** Mouse r-DNA MW 16k Endotoxin: <0.1 ng/µg of leptin; purified; no preservatives; lyophilized | 147 AA

**BioSource International PMP0013** Mouse recombinant

**Alexis 201-035** Mouse recombinant, expressed in *E. coli* MW 16k ≥95% (SDS-PAGE & HPLC); lyophilized from 0.5 mg leptin/mL in 10 mM sodium citrate, pH 4.0; endotoxin <0.1 ng/µg leptin | Product of the ob (obese) gene, consisting of 146 AA residues; produced in the adipose tissue & considered to play an important role in appetite control, fat metabolism & regulation of body weight; studies have shown that it may also influence reproductive function; mice with ob/ob genotype develop a form of diabetes similar to type II in humans; Zhang, Y et al, *Nature*, 372: 425, 1994; Pelleymounter, MA, *Science*, 269: 540, 1995; Halaas, JL et al, *Science*, 269: 543, 1995; Maffei, M et al, *Nature Med*, 1: 1155, 1995

**Calbiochem 429705** Mouse recombinant, expressed in *E. coli* MW 16k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS, carrier-free; biological activity: ED<sub>50</sub>=0.2-1 ng/mL as measured by its ability to induce proliferation of leptin-dependent rOB-R transfected murine BAF3 cells; endotoxin: ≤100 pg/µg leptin | Product of the obese (ob) gene; a ligand for the OB receptor (OB-R); mice with mutations of the ob gene have been found to be obese & diabetic & to have reduced activity, metabolism & body temperature; suppresses insulin secretion by inhibiting activities of Ca<sup>2+</sup>-dependent PKC isoforms; *Merck Index*, 12: 5466; Ookuma, M et al, *Diabetes*, 47: 219, 1998; Campfield, LA et al, *Science*, 269: 546, 1995; Halaas, JL et al, *Science*, 269: 543, 1995; Pelleymounter, MA et al, *Science*, 269: 540, 1995; Zhang, Y et al, *Nature*, 372: 425, 1994

**Sigma L 3772** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered solution & lyophilized from phosphate buffered saline; biological activity is measured by its ability to lower body weight & food intake in the mutant obese C57BL/6J mice (ob/ob) following daily intraperitoneal injection; endotoxin tested | Product of the ob gene; suppresses feeding & leads to body weight reduction; the only cell currently reported to secrete leptin is the mature adipocyte; factors reported to induce leptin secretion include insulin & inflammatory mediators such as LPS, IL-1β & TNF-α; feedback loop may exist where insulin stimulates OB secretion & circulating OB inhibits insulin production; insulin-producing pancreatic β-cells have OB receptors & it is suspected that adipose cell size is a major determinant of OB mRNA expression; non-glycosylated polypeptide of 146 AA; precursor form of leptin consists of 167 AA; to generate the mature leptin (146 AA) the precursor cleaves a 21 AA signal peptide; human leptin shows ~85% AA homology to mouse leptin & 84% AA homology to rat leptin; mouse & rat leptin show ~96% AA homology with each other; Stephens, TW et al, *Nature*, 377: 530, 1995; Zhang, Y et al, *Nature*, 372: 425, 1994; Leroy, P et al, *J Biol Chem*, 271: 2365, 1996; Gettys, TW et al, *Endocrinology*, 137: 4054, 1996; Malmstrom, R et al, *Diabetologia*, 39: 993, 1996; Grunfeld, C et al, *J Clin Invest*, 97: 2152, 1996; Mizuno, TM et al, *Proc Natl Acad Sci USA*, 93: 3434, 1996; Kieffer, TJ et al, *Biochem Biophys Res Commun*, 224: 522, 1996; Collins, S & Surwit, RS, *J Biol Chem*, 271: 9437, 1996; Cohen, SL et al, *Nature*, 382: 589, 1996; Ogawa, Y et al, *J Clin Invest*, 96: 1647, 1996

**Chemicon GF050** Murine ≥95% | Cellular biochemistry/regulatory protein

**Fitzgerald 30-AL13** Murine recombinant, expressed in *E. coli*

**ICN 195015** Murine recombinant, expressed in *E. coli* MW 16k >95%; lyophilized

**PeproTech 450-31** Murine recombinant, expressed in *E. coli* MW 16k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Protein product of the ob (obese) gene in mice; involved in appetite control; expressed in adipose tissue & is thought to regulate the body's fat stores; mice with the ob/ob genotype also develop a form of diabetes similar to type II (non-insulin dependent; 147 AA; biologically active in two different mouse obesity models, ob/ob and NZO

#### Lethal Toxin Inhibiting Factor

**ICN 159835** *Didelphis virginiana* (opossum) serum MW 66k Purified, single band by SDS-PAGE | Inhibits the lethality of various venoms & toxins; histamine blocker when tested on mast cells; ≥0.5 µg LTIF mixed with lethal doses of venoms or toxins inhibits the lethality of the venom injected IP in mice

**Leukemia Inhibitory Factor**

**Synonyms:** Differentiation-Inhibition Activity For Murine Embryonic Stem Cells; Human Interleukin for DA Cells; Hepatocyte Stimulating Factor III; Cholinergic Neuronal Differentiation Factor; Lipoprotein Lipase Inhibitor; Differentiation-Inhibition Activity For Murine Embryonic Stem Cells; Interleukin for DA Cells, Human; Hepatocyte Stimulating Factor III; Cholinergic Neuronal Differentiation Factor; Lipoprotein Lipase Inhibitor

**Chemicon LIF1005** Human recombinant ≥95%

**Chemicon LIF1010** Human recombinant ≥95%

**Oncogene PF044** Human recombinant MW 20k Liquid; >95% (SDS-PAGE); biological activity: EC<sub>50</sub> of 0.5 ng/mL as determined by its ability to induce differentiation in murine M1 myeloid leukemia cells; 5 mg (5x10<sup>5</sup> units) supplied in 0.5 mL of PBS, pH 7.4, 0.02% Tween 20; reconstitution buffer should contain 0. | Species reactivity: human; for proliferation studies; sequence analysis predicts a mature protein of 180 AA

**Fitzgerald 30-AL50** Human recombinant, expressed in *E. coli*

**Harlan BT-3016** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3017** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**ICN 158412** Human recombinant, expressed in *E. coli* ≥98%; ED<sub>50</sub> = 5.0-10.0 ng/mL, 1 U inhibits M1 mouse myelomonocytic leukemia cell proliferation | Active in human & mouse systems

**PeproTech 300-05** Human recombinant, expressed in *E. coli* MW 19.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Lymphoid factor which promotes long-term maintenance of embryonic stem cells by suppressing spontaneous differentiation; 180 AA; ED<sub>50</sub> ≤ 0.01 ng/mL; SA ≥ 10<sup>8</sup> U/mg; SA determined by the M1 cell differentiation assay

**Sigma L 5283** Human recombinant, expressed in *E. coli* ≥95% (SDS-PAGE); 0.2 µm filtered in phosphate buffered saline, pH 7.4 containing 0.02% Tween 20; proliferative activity is measured in culture using the human leukemic cell line TF-1 | Multifunctional glycoprotein that induces macrophage differentiation & suppresses the proliferation of the murine M1 myeloid leukemia cell line; LIF plays an important role along with IL-6 & G-CSF in the regulation of early hematopoietic stem cells; also important in the release of calcium from bone tissue; Smith, AG et al, *Nature*, 336: 688, 1988; Moreau, JF et al, *Nature*, 336: 690, 1988; Baumann, H et al, *J Immunol*, 143: 1163, 1989; Gearing, DP et al, *EMBO J*, 6: 3995, 1987; Smith, AG et al, *Dev Biol*, 121: 1, 1987; Yamamoni, T et al, *Science*, 246: 1412, 1989; Abe, E et al, *Proc Natl Acad Sci USA*, 83: 5958, 1986; Mori, M et al, *Physchem Biophys Pres Commun*, 160: 1085, 1989; Leary, AG et al, *Blood*, 75: 1960, 1990; Gough, NM et al, *Proc Natl Acad Sci USA*, 85: 2623, 1988

**Sigma L 5158** Mouse recombinant, expressed in *E. coli* ≥95% (SDS-PAGE); 0.2 µm filtered in phosphate buffered saline, pH 7.4 containing 0.02% Tween 20; proliferative activity is measured in culture using the M1 murine cell line | Multifunctional glycoprotein that induces macrophage differentiation & suppresses the proliferation of the murine M1 myeloid leukemia cell line; LIF plays an important role along with IL-6 & G-CSF in the regulation of early hematopoietic stem cells; also important in the release of calcium from bone tissue; Smith, AG et al, *Nature*, 336: 688, 1988; Moreau, JF et al, *Nature*, 336: 690, 1988; Baumann, H et al, *J Immunol*, 143: 1163, 1989; Gearing, DP et al, *EMBO J*, 6: 3995, 1987; Smith, AG et al, *Dev Biol*, 121: 1, 1987; Yamamoni, T et al, *Science*, 246: 1412, 1989; Abe, E et al, *Proc Natl Acad Sci USA*, 83: 5958, 1986; Mori, M et al, *Physchem Biophys Pres Commun*, 160: 1085, 1989; Leary, AG et al, *Blood*, 75: 1960, 1990; Gearing, DP et al, *EMBO J*, 6: 3995, 1987

**Chemicon LIF2005** Murine recombinant ≥95%

**Chemicon LIF2010** Murine recombinant ≥95%

**Oncogene PF045** Murine recombinant MW 20k Liquid; >97% (SDS-PAGE); biological activity: EC<sub>50</sub> of 0.5 ng/mL as determined by its ability to induce differentiation in murine M1 myeloid leukemia cells | Species reactivity: mouse; for proliferation studies; sequence analysis predicts a mature protein of 181 AA

**Fitzgerald 30-AL51** Murine recombinant, expressed in *E. coli*

**ICN 160052** Murine recombinant, expressed in *E. coli* ≥97%; ED<sub>50</sub> = 0.03-0.1 ng/mL, 1 U induces murine leukemic DA-1a cell proliferation | ~1000X decreased activity on human cells vs human LIF

**PeproTech 250-02** Murine recombinant, expressed in *E. coli* MW 20k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized from PBS | Lymphoid factor, which promotes long-term maintenance of embryonic stem cells by suppressing spontaneous differentiation; 180 AA; ED<sub>50</sub> ≤ 0.01 ng/mL; SA ≥ 10<sup>8</sup> U/mg; SA determined by the M1 cell differentiation assay

**USBio L2024-08** Recombinant

**Leukemia Inhibitory Factor Soluble Receptor-α**

**Oncogene PF046** Human recombinant MW 100-110k (glycosylated) Lyophilized in PBS containing 50 mg of BSA per 1 mg of cytokine; >97% (SDS-PAGE); biological activity: EC<sub>50</sub> of 3-6 ng/mL as determined by its ability to inhibit proliferation of TF-1 cells in the presence of 0.3 ng/mL of recombinant human LIF | Species reactivity: human; has a predicted MW of 89k, but as a result of heterogeneous glycosylation has a MW of 100-110 k; shown to bind LIF & has antagonistic activity

**ICN 195726** Human recombinant, expressed in Sf21 ≥97%; ~3-6 µg/mL inhibits half the biological response of 0.3 ng/mL LIF

**Leukemia Virus gp70, Feline**

**USBio L2041-12** Feline ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; no trace of p27 or transmembrane visible; ~1 mg/mL supplied in PBS containing 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Leukemia Virus p27, Feline**

**USBio L2041-16** Tissue culture ≥96%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ≤0.01% Gp70 with a trace of precursor material visible by Western blot; ~1 mg/mL (OD 280 nm) supplied in PBS containing 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Leukoagglutinin**

**Sigma L 4144** *Phaseolus vulgaris* (red kidney bean) Purified; salt-free; lyophilized; tested for leucocyte agglutination activity; mitogenic at <5 µg/mL; cell culture tested; endotoxin tested | Lectin; highly specific polyvalent carbohydrate-binding proteins; useful in polysaccharide studies, glycoprotein studies, enzyme tagging & cell membrane studies, cell agglutination & cell typing; in tissue culture certain lectins used to induce mitogenic activity; tested in a tissue culture system using 3H-thymidine incorporation as a measure of mitogenic activity; Goldstein, I & Hayes, C, *Adv Carbo Chem Biochem*, 35: 127, 1978; Rosenberg, SA & Lipsky, PE, *J Immunol*, 122: 926, 1979

**Levetin, γ**

**ICN 194993** Egg yolk MW 15k >98%; white solid | Immunologically equal to chicken serum γ-globulin

**Light Chains, κ**

**Scipac P163-1** Pooled urine of Bence-Jones patients >96%; lyophilized | Urine protein

**Scipac P164-1** Pooled urine of Bence-Jones patients >96%; lyophilized | Urine protein

**Lipopolysaccharide Induced CXC Chemokine**

**Biodesign A52017M** *E. coli* >98% | Species specificity: mouse

**BioSource International PMC1595** Mouse recombinant

**PeproTech 250-17** Murine recombinant, expressed in *E. coli* MW 9.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Novel murine neutrophil-chemoattractant CXC chemokine; 93 AA; SA determined by its ability to chemoattract human neutrophils

### Lipoprotein

**Sigma L 3626** Bovine plasma Solution in 10 mM sodium bicarbonate, pH 7.4; ~20 mg protein/mL; aseptically filtered | Predominantly HDL Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

### Lipoprotein Concentrate

**Sigma L 9906** Human Low endotoxin; cholesterol: 8-11 g/L; protein: (Biuret): 9-20 g/L; pH: 7.0-8.6; aseptically filtered | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; endotoxin level given on the label; IgG: undetectable; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

### Lipoprotein, High Density

**Synonyms:** Lipoprotein,  $\alpha$ -; Lipoprotein,  $\alpha$ -; Lipoprotein,  $\alpha$ -

**Cortex CP2107** >95%

**ICN 59433** Human Purified; 1.063-1.210 g/mL

**Biodesign A95124H** Human plasma Purified | Species specificity: human

**Biodesign A95332H** Human plasma Purified; 3 subfraction; d: 1.120-1.210 | Species specificity: human

**Biogenesis 5685-2004** Human plasma Purified; 0.05 M Tris-HCl, 0.15 M NaCl, 0.3 mM EDTA, pH 7.4; liquid

**Fluka 62332** Human plasma 10 mg protein/mL; free from contamination by other lipoprotein classes; aseptically filtered solution in 0.15 M NaCl, 0.01% EDTA, pH 7.4 | Useful for cellulose acetate electrophoresis

**Sigma L 2014** Human plasma Solution in 0.15 M NaCl with 0.01% EDTA, pH 7.4; aseptically filtered | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; freezing may cause structural change & denature lipoproteins; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Sigma L 5277** Human plasma ~10 mg protein/vial (modified Lowry); cholesterol: >25  $\mu$ g/mg protein; aseptically filtrated then lyophilized from 1 mL HDL solution in 0.15 M NaCl & 0.01% EDTA at pH 7.4; heat treated at 60°C for 10 hours | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; suitable for use as a nutritional source of fatty acids & lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Biodesign A94005H** Human serum Purified | Species specificity: human

**Biogenesis 5685-2025** Human serum DiI conjugated

### Lipoprotein, Low Density

**Synonyms:** Lipoprotein,  $\beta$ -

**Cortex CP2017** >95%

**ICN 59392** Human Purified; 1.019-1.063 g/mL

**Fitzgerald 30-AL88** Human fluids High purity

**Biogenesis 5685-3204** Human plasma Tested negative for HIV-1 and HIV-2, HBsAg, the antibody to Human T-Lymphotropic Virus Type I, HCV and HBcAg; purified; 0.05 M Tris-HCl, 0.15 M NaCl, 0.3 mM EDTA, pH 7.4, 0.22 micron filtered; liquid

**Biogenesis 5685-3557** Human plasma Purified; 0.05 M Tris-HCl, 0.15 M NaCl & 0.3 mM EDTA, pH 7.4; sterile; liquid | Binds LDL receptor in peritoneal macrophages

**Fluka 62331** Human plasma 5 mg protein/mL; free from contamination by other lipoprotein classes; aseptically filtered solution in 0.15 M NaCl, 0.01% EDTA, pH 7.4 | Useful for cellulose acetate electrophoresis

**Sigma L 2139** Human plasma Solution in 0.15 M NaCl with 0.01% EDTA, pH 7.4; aseptically filtered | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Sigma L 5402** Human plasma ~5 mg protein/vial (modified Lowry); cholesterol: >500  $\mu$ g/mg protein; aseptically filtrated then lyophilized from 1 mL LDL solution in 0.15 M NaCl & 0.01% EDTA at pH 7.4; heat treated at 60°C for 10 hours | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Biogenesis 5685-3255** Human serum DiO conjugated

**Biogenesis 5685-3577** Human serum  $^{125}$ I conjugated

### Lipoprotein, Low Density Ac-

**Biogenesis 5685-3404** Human serum Tested negative for HIV 1 and 2 antibodies, HBsAg, HTLV I antibodies, HCV and HBcAg; purified; 0.05 M Tris-HCl, 0.15 M NaCl and 0.3 mM EDTA, pH 7.4; sterile filtered; liquid

**Biogenesis 5685-3502** Human serum  $^{125}$ I conjugated

### Lipoprotein, Very Low Density

**Synonyms:** Lipoprotein, Pre- $\beta$ -; Lipoprotein, Pre- $\beta$ -

**Cortex CP2018** >95%

**ICN 59393** Human Purified; 1.006-1.063 g/mL

**Biodesign A34013H** Human plasma Purified | Species specificity: human

**Fluka 62329** Human plasma 1 mg protein/mL; free from contamination by other lipoprotein classes; aseptically filtered solution in 0.15 M NaCl, 0.01% EDTA, pH 7.4 | Useful for cellulose acetate electrophoresis

**Sigma L 2264** Human plasma Solution in 0.15 M NaCl with 0.01% EDTA, pH 7.4; filtered through a 0.45  $\mu$ m membrane | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Biogenesis 5685-4004** Human serum Liquid

**Biogenesis 5685-4104** Rabbit serum Liquid

### Lipoprotein, $\alpha$ -

**Cortex CP8102** >95%

**ICN 59602 ICN 59603** Human Purified

**Fitzgerald 30-AL37** Human fluids High purity

**Biodesign A19132H** Human plasma Purified | Species specificity: human

**Biogenesis 5684-9804** Human plasma Purified; 10 mM NaCl, 1 mM EDTA, 0.01% NaN<sub>3</sub>, pH 7.2; liquid | A protein concentration >3 mg/mL will lead to extensive aggregation; tested negative for HBsAg and HIV

**ICN 59604** Human plasma Purified; 1.063-1.210 g/mL; isolated by sequential isopycnic ultracentrifugation, followed by lysine affinity chromatography

**Sigma L 0526** Human plasma Solution in 10 mM Tris-HCl containing 1 mg/mL Na<sub>2</sub>EDTA, pH 7.2; filtered through a 0.45  $\mu$ m membrane | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**Sigma L 2532** Human plasma Lyophilized powder | Apolipoprotein A-I & A-II are directly purified from HDL; apolipoprotein B is prepared from purified LDL using SDS or sodium deoxycholate to remove lipids; Burstein, M, *J Lipid Res*, 11: 583, 1970; Rudel, LL, *Biochem J*, 139: 89, 1974

**USBio L2600** Human plasma ≥98%; no contaminants detected; single band by SDS-PAGE; purified by Lys-Sepharose affinity chromatography; ~0.5 mg/mL; liquid in 10 mM NaCl, 1 mM EDTA, pH 7.2, 0.01% NaN<sub>3</sub> | Predominant polymorph 4, minor polymorph 8; suitable for antigenic applications in immunological protocols

**USBio L2600-12** Human plasma no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~0.5 mg/mL; supplied in 0.1 M Tris buffer containing stabilizers, pH 7.6, 0.1% NaN<sub>3</sub> added as preservative | Suitable for antigenic applications in immunological protocols

### Liver Cell Growth Factor

**Chemicon LC010** ≥95%

### Liver Expressed Chemokine

*Synonyms:* NCC-4

**Biodesign A52044H** *E. coli* Purified

### Liver-Expressed Chemokine

*Synonyms:* NCC-4

**PeproTech 300-44** Human recombinant, expressed in *E. coli* MW 11.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered CC chemokine; chemotactic on monocytes; 97 AA; SA determined by its ability to chemoattract total human monocytes

### LTβR/Fc Chimera

*Synonyms:* TNFRSF3

**R&D Systems 629-LR-100** Human NSO-expressed >95%; lyophilized | Species specificity: human lymphotoxin β receptor

### Luffin

*Synonyms:* Ribosome Inactivating Protein

**Sigma L 7146** *Luffa aegyptiaca* seeds Lyophilized powder containing ~15% protein (Lowry); balance primarily sodium phosphate, pH 7.2 | Kishida, K et al, *FEBS Lett*, 153: 209, 1983

### Luteinizing Hormone

*Synonyms:* ICSH; LH

**Cortex CP1018** >95%

**Cortex CP1018P** >40%

**Biogenesis 5720-5104** Bovine pituitary MW 30k ≤1.0% bTSH, <0.1% bGH/bFSH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized

**Biogenesis 5720-5104** Bovine pituitary Lyophilized

**Fitzgerald 30-AL27** Bovine pituitary gland Immunization grade

**USBio L7500-30** Bovine pituitary glands ≥98% (SDS-PAGE); 0.65 IU/mg; ≥ 10 mg/vial; NIH Reference Standard; lyophilized | Suitable for antigenic applications in immunological protocols

**USBio L7500-31** Bovine pituitary glands ≥80% (SDS-PAGE); lyophilized | Suitable for antigenic applications in immunological protocols; SA ~1 IU/mg

**Biogenesis 5720-6104** Equine pituitary Lyophilized

**Sigma L 9773** Equine pituitary ~15 U/vial based on NIH standard LH-S1 using the rat Leydig cell assay; also contains sodium phosphate buffer salts; 1 NIH LH-S1 U=~2000 IU | Not assayed by Sigma; 2 chain glycoprotein hormone, the α-chain no active, biological specificity is attributed to the β-chain; induces ovulation, spermatogenesis & synthesis of sex steroids

**Biogenesis 5720-2159** Human pituitary Essentially salt free; 32.5 mIU/vial hTSH, 370 mIU/vial hFSH; tested negative for HCV, HIV-1 and HIV-2 antibodies and HBsAg; crude; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 5720-2204** Human pituitary Lyophilized

**Biogenesis 5720-2209** Human pituitary MW 28k <1% hTSH, <0.3% hFSH, <0.2% hGH, <0.05% hPRL; tested negative for HBV, HCV, HIV-1, HIV-2, HTLV 1 and 2, HIV-1 Ag; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Closset et al, *Eur J Biochem*, 57:325, 1975

**Biogenesis 5720-2304** Human pituitary SA: 10,500 IU/mg; <0.1% hTSH, <0.06% hFSH, <0.01% hGH/hPRL/hCG; purified; 50 mM ammonium bicarbonate; lyophilized

**Biogenesis 5720-2404** Human pituitary Lyophilized

**Biogenesis 5720-4304** Human pituitary Lyophilized

**Calbiochem 869003** Human pituitary MW 28.5k Lyophilized solid; potency: ≥5000 IU/mg (WHO IRP 68/40); soluble in water; hFSH, hTSH: ≤0.5%; hCG: ≤0.05%; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Two-chain glycoprotein hormone required for ovulation, spermatogenesis & the biosynthesis of sex steroids; biological specificity has been attributed to β-chain; *Merck Index*, 12: 5499

**Sigma L 5259** Human pituitary ≥5000 IU/mg; sold on basis of weight of RIA-active LH | Not assayed by Sigma; 2 chain glycoprotein hormone, the α-chain no active, biological specificity is attributed to the β-chain; induces ovulation, spermatogenesis & synthesis of sex steroids

**Sigma L 8650** Human pituitary Lyophilized from 0.1 mL of 0.05 M sodium phosphate buffer, pH 7.4; <1% α-subunit | Subunit responsible for the biological specificity of LH

**Biodesign A81755M** Human pituitary glands 98% (affinity purified)

**USBio L7500-28** Human pituitary glands ≥98%; affinity purified; hLH Alpha: ≤2.0%; 1 mg/mL | Suitable for antigenic applications in immunological protocols; SA: 11,000 IU/mg (1st IRP 68/40, WHO)

**Biogenesis 5720-7004** Ovine pituitary ≤1% oTSH/oFSH; purified; liquid

**Biogenesis 5720-7304** Ovine pituitary Lyophilized

**Sigma L 5269** Ovine pituitary Lyophilized from 5 mM sodium phosphate buffer; 25 U/vial based on HIH standard LH-525 using the ascorbic acid depletion assay | Not assayed by Sigma; 2 chain glycoprotein hormone, the α-chain no active, biological specificity is attributed to the β-chain; induces ovulation, spermatogenesis & synthesis of sex steroids

**Biogenesis 5720-8104** Porcine pituitary MW 30k <1.0% pTSH, 0.1% pPRL, <0.1% pGH/pFSH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 5720-8204** Porcine pituitary Lyophilized

**Biogenesis 5720-9104** Rat pituitary <0.3% rTSH, <0.1% rPRL/rGH/rFSH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

### Luteinizing Hormone, Intact

**USBio L7500-24** Human ≥97% (SDS-PAGE), hTSH <2.0%, hGH <0.1%, hFSH <0.3%, hPrl <0.1%, hCG <0.1%; 12,000 IU/mg; lyophilized in 50 mM ammonium bicarbonate buffer | Suitable for antigenic applications in immunological protocols

**USBio L7500-25** Human ≥60% (SDS-PAGE); hTSH <1.0%, hGH <0.1%, hFSH <0.3%, hPrl <0.1%, hCG <0.1%; 5, 500 IU/mg; lyophilized in 50 mM ammonium bicarbonate buffer | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AL15** Human pituitary gland Affinity purity

**Fitzgerald 30-AL20** Human pituitary gland High purity

**Fitzgerald 30-AL25** Human pituitary gland Standard purity

**USBio L7500-23** Human pituitary glands ≥98%; hFSH <0.05%; hPrl <0.005%, hTSH <0.0001%; 14,400 IU/mg; lyophilized | Suitable for antigenic applications in immunological protocols.

### Luteinizing Hormone, α-

**Biogenesis 5720-5254** Bovine pituitary Lyophilized

**USBio L7500-11** Human <2.0% hLH-β; lyophilized | Suitable for antigenic applications in immunological protocols

## Proteins

**Biogenesis 5720-3204** Human pituitary MW 14.5k 0.02% hLH; tested negative for HBsAg, HCV, HIV-1 and 2; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0. Essentially salt free; lyophilized | Closset et al, *Eur J Biochem*, 57:325, 1975

**Fitzgerald 30-AL30** Human pituitary gland High purity

**Biogenesis 5720-7204** Ovine pituitary Lyophilized

**Biogenesis 5720-8154** Porcine pituitary Lyophilized

**Fitzgerald 30-AL35** Human pituitary gland High purity

### Luteotropic Hormone

**Synonyms:** Prolactin; Lactogenic Hormone

**Sigma L 7009** Human pituitary gland ~30 IU/mg; SA by RIA per an international reference preparation of LTH for immunoassay | Induces lactation; inhibits secretion of gonadotropins; release is inhibited by dopamine; bioassay not run by Sigma

**ICN 155277** Human pituitary glands 30 IU/mg

**Sigma L 6520** Sheep pituitary gland 20-50 IU/mg | Induces lactation; inhibits secretion of gonadotropins; release is inhibited by dopamine; bioassay not run by Sigma

**ICN 155278** Sheep pituitary glands 20-50 IU/mg

### Lymphotactin

**Biodesign A52020H** *E. coli* MW 10.2k Purified

**Chemicon GF039** Human ≥95%

**BioSource International PHC1134** Human recombinant

**ICN 193969** Human recombinant, expressed in *E. coli* Lyophilized; chemotaxis typically >20 ng/mL

**PeproTech 300-20** Human recombinant, expressed in *E. coli* MW 10.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Part of the C family of chemokines; exhibits chemotactic activity toward lymphocytes, but not towards monocytes or neutrophils; 92 AA; SA determined by its ability to chemoattract human peripheral blood lymphocytes

### Lyn (p56)

**USBio L8050-06** Bovine spleen membranes Essentially free of other protein kinase contamination; frozen solution in 75 mL of 25 mM HEPES, pH 7.0, 0.1% NP-40 with 10% glycerol; 1 unit/mL | Partially purified by DEAE-Sepharose, hydroxyapatite, phenyl Sepharose columns, & Sephacryl S-200 gel filtration

### Lysenin

**Synonyms:** Sphingomyelin-Specific Binding Protein

**Peptides International PLN-4802-v** Coelomic fluid of earthworm (*Eisenia foetida*); natural product MW 33k Salt free lyophilized powder

### Maceration Stimulating Factor

**Sigma M 3793** *Aspergillus japonicus* Lyophilized containing ~20% protein (Lowry); balance acetate buffer salts; sterile-filtered; activity: 1 µg/mL protein causes a 2-6 fold activation in the maceration activity of a 1 U/mL solution of polygalacturonase (Sigma P 5079) on potato slices at pH 4.5, 40°C in a 3 hr reaction; contaminants: <1.0 U/mg polygalacturonase; <0.25 U/mg protein pectin lyase | Ishii, S, *Phytopathology*, 67: 994, 1977

### Macroglobulin, αI

**Biogenesis 6220-1004** Human urine from patients with chronic renal tubular proteinuria MW ~30k (SDS-PAGE) RBP, b-2-microglobulin and albumin were undetectable by RID; yellow-brown color; tested negative for HIV I and II antibodies, HBsAg and HCV antibodies; purified; 0.02 M ammonium bicarbonate. May contain traces of buffer salts; lyophilized | Under certain conditions a dimer may appear

### Macroglobulin, αII

**Biodesign A50114H** Human Purified

**Fluka 63013** Human plasma MW 725k ≥90% (GE); ≥20% protein content; lyophilized from 0.025 M Tris-HCl, pH 8.0 containing 0.1 M NaCl | Ishibashi, H, et al, *Meth Enzymol*, 163: 485, 1988; Roche, PA et al, *Biochemistry*, 28: 7629, 1989

**Biogenesis 5850-2004** Human serum MW 725k Protein E [280 nm/1 cm, 0.1%] = 0.81; tested negative for HBsAg and HCV antibodies, and HIV-1 and 2 antibodies; purified; 0.02 M TRIS, 0.15 M NaCl, 0.1 M sucrose, may contain traces of buffer salts; lyophilized | Barret et al, *Meth Enzymol*, 80:737, 1981

**Biodesign A17131H** Human 95%

**Biodesign A1B001H** Human 78%

### Macrophage Chemotactic & Activating Factor

**Harlan BT-3018** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3019** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

### Macrophage Derived Chemokine

**Synonyms:** STDP-1

**Biodesign A52036H** *E. coli* Purified; 67 AA

**Biodesign A52336H** *E. coli* Purified; 69 AA

**BioSource International PHC1204** Human recombinant

**PeproTech 300-36** Human recombinant, expressed in *E. coli* MW 8.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 67AA; unique member of the CC chemokine family; highly expressed in macrophages & in monocyte-derived dendritic cells; but not in monocytes, natural killer cells, or several cell lines of epithelial, endothelial, or fibroblast origin; 67 AA; SA determined by its ability to chemoattract human T cells

**PeproTech 300-36A** Human recombinant, expressed in *E. coli* MW 8.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 69AA; unique member of the CC chemokine family; highly expressed in macrophages & monocyte-derived dendritic cells; but not in monocytes, natural killer cells, or several cell lines of epithelial, endothelial, or fibroblast origin; 69 AA (Gly & Pro at the N-terminus); SA determined by its ability to chemoattract human T

**BioSource International PMC1575** Mouse recombinant

**PeproTech 250-23** Murine recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Unique member of the CC chemokine family; highly expressed in macrophages & monocyte-derived dendritic cells; not expressed in monocytes, natural killer cells or several cell lines of epithelial, endothelial or fibroblast origin; 68 AA; SA determined by its ability to chemoattract total murine T cell population

### Macrophage Inflammatory Peptide IIIα

**BioSource International PHC1234** Human recombinant

**BioSource International PHC1244** Human recombinant

### Macrophage Inflammatory Peptide IV

**BioSource International PHC1254** Human recombinant

### Macrophage Inflammatory Peptide Iα

**BioSource International PHC1104** Human recombinant

**BioSource International PMC1024** Mouse recombinant

**BioSource International PRC1024** Rat recombinant

**BioSource International PHC1034** Human recombinant

### Macrophage Inflammatory Peptide V

**BioSource International PHC1544** Human recombinant



**Macrophage Inflammatory Protein 3 $\beta$  Chemokine***Synonyms:* ELC

**Sigma M 3552** Human recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 1.25 mg BSA; endotoxin tested; cell culture tested; see Sigma M 8668

**Macrophage Inflammatory Protein II**

**Biodesign A52015M** *E. coli* MW 7.8k Purified | Species specificity: mouse

**Sigma M 8668** Mouse recombinant, expressed in *E. coli* MW ~8k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 500  $\mu$ g BSA; activity measured by its ability to induce myeloperoxidase release from human neutrophils; endotoxin tested | Member of the C-X-C or  $\alpha$  chemokine class; contains the ELR domain immediately preceding the first cysteine residue near the amino terminus; act primarily on neutrophils as chemoattractants & activators including neutrophil degradation with release of myeloperoxidase & other enzymes; originally identified as a heparin-binding protein secreted from a murine macrophage cell line in response to endotoxin stimulation; polypeptide of 73 AA; precursor form consists of 100 AA; to generate the mature MIP-2, the precursor cleaves its amino-terminal 27 AA; show 60% AA homology to human GRO $\beta$  & GRO $\gamma$

**IBT MI-260-3, MI-260-4** Mouse recombinant, expressed in yeast  $>95\%$ ; 1.0 mg prot/mL in 0.1 M ammonium acetate

**Chemicon GF089** Murine  $\geq 95\%$

**ICN 195764** Murine recombinant, expressed in *E. coli*  $\geq 97\%$ ; lyophilized; ED<sub>50</sub> = 0.15-0.30 ng/mL

**PeproTech 250-15** Murine recombinant, expressed in *E. coli* MW 7.8k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Promotes neutrophil chemotaxis & degranulation; 73 AA; SA determined by its ability to chemoattract total human neutrophils

**PeproTech 350-03** Viral recombinant, expressed in *E. coli* MW 7.9k  $>98\%$ ; 70 AA; lyophilized with no additives; activity determined by the inhibitory effect on monocyte migration response to human MIP-1 $\alpha$ ; using a concentration range of 1.0  $\mu$ g-10  $\mu$ g/mL of viral MIP-2 will inhibit 25 ng/mL of human MIP-1 $\alpha$

**Macrophage Inflammatory Protein II, Viral**

**Biodesign A52353H** *E. coli* Purified

**Macrophage Inflammatory Protein III***Synonyms:* MPIF-1

**Biodesign A52029H** *E. coli* MW 11.3k Purified

**PeproTech 300-29** Human recombinant, expressed in *E. coli* MW 11.3k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Member of the CC chemokine family of cytokines; chemotactic activity on resting T lymphocytes & monocytes; 99 AA; SA determined by its ability to chemoattract human T cell population

**Macrophage Inflammatory Protein III $\alpha$** *Synonyms:* LARC; Exodus; Exodus; LARC; LARC; Exodus; Exodus III/ELC; Exodus III/ELC

**Biodesign A52329H** *E. coli* MW 8k Purified

**Chemicon GF069** Human  $\geq 95\%$

**PeproTech 300-29A** Human recombinant, expressed in *E. coli* MW 8.0k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Member of the b-chemokine (CC) family of cytokines; 70 AA; SA determined by its ability to chemoattract human T cells

**Sigma M 3677** Human recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 1.25 mg BSA; endotoxin tested; cell culture tested;

**Biodesign A52923H** *E. coli* MW 8k Purified

**Chemicon GF070** Human  $\geq 95\%$

**PeproTech 300-29B** Human recombinant, expressed in *E. coli* MW 8.8k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Member of the b-chemokine (CC) family of cytokines; important role in the inflammatory response of human T cells & tissue macrophages; 77 AA; SA determined by its ability to chemoattract human T cells

**Macrophage Inflammatory Protein II $\alpha$** 

**IBT MI-310-3, MI-310-4** Human recombinant, expressed in yeast  $>95\%$ ; 1.0 mg prot/mL in 0.1 M ammonium acetate

**IBT MI-320-3, MI-320-4** Human recombinant, expressed in yeast  $>95\%$ ; 1.0 mg prot/mL in 0.1 M ammonium acetate | Biological activity determined by its use as a cofactor for CSF-dependent myelopoiesis

**Macrophage Inflammatory Protein IV***Synonyms:* Pulmonary & Activation Regulated Chemokine

**Biodesign A52034H** *E. coli* MW 7.8k Purified

**Chemicon GF071** Human  $\geq 95\%$

**PeproTech 300-34** Human recombinant, expressed in *E. coli* MW 7.8k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Chemotactic for T-lymphocytes but not for monocytes or granulocytes; 69 AA; SA determined by its ability to chemoattract human T lymphocytes

**Macrophage Inflammatory Protein I $\alpha$** *Synonyms:* MRP2; CCF18

**Biodesign A52009M** *E. coli* MW 7.8k Purified | Species specificity: mouse

**Biodesign A52015H** *E. coli* MW 8k Purified | Species specificity: rat

**Biodesign A52308H** *E. coli* MW 8k Purified

**Chemicon GF010** Human  $\geq 95\%$

**Calbiochem 441523** Human recombinant, expressed in *E. coli* MW 7.5k  $\geq 97\%$  (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50  $\mu$ g BSA/ $\mu$ g MIP-1 $\alpha$ ; biological activity: ED<sub>50</sub>=2.0-5.0 ng/mL as measured by its ability to inhibit mouse hematopoietic stem cell proliferation in an *in vitro* colony assay that detects primitive cells; endotoxin:  $\leq 100$  pg/ $\mu$ g MIP-1 $\alpha$  | Low MW chemokine involved in inflammation, hematopoiesis & immunoregulation; exhibits chemoattractant activity on monocytes & chemoattractant & proadhesive effects on lymphocytes; inhibits primitive hematopoietic stem cells proliferation; Hunter, MG et al, *Blood*, 86: 4400, 1995; Ritter, LM et al, *Mol Cell Biol*, 15: 3110, 1995; Taub, DD et al, *Science*, 260: 355, 1993; Nirsimloo, N & Gordon, MY, *Leuk Res*, 19: 319, 1995; Oppenheim, J et al, *Ann Rev Immunol*, 9: 617, 1991; Wolpe, SD & Cerami, A, *FASEB J*, 3: 2565, 1989

**Fitzgerald 30-AM50** Human recombinant, expressed in *E. coli*

**ICN 160261** Human recombinant, expressed in *E. coli*  $\geq 99\%$ ; lyophilized; ED<sub>50</sub> = 50.0 ng/mL, 1 U gives maximal chemotactic activity on human blood monocytes | Chemoattractant & pro-inflammatory activities targeted to monocytes & tissue macrophages

**PeproTech 300-08** Human recombinant, expressed in *E. coli* MW 7.8k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 70 AA; SA determined by its ability to chemoattract human monocytes

**Sigma M 6292** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity tested in culture using an *in vitro* colony assay; endotoxin tested | Member of the β chemokine subfamily characterized by a CC configuration at the first 2 cysteines; originally copurified from endotoxin-stimulated mouse macrophages; further analysis showed that MIP-1 is composed of 2 distinct, but highly related proteins, MIP-1α & MIP-1β; although other cytokines, such as IL-1α, IL-1β & TNF have endogenous pyrogen activity & the pyrogenic effects of these cytokines can be inhibited by cyclooxygenase blockers, the pyrogenicity of MIP-1α & MIP-1β is unaffected by these agents; Graham, GJ et al, *Nature*, 344: 442, 1990 General References for MIPs: Wolpe, S et al, *J Exp Med*, 167: 570, 1988; Schall, T, *Cytokine*, 3: 165, 1991; Miller, M et al, *Critical Review in Immunology*, 12 (1,2): 17, 1992

**IBT MI-290-3, MI-290-4** Human recombinant, expressed in yeast >95 %; 1.0 mg prot/mL in 0.1 M ammonium acetate

**Calbiochem 441526** Mouse recombinant, expressed in *E. coli* MW 7.8k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg MIP-1α; biological activity: ED<sub>50</sub>=4.0-6.0 ng/mL as measured by its ability to inhibit mouse hematopoietic stem cell proliferation in an *in vitro* colony assay that detects primitive cells; endotoxin: ≤100 pg/µg MIP-1α | Low MW chemokine involved in inflammation, hematopoiesis & immunoregulation; exhibits chemoattractant activity on monocytes & chemoattractant & proadhesive effects on lymphocytes; inhibits primitive hematopoietic stem cells proliferation; Hunter, MG et al, *Blood*, 86: 4400, 1995; Ritter, LM et al, *Mol Cell Biol*, 15: 3110, 1995; Taub, DD et al, *Science*, 260: 355, 1993; Nirsimloo, N & Gordon, MY, *Leuk Res*, 19: 319, 1995; Oppenheim, J et al, *Ann Rev Immunol*, 9: 617, 1991; Wolpe, SD & Cerami, A, *FASEB J*, 3: 2565, 1989

**Sigma M 6167** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity tested in culture using an *in vitro* colony assay; endotoxin tested; see Sigma M 6292 | Graham, GJ et al, *Nature*, 344: 442, 1990

**IBT MI-270-3, MI-270-4** Mouse recombinant, expressed in yeast >95 %; 1.0 mg prot/mL in 0.1 M ammonium acetate

**ICN 158413** Murine recombinant, expressed in *E. coli* ≥97%; lyophilized; ED<sub>50</sub> = 2.0-5.0 ng/mL, 1 U gives dose-dependent inhibition of murine hematopoietic stem cell proliferation in an *in vitro* colony assay (CFU-A)

**PeproTech 250-09** Murine recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Member of the CC chemokine family; plays an important role in the inflammatory response; 69 AA; SA determined by its ability to chemoattract mouse Balb/c peripheral blood MNCs & mouse Balb/c splenocytes

**Chemicon GF048** Rat ≥95%

**ICN 195805** Rat recombinant, expressed in *E. coli* >95%; lyophilized; significant chemotaxis at 200 ng/mL

**PeproTech 400-15** Rat recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 69 AA; SA determined by its ability to chemoattract rat peritoneal macrophages

**Biodesign A52309H** *E. coli* MW 8k Purified

**Chemicon GF011** Human ≥95%

**Fitzgerald 30-AM51** Human recombinant, expressed in *E. coli*

**ICN 159351** Human recombinant, expressed in *E. coli* ≥99%; lyophilized; ED<sub>50</sub> = 50.0 ng/mL, 1 U gives maximal chemotactic activity on human blood monocytes | Chemoattractant & pro-inflammatory activities targeted to monocytes; may reverse MIP-1α inhibitory effects on hematopoietic stem cell proliferation

**PeproTech 300-09** Human recombinant, expressed in *E. coli* MW 7.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 69 AA; SA determined by its ability to chemoattract human monocytes

**Sigma M 6417** Human recombinant, expressed in *Sf 21* cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity tested in culture using an *in vitro* colony assay; endotoxin tested; see Sigma M 6292 | Graham, GJ et al, *Nature*, 344: 442, 1990

**Calbiochem 441529** Human recombinant, expressed in *Spodoptera frugiperda* MW 7.8k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg MIP-1β; biological activity: ED<sub>50</sub>=40-60 ng/mL as measured by its ability to inhibit mouse hematopoietic stem cell proliferation in an *in vitro* colony assay that detects primitive cells; endotoxin: ≤100 pg/µg MIP-1β | Low MW chemokine involved in inflammation, hematopoiesis & immunoregulation; exhibits chemoattractant activity on monocytes & chemoattractant & proadhesive effects on lymphocytes; Napolitano, M et al, *J Biol Chem*, 266: 17531, 1991; Schall, TJ, *Cytokine*, 3: 165, 1991; Taub, DD et al, *Science*, 260: 355, 1993; Lipes, MA et al, *PNAS*, 85: 9704, 1988; Oppenheim, J et al, *Ann Rev Immunol*, 9: 617, 1991

**IBT MI-300-3, MI-300-4** Human recombinant, expressed in yeast >95 %; 1.0 mg prot/mL in 0.1 M ammonium acetate

**Calbiochem 441532** Mouse recombinant, expressed in *E. coli* MW 7.8k >97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg MIP-1β; biological activity: ED<sub>50</sub>=80-100 ng/mL as measured by its ability to inhibit mouse hematopoietic stem cell proliferation in an *in vitro* colony assay that detects primitive cells; endotoxin: ≤100 pg/µg MIP-1β | Low MW chemokine involved in inflammation, hematopoiesis & immunoregulation; exhibits chemoattractant activity on monocytes & chemoattractant & proadhesive effects on lymphocytes; inhibits primitive hematopoietic stem cells proliferation; Hunter, MG et al, *Blood*, 86: 4400, 1995; Ritter, LM et al, *Mol Cell Biol*, 15: 3110, 1995; Taub, DD et al, *Science*, 260: 355, 1993; Nirsimloo, N & Gordon, MY, *Leuk Res*, 19: 319, 1995; Oppenheim, J et al, *Ann Rev Immunol*, 9: 617, 1991; Wolpe, SD & Cerami, A, *FASEB J*, 3: 2565, 1989

**Sigma M 6542** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity tested in culture using an *in vitro* colony assay; endotoxin tested; see Sigma M 6292 | Graham, GJ et al, *Nature*, 344: 442, 1990

**ICN 160256** Murine recombinant, expressed in insect cell line Sf21 ≥97%; lyophilized; ED<sub>50</sub> = 40.0-60.0 ng/mL, 1 U gives dose-dependent inhibition of murine hematopoietic stem cell proliferation in an *in vitro* colony assay (CFU-A)

**Biodesign A52512M** *E. coli* MW 11.6k Purified | Species specificity: mouse

**Chemicon GF084** Murine ≥95%

**PeproTech 250-12** Murine recombinant, expressed in *E. coli* MW 11.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Monokine with inflammatory, pyrogenic & chemokinetic CC properties; when bound to a high-affinity receptor, it activates CC calcium release in neutrophils; 101 AA; SA determined by its ability to chemoattract human neutrophils and human T cells

## Macrophage Inflammatory Protein V

*Synonyms:* Lkn-1

**Biodesign A52043H** *E. coli* MW 10.1k Purified

**Chemicon GF083** Human ≥95%

**PeproTech 300-43** Human recombinant, expressed in *E. coli* MW 10.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Chemotactic for T-lymphocytes but not for monocytes or granulocytes; 92 AA; SA determined by its ability to chemoattract human T lymphocytes

## Macrophage Migration Inhibitory Factor

**ICN 195792** Human recombinant, expressed in *E. coli* ≥97%; lyophilized | Useful as a ELISA calibrator

**Macrophage/Monocyte Chemoattractant Protein I**

**Synonyms:** Macrophage Chemotactic & Activating Factor

**PeproTech 400-12** Rat recombinant, expressed in *E. coli*  
MW 14.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 125 AA; SA determined by its ability to chemoattract human monocytes

**Macrophage/Monocyte Chemotactic & Activating Factor**

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein I

**Biodesign A52304H** *E. coli* MW 8.5k Purified

**USBio M1203-05** *E. coli* ≥99% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; ~0.1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Chemicon GF012** Human ≥95%

**ICN 195008** Human recombinant, expressed in *E. coli* MW 8.5k Lyophilized; 20 ng/mL activity

**Sigma M 5662** Human recombinant, expressed in *E. coli*  
Maximal chemotactic activity is achieved at 10-100 ng/mL medium | Matsushima, *J Exp Med*, 169, 1485, 1989

**Macrophage/Monocyte Chemotactic & Activating Factor I**

**Biodesign A52012H** *E. coli* MW 14.1k Purified | Species specificity: rat

**Fitzgerald 30-AM52** Human recombinant, expressed in *E. coli*

**Macrophage/Monocyte Chemotactic & Activating Factor I/JE**

**Biodesign A52010M** *E. coli* MW 13.8k Purified | Species specificity: mouse

**Macrophage/Monocyte Chemotactic Protein I**

**Synonyms:** Macrophage Chemotactic & Activating Factor;

Macrophage Chemotactic & Activating Factor

**BioSource International PHC1014** Human recombinant

**PeproTech 250-10** Murine recombinant, expressed in *E. coli*  
MW 13.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 125 AA; SA determined by its ability to chemoattract Balb/c mouse spleen MNCs & total human neutrophils

**BioSource International PRC1014** Rat recombinant

**Macrophage/Monocyte Chemotactic Protein II**

**Biodesign A52315H** *E. coli* MW 8k Purified

**BioSource International PHC1114** Human recombinant

**PeproTech 300-15** Human recombinant, expressed in *E. coli*  
MW 8.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 76 AA; important role in the inflammatory response of blood monocytes & tissue macrophages; SA determined by its ability to chemoattract human peripheral blood monocytes

**Macrophage/Monocyte Chemotactic Protein III**

**Biodesign A52008M** *E. coli* MW 8.5k Purified | Species specificity: mouse

**BioSource International PHC1574** Human recombinant

**PeproTech 300-17** Human recombinant, expressed in *E. coli*  
MW 9.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 76 AA; important role in the inflammatory response of blood monocytes, tissue macrophages & eosinophils; SA determined by its ability to chemoattract human peripheral blood monocytes

**BioSource International PMC1574** Mouse recombinant

**PeproTech 250-08** Murine recombinant, expressed in *E. coli*  
MW 8.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Plays an important role in the inflammatory response of blood monocytes & T-cells; 74 AA; SA determined by its ability to chemoattract Balb/c mouse spleen MNCs

**Macrophage/Monocyte Chemotactic Protein IV**

**Biodesign A52024H** *E. coli* MW 8.5k Purified

**BioSource International PHC1154** Human recombinant

**PeproTech 300-24** Human recombinant, expressed in *E. coli*  
MW 8.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the β-chemokine family (CC) of cytokines; powerful eosinophil chemoattractant (like Eotaxin); elicits chemoattraction of monocytes & T lymphocytes (like MCP-3); 75 AA; SA determined by its ability to chemoattract human eosinophils

**Macrophage/Monocyte Chemotactic Protein V**

**Biodesign A52004H** *E. coli* MW 9.2k Purified | Species specificity: mouse

**BioSource International PMC1164** Mouse recombinant

**PeproTech 250-04** Murine recombinant, expressed in *E. coli*  
MW 9.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Member of the β-chemokine family (CC) of cytokines; strongly chemotactic for human monocytes & murine peritoneal macrophages; not active on mouse neutrophils; 82 AA; SA determined by its ability to chemoattract human peripheral blood monocytes

**Mammary Carcinoma**

**Fitzgerald 30-AM42** Human fluid Standard purity

**Mannan Binding Protein**

**Biogenesis 5937-1100** Human serum Purified; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid

**Matrix Metalloproteinase II, Proenzyme**

**Synonyms:** Collagen Substrate (Type IV, V, VII, X); Elastin Substrate; Gelatin Substrate (Type I)

**Oncogene PF037** >95% (SDS-PAGE); in 5mM TRIS, pH 7.5, 0.1mM CaCl<sub>2</sub>, 0.005% Brij-35, 20% glycerol; 1 mM 1,10-phenanthroline added to prevent auto -activation & -degradation; liquid | A simple activation step is included in protocol; species reactivity: human; for substrate cleavage assay, Western blot & zymography

**Matrix Metalloproteinase III, Proenzyme**

**Oncogene PF063** >95% (SDS-PAGE); lyophilized in 50 mM HEPES, pH 7.3 containing 0.18 M NaCl; reconstitute in dH<sub>2</sub>O | Used as a positive control or standard, for zymographic analysis or substrate assay

**Matrix Metalloproteinase IX, Proenzyme**

**Synonyms:** Collagen Substrate (Type IV, V, VII, X); Elastin Substrate; Gelatin Substrate (Type I, V)

**Oncogene PF038** >95% (SDS-PAGE); in 5mM TRIS, pH 7.5, 0.1mM CaCl<sub>2</sub>, 0.005% Brij-35, 20% glycerol; 1 mM 1,10-phenanthroline added to prevent auto -activation & -degradation; liquid | A simple activation step is included in protocol; species reactivity: human; for substrate cleavage assay, Western blot & zymography

## Proteins

### Matrix Metalloproteinase VII, Proenzyme

**Synonyms:** Promatrilysin

**Oncogene 538540** Human recombinant, expressed in *E. coli* MW 28k Liquid in 150 mM NaCl, 25 mM Tris-HCl, 5 mM CaCl<sub>2</sub>, 0.02% NaN<sub>3</sub>, 0.01% BRIJ®35, pH 7.5; SA: ≥1400 U/mg protein; 1 U is the amount of enzyme that digests 1.0 μg AZOCOLL® substrate/min at 37°C, pH 7.5, in the presence of 500 μM p-aminophenylmercuric acetate | Latent form believed to be a key factor in the regulation of metastasis; activatable by organomercurials; Kihira, Y et al, *Urol Oncol*, 2: 20, 1996; Woessner, JF, *Meth Enzymol*, 248: 485, 1995; Crabbe, T et al, *Biochemistry*, 31: 8500, 1992

### Melanocyte Stimulating Hormone, Iy

**Biogenesis 6045-2502** Human synthetic melanocytes Purified; lyophilized

### Melanocyte Stimulating Hormone, β-

**Biogenesis 6045-1504** Human synthetic melanocytes Purified; lyophilized

### Melanostatin

**Synonyms:** Melanocyte-Stimulating Hormone-Release Inhibiting Factor; Macrophage Migration Inhibitory Factor I

**ICN 153167** MW 284.4 C<sub>13</sub>H<sub>24</sub>N<sub>4</sub>O<sub>3</sub> Inhibits the release of melanocyte-stimulating hormone from the pituitary gland; Bjoekman, S & Sievertsson, Naunyn-Schmiedeberg's *Arch Pharmac*, 298:79, 1977; Chiu, S & RK Mishra, *Eur J Pharmac*, 53:119, 1979

### Meromyosin, Heavy

**Sigma M 8141** Chicken muscle Solution in 50% glycerol containing 0.5 M KCl & 0.025 M potassium phosphate, pH 6.2; ATPase activity: 1-3 U/mg protein (Biuret); unit definition: 1 U liberates 1.0 μmole inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium | Tryptic fragments of myosin, prepared by the method of Lowey, S & Cohen, C, *J Mol Biol*, 4: 293, 1962; light meromyosin forms filaments but does not bind to actin; heavy meromyosin binds to actin but does not form filaments; only heavy meromyosin exhibits ATPase activity

**Sigma M 9014** Rabbit muscle Solution in 50% glycerol containing 0.5 M KCl & 0.025 M potassium phosphate, pH 6.2; ATPase activity: 1-3 U/mg protein (Biuret); unit definition: 1 U liberates 1.0 μmole inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium

### Merosin

**Chemicon CC085** Human placenta Purified | Extracellular matrix protein

### Mesoglycan

**Sigma H 0519** Bovine intestine Sodium salt; anti-clotting activity: <50 IU/mg; dermatan sulfate: 25-60%; chondroitin sulfate: 3-15%; remainder is mostly a fast-moving electrophoretic fraction with ~10% slow-moving electrophoretic fraction | Heparin-like substance

### Metallothionein

**Sigma M 4766** Horse kidney Essentially salt-free; contains 4-7% metal as Cd + Zn; may contain both metallothionein-1A & metallothionein-1B | Kojima, Y et al, *Proc Natl Acad Sci USA*, 73: 3413, 1976

**Sigma M 7641** Rabbit liver Essentially salt-free; contains ~7% metal as Cd + Zn; contains both form I & form II | Nordberg, GF et al, *Biochem J*, 126: 491, 1972

### Metallothionein I

**Sigma M 5267** Rabbit liver Essentially salt-free; contains ~7% metal as Cd + Zn | Form that elutes first from an anion exchange column & is probably identical to Form II of Nordberg, GF et al, *Biochem J*, 126: 491, 1972

### Metallothionein II

**Sigma M 5392** Rabbit liver Essentially salt-free; contains ~7% metal as Cd + Zn | Form that elutes first from an anion exchange column & is probably identical to Form II of Nordberg, GF et al, *Biochem J*, 126: 491, 1972

### Metallothionein II, Zinc

**Sigma M 9542** Contains 5-8% metal as Zn & ≤0.5% as Cd; prepared from metallothionein II | Comeau, RD et al, *Prep Biochem*, 22: 151, 1992

### Methemoglobin

**Sigma M 9250** Bovine Crystallized; dialyzed; lyophilized

**Sigma M 5882** Dog Crystallized; dialyzed; lyophilized

**Sigma M 4257** Human Crystallized; dialyzed; lyophilized

**Sigma M 8383** Pig Crystallized; dialyzed; lyophilized

**Sigma M 3759** Pigeon Crystallized; dialyzed; lyophilized

**Sigma M 6007** Rabbit Crystallized; dialyzed; lyophilized

### Microcystin LR

**Synonyms:** Hepatotoxin Cyclic Heptapeptide; Protein Phosphatase I & 2A Inhibitor

**Sigma M 2912** *Microcystis aeruginosa* FW 995.2 C<sub>49</sub>H<sub>74</sub>N<sub>10</sub>O<sub>12</sub> ~95% | No effect on protein kinase; Carmichael, WE, *Handbook of Natural Toxins*, Vol 3: Marine Toxins & Venoms (Tu, A, ed) pp 121-147, 1988, Marcel Dekker, New York; Honkanen, RE et al, *J Biol Chem*, 265: 19401, 1990

### Microcystin RR

**Synonyms:** Protein Phosphatase 2A Inhibitor

**Sigma M 1537** *Microcystis aeruginosa* FW 1038.2 ≥95% (HPLC) | Lower toxicity than microcystin LR; Matsushima, R et al, *Biochem Biophys Res Commun*, 171: 867, 1990; Shirai, M et al, *Appl Environ Microbiol*, 57: 1241, 1991

### Microcystin, Sepharose

**USBio M3889-05** *Microcystis aeruginosa* ≥99% | Useful for purification of Ser/Thr protein phosphatases & associated regulatory subunits; recommended for purification of the catalytic & regulatory subunits of novel protein phosphatases from all eukaryotic cells; binding capacity: 5 mg of PP1g catalytic subunit/mg of microcystin agarose

### Microglobulin, βII-

**Fitzgerald 30-AM11** Human urine Standard purity >60%

### Microglobulin, α-

**USBio M3890-18** Human ≥60%; SDS-PAGE analysis detects a major band of the αI Microglobulin protein at 30kD; 3.25 mg/mL (Lowry protein & RID) supplied in PBS buffer, pH 7.5, containing 0.05% NaN<sub>3</sub>; standard grade | Suitable for antigenic applications in immunological protocols

### Microglobulin, αI-

**Fitzgerald 30-AM05** Human urine High purity

**Fitzgerald 30-AM06** Human urine Standard purity

**ICN 153904** Human urine MW ~27,150 >95%; lyophilized, yellow-brown color

**USBio M3890-12** Human urine Highly purified, ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; liquid in 0.1 M ammonium bicarbonate, 0.05% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols; purified from human urine of patients with chronic renal tubular proteinuria

**Scipac P121-1** Urine of patients with chronic renal tubular proteinuria >96%; lyophilized | Urine protein

**Scipac P121-2** Urine of patients with chronic renal tubular proteinuria 10-50%; lyophilized; sterile filtered through 0.2µm membrane | Urine protein

**Scipac P121-6** Urine of patients with chronic renal tubular proteinuria 40-90%; lyophilized; sterile filtered through 0.2µm membrane | Urine protein

### Microglobulin, αII-

*Synonyms:* Globulin, βII-

**ICN 55833** Human Purified Ag; lyophilized

**ICN 191345** Human plasma MW 725k >95% (SDS-PAGE); lyophilized; protein:glycine stabilizer = 1:1; negative for HBsAg & HIV Ab | Barrett, AJ, *Methods Enzymol*, 80:737E, 1981

**Calbiochem 475823** Human urine MW 11.8k Liquid in PBS, pH 7.3; ≥98% (SDS-PAGE); activity: 10,000-2,000,000 U/mL; contaminants: CA 15-3 & CA 125: <25%; prepared from urine shown to negative for HBsAg & for antibodies to HIV & HCV | Useful marker for the determination of AIDS progression in HIV-infected subjects; increased levels indicate increased proliferation of tumorous masses; Zabay, JM et al, *J Acquired Immune Defic Syndr Hum Retrovirol*, 8: 266, 1995; Mady, BJ et al, *J Immunol*, 147: 3139, 1991; Lampson, LA et al, *J Immunol*, 144: 512, 1990; Ninomiya, Y & Arakawa, M, *Diabetes Res*, 10: 129, 1989; Calzia, R et al, *Adv Exp Med Biol*, 257: 225, 1989

**Fitzgerald 30-AM10** Human urine High purity >98%

**Fluka 69767** Human urine MW 11.6k ≥90% (GE); lyophilized from phosphate buffered NaCl solution, pH 7.3 | Low MW; prepared by the method of Berggard, I & Bearn, AG, *JBC*, 243: 4095, 1968; Appella, E & Sawicki, JA, *Meth Enzymol*, 108: 494, 1984

**ICN 153903** Human urine MW 11.8k 30-60% total protein; lyophilized

**ICN 770951, 770952, 770953** Human urine Iodination grade; >96% (SDS-PAGE) | Excellent for controls or calibrators in enzyme assays

**Sigma M 4890** Human urine Lyophilized powder containing ~20% protein (Lowry); balance primarily NaCl & phosphate buffer salts, pH 7.3 | Prepared by the method of Berggard, I & Bearn, AG, *J Biol Chem*, 243: 4095, 1968, with a reported MW of 11.6 kD

**USBio M3890-13** Human urine Highly purified, ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/vial; lyophilized from 20 mM NH<sub>4</sub>HCO<sub>3</sub> | Suitable for antigenic applications in immunological protocols; purified from human urine of patients with chronic renal tubular proteinuria

**USBio M3890-17** Human urine Highly purified, ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 5.5 mg/mL (RID); liquid in PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols; purified from human urine of patients with chronic renal tubular proteinuria

**USBio M3890-19** Human urine MW 60-80%; ~3 mg/mL supplied in 0.1 M ammonium carbonate, 0.1% NaN<sub>3</sub>; standard grade | Suitable for antigenic applications in immunological protocols; purified from human urine of patients with chronic renal tubular proteinuria

**Biogenesis 6240-0804** Human urine from patients with chronic renal tubular proteinuria MW ~12k (electrophoresis & chromatography) Tested negative for HIV I and II antibodies, Hepatitis B surface antigen and Hepatitis C antibodies; purified; from 0.02 M NH<sub>4</sub>HCO<sub>3</sub>, may contain traces of buffer salts; lyophilized

**Biogenesis 6240-0824** Human urine from patients with chronic renal tubular proteinuria MW ~12k Tested negative for antibodies to HIV I and II, HBsAg and HCV antibodies; semi-pure; from 0.02 M NH<sub>4</sub>HCO<sub>3</sub>, may contain traces of buffer salts; lyophilized

**P122-2** Urine of patients with chronic renal tubular proteinuria 40-90%; | Tumor marker

**Scipac P122-1** Urine of patients with chronic renal tubular proteinuria >98%; lyophilized | Tumor marker

### Microtubule Associating Protein II

*Synonyms:* Epidermal Growth Factor Receptor Kinase Substrate

**Sigma M 4914** Bovine brain, heat stable fraction Lyophilized from PIPES buffer containing NaCl, EGTA, magnesium sulfate, DTT, trehalose, protease inhibitors; 200 µg protein (Lowry-Peterson)/vial | High MW MAP found in dendrites; Vallee, RB, *J Cell Biol*, 92: 435, 1982; Wiche, G, *Biochem J*, 259: 1, 1989

### Midkine

**BioSource International PHC7035** Human recombinant

**Oncogene PF049** Human recombinant MW ~13.3k >97% (SDS-PAGE); lyophilized in PBS | Identified in senile plaques of Alzheimer's disease patients; activity measured by its ability to enhance neurite growth of cerebral cortical neurons of E<sub>10</sub> chick embryos; optimal neurite outgrowth observed when neurons were plated on 96 well culture plates pre-coated with 100 mL/mL of 3.0-8.0 mg/mL of human recombinant midkine; protein titration recommended; species reactivity: human; for proliferation studies;

**ICN 195729** Human recombinant, expressed in *E. coli* ≥ 97%; lyophilized | Enhances neurite outgrowth of cerebral cortical neurons

**PeptoTech 450-16** Human recombinant, expressed in *E. coli* MW 13.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | New member of the heparin-binding neurotrophic factor family; structural homologs of Pleiotrophin—highly conserved among species; important roles in development & carcinogenesis; several important biological effects, including promotion of neurite extension & neuronal survival; 123 AA; SA determined by its ability to enhance neurite outgrowth of cerebral cortical neurons of E10 chick embryos

### Mixtures/Standards

#### Albumin

**Sigma A 7517** Bovine MW ~66k Albumin; 25 mg/vial | For SDS-PAGE

**Fluka 82516** Bovine serum Ampoule; 1.0 mg BSA/mL 0.15 M NaCl | Protein sequencing standard

**Sigma A 8654** Bovine serum MW ~66k (monomer), 132k (dimer) Albumin | MW markers for nondenaturing PAGE systems

**Sigma P 0834** Bovine serum 2 mg BSA/mL in 0.9% NaCl containing 0.05% sodium azide; sealed ampoules | Protein sequencing standard

**Sigma P 0914** Bovine serum 1 mg BSA/mL in 0.15 M NaCl containing 0.05% sodium azide as preservative; sealed ampoules containing 1 mL | Protein sequencing standard; micro standard set

**Sigma P 5304** Bovine serum 20 g BSA/dL in 0.85% NaCl containing 0.1% sodium azide | Protein sequencing standard

**Sigma P 6529** Bovine serum Set contains 10 mL each of BSA protein standards with concentration of 2, 4, 6, 8, 10 g/dL in 0.85% NaCl containing 0.1% sodium azide | Protein sequencing standard

**Sigma P 7656** Bovine serum 2 mg BSA/vial; freeze-dried; assayed value on vial label | Protein sequencing standard; micro standard also available as part of a kit

**Sigma A 8529** Chicken egg MW ~45k Albumin | MW markers for nondenaturing PAGE systems

**Sigma A 7642** Egg MW ~45k Albumin; 25 mg/vial | For SDS-PAGE

**Sigma 610-11** Human serum 5 mL each of human serum albumin protein standards with concentrations of 15, 30 & 50 mg/dL in 0.85% NaCl containing 0.1% sodium azide | Protein sequencing standard; micro standard set

**Mixtures/Standards**

**Albumin, Alcohol Dehydrogenase, Carbonic Anhydrase,  $\beta$ -Galactosidase, Myosin, Trypsin Inhibitor**

**Sigma F 3526** MW 20.1-205k Lyophilized blue powder; six proteins conjugated with FITC: albumin (bovine serum),  $\beta$ -galactosidase (*E. coli*), myosin (rabbit muscle), carbonic anhydrase (bovine erythrocytes), alcohol dehydrogenase (horse liver) & trypsin inhibitor (soybean) | High molecular weight standard; fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight marker; visualized with UV light

**Mixtures/Standards**

**Albumin, Aprotinin, Bradykinin, Insulin Chain B,  $\alpha$ -Lactalbumin, Myoglobin, Triosephosphate Isomerase**

**Sigma M 3546** Each vial contains 200  $\mu$ L protein markers in 0.1 M Tris-HCl, pH ~8.5, 4 mM EDTA, 3 mM sodium azide & 40% glycerol: BSA, Myoglobin (horse heart), triosephosphate isomerase, aprotinin (bovine lung),  $\alpha$ -lactalbumin (bovine milk), insulin chain b (bovine), bradykinin; supplied with 10 mL Tris-Tricine Sample Buffer (Sigma S 3047) | Protein MW markers; ultra low MW range for SDS-PAGE; designed for MW determinations in Tris-Tricine SDS-PAGE systems; formulated to yield 6 bands with about equal intensity when stained with Brilliant Blue G

**Mixtures/Standards**

**Albumin, Aprotinin, Carbonic Anhydrase, Fructose-6-Phosphate Kinase,  $\beta$ -Galactosidase, Glutamic Dehydrogenase, Glyceraldehyde-3-Phosphate Dehydrogenase,  $\alpha$ -Lactalbumin, Myosin, Ovalbumin, Phosphorylase B, Trypsin Inhibitor, Trypsinogen**

**Sigma M 4038** MW 6.5-205k Lyophilized; ready for use after reconstitution with deionized water; yields 13 bands of equal intensity when stained with Brilliant Blue; contains: glutamic dehydrogenase, albumin, fructose-6-phosphate kinase, phosphorylase b,  $\beta$ -galactosidase, glyceraldehyde-3-phosphate dehydrogenase, ovalbumin & myosin, aprotinin,  $\alpha$ -lactalbumin, trypsin inhibitor, trypsinogen, carbonic anhydrase; each vial sufficient for 100 applications on PhastGels, 30 applications on mini (10x10 cm) gels & 20 applications for large (16x18 cm) gels | SigmaMarkers protein standards designed for use on PhastGel media & SDS-PAGE (Laemmli) gels; wide molecular weight range

**Mixtures/Standards**

**Albumin, Aprotinin, Carbonic Anhydrase, Fumarase,  $\beta$ -Galactosidase,  $\alpha$ -Lactalbumin,  $\beta$ -Lactoglobulin, Phosphorylase B**

**Sigma M 6539** Vial contains 200  $\mu$ L protein marker in 300 mM NaCl, 100 mM DTT, 3 mM sodium azide & 50% glycerol: BSA, fumarase (porcine heart), carbonic anhydrase (bovine erythrocytes),  $\beta$ -galactosidase (*E. coli*), phosphorylase b (rabbit muscle);  $\beta$ -lactoglobulin (bovine milk),  $\alpha$ -lactalbumin (bovine milk), aprotinin bovine lung) | Silver Stain SDS-PAGE wide MW standard mixture; designed for MW determinations on silver stained SDS-PAGE (Laemmli) gels; formulated to yield bands with about equal intensity & no background when stained using Rapid Silver Stain (RSK-1) or AG-5 or AG-25 silver stain kits; supplied with 1 vial Laemmli sample buffer (Sigma S 3401) containing 6 mL 4% SDS, 20% glycerol, 10% BME & 0.004% bromphenol blue in 0.125 M Trizma base, pH 6.8; supplied with 1 vial Laemmli sample buffer (Sigma S 3401) containing 6 mL 4% SDS, 20% glycerol, 10% BME & 0.004% bromphenol blue in 0.125 M Trizma base, pH 6.8

**Mixtures/Standards**

**Albumin, Aprotinin, Carbonic Anhydrase,  $\beta$ -Galactosidase,  $\alpha$ -Lactalbumin, Myosin, Ovalbumin, Trypsin Inhibitor**

**Sigma C 3437** MW 6.5-205k Solution contains 2.5 mg of 8 proteins in 62 mM Tris-HCl, pH 7.5, 2% SDS, 0.01 mM EDTA, 100 mM DTT, 4 M urea, 0.005% bromphenol blue & 30% glycerol: aprotinin (bovine lung, blue),  $\alpha$ -lactalbumin (bovine milk, purple), trypsin inhibitor (soybean, green), carbonic anhydrase (bovine erythrocytes, orange), ovalbumin (chicken egg, yellow), albumin (bovine serum, pink),  $\beta$ -galactosidase (*E. coli*, turquoise) & myosin (rabbit muscle, blue); ready for use | Color markers for SDS-PAGE & protein transfer; wide molecular weight range; recommended for use on a 4-20% SDS-gradient gel; see Sigma C 6210

**Mixtures/Standards**

**Albumin, Aprotinin, Carbonic Anhydrase, Glyceraldehyde-3-Phosphate Dehydrogenase,  $\alpha$ -Lactalbumin, Ovalbumin, Trypsin Inhibitor, Trypsinogen**

**Sigma M 3913** MW 6.5-66k Lyophilized; ready for use after reconstitution with deionized water; yields 8 bands of equal intensity when stained with Brilliant Blue; contains: aprotinin,  $\alpha$ -lactalbumin, trypsin inhibitor, trypsinogen, carbonic anhydrase, glyceraldehyde-3-phosphate dehydrogenase, ovalbumin & albumin; each vial sufficient for 100 applications on PhastGels, 30 applications on mini (10x10 cm) gels & 20 applications for large (16x18 cm) gels | SigmaMarkers protein standards designed for use on PhastGel media & SDS-PAGE (Laemmli) gels; low Molecular Weight Range

**Mixtures/Standards**

**Albumin, Carbonic Anhydrase,  $\beta$ -Casein, Glyceraldehyde-3-Phosphate Dehydrogenase,  $\alpha$ -Lactalbumin, Trypsin Inhibitor**

**Sigma M 4399** MW 14-70k Solution in 10 mM sodium phosphate, pH 7.0, containing 0.1% SDS & 0.1% BME in Combi-vial; mixture of seven  $^{14}$ C-methylated proteins:  $\alpha$ -lactalbumin (14,200), trypsin inhibitor (20,100),  $\beta$ -casein (23,600), carbonic anhydrase (29,000), glyceraldehyde-3-phosphate dehydrogenase (36,000), chicken egg albumin (45,000), bovine serum albumin (66,000) | Protein MW markers,  $^{14}$ C-Me-; radiochemical

**Mixtures/Standards**

**Albumin, Carbonic Anhydrase, Conalbumin, Galactosidase, Ovalbumin, Phosphorylase A, Soybean Trypsin Inhibitor**

**Alexis 850-051-KI01** MW 21-114k Kit contains phosphotyrosine-modified proteins: galactosidase (114 k), phosphorylase A (94 k), conalbumin (78 k), BSA (67 k), ovalbumin (47 k), carbonic anhydrase (30 k), soybean trypsin inhibitor (21 k); pre-blended as lyophilisate; malachite green added as tracking dye | Malachite green, tracking dye additive, used to visualize individual lanes after blotting onto NC or PVDF membranes; sufficient for 50-100 immunoblots with phosphotyrosine-specific MAb

**Mixtures/Standards**

**Albumin, Carbonic Anhydrase, Cytochrome C, Globulins, Lactoglobulin A, Myosin, Ovalbumin, Phosphorylase B,**

**ARC ARC-430** MW 12.3-200k Choice of 3 or 5 individual markers in 0.01 M sodium phosphate, pH 7.2, 3-30  $\mu$ Ci/mg; 111-1111 KBq/mg: Myosin (MW 200,000, ARC-433), Globulins (MW 150,000, ARC-428), (MW 97,400, ARC-432), Bovine Albumin (MW 69,000, ARC-422), Ovalbumin (MW 46,000, ARC-431), Carbonic anhydrase (MW 30,000, ARC-425), Lactoglobulin A (MW 18,367, ARC-429), Cytochrome c (MW 12,300, ARC-427) | Protein MW Markers,  $^{14}$ C-Me-; radiochemical

## Mixtures/Standards

**Albumin, Carbonic Anhydrase, Fumarase,  $\beta$ -Galactosidase, Phosphorylase B**

**Sigma M 5505** Vial contains 200  $\mu$ L protein marker in 300 mM NaCl, 100 mM DTT, 3 mM sodium azide & 50% glycerol: BSA, fumarase (porcine heart), carbonic anhydrase (bovine erythrocytes),  $\beta$ -galactosidase (*E. coli*), phosphorylase b (rabbit muscle) | Silver Stain SDS-PAGE high MW standard mixture; designed for MW determinations on silver stained SDS-PAGE (Laemmli) gels; formulated to yield bands with about equal intensity & no background when stained using Rapid Silver Stain (RSK-1) or AG-5 or AG-25 silver stain kits; supplied with 1 vial Laemmli sample buffer (Sigma S 3401) containing 6 mL 4% SDS, 20% glycerol, 10% BME & 0.004% bromphenol blue in 0.125 M Trizma base, pH 6.8

## Mixtures/Standards

**Albumin, Carbonic Anhydrase, Fumarase,  $\alpha$ -Lactalbumin,  $\beta$ -Lactoglobulin**

**Sigma M 5630** Vial contains 200  $\mu$ L protein marker in 300 mM NaCl, 100 mM DTT, 3 mM sodium azide & 50% glycerol: BSA, fumarase (porcine heart), carbonic anhydrase (bovine erythrocytes),  $\beta$ -lactoglobulin (bovine milk),  $\alpha$ -lactalbumin (bovine milk) | Silver stain SDS-PAGE low MW standard; designed for MW determinations on silver stained SDS-PAGE (Laemmli) gels; formulated to yield bands with about equal intensity & no background when stained using Rapid Silver Stain (RSK-1) or AG-5 or AG-25 silver stain kits; supplied with 1 vial Laemmli sample buffer (Sigma S 3401) containing 6 mL 4% SDS, 20% glycerol, 10% BME & 0.004% bromphenol blue in 0.125 M Trizma base, pH 6.8

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\beta$ -Galactosidase,  $\alpha$ -Lactalbumin, Myosin**

**Sigma M 3797** MW 14.2-205k Solution in 10 mM sodium phosphate, pH 7.2, containing 0.1% SDS, 0.1% BME & 1 mM EDTA in Combi-vial; mixture of six  $^{14}$ C-methylated proteins:  $\alpha$ -lactalbumin (14,200), carbonic anhydrase (29,000), chicken egg albumin (45,000), bovine serum albumin (66,000),  $\beta$ -galactosidase (116,000), myosin (205,000) | Protein MW markers,  $^{14}$ C-Me-; radiochemical

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\beta$ -Galactosidase,  $\alpha$ -Lactalbumin, Myosin, Ovalbumin, Phosphorylase B, Trypsin Inhibitor**

**Sigma M 2789** Lyophilized solid; contains ~3.5 mg total of 8 proteins:  $\alpha$ -lactalbumin (bovine milk), trypsin inhibitor (soybean), carbonic anhydrase (bovine erythrocytes), ovalbumin (egg), albumin (bovine), phosphorylase b (rabbit muscle),  $\beta$ -galactosidase (*E. coli*), myosin (rabbit muscle); must be reconstituted with SDS-2X Sample Buffer (Sigma S 9788) | SDS protein standards; suitable for determination of protein MWs on coated protein CE columns

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\beta$ -Galactosidase, Myosin, Ovalbumin**

**Sigma C 3312** MW 29k-205k Solution contains 1.5 mg total of five proteins in 62 mM Tris-HCl, pH 7.5, 2% SDS, 0.01 mM EDTA, 100 mM DTT, 4 M urea, 0.005% bromphenol blue & 30% glycerol: albumin (bovine serum, pink),  $\beta$ -galactosidase (*E. coli*, Turquoise), myosin (rabbit muscle, blue), carbonic anhydrase (bovine erythrocytes, orange) & ovalbumin (chicken egg, yellow); ready for use | Color markers for SDS-PAGE & protein transfer; high molecular weight range; see Sigma C 6210

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\beta$ -Galactosidase, Myosin, Ovalbumin, Phosphorylase B**

**Sigma SDS-6H** Contains 3 mg of a lyophilized mixture of the 6 proteins: carbonic anhydrase (bovine erythrocytes), albumin (bovine), ovalbumin, phosphorylase b (rabbit muscle),  $\beta$ -galactosidase (*E. coli*), myosin (rabbit muscle) | Protein MW markers; high MW range mixture

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\beta$ -Galactosidase, Myosin, Phosphorylase B**

**Fluka 69811** MW 30-200k Composition: carbonic anhydrase (bovine erythrocytes, 29,000); albumin (chicken egg white, 45,000); albumin (bovine serum, 66,000); phosphorylase b (rabbit muscle, 97,400);  $\beta$ -galactosidase (*E. coli*, 116,000); myosin (rabbit muscle, 205,000) | Protein MW markers

## Mixtures/Standards

**Albumin, Carbonic Anhydrase, Glyceraldehyde-3-Phosphate Dehydrogenase,  $\alpha$ -Lactalbumin, Ovalbumin, Trypsin Inhibitor, Trypsinogen**

*Synonyms:* Dalton Mark VII-L™

**Sigma SDS-7** Contains 3.5 mg of a lyophilized mixture of the 7 proteins: trypsin inhibitor (soybean), albumin (bovine), ovalbumin, glyceraldehyde-3-phosphate dehydrogenase (rabbit muscle),  $\alpha$ -lactalbumin (bovine milk), trypsinogen, PMSF treated (bovine pancreas), carbonic anhydrase (bovine erythrocytes) | See Sigma MW-SDS-70L

## Mixtures/Standards

**Albumin, Carbonic Anhydrase, Glyceraldehyde-3-Phosphate Dehydrogenase,  $\alpha$ -Lactalbumin, Trypsin Inhibitor, Trypsinogen**

*Synonyms:* Dalton Mark VII-L

**Fluka 69810** MW 14.2-67k Composition: trypsin inhibitor (soybean, 20,000);  $\alpha$ -lactalbumin (bovine milk, 14,200); trypsinogen (PMSF-treated, bovine pancreas, 24,000); carbonic anhydrase (bovine erythrocytes, 29,000); albumin (chicken egg white, 45,000); albumin (bovine serum, 67,000); (rabbit muscle, 36,000) | Protein MW markers for electrophoresis; Laemmli, UK et al, *Nature*, 227: 680, 1970

**Sigma MW-SDS-70L** MW 14-70k Contains 1 vial each of 7 proteins, 1 vial of Sigma SDS-7; proteins are: carbonic anhydrase (bovine erythrocytes), albumin (egg), albumin (bovine), trypsin inhibitor (soybean),  $\alpha$ -lactalbumin (bovine milk), trypsinogen, PMSF treated (bovine pancreas), glyceraldehyde-3-phosphate dehydrogenase (rabbit muscle) | Molecular weight standards for SDS-PAGE; useful in the procedure of Laemmli as described in Technical Bulletin No. MWS-877L or the procedure of Weber & Osborn as described in Bulletin No. MWS-877

## Mixtures/Standards

**Albumin, Carbonic Anhydrase,  $\alpha$ -Lactalbumin**

**Sigma M 4774** MW 14-132k Solution in 40 mM potassium phosphate, pH 7.0, in Combi-vial; mixture of five  $^{14}$ C-methylated proteins:  $\alpha$ -lactalbumin (14,200), carbonic anhydrase (29,000), chicken egg albumin (45,000), bovine serum albumin (66,000 monomer & 132,000 dimer), | Protein MW markers,  $^{14}$ C-Me-; radiochemical

**Mixtures/Standards**

**Albumin, Carbonic Anhydrase,  $\alpha$ -Lactalbumin, Urease**

**Sigma MW-ND-500** MW 14-500k Contains 1 vial each of the following 5 proteins (1 mg each) & Technical Bulletin No. MKR-137:  $\alpha$ -lactalbumin (bovine milk), carbonic anhydrase (bovine erythrocytes), albumin (chicken egg), albumin (bovine), urease (Jack bean) | Protein molecular weight standards for nondenaturing PAGE; allows retention of the characteristics of the "native" protein, whereas SDS gel electrophoresis causes denaturation of the proteins, leading to losses of most enzymatic or biological properties; proteins can be examined by electrophoresis in nondenaturing systems to determine several characteristics: MW of homogenous proteins; & for nonhomogenous proteins, differences in charge (charge isomers) or MW (MW isomers); procedure for determining MW in a nondenaturing system is a modification of the methods of Bryan & Davis; Hedrick, JL & Smith, AJ, *Arch Biochem Biophys*, 126: 155, 1968; Bryan, JK, *Anal Biochem*, 78: 513, 1977; Davis, BJ, *Ann NY Acad Sci*, 121: 404, 1964

**Mixtures/Standards**

**Albumin, Carbonic Anhydrase,  $\beta$ -Lactoglobulin, Lysozyme**

**Sigma M 4524** MW 14-70k Solution in 10 mM sodium phosphate, pH 7.0, containing 0.1% SDS & 0.1% BME in Combivial; mixture of five  $^{14}$ C-methylated proteins: egg white lysozyme (14,300),  $\beta$ -lactoglobulin (18,400), carbonic anhydrase (29,000), chicken egg albumin (45,000), bovine serum albumin (66,000) | Protein MW markers,  $^{14}$ C-Me-; radiochemical

**Mixtures/Standards**

**Albumin, Fructose-6-Phosphate Kinase,  $\beta$ -Galactosidase, Glutamic Dehydrogenase, Glyceraldehyde-3-Phosphate Dehydrogenase, Myosin, Ovalbumin, Phosphorylase B**

**Sigma M 3788** MW 36-205k Lyophilized; ready for use after reconstitution with deionized water; yields 8 bands of equal intensity when stained with Brilliant Blue; contains: glutamic dehydrogenase, albumin, fructose-6-phosphate kinase, phosphorylase b,  $\beta$ -galactosidase, glyceraldehyde-3-phosphate dehydrogenase, ovalbumin & myosin; each vial sufficient for 100 applications on PhastGels, 30 applications on mini (10x10 cm) gels & 20 applications for large (16x18 cm) gels | SigmaMarkers protein standards designed for use on PhastGel media & SDS-PAGE (Laemmli) gels; high molecular weight range

**Mixtures/Standards**

**Albumin, Globulin**

**Sigma 540-10** 5 g/dL albumin, 3.0 g/dL globulin (8.0 g/dL total protein) in 0.85% NaCl containing 0.1% sodium azide | Protein sequencing standard

**Mixtures/Standards**

**Albumin, Hemocyanin, Hemoglobin**

**Sigma MW-SDS-280** MW 16-280k Contains 1 vial each of the following 3 cross-linked proteins & Technical Bulletin No. MWS-877: cross-linked albumin (bovine), cross-linked hemocyanin (*Limulus polyphemus*), cross-linked hemoglobin (bovine) | Cross-linked protein molecular weight standards for SDS-PAGE; recommended for use in a modified system by Weber, K & Osborn, M, *J Biol Chem*, 244: 4406, 1969; anomalous migration is seen in the SDS system of Laemmli, UK, *Nature*, 227: 680, 1970, & therefore the markers are not recommended for use in this system

**Mixtures/Standards**

**Albumin,  $\beta$ -Lactoglobulin, Lysozyme, Pepsin, Trypsinogen**

*Synonyms:* Dalton Mark VI-L; Dalton Mark VI<sup>TM</sup>; Dalton Mark VI<sup>TM</sup> Mixture

**Fluka 69814** MW 14-67k Composition: lysozyme (chicken egg white, 14,000);  $\beta$ -lactoglobulin (bovine milk, 18,400); trypsinogen (PMSF-treated, bovine pancreas, 24,000); pepsin (porcine stomach, 36,000); albumin (chicken egg white, 45,000); albumin (bovine serum, 67,000); bromophenol blue as tracking dye | Protein MW markers for electrophoresis; Weber, K & Osborn, MJ, *JBC*, 244: 4406, 1969

**Sigma MW-SDS-70** MW 10-70k Contains 1 vial each of 6 proteins (25 mg each), 1 vial of Sigma SDS-6; proteins are:  $\beta$ -lactoglobulin (bovine milk), albumin (egg), albumin (bovine), lysozyme (chicken egg white), pepsin (porcine stomach mucosa), trypsinogen, PMSF treated (bovine pancreas) | Molecular weight standards for SDS-PAGE; five proteins are characterized by a single band;  $\beta$ -lactoglobulin contains two subunits which migrate as two closely-spaced bands; pepsin migrates anomalously in the Laemmli gel system; Laemmli, UK, *Nature*, 227: 680, 1970

**Sigma SDS-6** Contains 13.5 mg of a lyophilized mixture of six proteins plus bromophenol blue tracking dye: lysozyme,  $\beta$ -lactoglobulin, pepsin, trypsinogen (PMSF treated), albumin (egg), albumin (bovine) | For SDS-PAGE

**Mixtures/Standards**

**Albumin, Myosin, Superoxide Dismutase**

**Upstate 12-354** MW 16k, 32k, 66k, 215k Myosin/Superoxide Dismutase/BSA/Muscle; frozen solution; nitrated | Nitrotyrosine immunoblotting control

**Mixtures/Standards**

**Alcohol Dehydrogenase, Aprotinin, Carbonic Anhydrase, Catalase,  $\beta$ -Galactosidase,  $\alpha$ -Macroglobulin, Phosphorylase B, Trypsin Inhibitor**

**Sigma B 2787** MW 6.5k-180k Contains nine biotinylated proteins (~0.1 mg total): aprotinin (bovine lung),  $\alpha$ -macroglobulin (human plasma),  $\beta$ -galactosidase (*E. coli*), phosphorylase b (rabbit muscle), catalase (bovine liver), carbonic anhydrase (bovine erythrocytes), alcohol dehydrogenase (horse liver) & trypsin inhibitor (soybean); ~33% protein, 33% NaCl & 33% sucrose | Wide molecular weight standard mixture; molecular weight markers for SDS-PAGE & protein transfer

**Mixtures/Standards**

**Alcohol Dehydrogenase, Aprotinin, Carbonic Anhydrase,  $\alpha$ -Lactalbumin, Trypsin Inhibitor**

**Sigma F 3401** MW 6.5-39.8k Lyophilized blue powder; five proteins conjugated with FITC: aprotinin (bovine lung),  $\alpha$ -lactalbumin (bovine milk), carbonic anhydrase (bovine erythrocytes), alcohol dehydrogenase (horse liver) & trypsin inhibitor (soybean) | Low molecular weight standard; fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight marker; visualized with UV light

**Mixtures/Standards**

**Amyloglucosidase**

**Sigma A 8437** *Aspergillus niger* MW ~89k, 70k pI ~3.8; vial contains ~200 mL in 8 M urea & 2% BME | Marker for 2D electrophoresis; sufficient for 20-40 applications on gels that will be stained with Brilliant Blue or 200-400 applications on gels that will be silver stained



**Mixtures/Standards****Amyloglucosidase, Carbonic Anhydrase, Myoglobin, Ovalbumin**

**Sigma M 3411** pI 7.6-3.8 Vial contains ~200 µL of a mixture of 4 proteins in 8 M urea & 2% BME: amyloglucosidase (*A. niger*), carbonic anhydrase (human erythrocytes), myoglobin (horse heart), ovalbumin; markers provide a diagonal line across a 2D gel (as the pI increases, the MW decreases) | Marker for 2D electrophoresis; sufficient for 20-40 applications on gels that will be stained with Brilliant Blue or 200-400 applications on gels that will be silver stained

**Mixtures/Standards****Apomyoglobin**

*Synonyms:* Apomyoglobin

**Sigma A 8548** Horse skeletal muscle Apomyoglobin coupled via the α- & ε-amino groups to DITC glass (Sigma G 9764); 1-2 nmoles/mg glass as determined by AA analysis | Protein sequencing standard; use -tested

**Sigma A 8673** Horse skeletal muscle Lyophilized; ~60 nmoles/vial | Protein sequencing standard; use -tested & prepared by the method of Rothgeb, TM & Gurd, FRN, *Meth Enzymol*, 52: 473, 1978

**Mixtures/Standards****Aprotinin, Bradykinin, Insulin Chain B, α-Lactalbumin, Myoglobin, Triosephosphate Isomerase**

**Sigma C 6210** MW 1.06-26.6 Each vial contains 200 µL of a solution of six polypeptides in 10 mM Tris-HCl, pH 7.0, 0.5% SDS, 2 mM EDTA, 10 mM DTT, 0.01% sodium azide & 33% glycerol: myoglobin (horse heart, violet), triose-phosphate isomerase (rabbit muscle, orange), aprotinin (bovine lung, blue), α-lactalbumin (bovine milk, red), insulin chain b (bovine, blue), bradykinin (blue); total protein content: ~1.5 mg; ready for use | Color markers for SDS-PAGE & protein transfer; ultra low molecular weight range; MW of pre-stained proteins are altered by the attachment of dyes; apparent molecular weights for each lot of color markers are determined using SigmaMarkers as standards & are supplied on the label

**Mixtures/Standards****Aprotinin, Carbonic Anhydrase, Cytochrome c**

**Fluka 69883** MW 6.5-66k Composition: aprotinin (bovine lung, 6500); cytochrome c (equine heart, 12,400); carbonic anhydrase (bovine erythrocytes, 29,000); albumin (bovine serum, 66,200); dextran blue | Protein MW markers for gel filtration

**Mixtures/Standards****Aprotinin, Carbonic Anhydrase, α-Lactalbumin, Ovalbumin, Trypsin Inhibitor**

**Sigma C 3187** MW 6.5-45k Solution contains 1.5 mg total of five proteins in 62 mM Tris-HCl, pH 7.5, 2% SDS, 0.01 mM EDTA, 100 mM DTT, 4 M urea, 0.005% bromphenol blue & 30% glycerol: aprotinin (bovine lung, blue), α-lactalbumin (bovine milk, purple), trypsin inhibitor (soybean, green), carbonic anhydrase (bovine erythrocytes, orange) & ovalbumin (chicken egg, yellow); ready for use | Color markers for SDS-PAGE & protein transfer; low molecular weight range; see Sigma C 6210

**Mixtures/Standards****Carbonic Anhydrase**

**Sigma C 2273** Bovine erythrocytes MW ~29k Carbonic anhydrase; 5 mg/vial | For SDS-PAGE

**Sigma C 5024** Bovine erythrocytes MW ~29k MW markers for nondenaturing PAGE systems

**Sigma C 4806** Human erythrocytes MW ~29k pI ~7.0; vial contains ~200 µL in 8 M urea & 2% BME | Marker for 2D electrophoresis; sufficient for 20-40 applications on gels that will be stained with Brilliant Blue or 200-400 applications on gels that will be silver stained

**Mixtures/Standards****Carbonic Anhydrase, α-Lactalbumin, β-Lactoglobulin A, β-Lactoglobulin B**

*Synonyms:* Protein Calibration Standard A

**Sigma P 2818** Lyophilized solid; vial contains ~240 µg total of 5 proteins: α-lactalbumin, β-lactoglobulin A, β-lactoglobulin B, human carbonic anhydrase & bovine carbonic anhydrase | Suitable for use as a calibration standard in CE

**Mixtures/Standards****Cross-Linked Peptides**

**Fluka 69827** MW 56-280k Lyophilized; mixture of oligomeric peptides which have been chemically cross-linked with MW: 56,000, 112,000, 168,000, 224,000, 280,000 | Protein MW markers for electrophoresis; Weber, K et al, *Meth Enzymol*, (CHW Hirs & Timosheff, SM, eds)26: 44306, 1972, Academic Press, New York; Steele, J Ch & Nielsen, TB, *Anal Biochem*, 84: 218, 1978

**Mixtures/Standards****Cytochrome c**

**Sigma C 7337** Horse heart Lyophilized; vial contains 100 µg | Protein sequencing standard; peptide map control; use -tested; suitable as a control for proteolytic digestions; tested by trypsin digestions; data sheet accompanies each order

**Mixtures/Standards****Fructose-6-Phosphate Kinase**

**Sigma F 0387** Rabbit muscle MW 84k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards****Fructose-6-Phosphate Kinase, Fumarase, β-Galactosidase, Lactate Dehydrogenase, α<sub>2</sub>-Macroglobulin, Pyruvate Kinase, Triosephosphate Isomerase**

**Fluka 69813** MW 27-180k Pre-stained; composition: triosephosphate isomerase (rabbit muscle, 26,600); β-galactosidase (*E. coli*, 116,000); lactate dehydrogenase (rabbit muscle, 36,500); fumarase (porcine heart, 48,500); pyruvate kinase (chicken muscle, 58,000); fructose-6-phosphate kinase (rabbit muscle, 84,000); α<sub>2</sub>-macroglobulin (human plasma, 180,000) | Protein MW markers for electrophoresis; for precise MW determinations on Western Blots, Fluka biotinylated MW Standard Mixture (Fluka #69881) is recommended; Laemmli, UK et al, *Nature*, 227: 680, 1970; Tsang, VCW et al, *Anal Biochem*, 143: 304, 1984

**Sigma SDS-7B** Contains a lyophilized mixture of the 7 pre-stained proteins are: triosephosphate isomerase, lactic dehydrogenase, fumarase, pyruvate kinase, fructose-6-phosphate kinase, β-galactosidase, α<sub>2</sub>-macroglobulin | Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards**

**Fructose-6-Phosphate Kinase,  $\beta$ -Galactosidase, Lactic Dehydrogenase, Ovalbumin, Pyruvate Kinase, Triosephosphate Isomerase**

**Sigma P 1677** MW 30-120k Solution contains six pre-stained proteins (2 mg total protein) in 4 M urea, 2% SDS, 100 mM DTT, 0.01 mM EDTA, 1 mM sodium azide & 33% glycerol: triosephosphate isomerase, lactic dehydrogenase, ovalbumin, pyruvate kinase, fructose-6-phosphate kinase,  $\beta$ -galactosidase; ready to use | Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards  
Fumarase**

**Sigma F 0262** Porcine heart MW 48.5k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards  
 $\beta$ -Galactosidase**

**Sigma G 6017** *E. coli* MW 116k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Sigma G 8511** *E. coli* MW ~116k Contains 0.5 mg/vial | For SDS-PAGE

**Mixtures/Standards  
Gelatin**

**Sigma P 0959** 2 mg gelatin/mL in 0.9% NaCl containing 0.05% sodium azide; sealed ampoules | Protein sequencing standard

**Mixtures/Standards  
Glucagon**

**Sigma G 7774** Lyophilized; vial contains 100  $\mu$ g; HPLC purified | Protein sequencing standard; use -tested as a protease substrate; data sheet accompanies each order

**Mixtures/Standards  
Glyceraldehyde-3-Phosphate Dehydrogenase**

**Sigma G 5262** Rabbit muscle MW ~36k Contains 5 mg/vial | For SDS-PAGE

**Mixtures/Standards  
Insulin Chain B, Oxidized**

**Sigma I 1764** Bovine Lyophilized; vial contains 100  $\mu$ g; HPLC purified | Protein sequencing standard; use -tested as a protease substrate; data sheet accompanies each order

**Mixtures/Standards  
 $\alpha$ -Lactalbumin**

**Sigma L 4385** Bovine milk MW ~14.2k MW markers for nondenaturing PAGE systems

**Sigma L 6385** Bovine milk MW ~14.2k Contains 5 mg/vial | For SDS-PAGE

**Mixtures/Standards**

**Lactic Dehydrogenase**

**Sigma L 3891** Rabbit muscle MW 36.5k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards  
 $\beta$ -Lactoglobulin**

**Sigma L 4756** Bovine milk MW ~18.4k For SDS-PAGE

**Mixtures/Standards  
Lysozyme**

**Sigma P 1084** 2 mg lysozyme/mL in 0.9% NaCl containing 0.05% sodium azide; sealed ampoules | Protein sequencing standard

**Sigma L 4631** Chicken egg white MW ~14.3k For SDS-PAGE

**Mixtures/Standards  
 $\alpha_2$ -Macroglobulin**

**Sigma M 3398** Human plasma MW 180k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

**Mixtures/Standards  
Melittin**

**Sigma M 1407** Bee venom Lyophilized; vial contains 100 mg; HPLC purified | Protein sequencing standard; use -tested as a protease substrate; data sheet accompanies each order

**Mixtures/Standards  
Myoglobin**

**Fluka 69825** MW 2.5-17k Cyanogen bromide cleavage of horse heart myoglobin yields 6 peptide fragments (fragment #/positions/Daltons): 1/1-153/17,000; 2/1-131/14,500; 3/56-153/10,700; 4/56-131/8200; 5/1-55/6300; 6/132-153/2500 | Protein MW markers for electrophoresis; Kratzin, HD et al, *Anal Biochem*, 183: 1, 1989

**Sigma M 3286** Horse heart Contains ~250  $\mu$ g of lyophilized carbamylated myoglobin & 40  $\mu$ g of methyl red; marker displays ~20 spots on a line parallel to the IEF axis on IEF-urea or 2D gel | 2D marker; suitable for use as an internal or external calibration standard

**Sigma M 7911** Horse heart MW ~17k pI ~7.6; vial contains ~200  $\mu$ L in 8 M urea & 2% BME | Marker for 2D electrophoresis; sufficient for 20-40 applications on gels that will be stained with Brilliant Blue or 200-400 applications on gels that will be silver stained

**Mixtures/Standards  
Myoglobins**

**Sigma MW-SDS-17S** MW 2.5-17k Contains 7 polypeptides: myoglobin (1-153), myoglobin I+II (1-131), myoglobin I+III (56-153), myoglobin I (1-55), glucagon, myoglobin III (132-153) | Molecular weight standards for SDS-PAGE; recommended for use in modifications of the systems of Schagger, H & von Jagow, G, *Anal Biochem*, 166: 368, 1987 & Swank, RT & Munkres, KD, *Anal Biochem*, 39: 462, 1971

### Mixtures/Standards Myosin

**Sigma M 3889** Rabbit muscle MW ~205k Contains 0.25 mg/vial | For SDS-PAGE

### Mixtures/Standards Ovalbumin

**Sigma O 4757** MW ~45k pI ~5.1; vial contains ~200 µL in 8 M urea & 2% BME | Marker for 2D electrophoresis; sufficient for 20-40 applications on gels that will be stained with Brilliant Blue or 200-400 applications on gels that will be silver stained

### Mixtures/Standards Pepsin

**Sigma P 1143** Porcine stomach mucosa MW ~34.7k For SDS-PAGE

### Mixtures/Standards Phosphorylase B

**Sigma P 8906** Rabbit MW: 97.4k (monomer), 194.8k (dimer), 292k (trimer), 389.6k (tetramer), 487k (pentamer), 584.4k (hexamer) Lyophilized; ~3 mg/vial | Cross-linked proteins for high molecular weights for SDS-PAGE; NOT recommended for use in the Laemmli system: Laemmli, UK, *Nature*, 227: 680, 1970; not included in kit MW-SDS-280; Relative band intensity decreases as molecular weight increases; trace bands (heptamer through nonomer) may also be detected; comments are the same as Sigma MW-SDS-280

**Sigma P 4649** Rabbit muscle MW ~97.4k (subunit) Contains 0.5 mg/vial | For SDS-PAGE

### Mixtures/Standards Pyruvate Kinase

**Sigma P 5788** Chicken muscle MW 58k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

### Mixtures/Standards Triosephosphate Isomerase

**Sigma T 9400** Rabbit muscle MW 26.6k (unstained) Pre-stained MW marker for SDS-PAGE; produces highly visible blue protein bands on SDS-PAGE gels when used with either the procedure of Laemmli, UK, *Nature*, 227: 680, 1970 or that of Weber, L & Osborn, M, *J Biol Chem*, 244: 4406, 1969; pre-stained marker can be transferred from gels to solid supports such as nitro-cellulose, nylon or PVDF membranes; MWs of pre-stained proteins are somewhat altered by the attachment of dye

### Mixtures/Standards Trypsin Inhibitor

**Sigma T 9767** Soybean MW ~20.1k Contains 5 mg/vial | For SDS-PAGE

### Mixtures/Standards Trypsinogen

**Sigma T 9011** Bovine pancreas MW ~24k 25 mg/vial, PMSF treated | For SDS-PAGE

### Mixtures/Standards Urease

**Sigma U 7752** Jack bean MW ~272k (monomer), 545k (dimer) Contains ~20% DTT | MW markers for nondenaturing PAGE systems

### Mixtures/Standards Unspecified

**Sigma M 0671** Recombinant MW 15, 25, 35, 50, 75, 100 & 150k Solution in 125 mM Tris-HCl, pH 6.8, 2% SDS, 10% glycerol, 200 mM BME, 0.007% bromophenol blue; mixture contains seven precisely sized proteins: Total protein concentration: ~800 µg/mL | Protein MW markers for SDS-PAGE & Western Blotting recombinant proteins; have not been glycosylated so they produce sharp bands & allow precise size determination; each marker carries a 15-AA sequence that binds to S-Protein-Alkaline Phosphatase conjugate, allowing enzyme-linked visualization on Western Blots; ~5 µL yields visible bands on mini-gel with Coomassie blue stain

**Sigma SDS-PRO-CE** Contains SDS protein standards, 2X SDS sample buffer, orange G solution, SDS protein separation medium, SDS washing solution & technical bulletin | SDS protein calibration kit; suitable for determination of MWs of protein subunits; a coated capillary is recommended

**Sigma Silver-3** Contains one each of the three silver stain SDS-PAGE standards (Sigma M 5630, Sigma M 5505, Sigma M 6539), three vials of sample buffer & product information sheet | Silver Stain SDS-PAGE MW standard mixture; designed for MW determinations on silver stained SDS-PAGE (Laemmli) gels; formulated to yield bands with about equal intensity & no background when stained using Rapid Silver Stain (RSK-1) or AG-5 or AG-25 silver stain kits; supplied with 1 vial Laemmli sample buffer (Sigma S 3401) containing 6 mL 4% SDS, 20% glycerol, 10% BME & 0.004% bromophenol blue in 0.125 M Trizma base, pH 6.8

**Sigma SMARKER-3** Contains one each of the three SigmaMarkers protein standard kits: Sigma M 3913, Sigma M 3788 & Sigma M 4038 | SigmaMarkers protein standards designed for use on PhastGel media & SDS-PAGE (Laemmli) gels

### MKK7 β, Active

**USBio M4100** Human recombinant, expressed in *E. coli* Full-length MKK7β with an N-terminal GST-tag; SA: 550 U/mg when maximally activated

### Monellin

**ICN 155720** *Dioscoreophyllum cumminsii* (serendipity berry) Intensely sweet protein

**Sigma M 7755** *Dioscoreophyllum cumminsii* (serendipity berry) Partially purified | Intensely sweet protein

### Monocyte Chemotactic Protein 1

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein I; Macrophage/Monocyte Chemotactic & Activating Factor; Monocyte Chemotactic & Activating Factor; Macrophage/Monocyte Chemoattractant Protein I

**PeptoTech 300-04** Human recombinant, expressed in *E. coli* MW 8.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important role in the inflammatory response of blood monocytes & tissue macrophages; 76 AA; SA determined by its ability to chemoattract human monocytes

**Sigma M 6667** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from PBS containing 500 µg BSA; activity tested in culture by measuring monocyte chemotactic activity; endotoxin tested | Product of the human JE gene; precursor form consists of 99 AA with a signal peptide sequence consisting of 23 amino-terminal AA; mature form has 4 cysteine residues; a member of the β chemokine subfamily characterized by the first 2 cysteine residues in an adjacent position CC; *in vitro* MCP-1 will act on monocytes to initiate chemotaxis, induce superoxide anion release, induce the release of lysosomal enzymes & augment cytostatic activity; *in vivo*, will induce macrophage infiltration; Matsushima, K et al, *J Exp Med*, 169: 1485, 1989 General References for MCP1: Furutani, Y et al, *Biochem Biophys Res Commun*, 159: 249, 1989; Mukaida, N et al, *Microbiol Immunol*, 36(8): 773, 1992; Miller, M et al, *Critical Review in Immunology*, 12 (1,2): 17, 1992

**Fitzgerald 30-AM46** Murine recombinant, expressed in *E. coli*

**Chemicon GF041** Rat ≥95%

**Fitzgerald 30-AM45** Rat recombinant, expressed in *E. coli*

## Proteins

**ICN 195804** Rat recombinant, expressed in *E. coli* >95%; lyophilized; max chemotactic activity = 100 ng/mL on human monocytes & 10 ng/mL on eosinophils

### Monocyte Chemotactic Protein II

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein II

**Chemicon GF013** Human ≥95%

**Fitzgerald 30-AM53** Human recombinant, expressed in *E. coli*

**ICN 195009** Human recombinant, expressed in *E. coli* MW 8k >99%; lyophilized; 50 ng/mL activity

**Sigma M 4292** Human recombinant, expressed in *E. coli* MW ~9k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in PBS containing 500 µg BSA; activity measured by its human monocyte chemotactic activity; endotoxin tested | Member of the CC or β chemokine class; acts primarily as chemoattractants & activate monocytes, dendritic cells, T lymphocytes, natural killer cells, B lymphocytes, basophils & eosinophils; originally identified as monocyte chemotactic proteins produced by human MG-63 osteosarcoma cells; 76 AA; shares 62% AA sequence homology with MCP-1 & 58% with MCP-3

**USBio M4500** Human recombinant, expressed in *E. coli* Highly purified, ≥99% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

### Monocyte Chemotactic Protein III

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein III

**Biodesign A52317H** *E. coli* MW 8.5k Purified

**Chemicon GF014** Human ≥95%

**Fitzgerald 30-AM54** Human recombinant, expressed in *E. coli*

**ICN 195010** Human recombinant, expressed in *E. coli* MW 8.5k >99%; lyophilized; 50 ng/mL activity

**Sigma M 8543** Human recombinant, expressed in *E. coli* MW ~9k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity measured by its human monocyte chemotactic activity; endotoxin tested | Member of the CC or β chemokine class; acts primarily as chemoattractants & activate monocytes, dendritic cells, T lymphocytes, natural killer cells, B lymphocytes, basophils & eosinophils; originally identified as monocyte chemotactic proteins produced by human MG-63 osteosarcoma cells; 76 AA; shares 71% AA sequence homology with MCP-1 & 58% with MCP-2

**USBio M4500-10** Human recombinant, expressed in *E. coli* Highly purified, ≥99% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

### Monocyte Chemotactic Protein III-II

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein III-II

**Chemicon GF079** Murine ≥95%

### Monocyte Chemotactic Protein IV

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein IV

**Chemicon GF054** Human ≥95%

**Fitzgerald 30-AM55** Human recombinant, expressed in *E. coli*

**ICN 195800** Human recombinant, expressed in *E. coli* >95%; lyophilized; max chemotactic activity = 100 ng/mL on human monocytes & 10 ng/mL on eosinophils

### Monocyte Chemotactic Protein V

**Synonyms:** Macrophage/Monocyte Chemoattractant Protein V

**Chemicon GF080** Murine ≥95%

**ICN 195806** Murine recombinant, expressed in *E. coli* >95%; lyophilized

### Monokine, Interferon-γ Induced

**Synonyms:** C-X-C Chemokine; C-X-C Chemokine

**Chemicon GF055** Human ≥95%

**BioSource International PHC1374** Human recombinant

**ICN 195799** Human recombinant, expressed in *E. coli* ≥95%; lyophilized; max chemotactic activity = 100 ng/mL on peripheral blood T-lymphocytes

**PeproTech 300-26** Human recombinant, expressed in *E. coli* MW 11.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Produced by macrophages & other cells; member of the α-chemokine family (C-X-C) of cytokines; acts as a chemoattractant toward monocytes, lymphocytes, & certain T cells; 103 AA; SA determined by its ability to chemoattract human peripheral blood T lymphocytes

**BioSource International PMC1375** Mouse recombinant

**PeproTech 250-18** Murine recombinant, expressed in *E. coli* MW 12.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Produced by macrophages & other cells; belongs to the α-chemokine family (C-X-C) of cytokines; 105 AA; SA determined by its ability to chemoattract human lymphocytes

### MSK1, Active

**USBio M4692-51**

### Myelin

**Biogenesis 6418-0896** Human brain tissue MW ~70k (glycoprotein) Tested negative for HBsAg, HTLV, and antibodies to HIV-1; purified; lyophilized | Contains glycoproteins, principally cholesterol phosphatides and cerebrosides in a high degree of unsaturation, characteristic of myelin; norton & Poduslo, *J Neurochem*, 21:749, 1973; Salzer et al, *J Cell Biol*, 104:957, 1987

### Myelin Basic Protein

**USBio M9758** ≥95% (SDS-PAGE & Coomassie blue staining); frozen solution in 10 mM MOPS, pH 7.0, 0.05% NaN<sub>3</sub> | A substrate for phosphorylation by several different protein kinases including MAPK, PKA, calmodulin-dependent protein kinase, PKC & phosphorylase kinase; even highly specific protein kinases such as Raf1, MEK & MEKK can utilize MBP as an alternative substrate

**Biogenesis 6420-0100** Bovine brain 78.5% protein by Biuret; purified; essentially salt free; lyophilized | Useful as iodination or immunoassay standard, substrate for phosphorylation for various protein kinases (including Raf1, Mek, etc); Addison, *Horm Metabol Res*, 16:311, 1984

**Fluka 70019** Bovine brain ≥50% (GE); ≥90% protein

**Sigma M 1891** Bovine brain Lyophilized powder; may contain traces of urea-glycine buffer salts; ~50% (SDS-PAGE) | Major structural protein of CNS myelin; mutation of the myelin basic protein gene induces dysmyelination; used to induce experimental allergic encephalomyelitis

**Sigma M 2295** Guinea pig brain Lyophilized powder; may contain traces of urea-glycine buffer salts; ~50% (SDS-PAGE) | Major structural protein of CNS myelin; mutation of the myelin basic protein gene induces dysmyelination; used to induce experimental allergic encephalomyelitis; *J Immunol*, 129(3): 1209, 1982

**Biodesign A86879H** Human brain >90%

**Biogenesis 6420-3006** Human nerve tissue Tested negative for HBsAg and HIV-1; purified; 10 mM HCl; liquid | Addison, *Horm Metabol Res*, 16:311, 1984

**Biogenesis 6420-3310** Mouse brain Purified; 10 mM HCl, 0.1% NaN<sub>3</sub>; liquid

**Sigma M 2016** Rabbit brain Lyophilized powder; may contain traces of urea-glycine buffer salts; ~50% (SDS-PAGE) | Major structural protein of CNS myelin; mutation of the myelin basic protein gene induces dysmyelination; used to induce experimental allergic encephalomyelitis

### Myelin Basic Protein, Dephosphorylated

**USBio M9758-06** Bovine brain 95% (SDS-PAGE) & Coomassie blue staining; provided in 500 µL of 10 mM MOPS, pH 7.0, 0.3 mM MnCl<sub>2</sub>, 1.56 mM EDTA, 156 ng inactive lambda phosphatase, 0.05% NaN<sub>3</sub>; 5 mg/mL | Developed for use in radioactive & non-radioactive kinase assays; purified using SP-Sepharese TM HPLC & de-phosphorylated using Lambda protein phosphatase

#### Myeloma Proteins Immunoglobulin A (κ)

*Synonyms:* TEPC 15

**ICN 50326** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin A (λ<sub>2</sub>)

*Synonyms:* MOPC 315

**ICN 50325** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin G<sub>1</sub> (κ)

*Synonyms:* MOPC 21

**ICN 50327** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin G<sub>2a</sub> (κ)

*Synonyms:* UPC 10; RPC 5

**ICN 50328** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

**ICN 50329** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin G<sub>2b</sub> (κ)

*Synonyms:* MOPC 195; MOPC 141

**ICN 50330** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

**ICN 50331** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin G<sub>3</sub> (κ)

*Synonyms:* FLOPC 21; J 606

**ICN 50332** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

**ICN 50333** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin M (κ)

*Synonyms:* TEPC 183

**ICN 50336** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myeloma Proteins Immunoglobulin M (λ<sub>1</sub>)

*Synonyms:* MOPC 104E

**ICN 50335** Ascites Purified by salt precipitation, ion exchange & bioaffinity chromatography; dialyzed into 0.02 M Tris, 0.14 M NaCl, pH 8.1; adjusted to 1.0 mg/mL, filtered, vialled, stored frozen at -70°C

#### Myoglobin

**Sigma H 3029** Lyophilized; each vial contains 20 nmoles myoglobin | Hydrolysis standard for AA analysis

**Cortex CP1030U** Cardiac >98%

**Sigma M 8007** Dog heart 95-100%; crystallized & lyophilized; essentially salt-free; iron content: ~0.20%

**Sigma M 7382** Dog skeletal muscle 95-100%; crystallized & lyophilized; essentially salt-free; iron content: ~0.20%

**Fluka 70030** Equine heart MW 17.8k ≥90% (GE); 2X crystallized; lyophilized; essentially salt-free; ≤0.3% iron | Oxygen carrier protein; Brunori, M et al, *Top Mol Struct Biol*, 7: 263, 1985; Kleparnik, K et al, *Electrophoresis*, 14: 475, 1993

**Fluka 70025** Equine skeletal muscle MW 18.8k ≥80% (GE); ≤10% water; ≤0.3% iron

**Scipac P136-3** Heart tissue >96%; frozen in sodium phosphate buffer | Cardiac marker protein

**Scipac P136-4** Heart tissue 40-90%; frozen in sodium phosphate buffer | Cardiac marker protein

**Sigma M 1882** Horse heart ≥90% (PhastGel); lyophilized; essentially salt-free; iron content: ≥0.20%

**Sigma M 9267** Horse heart pI 6.8, 7.2; vial contains ~2 mg | IEF Marker

**ICN 100862** Horse skeletal muscle ≥98%; salt-free; lyophilized; 0.3% iron

**Sigma M 0630** Horse skeletal muscle 95-100%; crystallized & lyophilized; essentially salt-free; iron content: ~0.30%

**ICN 55840** Human Control; 1 mg/mL

**USBio M9800** Human ≥97% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1.3 mg/mL protein; supplied in 0.02 M Tris HCl & 1 mM EDTA, pH 8.4 | Suitable for antigenic applications in immunological protocols

**USBio M9800-10** Human ≥60% (SDS-PAGE); no contaminants were detected by IEP; 0.7 mg/mL protein; supplied in 0.02 M Tris HCl & 1 mM EDTA, pH 8.4 | Suitable for antigenic applications in immunological protocols

**Biogenesis 6450-1089** Human cardiac muscle <3% HAS, <1% other proteins, <0.5% hemoglobin, 0% parvalbumin; tested negative for HBsAg and HTLV II antibodies; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized | Totally soluble from 0-100 µg/mL; at higher concentrations, 25-35% of the product does not solubilize because of the tendency of myoglobin to clot; molar extinction coefficient: 3.4 x 10,000 (at 280 nm); *Res Exp Med*, 171:71, 1977

**Biodesign A31210H** Human heart Antigen grade | Cardiac markers

**Biodesign A32215H** Human heart Calibrator grade | Cardiac markers

**Biogenesis 6450-1104** Human heart Lyophilized

**Fitzgerald 30-AM20** Human heart High purity

**Fitzgerald 30-AM21** Human heart Standard purity

**Sigma M 6036** Human heart ≥95% (SDS-PAGE); 2 mg protein (Lowry)/mL in 20 mM Tris-HCl, 1 mM EDTA & 50% glycerol, pH 8.5

**USBio M9800-18** Human heart ≥97% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.4 mg/mL specific protein RIA supplied in 0.02 M Tris HCl & 1 mM EDTA, pH 8.4 | Suitable for antigenic applications in immunological protocols

**Cortex CP3031P** Human skeletal muscle Whole molecule >40%

**Sigma M 1277** Sheep skeletal muscle ~70%; lyophilized; essentially salt-free; iron content: ~0.25%

**Scipac P210-3** Skeletal muscle >96%; in sodium phosphate buffer | Urine protein

**Scipac P210-4** Skeletal muscle 40-90%; in sodium phosphate buffer | Urine protein

## Proteins

**Fluka 70035** Sperm whale recombinant, expressed *E. coli* MW 17k ≥96% (GE); 2 mg/mL protein | Springer, BA & Sliger, SG, *PNAS*, 84: 8961, 1987

**Sigma M 7527** Sperm whale recombinant, expressed in *E. coli* 95-100%; solution in 0.02 M Tris-HCl, pH 8.0; iron content: ~0.30% | Produced by a synthetic gene expressed in *E. coli*; contains an *N*-terminal methionine not present in the natural product; AA sequence not confirmed by Sigma; Springer, BA & Sligar, SG, *Proc Natl Acad Sci USA*, 84: 8961, 1987

### Myosin

**Sigma M 6643** Bovine muscle Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.3-1.0 U/mg protein (Biuret)

**Sigma M 1270** Chicken gizzard Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.1-0.3 U/mg protein (Biuret)

**Sigma M 7266** Chicken muscle Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.5-1.5 U/mg protein (Biuret)

**Biogenesis 6490-2956** Human heart MW 500k Tested negative for HBsAg and HIV-1; purified; 50% Glycerol; liquid

**Sigma M 0531** Porcine heart Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.1-0.3 U/mg protein (Biuret)

**Sigma M 0273** Porcine muscle Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.1-0.5 U/mg protein (Biuret)

**Biogenesis 6490-3004** Rabbit muscle MW 500k Purified; 50% Glycerol; liquid

**Fluka 70045** Rabbit muscle MW 500k ≥50% (GE); 0.5-2.5 U/mg protein; solution in 50% glycerol & 0.6 M KCl, pH 6.8; 1 U corresponds to the amount of enzyme which liberates 1 μmol inorganic phosphate from ATP/min at pH 9.0, 25°C, in the presence of calcium | Frederiksen, DW & Cunningham, LW, *Meth Enzymol*, 85: 55, 1982

**ICN 153887** Rabbit muscle ≥90% (4% PAGE); 5% glycerol, 0.6 M KCl, pH 7; soluble in 0.5 M KCl; stable for 6 months when stored at -20°C; 5 mg/mL protein (Biuret)

**Sigma M 0163** Rabbit muscle MW 205k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

**Sigma M 1636** Rabbit muscle Calcium activated; solution in 50% glycerol containing 0.6 M KCl & 10 mM potassium phosphate buffer, pH 6.8; ATPase U definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium; activity: 0.5-1.5 U/mg protein (Biuret)

### Myosin Heavy Chain

**Synonyms:** Myosin, ATPase Inactive Whole Chain

**Sigma M 7659** Rabbit muscle Solution in 50% glycerol containing 0.6 M KCl & 0.005 M potassium phosphate buffer, pH 6.5; ATPase activity: <0.01 U/mg protein

### Myosin Light Chain

**Fluka 70048** Bovine muscle Powder; ≥98% protein; composition: 15% 27,000; 40% 24,000; 45% 18,000

**Sigma M 6648** Bovine muscle Lyophilized powder containing ~85% protein (Biuret); balance primarily KCl, Tris & EDTA; three major bands on SDS electrophoresis | Prepared by the method of Holt, JC & Lowey, S, *Biochemistry*, 14: 4600, 1975

**Sigma M 7518** Chicken muscle Lyophilized powder containing ~85% protein (Biuret); balance primarily KCl, Tris & EDTA; three major bands on SDS electrophoresis | Prepared by the method of Holt, JC & Lowey, S, *Biochemistry*, 14: 4600, 1975

**Fitzgerald 30-AM25** Human cardiac, left ventricle High purity

**USBio M9850-10** Human heart left ventricle ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Sigma M 9891** Rabbit muscle Lyophilized powder containing ~85% protein (Biuret); balance primarily KCl, Tris & EDTA; three major bands on SDS electrophoresis | Prepared by the method of Holt, JC & Lowey, S, *Biochemistry*, 14: 4600, 1975

### Myosin Light Chain I

**Cortex CP3030U** Human ventricular >98%

### Myosin Subfragment I

**Sigma M 5772** Rabbit muscle Solution in 50% glycerol containing 0.5 M KCl & 0.025 M potassium phosphate, pH 6.2; ATPase activity: 1-4 U/mg protein (Biuret); unit definition: 1 U liberates 1.0 μmole of inorganic phosphorus from ATP/min at pH 9.0 at 25°C in the presence of calcium | Produced from a chymotryptic digest of myosin in the presence of EDTA

### Myosin Subfragment II

**Synonyms:** Myosin Long Subfragment II

**Sigma M 5897** Rabbit muscle Solution in 50% glycerol containing 0.5 M KCl & 0.025 M potassium phosphate, pH 6.2; significantly free of ATPase activity | Produced from a chymotryptic digest of heavy meromyosin

### Myosin, (<sup>14</sup>C-Me)-

**ARC ARC-433** MW 200k 3-30 μCi/mg; 111-1111 KBq/mg; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical

**Sigma M 8922** Bovine muscle 5-50 μCi/mg protein; solution in 10 mM sodium phosphate, pH 7.0, with 1% SDS, 1% BME & 1 mM EDTA in Combi-vial | Radiochemical; prepared from Sigma M 6643

### Myotoxin I

**Sigma M 9047** *Crotalus viridis concolor* (midget faded rattlesnake) venom Components of rattlesnake venom causing instantaneous paralysis of bitten prey; some sequence homology with crotoamine; presumed to have similar modes of action; not assayed by Sigma; Volpe, P et al, *Arch Biochem Biophys*, 246: 90, 1986; Ohkura, M et al, *Eur J Pharmacol*, 268: R1, 1994

### Myotoxin II

**Sigma M 9172** *Crotalus viridis concolor* (midget faded rattlesnake) venom Components of rattlesnake venom causing instantaneous paralysis of bitten prey; some sequence homology with crotoamine; presumed to have similar modes of action; not assayed by Sigma; Volpe, P et al, *Arch Biochem Biophys*, 246: 90, 1986; Ohkura, M et al, *Eur J Pharmacol*, 268: R1, 1994

### Nerve Growth Factor

**ICN 191130** *Echis multisquamatus* venom Enriched NGF fraction

**IBT GF-022-5, GF-022-8** Mouse submaxillary glands >95 %; lyophilized powder | Fully active as measured by the receptor binding assay using recombinant NGF receptor extracellular domain expressed in transformed CHO cells

**ICN 191132** *Naja oxiana* venom Electrophoretically homogeneous

**Sigma N 8133** *Vipera lebetina* (snake) venom MW 32.5k  
Purified by HPLC; ≥95% (SDS-PAGE); 0.2 µm filtered & lyophilized  
from sodium acetate buffer solution; endotoxin tested | Siigur, E  
et al, *Comp Biochem Physiol*, 81B: 211, 1985; general comments &  
references are the same as for Sigma B 3795

#### Nerve Growth Factor 2.5S

**Chemicon NC011** ≥95%

**Harlan BT-5017** Lyophilized; 1 mg | Cross-reactive with  
human, mouse, rat, canine, feline, rabbit, bovine, equine, swine,  
primate, guinea pig, ovine & avian

**USBio N2050-05** The minimum concentration needed for  
neurite outgrowth of PC-12 rat pheochromocytoma cells is 10ng/mL

**ICN 150022** Male mouse submaxillary gland ≥95%;  
lyophilized; ED<sub>50</sub> = 10.0-25.0 ng/mL, 1 U stimulates chick dorsal  
root ganglia neurite outgrowth dose-dependently | Each lot is  
sterile filtered & tested for bacteria, fungi & mycoplasma

**Sigma N 6009** Male mouse submaxillary glands 0.2 µm  
filtered & lyophilized from sodium acetate buffer solution;  
endotoxin tested | Essentially the β-subunit of NGF-7S when  
isolated under initially dissociative conditions using a modification  
of the method of Bocchini, V & Angeletti, P, *Proc Natl Acad Sci USA*,  
64: 787, 1969

**Biogenesis 6620-1004** Mouse Lyophilized

**Biogenesis 6620-1015** Mouse <sup>125</sup>I conjugated

**ICN 160040** Mouse submaxillary gland >95%; lyophilized;  
bioassayed in a rat pheochromocytoma cell line | Bocchini, V & PU  
Angeletti, *PNAS*, 64:787, 1969; Greene, LA, *Brain Res*, 133:350,  
1977

**Calbiochem 480352** Mouse submaxillary glands MW 26k  
≥95% (SDS-PAGE); lyophilized from PBS | Enhances survival,  
phagocytosis & superoxide production in murine neutrophils;  
reported to stimulate extracellular matrix invasion by human  
myeloma cells; *Merck Index*, 12: 6562; Hermann, JL et al, *Mol Cell  
Biol*, 4: 1205, 1993; Raffioni, S & Bradshaw, RA, *PNAS*, 89: 9121,  
1992; Traverse, S et al, *Biochem J*, 288: 351, 1992; Levi-  
Montalcini, R, *In Vitro Cell Dev Biol*, 23: 227, 1987

#### Nerve Growth Factor 2.5S, Grade I

**Alexis 521-006** Male mouse submaxillary glands MW 26k  
≥98% (SDS-PAGE); lyophilized; mNGF 2.5S concentration is  
estimated spectroscopically from its extinction coefficient & AA  
analysis; biological activity: bioassayed for neurotrophic activity  
using the rat pheochromocytoma cell PC12 cultures over a period of  
7-14 days; activity is in the range of 0.1-10 ng/mL; recommended  
concentration to be used *in vitro* for maintenance of sympathetic &  
sensory nerve cultures is 50 ng/mL medium | Dimer protein  
consisting of two identical subunits; Thoenen, H, *TINS*, 14: 165,  
1991; Thoenen, H et al, *CR Acad Sci III*, 316: 1158, 1993; Maness,  
LM et al, *Neurosci & Biobehav Rev*, 18: 143, 1994; Klein, R, *FASEB  
J*, 8: 738, 1994; Barinaga, M, *Science*, 264: 772, 1994; Nishi, R,  
*Science*, 265: 1052, 1994; Davies, AM, *Nature*, 368: 193, 1994;  
Bradshaw, RA, *Ann Rev Biochem*, 47: 191, 1978

#### Nerve Growth Factor 2.5S, Grade II

**Alexis 521-007** Male mouse submaxillary glands MW 26k  
≥90% (SDS-PAGE); lyophilized; mNGF 2.5S concentration is  
estimated spectroscopically from its extinction coefficient & AA  
analysis; biological activity: bioassayed for neurotrophic activity  
using the rat pheochromocytoma cell PC12 cultures over a period of  
7-14 days; activity is in the range of 0.5-50 ng/mL; recommended  
concentration to be used *in vitro* for maintenance of sympathetic &  
sensory nerve cultures is 50 ng/mL medium | Dimer protein  
consisting of two identical subunits; Thoenen, H, *TINS*, 14: 165,  
1991; Thoenen, H et al, *CR Acad Sci III*, 316: 1158, 1993; Maness,  
LM et al, *Neurosci & Biobehav Rev*, 18: 143, 1994; Klein, R, *FASEB  
J*, 8: 738, 1994; Barinaga, M, *Science*, 264: 772, 1994; Nishi, R,  
*Science*, 265: 1052, 1994; Davies, AM, *Nature*, 368: 193, 1994;  
Bradshaw, RA, *Ann Rev Biochem*, 47: 191, 1978

#### Nerve Growth Factor 7S

**Chemicon NC010** ≥95%

**Harlan BT-5023** Lyophilized; 1 mg | Cross-reactive with  
human, mouse, rat, canine, feline, rabbit, bovine, equine, swine,  
primate, guinea pig, ovine & avian

**USBio N2050-06** Dose for significant outgrowth of neurite  
using PC-12 rat pheochromocytoma cells: 10ng/mL; 7S NGF has a  
variety of effects on sensory & sympathetic neuron growth &  
development; 7S NGF is also needed for sympathetic nerve cells  
development & maintenance

**ICN 150174** Male mouse submaxillary gland ≥90%;  
lyophilized; ED<sub>50</sub> = 5.0-10.0 ng/mL; 1 U stimulates chick dorsal  
root ganglia neurite outgrowth dose-dependently | Each lot is  
sterile filtered & tested for bacteria, fungi & mycoplasma

**Alexis 521-008** Male mouse submaxillary glands MW 130k  
>97% (SDS-PAGE); lyophilized; 100 µg determined by Lowry &  
Pierce method; biological activity: bioassayed for neurotrophic  
activity using the rat pheochromocytoma cell PC12 cultures over a  
period of 7-14 days; activity is in the range of 0.5-50 ng/mL;  
recommended concentration to be used *in vitro* for maintenance of  
sympathetic & immature sensory nerve cells is 50-100 ng/mL  
medium | Dimer protein consisting of two identical subunits;  
Thoenen, H, *TINS*, 14: 165, 1991; Thoenen, H et al, *CR Acad Sci  
III*, 316: 1158, 1993; Maness, LM et al, *Neurosci & Biobehav Rev*,  
18: 143, 1994; Klein, R, *FASEB J*, 8: 738, 1994; Barinaga, M,  
*Science*, 264: 772, 1994; Nishi, R, *Science*, 265: 1052, 1994;  
Davies, AM, *Nature*, 368: 193, 1994; Varon, S et al, *Biochemistry*,  
6: 2202, 1967

**Sigma N 0513** Male mouse submaxillary glands MW 130k  
0.2 µm filtered & lyophilized from sodium phosphate buffered  
solution containing 500 µg BSA; endotoxin tested | Nerve growth  
factor; protein isolated using a modification of the method of  
Varon, S et al, *Biochem*, 6: 2202, 1967; generally thought that  
NGF-7S consists of 5 subunits (2a, 1b, 2g); only the b-subunit has  
neurotrophic activity

**ICN 160072** Mouse submaxillary gland MW 140k  
lyophilized | Stimulates neurite-like fiber outgrowth *in vitro* using  
a pheochromocytoma cell line; useful for *in vitro* maintenance of  
sympathetic & immature sensory nerve cells; Varon, S et al,  
*Biochem*, 6:2202, 1987

**Calbiochem 480354** Mouse submaxillary glands MW 130k  
Lyophilized solid; EGF: none detected | Promotes neuron survival  
& neurite outgrowth in newborn rat brain; composed of three  
subunits: (α:β:γ):2:1:2; the α-subunit is an inactive serine  
proteinase & the γ-subunit is an active serine proteinase capable of  
processing the precursor form of β-NGF; *Merck Index*, 12: 6562;  
Bax, B et al, *Structure*, 5: 1275, 1997; Shao, N et al, *Brain Res*,  
609: 338, 1993; Varon, S et al, *Methods Neurochem*, 3: 203, 1972

**Fluka 72183** Murine submaxillary gland MW 130k  
Prepared by gel filtration, ion-exchange chromatography, sterilize-  
filtered & lyophilized from 5 mM sodium phosphate buffer, pH 6.8 |  
Neurofilament outgrowth observed at 30 ng/mL; Yanker, BA &  
Shooter, EM, *Ann Rev Biochem*, 51: 845, 1982; Vale, RD &  
Shooter, EM, *Meth Enzymol*, 109: 21, 1985

#### Nerve Growth Factor R/Fc Chimera

*Synonyms:* Neurotrophin R, p75

**R&D Systems 367-NR-050** Human recombinant, expressed in  
*SF21* >95%; lyophilized; ED<sub>50</sub>: 0.2-0.6 µg/mL | Species  
specificity: human NGF R; member of the TNF receptor  
superfamily; ligands for NGF R include NGF, BDNF, NT-3 & NT-4;  
shown to regulate cell migration, gene expression & to mediate  
apoptosis; recombinant NGF R binds NGF with high affinity & is a  
potent NGF antagonist; Barker, PA & Murphy, RA, *Mol Cell  
Biochem*, 110: 1, 1992; Bamji, AX et al, *J Cell Biol*, 140: 911,  
1998; Feinstein, E et al, *Trends Biochem Sci*, 20: 342, 1995

#### Nerve Growth Factor Receptor, Human Extracellular Domain

**IBT GR-020-3, GR-020-5** Chinese hamster ovary cells (CHO  
cells) >85%; 1.0  
mg prot/mL in 20 mM HEPES, 0.1 M NaCl, pH 7.3 | Binds NGF

#### Nerve Growth Factor β

**Biodesign A52451H** *E. coli* MW 28k Purified

**Chemicon GF028** Human ≥95%

<b>Biogenesis 6620-2030</b>	Human r-DNA	Lyophilized
<b>BioSource International PHG0124</b>	Human recombinant	
<b>Alexis 521-005</b>	Human recombinant, expressed in <i>E. coli</i> MW 26k	≥98% (SDS-PAGE); lyophilized; 5 µg determined by AA analysis; biological activity: rhβ-NGF preparation bioassayed for neurotrophic activity using the rat pheochromocytoma cell PC12 cultures & the effective dose 50% was found as 2 ng/mL medium   Dimer protein consisting of two identical 119 AA subunits associated through strong hydrophobic interactions; Thoenen, H, <i>TINS</i> , 14: 165, 1991; Thoenen, H et al, <i>CR Acad Sci III</i> , 316: 1158, 1993; Maness, LM et al, <i>Neurosci &amp; Biobehav Rev</i> , 18: 143, 1994; Klein, R, <i>FASEB J</i> , 8: 738, 1994; Barinaga, M, <i>Science</i> , 264: 772, 1994; Nishi, R, <i>Science</i> , 265: 1052, 1994; Davies, AM, <i>Nature</i> , 368: 193, 1994
<b>Fitzgerald 30-AN15</b>	Human recombinant, expressed in <i>E. coli</i>	High purity
<b>PeproTech 450-01</b>	Human recombinant, expressed in <i>E. coli</i> MW 27.0k (dimer)	>98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized   Potent neurotrophic factor that supports the growth & survivability of nerve and/or glial cells; active form is formed by two identical 119 AA subunits held together by strong hydrophobic interactions; ED <sub>50</sub> = 2.0- 5.0 ng/mL; SA determined by the dose-dependent induction of choline acetyl transferase activity in rat basal forebrain primary septal cultures
<b>Calbiochem 480275</b>	Human recombinant, expressed in mouse myeloma cell line NSO MW 26k	≥97% (SDS-PAGE); lyophilized from filter-sterilized 0.2% acetic acid containing 50 µg BSA/µg β-NGF; biological activity: ED <sub>50</sub> =800-1500 pg/mL as measured in a cell proliferation assay using a factor-dependent human erythroleukemic cell line; endotoxin: ≤100 pg/µg β-NGF   Involved in neuroimmune interactions & inflammation; <i>Merck Index</i> , 12: 6562; Leon, A et al, <i>PNAS</i> , 91: 3739, 1994
<b>ICN 160062</b>	Human recombinant, expressed in NSO	≥97%; lyophilized with carrier; ED <sub>50</sub> >0.3 ng/mL, 1 U proliferates human erythroleukemic TF-1 cells dose-dependently   Measured by ability to support survival & to stimulate neurite outgrowth of embryonic chick dorsal root ganglia
<b>Sigma N 1408</b>	Human recombinant, expressed in NSO murine myeloma cells	≥97% (SDS-PAGE); lyophilized from 0.2% acetic acid containing 5 mg BSA; endotoxin tested; cell culture tested
<b>Sigma N 2393</b>	Male mouse submaxillary glands	Purified by HPLC; ≥95% (SDS-PAGE); 0.2 µm filtered & lyophilized from sodium phosphate buffered solution; endotoxin tested   Purified using a modification of the method of Varon, S et al, <i>Biochem</i> , 7: 1296, 1968
<b>ICN 152303</b>	Mouse submaxillary gland	MW ~13k Isolated from 7S-NGF; ≥98%   Responsible for survival & fiber outgrowth of sympathetic neurons & embryonic sensor neurons from dorsal root ganglia
<b>ICN 159840</b>	<i>Naja naja kaouthia</i> (Thailand cobra) venom	MW ~13k Purified (single band by SDS-PAGE); suggested use = 1-5 ng/mL media   Produces neurite outgrowth on rat pheochromocytoma (PC-12) cells within 24 hrs
<b>R&amp;D Systems 256-GF-100</b>	NSO-expressed	>97%; lyophilized; ED <sub>50</sub> : 0.5-1 ng/mL   Species specificity: human
<b>Oncogene PF043</b>	Rat recombinant	MW 13.2k >97% (SDS-PAGE); lyophilized in 0.2% acetic acid containing 50 mg BSA per 1 mg of cytokine; reconstitution buffer should contain 0.1% serum; biological activity: EC <sub>50</sub> of 0.5-1.0 ng/mL as determined by a cell proliferation assay using factor-dependent TF-1 cells   Species reactivity: rat; for proliferation studies; once reconstituted, exists as a non-disulfide linked homodimer; activity measured in a cell proliferation assay using a factor-dependent human erythroleukemic cell line, TF-1
<b>Sigma N 2513</b>	Rat recombinant, expressed in <i>E. coli</i>	≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized in 0.2% acetic acid containing 5 mg BSA; biological activity was measured in a cell proliferation assay using the factor-dependent human erythroleukemic cell line, TF-1; endotoxin tested
<b>ICN 195793</b>	Rat recombinant, expressed in Sf21	≥97%; lyophilized; ED <sub>50</sub> = 0.5-1.0 ng/mL
<b>R&amp;D Systems 556-NG-100</b>	Sf21-expressed	>97%; lyophilized; ED <sub>50</sub> : 0.5-1 ng/mL   Species specificity: rat

## Nerve Growth Factor, (<sup>125</sup>I)-

**ICN 68118** Human recombinant ~40 µCi/µg, ~1.5 MBq/µg; 0.1 M KPB, pH 7.5, 0.25% BSA

## Netropsin

**Synonyms:** Sinanomycin; Congocidin

**Sigma N 9653** *Streptomyces netropsis* FW 503.4 C<sub>18</sub>H<sub>26</sub>N<sub>10</sub>O<sub>3</sub> · 2HCl Dihydrochloride; ≥98% | Unusual *N*-methylpyrrole-containing oligopeptide that binds to AT-rich sequences of dsDNA, especially in the minor groove; protects such regions from DNase I & other endonucleases, also inhibits topoisomerases; disrupts the cell cycle, prolonging G1 & arresting in G2; Zimmer, C et al, *Nucl Acid Res*, 8: 2999, 1980; Beerman, TA et al, *Biochim Biophys Acta*, 1090: 52, 1991; Poot, M et al, *Exp Cell Res*, 218: 326, 1995

## Neural Cell Adhesion Molecule

**Chemicon AG265** Chicken ≥95% | Immunoglobulin superfamily adhesion molecule

## Neurofilament

<b>Biodesign A08008B</b>	Bovine spinal cord	MW 68k	>98%
<b>Biodesign A08009B</b>	Bovine spinal cord		>98%
<b>Biodesign A08010B</b>	Bovine spinal cord	MW 200k	>98%
<b>Sigma N 1022</b>	Bovine spinal cord	Lyophilized from a solution containing 6 M urea, 10 mM sodium phosphate, 5 mM EDTA, 1% BME, pH 7.5   Intermediate filaments found in axons of large myelinated fibers, most neurons, astrocytes & Schwann cells; prepared using a modification of Dahl, D et al, <i>Anal Biochem</i> , 126: 165, 1982	

## Neurofilament 160

**ICN 771082** MW 160k Highly purified protein useful as a high MW marker, standard or Ag

## Neurofilament 200

**ICN 771072** MW 200k Highly purified protein useful as a high MW marker, standard or Ag

## Neurofilament 68

**ICN 771092** MW 68k Highly purified protein useful as a high MW marker, standard or Ag

## Neurophysin I

**ICN 155820** Bovine pituitary MW 9330.5 ≥95%; ~80% protein

**Sigma N 2404** Bovine pituitary A protein found in vasopressin- & oxytocin-containing neurons in the hypothalamus that is associated with the transport of these hormones to the posterior pituitary

**Biogenesis 6740-0807** Porcine pituitary Liquid

## Neurophysin I+II

**Biogenesis 6740-0917** Porcine pituitary Liquid

## Neuroprotective Factor II, Activity Dependent

**BioSource International PHC1094** Human recombinant

## Neurotactin

**Synonyms:** Fractalkine

**BioSource International PHC1174** Human recombinant



**Neurotoxin I**

**Sigma T 3643** *Naja naja oxiana* Lyophilized powder purified by gel filtration & ion exchange chromatography | Postsynaptic neurotoxin; not assayed by Sigma; Grishin, EV et al, *FEBS Lett*, 45: 118, 1974

**Neurotoxin II**

**Sigma T 3768** *Naja naja oxiana* Lyophilized powder purified by gel filtration & ion exchange chromatography | Postsynaptic neurotoxin; not assayed by Sigma; Grishin, EV et al, *FEBS Lett*, 36: 77, 1973

**Neurotrophic Factor Soluble Receptor  $\alpha$ , Ciliary**

**Synonyms:** Neurotrophic Factor, Ciliary; Neurotrophic Factor, Ciliary

**BioSource International PHC7015** Human recombinant

**Oncogene PF041** Human recombinant MW 43k (glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.2-0.4  $\mu$ g/mL as determined by the ability to enhance TF-1 cell proliferation in the presence of 20 ng/mL recombinant human CNTF protein | Species reactivity: human; for proliferation studies; binds CNTF in solution; complex acts on cells that express only LIF R $\beta$  & gp130 but not CNTF R $\alpha$ ; contains 324 AA with a predicted MW ~36k; as a result of glycosylation, migrates as a 43k band in SDS-PAGE

**BioSource International PRC7014** Rat recombinant

**Oncogene PF042** Rat recombinant MW 43k (glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.05-0.15  $\mu$ g/mL as determined by the ability to enhance TF-1 cell proliferation in the presence of 10 ng/mL recombinant rat CNTF protein | Species reactivity: rat; for proliferation studies; binds CNTF in solution; complex acts on cells that express only LIF R $\beta$  & gp130 but not CNTF R $\alpha$

**Neurotrophic Factor, Brain Derived**

**Biodesign A52452H** *E. coli* MW 28k Purified

**Chemicon GF029** Human  $\geq 95\%$

**Fitzgerald 30-AN16** Human brain recombinant, expressed in *E. coli* High purity

**Biogenesis 1504-1030** Human r-DNA Lyophilized

**Sigma B-147** Human recombinant synthetic >96%; lyophilized; carrier & additive free; activity levels are provided with each lot; reconstituted in water to a concentration of 100  $\mu$ g/ml; may be diluted with buffered solution | Nerve growth factor (NGF)-related protein that increases neuronal survival *in vitro* Hughes et al, *Neuroscience*, 57: 319, 1993; Murphy et al, *J Neurosci*, 13: 2853, 1993; Weiss et al, *Science*, 260: 1072, 1993

**Alexis 521-009** Human recombinant, expressed in *E. coli* >97% (SDS-PAGE); lyophilized; 1  $\mu$ g/5  $\mu$ g (AA analysis); biological activity: activity was evaluated for the ability to support the survival of rat basal forebrain primary septal cultured neurons; effective concentration of 50% (50 ng/mL) was determined measuring the induction of choline acetyltransferase enzymatic activity | Dimer protein consisting of two identical 119 AA subunits associated through strong hydrophobic interactions; Thoenen, H, *TINS*, 14: 165, 1991; Thoenen, H et al, *CR Acad Sci III*, 316: 1158, 1993; Maness, LM et al, *Neurosci & Biobehav Rev*, 18: 143, 1994; Klein, R, *FASEB J*, 8: 738, 1994; Barinaga, M, *Science*, 264: 772, 1994; Nishi, R, *Science*, 265: 1052, 1994; Davies, AM, *Nature*, 368: 193, 1994

**Calbiochem 203702** Human recombinant, expressed in *E. coli* MW 28k >97% (SDS-PAGE); lyophilized solid; soluble in most aqueous buffers & water; biological activity: Active in rat basal forebrain primary septal cultured neurons; induces choline acetyltransferase (EC<sub>50</sub>=50 ng/mL) | Neuronal survival & growth promoting factor; its actions are mediated via the TrkB receptor; Merck Index, 12: 6570; Erickson, JT et al, *J Neurosci*, 16: 5361, 1996; Leibrock, J et al, *Nature*, 341: 149, 1989

**PeproTech 450-02** Human recombinant, expressed in *E. coli* MW 27.0k (dimer) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent neurotrophic factor that supports the growth & survivability of nerve and/or glial cells; active form is formed by two identical 119 AA subunits held together by strong hydrophobic interactions; ED<sub>50</sub> = 50 ng/mL; SA determined by the dose-dependent induction of choline acetyltransferase activity in rat basal forebrain primary septal cultures

**Sigma B 3795** Human recombinant, expressed in Sf 21 cells MW 13.6k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from acetonitrile & trifluoroacetic solution containing 250  $\mu$ g BSA; bioactivity is measured by its ability to support the survival & stimulate neurite outgrowth of cultured embryonic chick dorsal root ganglia (DRG); endotoxin tested | Member of the Nerve growth factor (NGF) family of neurotrophic factors also named neurotrophins; specific factor for sensory & peripheral sympathetic neurons; induces formation of neurite filaments on chick embryo dorsal root ganglia & has been used in the culture & study of adrenergic neurons of sympathetic ganglia, pheochromocytoma cells (PC12) & some neoplastic cells of neural crest origin; all NGF products are biologically tested in cell culture for their ability to induce neurite-like filament growth from chick dorsal root ganglia or to induce proliferation of TF-1 or PC12 cells; Levi-Montalcini, R et al, *Cancer Res*, 14: 49, 1954; Server, A & Shooter, E, *Adv Protein Chem*, 31: 339, 1977; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Greene, L, *J Cell Biol*, 78: 747, 1978

**Neurotrophic Factor, Ciliary**

**Biodesign A52455H** *E. coli* MW 23k Purified | Species specificity: rat

**Oncogene PF030** Human recombinant MW 22.8k >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 50-150 ng/mL as determined by a cell proliferation assay of factor-dependent TF-1 cells; EC<sub>50</sub> of 1.0-3.0 ng/mL as determined by the ability to support survival & stimulate neurite outgrowth of cultured embryonic chick dorsal root ganglia | Species reactivity: human; for proliferation studies; the expressed recombinant protein lacks the N-terminal methionine residue

**Fitzgerald 30-AC36** Human recombinant, expressed in *E. coli*

**PeproTech 450-13** Human recombinant, expressed in *E. coli* MW 22.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent neural factor originally characterized as a survivability factor for chick ciliary neurons *in vitro*; promotes survivability & differentiation of other neural cell types; 200 AA; ED<sub>50</sub>  $\leq$  2.0 ng/mL; SA  $\geq 5 \times 10^5$  U/mg; SA determined by the dose-dependent proliferation of human TF-a cells

**Sigma C 3710** Human recombinant, expressed in *E. coli* MW 22.8k  $\geq 97\%$  (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline solution containing 500  $\mu$ g BSA; bioactivity is measured in a cell proliferation assay using the TF-1 cell line; endotoxin tested | Survival factor for neuronal cell types; member of the nerve growth factor (NGF) family of neurotrophic factors also named neurotrophins; specific factor for sensory & peripheral sympathetic neurons; induces formation of neurite filaments on chick embryo dorsal root ganglia & has been used in the culture & study of adrenergic neurons of sympathetic ganglia, pheochromocytoma cells (PC12) & some neoplastic cells of neural crest origin; all NGF products are biologically tested in cell culture for their ability to induce neurite-like filament growth from chick dorsal root ganglia or to induce proliferation of TF-1 or PC12 cells; Levi-Montalcini, R et al, *Cancer Res*, 14: 49, 1954; Server, A & Shooter, E, *Adv Protein Chem*, 31: 339, 1977; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Greene, L, *J Cell Biol*, 78: 747, 1978

**Chemicon GF035** Rat  $\geq 95\%$

**Biogenesis 2104-9030** Rat r-DNA Lyophilized

**Alexis 521-002** Rat recombinant, expressed in *E. coli* MW 23k >98% (SDS-PAGE); lyophilized; 5 µg (AA analysis); biological activity: activity was originally characterized as a neurotrophic growth factor promoting survival of chick ciliary neurons *in vitro*; other neuronal cell lines such as IMR 32 cells are also dependent on rrCNTF for survival; effective dose of 50% (50 ng/mL) is sufficient for the induction of choline acetyltransferase activity; exerts *in vitro*, biological effects in a concentration range between 0.01-10.0 ng/mL medium | Protein consisting of 200 AA; Sendtner, M et al, *Nature*, 345: 440, 1990; Korsching, S, *J Neurosci*, 13: 2739, 1993; Thoenen, H, *TINS*, 14: 165, 1991; Thoenen, H et al, *CR Acad Sci III*, 316: 1158, 1993; Maness, LM et al, *Neurosci & Biobehav Rev*, 18: 143, 1994; Klein, R, *FASEB J*, 8: 738, 1994; Barinaga, M, *Science*, 264: 772, 1994; Nishi, R, *Science*, 265: 1052, 1994; Davies, AM, *Nature*, 368: 193, 1994

**Calbiochem 231000** Rat recombinant, expressed in *E. coli* MW 23k >98% (SDS-PAGE); lyophilized solid; soluble in most aqueous buffers & water; biological activity: Induces choline acetyltransferase (EC<sub>50</sub>=50 ng/mL) | Neuronal survival that is known to promote the survival & differentiation of a variety of neuronal cell lines; prevents lesion-induced death of motor neurons in adults; reported to increase K<sup>+</sup> currents in SK-N-SH neuroblastoma cells; *Merck Index*, 12: 2333; Lesser, SS & Lo, DC, *J Neurosci*, 15: 253, 1995; Sendtner, M et al, *J Neurobiol*, 25: 1436, 1994; Sendtner, M et al, *Nature*, 345: 440, 1990

**Fitzgerald 30-AC37** Rat recombinant, expressed in *E. coli*

**PeproTech 450-50** Rat recombinant, expressed in *E. coli* MW 22.7k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent neural factor originally characterized as a survivability factor for chick ciliary neurons *in vitro*; promotes survivability & differentiation of other neural cell types; 199 AA; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 x 10<sup>7</sup> U/mg; SA determined by the dose-dependent induction of choline acetyltransferase activity in IMR32 cells

**Sigma C 3835** Rat recombinant, expressed in *E. coli* MW 22.8k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline solution containing 500 µg BSA; bioactivity is measured in a bioassay using the TF-1 cell line; endotoxin tested | Survival factor for neuronal cell types; member of the Nerve growth factor (NGF) family of neurotrophic factors also named neurotrophins; specific factor for sensory & peripheral sympathetic neurons; induces formation of neurite filaments on chick embryo dorsal root ganglia & has been used in the culture & study of adrenergic neurons of sympathetic ganglia, pheochromocytoma cells (PC12) & some neoplastic cells of neural crest origin; all NGF products are biologically tested in cell culture for their ability to induce neurite-like filament growth from chick dorsal root ganglia or to induce proliferation of TF-1 or PC12 cells; Levi-Montalcini, R et al, *Cancer Res*, 14: 49, 1954; Server, A & Shooter, E, *Adv Protein Chem*, 31: 339, 1977; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; Greene, L, *J Cell Biol*, 78: 747, 1978

### Neurotrophic Factor, Glial Derived

**Biodesign A52450H** *E. coli* MW 30k Purified

**Chemicon GF030** Human ≥95%

**USBio N2180-11** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AN17** Human glial recombinant, expressed in *E. coli* High purity

**Biogenesis 4649-5030** Human r-DNA Lyophilized

**BioSource International PHC7044** Human recombinant

**Alexis 521-001** Human recombinant, expressed in *E. coli* MW 30k >98% (SDS-PAGE); lyophilized; 1 µg/5 µg (AA analysis); biological activity: promotes survival of dopaminergic midbrain neurons; fully biologically active when compared to the native factor by the dose-dependent <sup>3</sup>H-dopamine up-take assay measured with rat midbrain primary cultures | Disulfide linked homodimeric protein consisting of two 134 AA chains; Thoenen, H, *TINS*, 14: 165, 1991; Thoenen, H et al, *CR Acad Sci III*, 316: 1158, 1993; Maness, LM et al, *Neurosci & Biobehav Rev*, 18: 143, 1994; Klein, R, *FASEB J*, 8: 738, 1994; Barinaga, M, *Science*, 264: 772, 1994; Nishi, R, *Science*, 265: 1052, 1994; Davies, AM, *Nature*, 368: 193, 1994; Lin, LF et al, *Science*, 260: 1130, 1993

**Calbiochem 345872** Human recombinant, expressed in *E. coli* MW 30k ≥97% (SDS-PAGE); lyophilized solid; biological activity: Fully biologically active when compared to native GDNF by does-dependent <sup>3</sup>H-dopamine uptake assay; soluble in most aqueous buffers & water | Growth promoting factor that enhances neuronal survival of dopaminergic midbrain neurons; activates receptor tyrosine kinase Ret & promotes kidney morphogenesis; also an activator of MAP kinase; its biological activity is destroyed by reduction of disulfide bonds; Vega, QC et al, *PNAS*, 93: 10657, 1996; Worby, CA et al, *J Biol Chem*, 271: 23619, 1996; Lin, LF et al, *J Neurochem*, 63: 758, 1994; Lev-Fen, H et al, *Science*, 260: 1130, 1993

**ICN 193955** Human recombinant, expressed in *E. coli* MW 30k Promotes growth & survival of dopaminergic neurons & motor neurons; Lev-Fen et al, *Science*, 260: 1130, 1993

**ICN 193956** Human recombinant, expressed in *E. coli* MW ~30k ≥95% | Promotes growth & survival of dopaminergic neurons & motor neurons

**PeproTech 450-10** Human recombinant, expressed in *E. coli* MW 30.1k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Specifically promotes dopamine uptake & survival of midbrain neurons; disulfide-linked homodimer, formed by two identical 134 AA subunits; ED<sub>50</sub> = 5-10 ng/mL; SA determined by the dose-dependent dopamine uptake by rat ventral mesencephalic cultures

**Sigma G 1777** Human recombinant, expressed in the mouse myeloma cell line NSO ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; bioactivity is measured by its ability to support the survival & stimulate neurite growth of cultured embryonic chick dorsal root ganglia; endotoxin tested | Nerve growth factor promotes neuron survival in both the central & peripheral nervous systems; motor neurons, midbrain dopaminergic neurons, Purkinje cells & sympathetic neurons are among the neuronal subpopulations affected by GDNF; shows significant homology to members of the TGF-β superfamily; cells known to express GDNF include: Sertoli cells, type 1 astrocytes, Schwann cells, neurons, pinealocytes & skeletal muscle cells; is a disulfide-linked dimeric protein consisting of two 134 AA peptides with a predicted mass of 15 kD each; human GDNF shows ~93% AA homology to rat GDNF

**Oncogene PF039** Rat recombinant MW ~15k (monomer) >97% (SDS-PAGE); lyophilized in PBS containing 50 mg of BSA per 1 mg of cytokine; biological activity: EC<sub>50</sub> of 1.0-3.0 ng/mL as determined by the ability to support the survival & stimulate neurite outgrowth of cultured embryonic chick dorsal root ganglia | Species reactivity: rat; native GDNF exists as a disulfide homodimeric glycoprotein; a novel member of the TGF-β superfamily; activity measured by its ability to support survival & stimulate neurite outgrowth of cultured embryonic chick dorsal root ganglia; the EC<sub>50</sub> for this effect is typically 1-3 ng/mL; protein titration recommended

**Sigma G 1401** Rat recombinant, expressed in *Sf* 21 insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; bioactivity is measured by its ability to support the survival & stimulate neurite growth of cultured embryonic chick dorsal root ganglia; endotoxin tested | Nerve growth factor promotes neuron survival in both the central & peripheral nervous systems; motor neurons, midbrain dopaminergic neurons, Purkinje cells & sympathetic neurons are among the neuronal subpopulations affected by GDNF; shows significant homology to members of the TGF-β superfamily; cells known to express GDNF include: Sertoli cells, type 1 astrocytes, Schwann cells, neurons, pinealocytes & skeletal muscle cells; is a disulfide-linked dimeric protein consisting of two 134 AA peptides with a predicted mass of 15 kD each; human GDNF shows ~93% AA homology to rat GDNF

**ICN 195777** Rat recombinant, expressed in *Sf*21 ≥97%; ED<sub>50</sub> = 1-3 ng/mL

### Neurotrophin III

**Biodesign A52453H** *E. coli* MW 28k Purified

**Chemicon GF031** Human ≥95%

**USBio N2200** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

<b>Biogenesis 6751-5330</b>	Human r-DNA	Lyophilized
<b>BioSource International PHC7034</b>	Human recombinant	
<b>Alexis 521-003</b> Human recombinant, expressed in <i>E. coli</i> MW 28k ≥98% (SDS-PAGE); lyophilized; 1 µg/5 µg (AA analysis); biological activity: supports survival of certain CNS neurons; fully biologically active when compared to the native factor; effective dose 50% enables survival of rat basal forebrain primary septal cultures as measured from the induction of the choline acetyltransferase enzymatic activity of the cells   Dimer protein consisting of two identical 119 AA subunits which are associated through strong hydrophobic interactions; Thoenen, H, <i>TINS</i> , 14: 165, 1991; Thoenen, H et al, <i>CR Acad Sci III</i> , 316: 1158, 1993; Maness, LM et al, <i>Neurosci &amp; Biobehav Rev</i> , 18: 143, 1994; Klein, R, <i>FASEB J</i> , 8: 738, 1994; Barinaga, M, <i>Science</i> , 264: 772, 1994; Nishi, R, <i>Science</i> , 265: 1052, 1994; Davies, AM, <i>Nature</i> , 368: 193, 1994; Maisonnier, PC et al, <i>Science</i> , 247: 1446, 1990; Korsching, J <i>Neurosci</i> , 13: 2739, 1993		
<b>Calbiochem 480875</b> Human recombinant, expressed in <i>E. coli</i> MW 28k ≥98% (SDS-PAGE); lyophilized solid; biological activity: fully biologically active when compared to native NT-3; ED <sub>50</sub> =50 ng/mL for induction of choline acetyltransferase activity in rat basal forebrain primary septal culture cells   Potent neurotrophic factor that supports the survival of certain CNS neurons; increases DNA-binding of several transcription factors; <i>Merck Index</i> , 12: 6570; Iwata, E et al, <i>Biochim Biophys Acta</i> , 1311: 85, 1996; Zhou, XF & Rush, RA, <i>Brain Res</i> , 643: 162, 1994; Hohn, A et al, <i>Nature</i> , 344: 339, 1990; Maisonnier, PC et al, <i>Science</i> , 247: 1447, 1990		
<b>Fitzgerald 30-AN18</b>	Human recombinant, expressed in <i>E. coli</i>	High purity
<b>PeproTech 450-03</b> Human recombinant, expressed in <i>E. coli</i> MW 27.2k ≥98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized   Potent neurotrophic factor that supports the growth & survivability of nerve and/or glial cells; active form is formed by two identical 119 AA subunits held together by strong hydrophobic interactions; ED <sub>50</sub> = 20-50 ng/mL; SA determined by the dose-dependent induction of choline acetyltransferase activity in rat basal forebrain primary septal cultures		
<b>Sigma N 1905</b> Human recombinant, expressed in Sf 21 insect cells MW 13.6k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA solution containing 250 µg BSA per 1 µg of the cytokine; bioactivity is measured in a neurite outgrowth bioassay using chick dorsal root ganglia; endotoxin tested   Neurotrophic factor that is required for the differentiation & survival of specific neuronal subpopulations in the central & the peripheral nervous system		
<b>Neurotrophin IV</b>		
<b>Biodesign A52454H</b>	<i>E. coli</i>	MW 28k Purified
<b>Chemicon GF032</b>	Human	≥95%
<b>USBio N2200-12</b> Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized   Suitable for antigenic applications in immunological protocols		
<b>Biogenesis 6751-5430</b>	Human r-DNA	Lyophilized
<b>BioSource International PHC7024</b>	Human recombinant	
<b>Alexis 521-004</b> Human recombinant, expressed in <i>E. coli</i> ≥98% (SDS-PAGE) with no additives; lyophilized; 1 µg/5 µg (AA analysis); biological activity: a potent neurotrophic factor promoting survival of certain CNS neurons; fully biologically active when compared to the native factor; effective dose 50% enables survival of rat basal forebrain primary septal cultures as measured from the induction of the choline acetyltransferase enzymatic activity of the cells   Dimer protein consisting of two identical 130 AA subunits which are associated through strong hydrophobic interactions; Thoenen, H, <i>TINS</i> , 14: 165, 1991; Thoenen, H et al, <i>CR Acad Sci III</i> , 316: 1158, 1993; Maness, LM et al, <i>Neurosci &amp; Biobehav Rev</i> , 18: 143, 1994; Klein, R, <i>FASEB J</i> , 8: 738, 1994; Barinaga, M, <i>Science</i> , 264: 772, 1994; Nishi, R, <i>Science</i> , 265: 1052, 1994; Davies, AM, <i>Nature</i> , 368: 193, 1994; Hohn, A et al, <i>Nature</i> , 344: 339, 1990; Fandl, NJ et al, <i>J Biol Chem</i> , 269: 755, 1994		

**Calbiochem 480877** Human recombinant, expressed in *E. coli* MW 28k ≥98% (SDS-PAGE); lyophilized solid; biological activity: fully biologically active when compared to native NT-4; ED<sub>50</sub>=50 ng/mL for induction of choline acetyltransferase activity in rat basal forebrain primary septal culture cells | Potent neurotrophic factor that supports the survival of certain CNS neurons; a neuronal-signaling molecule involved in the compensatory adjustments of muscle fibers to oxidative dysfunction; Walker, UA & Schon, EA, *Ann Neurol*, 43: 536, 1998

**Fitzgerald 30-AN19** Human recombinant, expressed in *E. coli* High purity

**Sigma N 1780** Human recombinant, expressed in Sf 21 insect cells MW 14k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA solution containing 250 µg BSA; bioactivity is measured in a neurite outgrowth bioassay using chick dorsal root ganglia; endotoxin tested | Neurotrophic factor that is required for the differentiation & survival of specific neuronal subpopulations in the central & the peripheral nervous system

### Neurotrophin IV/V

**PeproTech 450-04** Human recombinant, expressed in *E. coli* MW 28.1k ≥98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent neurotrophic factor that supports the growth & survivability of nerve and/or glial cells; active form is formed by two identical 130 AA subunits held together by strong hydrophobic interactions; ED<sub>50</sub> = 20-50 ng/mL; SA determined by the dose-dependent induction of choline acetyltransferase activity in rat basal forebrain primary septal cultures

### Neurturin

**Biodesign A52511H** *E. coli* Purified

**Chemicon GF081** Human ≥95%

**BioSource International PHC7064** Human recombinant

**Calbiochem 480890** Human recombinant, expressed in *E. coli* MW 23.6k ≥98% (SDS-PAGE); ≥98% (HPLC); lyophilized solid; biological activity: shown to support the survival of 65% of newborn rat sympathetic neurons at 100 ng/L | Belongs to the transforming growth factor-β (TGF-β)-related neurotrophic factors known collectively as glial cell-line derived neurotrophic factor (GDNF) family; NTN is expressed in the nigrostriatal system & exerts potent effects on survival & function of midbrain dopaminergic (DA) neurons; Hishiki, T et al, *Cancer Res*, 58: 2158, 1998; Horger, BA et al, *J Neurosci*, 18: 4929, 1998

**PeproTech 450-11** Human recombinant, expressed in *E. coli* MW 23.6k (homodimer) ≥98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | With Human GDNF, comprises a family of TGF-beta related neurotrophic factor that has trophic influences on a variety of neuronal populations; promotes the survivability of certain sympathetic & sensory neurons through interaction with distinct set of GDNF-like receptors; a protein consisting of two identical subunits of 103 AA each; supports the survival of 65% of newborn rat sympathetic neurons at 100 ng/mL

### Neutrophil Activating Protein II

**Biodesign A52314H** *E. coli* MW 8k Purified

**Chemicon GF015** Human ≥95%

**Fitzgerald 30-AN20** Human recombinant, expressed in *E. coli* 70 AA

**Harlan BT-2028** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-2029** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**ICN 195012** Human recombinant, expressed in *E. coli* MW 8.5k ≥98%; lyophilized; 50 ng/mL

**PeproTech 300-14** Human recombinant, expressed in *E. coli* MW 7.6k ≥98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Promotes neutrophil chemotaxis & degranulation; 70 AA; SA determined by its ability to chemoattract human neutrophils

**USBio N2250** Human recombinant, expressed in *E. coli* Highly purified, ≥98% (SDS-PAGE); lyophilized; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.1 mg/mL | Suitable for antigenic applications in immunological protocols

## NF-κB

**Synonyms:** p50

**Alexis 201-026** Human recombinant, expressed in *E. coli* ≥90% (SDS-PAGE & Western Blot analysis) | Kleran, M et al, *Cell*, 62: 1007, 1990

## NF-κB Receptor Activator, Soluble

**Biodesign A52001H** *E. coli* Purified

## Nuclear Inhibitor of Protein Phosphatase I

**Calbiochem 482250** Bovine thymus recombinant MW 38.5k ≥95% (SDS-PAGE); liquid in 20 mM Tris-HCl, 500 μM benzamidine, 500 μM DTT, 500 μM PMSF, 5 μM leupeptin, 60% glycerol, pH 7.4; activity: stoichiometric amounts of NIPP-1 completely inhibit the catalytic subunit of PP1 using various substrates | Potent & specific inhibitor of protein phosphatase used to distinguish PP1 from other major serine/threonine protein phosphatases including PP2A, PP2B & PP2C; a model substrate for phosphorylation by protein kinase A & casein kinase II; involved in the targeting of PP1 to RNA-associated substrates & in the dephosphorylation of transcription factors like CREB & the tumor suppressor Rb; Van Eynde, A et al, *J Biol Chem*, 270: 28068, 1995; Jagiello, I et al, *J Biol Chem*, 272: 22067, 1997; Jagiello, I et al, *J Biol Chem*, 270: 17257, 1995; Van Eynde, A et al, *Biochem J*, 297: 447, 1994; Beullens, M et al, *J Biol Chem*, 268: 13172, 1993; Beullens, M et al, *J Biol Chem*, 267: 16538, 1992

## Obese Protein Control Peptide I

**Chemicon AG766** Purified | Cellular biochemistry/regulatory protein used in enzyme immunoassay

## Obese Protein Control Peptide II

**Chemicon AG768** Purified | Cellular biochemistry/regulatory protein used in enzyme immunoassay

## Oncostatin M

**Biodesign A52130H** *E. coli* MW 26k Purified

**Chemicon GF016** Human ≥95%

**BioSource International PHC5014** Human recombinant

**Fitzgerald 30-AO10** Human recombinant, expressed in *E. coli*

**PeptoTech 300-10** Human recombinant, expressed in *E. coli* MW 26k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Important growth regulating cytokine; variably affects a number of tumor & normal cells; exerts inhibitory effects on the growth of A375 melanoma & other cancer cells; but augments the growth of normal fibroblasts, AIDS-related Kaposi sarcoma cells, & certain other cells; 227 AA; ED<sub>50</sub> ≤ 2 ng/mL; SA ≥ 5 × 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of human TF-1 cells

**Sigma O 9635** Human recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from 35% acetonitrile & 0.1% TFA solution containing 500 μg BSA; proliferative activity is tested in culture by using a human erythroleukemic cell line TF-1; endotoxin tested | Growth-regulating cytokine affecting a number of tumor & normal cells; first identified by its ability to inhibit the growth of A375 melanoma cells & other human tumor cells but not inhibit the growth of normal human fibroblasts; acts synergistically with TGF β1 to inhibit the proliferation of tumor cells like A375 melanoma cells; secreted by macrophages & activated T lymphocytes; affects a wide variety of normal & tumor cells; induces an increase in LDL receptor expression & LDL uptake by hepatoma cells; cultured human endothelial cells are induced to increase IL-6 production; activates synovial fibroblast-like cells to produce urokinase type plasminogen activator; OSM, LIF, G-CSF, IL-6 & CNTF are structurally related members of the same cytokine family sharing similarities in their primary AA sequences predicted secondary structure & receptor components; Brown, TJ et al, *J Immunol*, 139: 2977, 1987; Grove, RI et al, *J Biol Chem*, 266: 18194, 1991; Brown, TJ et al, *J Immunol*, 147: 2175, 1991; Hamilton, JA et al, *Biochem Biophys Res Commun*, 180: 652, 1991; Bazan, JF et al, *Neuron*, 7: 197, 1991; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989

**Sigma O 1637** Mouse recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; biological activity was measured by its ability to stimulate <sup>3</sup>H-thymidine incorporation in quiescent NIH/3T3 cells; endotoxin tested | Growth-regulating cytokine affecting a number of tumor & normal cells; first identified by its ability to inhibit the growth of A375 melanoma cells & other human tumor cells but not inhibit the growth of normal human fibroblasts; acts synergistically with TGF β1 to inhibit the proliferation of tumor cells like A375 melanoma cells; secreted by macrophages & activated T lymphocytes; affects a wide variety of normal & tumor cells; induces an increase in LDL receptor expression & LDL uptake by hepatoma cells; cultured human endothelial cells are induced to increase IL-6 production; activates synovial fibroblast-like cells to produce urokinase type plasminogen activator; OSM, LIF, G-CSF, IL-6 & CNTF are structurally related members of the same cytokine family sharing similarities in their primary AA sequences predicted secondary structure & receptor components; Brown, TJ et al, *J Immunol*, 139: 2977, 1987; Grove, RI et al, *J Biol Chem*, 266: 18194, 1991; Brown, TJ et al, *J Immunol*, 147: 2175, 1991; Hamilton, JA et al, *Biochem Biophys Res Commun*, 180: 652, 1991; Bazan, JF et al, *Neuron*, 7: 197, 1991; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989

## Osteocalcin

**Synonyms:** Bone Gla Protein; Vitamin K-Dependent Protein

**Cortex CP4062U** Bovine >98%

**Biodesign A95020B** Bovine bone Purified

**Biogenesis 7060-1054** Bovine bone Lyophilized

**Biogenesis 7060-1104** Bovine bone Liquid

**Biogenesis 7060-1204** Bovine bone <sup>125</sup>I conjugated

**Calbiochem 499050** Bovine bone MW 5834.4 C<sub>263</sub>H<sub>372</sub>N<sub>66</sub>O<sub>82</sub>S<sub>2</sub> ≥98% (SDS-PAGE); liquid in 75 mM NaCl, 10 mM sodium phosphate buffer, pH 7.4; pI 4.0-4.5 | Single chain vitamin K-dependent protein produced by osteoblasts & present at high concentrations in bone; binds to phospholipid vesicles in the presence of calcium ions (K<sub>d</sub>=6 μM); also binds hydroxylapatite; good marker of bone turnover; may play a role in bone mineralization, bone resorption & bone formation; Carter, SD et al, *J Anim Sci*, 74: 2719, 1996; Watson, KE et al, *J Clin Invest*, 93: 2106, 1994; Tracy, RP et al, *J Bone Min Res*, 5: 451, 1990; Gendreau, MA et al, *J Biol Chem*, 264: 6972, 1989

**ICN 194940** Bovine bone 50% glycerol, 0.01 M Tris, 0.075 M NaCl, pH 7.4 | Produced in osteoblasts; Hauschka, PV et al, *PNAS*, 73:1447, 1975

**Biogenesis 7060-1277** Canine bone Liquid

**Biogenesis 7060-1297** Canine bone <sup>125</sup>I conjugated

**Cortex CP3015U** Human >98%

**Biogenesis 7060-1855** Mouse bone Purified; RIA buffer containing BSA; lyophilized

**Biogenesis 7060-1865** Mouse bone 10 µCi/mL, SA: 148 µCi/µg; RIA buffer; liquid

**Biogenesis 7060-2504** Rat bone MW 5.734k Purified; from 10 µl solution of 30 mM sodium phosphate buffer pH 7.5; lyophilized | Suitable for use as RIA standard or for iodination; adsorbed non-specifically to glass and plastic services unless protected by RIA buffer

**Biogenesis 7060-2604** Rat bone 225 µCi/µg, 10 µCi/mL; <sup>125</sup>I conjugated; in RIA buffer (see s); liquid

### Osteonectin

**Synonyms:** BM-40; SPARC; BM-40; SPARC

**Cortex CP3091U** Bovine >98%

**Biodesign A95010B** Bovine bone Purified

**ICN 194943** Bovine bone Kelm, RJ et al, *Blood*, 80:3112, 1992

**Calbiochem 499240** Bovine brain MW 32k ≥95% (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 2 mM CaCl<sub>2</sub>, pH 7.4 | Acidic, Ca<sup>2+</sup>-binding glycoprotein found in a variety of embryonic & adult tissues containing actively proliferating & remodeling cells; one of the most abundant glycoproteins secreted by osteoblasts; reported to play a role in the differentiation & maintenance of dermis; involved in the regulation of bone mineralization; may also play a role in the disengagement of cells from the extracellular matrix; Hunzelman, N et al, *J Invest Dermatol*, 110: 122, 1998; Kelm, RJ et al, *J Biol Chem*, 269: 30147, 1994; Yost, JC & Sage, EH, *J Biol Chem*, 268: 25790, 1993; Sage, EH & Borstein, PJ, *J Biol Chem*, 266: 14831, 1991

**Cortex CP3095U** Human >98%

**Calbiochem 499250** Human platelets MW 32.7k ≥98% (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 2 mM CaCl<sub>2</sub>, pH 7.4 | Acidic, Ca<sup>2+</sup>-binding glycoprotein found in a variety of embryonic & adult tissues containing actively proliferating & remodeling cells; differs from the bone-derived osteonectin in its glycosylation pattern & its collagen binding specificity; prepared from serum that has been shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; Villarreal, XC et al, *Biochemistry*, 28: 6483, 1989; Kelm, RJ et al, *J Biol Chem*, 269: 30147, 1994; Kelm, RJ & Mann, KG, *J Biol Chem*, 266: 9632, 1991; Sage, EH & Borstein, PJ, *J Biol Chem*, 266: 14831, 1991

**ICN 194942** Human platelets Non-collagenous glycoprotein; potently inhibits hydroxyapatite-seeded crystal growth; Fisher, LW et al, *JBC*, 262:9702, 1987

### Osteoprotegerin

**Synonyms:** Osteoprotegerin:Fc, rh-; Osteoprotegerin Ig; Osteoprotegerin:Fc, rh-; Osteoclastogenesis Inhibitory Factor

**Kamiya** >95% (SDS-PAGE)

**Alexis 522-007** Human embryo kidney cells recombinant >95% (SDS-PAGE); lyophilized powder containing PBS; 25 µg protein | Interacts with human & mouse TRAIL & RANKL/TRANCE; the Cys-rich region of human osteoprotegerin (AA 22-202) is fused to the Fc portion of human IgG1; inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (conc range: 5-20 ng/mL) & blocks RANKL-induced osteoclastogenesis & stimulation of dendritic cells; Simonet, WS et al, *Cell*, 89: 309, 1997; Emery, JG et al, *J Biol Chem*, 273: 14363, 1998; Yasuda, H et al, *PNAS*, 95: 3597, 1998; Yasuda, H et al, *Endocrinology*, 139: 1329, 1998; Lacey, DL et al, *Cell*, 93: 165, 1998

**PeptoTech 450-14** Human recombinant, expressed in *E. coli* MW 19.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of the TNF receptor superfamily; specifically acts on bone tissues; increases bone mineral density & bone volume associated with a decrease of active osteoclast number; 175 AA; SA determined by its ability to neutralize the stimulation of U937 cells

### Osteoprotegerin/Fc Chimera

**Synonyms:** TNFRSF11B

**R&D Systems 459-MO-100** NSO-expressed >95%; lyophilized; ED<sub>50</sub>: 8-15 ng/mL | Species specificity: mouse OPG; member of the TNF receptor superfamily & exists as a soluble secreted protein; TRANCE & TRAIL shown to be ligands for OPG

**R&D Systems 805-OS-100** SF21-expressed >90%; lyophilized; ED<sub>50</sub>: 8-24 ng/mL | Species specificity: human OPG; member of the TNF receptor superfamily & exists as a soluble secreted protein; TRANCE & TRAIL shown to be ligands for OPG

### Ovalbumin

**ICN 950512** Chicken egg Lyophilized; 5X crystallized; no lysozyme; prepared from fresh chicken egg whites by (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> fractionation & repeated crystallization at pH 4.5

**ICN 825051** Duck egg 95%; lyophilized

### Ovalbumin, (Me-<sup>14</sup>C)-

**ARC ARC-431** MW 46k 3-30 µCi/mg; 111-1111 KBq/mg; in 0.01 M sodium phosphate, pH 7.2 | Radiochemical

### Ovarian Tumor Marker Antigen

**Synonyms:** CA 125®

**ICN 770991 ICN 770992 ICN 770993** Human ascites >96%; iodination grade; >50,000 U/mL | For immunization or labeling

### Oxyrin

**ICN 159839** *Oxyuranus scutellatus* (Australian taipan) venom MW ~13.5k Single band by SDS-PAGE; 0.1 µg/mL in media promotes neurotrophic growth equivalent to 10% FBS | Cell growth factor similar to epidermal growth factor; promotes growth of various eukaryotic cells & keratinocytes; produces neurite outgrowth on rat adrenal pheochromocytoma (PC-12) cells; useful for accelerating wound healing

### p13

**Amersham VPF001** Recombinant Cell proliferation & cell cycle signals

**Oncogene PF001** Recombinant MW 13k (dimer, non-denaturing) 99% (SDS-PAGE); lyophilized; reconstitute in PBS | Use to elute with p13 agarose columns

### p13 suc1, Agarose

**USBio P0999** Recombinant GST-p13 suc1 MW 39k ≥95% (SDS-PAGE) & Coomassie Stain; liquid suspension in PBS, 50% glycerol, 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> | Non-covalently bound to glutathione-agarose; useful for isolation of p34 cdc2 & histonekinase assay of bound p34 cdc2

### p13, Agarose

**Oncogene PF001A** Recombinant MW 13k (dimer, non-denaturing) 99% (SDS-PAGE); highly purified protein coupled to agarose; 1.2 mg yeast p13 coupled to 0.5 mL agarose in PBS containing 0.1% sodium azide & 30% glycerol; reconstitute in PBS | Used to precipitate 13-mitotickinase complex where non-ionic detergents (ie NP40, DOC) are used

### p21 H-ras<sup>Gly12</sup>

**Oncogene WA01** MW 21k (may form dimer of 42k) >95% (SDS-PAGE); lyophilized | Western Blot standard; protein is denatured in SDS

### p21 K-ras<sup>Asp12</sup>

**Oncogene WA03** MW 21k >95% (SDS-PAGE); lyophilized | Western Blot standard; protein is denatured in SDS

### p21 K-ras<sup>Gly12</sup>

**Oncogene WA02** MW 21k (may form dimer of 42k) >95% (SDS-PAGE); lyophilized | Western Blot standard; protein is denatured in SDS

## Proteins

**Calbiochem WA02** Human recombinant ≥95% (SDS-PAGE); denatured human recombinant p21 K-Ras Gly<sup>12</sup> protein; denatured in SDS; reconstitute in 100 µL SDS-PAGE buffer containing DTT; use 10 µL/lane; heat to 100°C prior to use | Immunoblot standard suitable as a positive control in Western blotting

### p21 K-Ras<sup>Val12</sup>

**Oncogene WA04** MW 21k (may form dimer of 42k) >95% (SDS-PAGE); lyophilized | Western Blot standard; protein is denatured in SDS

### p21 N-Ras<sup>Gly12</sup>

**Oncogene WA05** MW 21k (may form dimer of 42k) >95% (SDS-PAGE); lyophilized | Western Blot standard; protein is denatured in SDS

### Pancreozymin

*Synonyms:* Cholecystokinin

**ICN 190265** Porcine intestine ~2-4 Crick U/mg solid | Crick, J et al, *J Physiol*, 110:367, 1950

**Sigma P 4429** Porcine intestine 4-6 Crick U/mg solid; also contains 0.5-1 Crick U of secretin/mg solid | Not assayed by Sigma; Crick, J et al, *J Physiol*, 110: 367, 1950

### Parvalbumin

**Biogenesis 7179-8009** Rat muscle Purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0, essentially salt free; lyophilized

### PCAF, Active

**USBio P3114-75** Recombinant, expressed in *E. coli* ~30%; supplied as 50 µg free enzyme in 500 µL of TBS, pH 8.0, 25 mM glutathione, 50% glycerol | GST fusion protein corresponding to AA 352-832; a direct link exists between hyper-acetylation of chromatin & transcriptional activation; PCAF possesses intrinsic histone acetylase activity; primarily acetylates Lys<sup>14</sup> of H3 but also less efficiently acetylates Lys<sup>8</sup> of H4; also acetylates p53 in response to DNA damage; the distinct patterns of acetylation by PCAF may contribute to transcriptional regulation of important genes

### Peripheral Type Benzodiazepine Receptor

**R&D Systems 6360-025-01** Human placenta MW 18k Control protein; found in most steroidogenic tissues in the outer mitochondrial membrane in association with a 34 k voltage-dependent anion channel protein (VDAC); thought to be part of the mitochondrial permeability transition pore;

### Persephin

**PeproTech 450-12** Human recombinant, expressed in *E. coli* MW 20.6k (homodimer) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Novel neurotrophic factor ~40% identical to GDNF & NTN; promotes the survival of ventral midbrain dopaminergic neurons in culture; supports the survival of motor neurons in culture; a protein consisting of two identical subunits of 96 AA each; induces RET phosphorylation at 0.1-1.0 ng/mL; binds to mammalian GFRa4 at K<sub>d</sub> = 100pM; other members of the GDNF family (Artemin, GDNF, Neurturin) do not bind to mammalian GFRa4

### Pertussis Toxin

*Synonyms:* Islet Activating Protein

**Alexis 630-003** *Bordetella pertussis* MW 94k Lyophilized powder; when reconstituted with 0.5 mL distilled water, each vial contains 50 µg protein in 0.01 M sodium phosphate buffer, pH 7.0, with 0.05 M NaCl; potent toxin | Major protein toxin produced by virulent strains of *Bordetella pertussis*; the purified protein consists of 5 dissimilar subunits: S-1 (MW 28 k), S-2 (MW 23 k), S-3 (MW 22 k), S-4 (MW 11.7 k) & S-5 (MW 9.3 k), in a molar ratio of 1:1:1:2:1; S-1 (A protomer) is responsible for the enzymatic activity of the toxin; together, S-2, S-3, S-4 & S-5 comprise the B oligomer, responsible for binding the toxin to the cell surface

**Calbiochem 516560** *Bordetella pertussis* Purity: five distinct bands (SDS-PAGE); solid lyophilized from 50 mM NaCl, 10 mM phosphate buffer, pH 7.0; adenylate cyclase activity: ≤2.5 pmol/min/µg in the presence of calmodulin; harmful: LD<sub>50</sub> ≤2000 mg/kg | A protein endotoxin that catalyzes ADP-ribosylation of guanine nucleotide-binding regulatory protein G<sub>i</sub>, G<sub>o</sub> & G<sub>s</sub>; used in the study of adenylate cyclase regulation & the role of G<sub>i</sub> proteins; holotoxin activity is determined in a CHO cell assay; Hewlett, EL et al, *Infect Immuno*, 40: 1198, 1983

**Sigma P 0317** *Bordetella pertussis* Lyophilized powder containing phosphate buffered saline & lactose | Catalyzes the ADP-ribosylation of G<sub>i</sub>, G<sub>o</sub> & G<sub>s</sub> guanine nucleotide-binding regulatory proteins; potentiates insulin secretion from mammalian pancreatic islet cells; Sumi, T & Ui, M, *Endocrinology*, 97: 352, 1975

**Sigma P 9452** *Bordetella pertussis* Solution in 50% glycerol containing 50 mM Tris, 10 mM glycine, 0.5 M NaCl, pH 7.5; sterile-filtered | Catalyzes the ADP-ribosylation of G<sub>i</sub>, G<sub>o</sub> & G<sub>s</sub> guanine nucleotide-binding regulatory proteins; potentiates insulin secretion from mammalian pancreatic islet cells; Sumi, T & Ui, M, *Endocrinology*, 97: 352, 1975

### Pertussis Toxin, A Protomer

**Calbiochem 516854** *Bordetella pertussis* MW 28k Purity: single major band (SDS-PAGE); solid lyophilized from 10 mM Tris-HCl, 100 µM EDTA, 0.04% CHAPS, pH 8.0; ≤0.1% holotoxin by CHO cell assay; harmful: LD<sub>50</sub> ≤2000 mg/kg | Enzymatic component of the holotoxin; both NAD-glycohydrolase & ADP-ribosyltransferase activities; unable to penetrate cells in the absence of the B oligomer; Moss, J et al, *J Biol Chem*, 258: 11879, 1983

### Pertussis Toxin, B Protomer

**Calbiochem 516852** *Bordetella pertussis* Purity: four distinct bands (SDS-PAGE); lyophilized solid; ≤0.1% holotoxin by CHO cell assay | Pentameric cell-binding component responsible for binding of the holotoxin to eukaryotic cell surfaces, facilitating entry of the A protomer into receptive cells; also elicits a variety of physiological responses, such as mitogenesis in human T cells, enhancement of aggregation of human platelets, elevation of cytosolic Ca<sup>2+</sup> levels & neutralization of antibody response in mice; Banga, S et al, *J Biol Chem*, 262: 14871, 1987; Hazes, B et al, *J Mol Biol*, 258: 661, 1996

### PF4

**BioSource International PHC7054** Human recombinant

### Phosphatidylinositol-3-Kinase p85 CT-SH2 Domain, Agarose

**USBio P4185-28** Human fusion protein, expressed in *E. coli* Purified by glutathione-agarose chromatography; 2 mg/mL; frozen liquid in 25 µL total volume (20% bead slurry) of PBS, 10% glycerol, 2 mM DTT, & 0.02% Na<sub>3</sub>N | Provided as a fusion protein partner with glutathione-S-transferase derived from pGEX vector; recognizes various phosphotyrosine containing proteins in cell lysates; Western Blot: the fusion protein is strongly recognized by PI3-Kinase Ab & is not recognized by PI3-Kinase N-SH3 Ab

**Phosphatidylinositol-3-Kinase p85 CT-SH2 Domain, Soluble**

**USBio P4185-29** Human, fusion protein expressed in *E. coli* Purified by glutathione-agarose chromatography & eluted with glutathione; 1 mg/mL; frozen solution in 100  $\mu$ L total volume of TBS, pH 8.0, 10% glycerol, 25 mM glutathione & 2 mM DTT | AA 624–718; provided as fusion protein partner with glutathione-S-transferase derived from pGEX vector; phosphatidylinositol (PI) metabolism has been associated with the intracellular signaling of many different transmembrane receptors & may play an important role in mitogenesis induced by growth factors; after treatment of cells with growth factors such as EGF or PDGF, PI 3-kinase phosphorylates PI & phosphorylated forms of PI at the D3 position of its inositol ring & PI(3) phosphate, PI(3,4) biphosphate, & PI(3,4, 5) triphosphate rapidly accumulate; PI 3-kinase is a dimer composed of an 85kD subunit & a 110kD subunit; at least 3 genes ( $\alpha$ ,  $\beta$  &  $\gamma$ ) are known to encode the 85kD subunit, which has no catalytic activity & is thought to regulate the kinase activity of the 110kD catalytic subunit

**Phosphatidylinositol-3-Kinase p85 NT-SH2 Domain, Agarose**

**USBio P4185-33** Human, fusion protein expressed in *E. coli* Purified by glutathione-agarose chromatography; 50  $\mu$ g of GST-(PI 3-Kinase) N-SH2 domain provided in 25  $\mu$ L total volume (20% bead slurry) of PBS, 10% glycerol, 2 mM DTT, 0.02% Na<sub>3</sub> | AA 333–428; provided as fusion protein partner with glutathione-S-transferase derived from pGEX; recognizes various phosphotyrosine containing proteins in cell lysates; Western Blot: the fusion protein is strongly recognized by PI 3-Kinase N-SH2 Ab & is not recognized by PI 3-Kinase N-SH3 Ab

**Phosphatidylinositol-P3 Dependent Kinase, Active**

**USBio P3123** Human recombinant, expressed in Sf9 cells MW ~67k  $\geq$ 70%; liquid in 50  $\mu$ L of 50 mM Tris, pH 7.5, 0.1 mM EGTA, 0.1%  $\beta$ -MSH, 0.15 M NaCl, 0.27 M sucrose, 1 mM benzamidine, 200  $\mu$ M PMSF, 1 mg/mL BSA | N-terminus His-tagged fusion protein, corresponding to the human sequence; has a kinase domain that is distantly related to Akt/PKB; PDK1, like Akt/PKB, contains a PH domain that tightly binds to PtdIns P3; activation of Akt/PKB is concomitant with phosphorylation of Thr<sup>308</sup> & Ser<sup>473</sup> & is prevented by inhibitors of phosphatidylinositol 3-Kinase; P3-dependent Kinase-1 (PDK1) phosphorylates Akt1 on Thr<sup>308</sup> in the activation loop of the kinase domain of Akt/PKB; PDK2 phosphorylates Akt/PKB on Ser<sup>473</sup> near the carboxyl-terminal; phosphorylation of these two sites is sufficient to fully activate Akt/PKB; SA: 625 U/mg

**Phosvitin**

**Sigma P 1253** Egg yolk A phosphoprotein containing 8-10% phosphorus; Molar N/P ratio ~2.7; completely soluble in water

**Phycocyanin C**

**ICN 151879** Algae PB, pH 7.0, 60% saturated (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 2 mg/mL | Fluorescent phycobiliprotein easily coupled to biological molecules; coupled to proteins, enzymes, nucleic acids; superior labeling compared to fluorescein & rhodamine; used in fluorescence immunoassays & fluorescent labeling of DNA probes

**Sigma P 0796** *Aphanotheca halophytica* Suspension in 50% ammonium sulfate containing 0.15 M Tris, pH 7.4; A<sub>620</sub>/A<sub>280</sub> >4.4; sold as mg protein based on E<sub>620</sub> at 1% = 76.5 | US Patent No. 4,859,582; Teale, FWJ & Dale, RE, *Biochem J*, 116: 161, 1970; Oi, VT et al, *J Cell Biol*, 93: 981, 1982

**Sigma P 7165** *Porphyra tenera* ("Nori") Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582

**Sigma P 2172** *Spirulina sp.* Partially purified lyophilized powder containing ~40% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582

**Sigma P 6161** *Spirulina sp.* Highly purified lyophilized powder containing ~30% protein; balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582

**Phycocyanin C, Pyridyldisulfide Derivative**

**Sigma P 0664** *Spirulina sp.* Lyophilized powder containing ~20% protein (Lowry); balance primarily sucrose & sodium azide as preservatives | US Patent No. 4,859,582

**Phycocyanin R**

**Sigma P 1536** *Porphyridium cruentum* Lyophilized powder containing ~30% protein; balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582

**Phycoerythrin B**

**ICN 151880** Algae PB, pH 7.0, 60% saturated (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, 2 mg/mL | Fluorescent phycobiliprotein easily coupled to biological molecules; coupled to proteins, enzymes, nucleic acids, polypeptide hormones, drug & vitamins; superior labeling compared to fluorescein & rhodamine; used in enumeration of T & B-lymphocytes by fluorescence microscopy, fluorescence-labeling of DNA-probes & fluorescence immunoassays

**Sigma P 1286** *Porphyridium cruentum* Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582; Gantt, E & Lipshultz, CA, *Biochemistry*, 13: 2960, 1974

**Phycoerythrin B, Biotin Conjugated**

**Sigma P 0788** *Porphyridium cruentum* Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives; contains ~5 moles biotin/mole protein | US Patent No. 4,859,582

**Phycoerythrin C**

**ICN 151881** Algae Fluorescent phycobiliprotein easily coupled to biological molecules; superior labeling compared to fluorescein & rhodamine; similar uses as phycoerythrin B

**Phycoerythrin R**

**ICN 151882** Algae Fluorescent phycobiliprotein easily coupled to biological molecules; superior labeling compared to fluorescein & rhodamine

**Sigma P 0159** *Corallina officinalis* Suspension in 50% ammonium sulfate, 50 mM sodium phosphate buffer, pH 7.0; sold on the basis of mg protein, based on E<sub>565</sub> at 1% = 81.7 | Oi, VT et al, *J Cell Biol*, 93: 981, 1982; US Patent No. 4,859,582

**Sigma P 3663** *Porphyra tenera* ("Nori") Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives | US Patent No. 4,859,582

**Sigma P 8912** *Porphyra tenera* ("Nori") Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives | Oi, VT et al, *J Cell Biol*, 93: 981, 1982; US Patent No. 4,859,582

**Phycoerythrin R, Biotin Conjugated**

**Sigma P 7540** *Porphyra tenera* ("Nori") Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose, dithioerythritol & sodium azide as preservatives; contains ~5 moles biotin/mole protein | Oi, VT et al, *J Cell Biol*, 93: 981, 1982; US Patent No. 4,859,582

**Phycoerythrin R, Pyridyldisulfide Derivative**

**Sigma P 7415** *Porphyra tenera* ("Nori") Lyophilized powder containing ~30% protein (Lowry); balance primarily sucrose & sodium azide as preservatives | US Patent No. 4,859,582

**Pituitary Acetone Powder**

**Sigma P 3034** Carp

## Proteins

**Sigma P 3909** Salmon

### Pituitary Extract

**Sigma P 1476** Bovine 0.2 µm filtered solution in phosphate buffered saline at a concentration of ~14 mg protein/mL; endotoxin tested; cell culture tested

### Placenta Growth Factor

**ICN 195732** Human recombinant, expressed in *E. coli* ≥97%; lyophilized | Binds with high activity to Flt-1 but not KDR/Flk-1

### Placental Lactogen, Human

**USBio P4220-20** Human ≥90% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL Lowry & DPC EIAkit supplied in PBS, pH 7.4, no preservative | Suitable for antigenic applications in immunological protocols

### Plasmin

**Synonyms:** Fibrinolysin

**Cortex CP1071** >95%

**USBio P4256** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL supplied in 100 mM sodium phosphate | Suitable for antigenic applications in immunological protocols

**Biodesign A50192H** Human plasma Purified

**Fluka 80955** Human plasma MW 85k Lyophilized; 0.1-0.3 U/mg; ≤1 U corresponds to the amount of enzyme which hydrolyzes 1 µmol of Tos-Gly-Pro-Lys-4-NA•AcOH/min at pH 8.2, 25°C | Serine protease with trypsin-like specificity; Robbins, KC et al, *Meth Enzymol*, 80: 379, 1981; Saksela, O & Rifkin, DB, *Ann Rev Cell Biol*, 4: 93, 1988; Wiman, B & Collen, D, *Nature*, 272: 549, 1978

### Plasminogen

**Synonyms:** Profibrinolysin; Plasma Trypsinogen

**Cortex CP1072** >95%

**Cortex CP2109U** Bovine >98%

**ICN 194097** Bovine plasma Precursor to the serine protease, plasmin

**Sigma P 9156** Bovine plasma Lyophilized powder containing ~5% protein (Biuret); balance primarily NaCl, EDTA, lysine, Tris buffer salts; ε-aminocaproic acid free; activity: 3-5 U/mg protein; unit definition: 1 U produces a ΔA<sub>275</sub> of 1.0 from α-casein/20 min at pH 7.5, 37°C, when measuring perchloric acid soluble products in a volume of 5.0 mL; activity determined after activation to plasmin with urokinase | Not suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**Sigma P 3281** Horse plasma Lyophilized powder containing ~5% protein (Biuret); balance primarily NaCl, EDTA, lysine, Tris buffer salts; ε-aminocaproic acid free; activity: 3-6 U/mg protein; <0.01 U plasmin/U plasminogen; unit definition same as for Sigma P 9156 | Not suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**USBio P4256-25** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized from 0.02 M Tris HCl buffer, pH 7.5 with 2 mM EDTA | Suitable for antigenic applications in immunological protocols

**Biodesign A50182H** Human plasma Purified | Platelets & hemostasis reagents

**Biogenesis 7440-1004** Human plasma MW 90k Free of Lys and EACA; tested negative for HBsAg, HIV and HCV antibodies; purified; 50 mM sodium phosphate, 2 mM EDTA, 2 mg D-mannitol, 2 mg NaCl, pH 7.5; liquid

**Calbiochem 528175** Human plasma MW 90k Solid lyophilized from 20 mM Tris-HCl, 2 mM EDTA, pH 7.5; ≥95% (SDS-PAGE); SA: ≥120 U/mg protein; one U is the amount of enzyme that will hydrolyze 1.0 mmol *N*-Tosyl-Arg ethyl ester in 30 min at 37°C, pH 8.0; soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Single chain glycoprotein containing 790 AA residues; found in normal plasma at ~12 mg/100 mL; inactive precursor of the serine protease plasmin; converted to the active protease by cleavage at Arg<sup>560</sup>; *Merck Index*, 12: 7679; Korner, G et al, *J Cell Physiol*, 154: 456, 1993

**Calbiochem 528178** Human plasma MW 90k EACA-free; Lys-free; solid lyophilized from 10 mg D-mannitol, 10 mg NaCl & phosphate buffer, pH 7.5; SA: ≥10 U/mg protein; one U is the amount of enzyme that will hydrolyze 1.0 mmol *N*-Tosyl-Gly-Pro-Lys-pNA/min at 25°C, pH 7.8; soluble in water; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | *Merck Index*, 12: 7679

**Fluka 80959** Human plasma MW 90k Lyophilized; 0.1-0.3 U/mg after activation with urokinase; ≤1% plasmin; 1 U corresponds to the amount of enzyme which hydrolyzes 1 µmol of Tos-Gly-Pro-Lys-4-NA•AcOH/min at pH 8.2, 25°C

**ICN 191342** Human plasma MW 90-94k >98% (SDS-PAGE); lyophilized; 20 mM Tris-HCl buffer, 2 mM EDTA, pH 7.5; 1 U hydrolyzes 1 µmole *N*-Tosyl-L-Arginine Ester/30 min at 37°C, pH 8.0 | Sottrup-Jensen, L et al, *Prog Chem Fibrinolysis Thrombolysis*, 3:191, 1978

**ICN 194079** Human plasma Purified protein; glycine & NaCl stabilizers | Rijken, DC et al, *Thromb Haemostas*, 60(5):867, 1993

**ICN 194094** Human plasma Precursor to the serine protease, plasmin

**Sigma P 5661** Human plasma Lyophilized powder containing ~5% protein (Biuret); balance primarily NaCl, EDTA, lysine, Tris buffer salts; ε-aminocaproic acid free; activity: 6-9 U/mg protein; <0.0001 U plasmin/U plasminogen; unit definition same as for Sigma P 9156 | Source material negative for HIV & HBsAg; suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**Sigma P 7397** Human plasma Lyophilized powder containing ~2% protein (Lowry); balance primarily NaCl, EDTA, lysine, Tris buffer salts; ε-aminocaproic acid free; activity: 6-9 U/mg protein; <0.01 U plasmin/U plasminogen; unit definition same as for Sigma P 9156 | Source material negative for HIV & HBsAg; not suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**Sigma P 2284** Rabbit plasma Lyophilized powder containing ~5% protein (Biuret); balance primarily NaCl, EDTA, lysine, Tris buffer salts; ε-aminocaproic acid free; activity: 4-10 U/mg protein; <0.01 U plasmin/U plasminogen; unit definition same as for Sigma P 9156 | Not suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**Biogenesis 7440-6059** Rat serum Lyophilized

### Plasminogen Activator Inhibitor I

**Cortex CP1123** >95%

**Calbiochem 528208** Human recombinant, expressed in mutant MW 43k Liquid in 150 mM NaCl, 50 mM sodium phosphate buffer, 1 mM EDTA, pH 6.6; biological activity: >99% (uPA assay); >95% (SDS-PAGE); highly purified | Highly purified preparation of an altered form of human PAI-1 containing four mutated AA; virtually unable to go latent & is stable at elevated temperature & pH for extended periods of time; inhibits uPA & tPA; Berkenpas, MB et al, *EMBO J*, 14: 2969, 1995

**Calbiochem 528213** Human recombinant, expressed in mutant MW 43k Liquid in 150 mM NaCl, 50 mM sodium phosphate buffer, 1 mM EDTA, pH 6.6; biological activity: ≥90% (uPA assay); ≥90% (SDS-PAGE); highly purified | Contains a single minor conservative AA substitution Ile<sup>91</sup>→Leu<sup>91</sup> which gives the inhibitor increased half life (~4 fold increase over the native recombinant form)

**Calbiochem 528214** Rat recombinant MW 43k Liquid in 200 mM NaCl, 50 mM sodium phosphate buffer, 1 mM EDTA, pH 6.6; biological activity: >90% (uPA assay); >95% (SDS-PAGE) | Inhibits human uPA



**Plasminogen Affinity Form I, Glu-**

*Synonyms:* Profibrinolysin

**Cortex CP2105U** Human >98%

**ICN 194095** Human plasma Isolated by gradient elution | Carbohydrate variant; precursor to the serine protease, plasmin

**Plasminogen Affinity Form II, Glu-**

*Synonyms:* Profibrinolysin

**Cortex CP2106U** Human >98%

**ICN 194096** Human plasma Isolated by gradient elution | Carbohydrate variant; precursor to the serine protease, plasmin

**Plasminogen Lysine Binding Site I**

*Synonyms:* Plasminogen LBS I

**Sigma P 1667** Human plasminogen Lyophilized from 25 mM ammonium bicarbonate; protein by Biuret; obtained from purified human plasminogen after digestion with elastase | Contains the 1<sup>st</sup> 3 triple-loop structures (number 1-3) in the plasmin A-chain (Kringle 1+2+3); this part of the plasmin(ogen) molecule shown to bind  $\alpha$ 2-antiplasmin; source material negative for HIV & HBsAg; Sottrup-Jensen, L et al, in *Progress in Chemical Fibrinolysis & Thrombolysis*, Vol 3: 191, Davidson, JF et al, eds, Raven Press, New York, 1978; Wiman, B et al, *Biochim Biophys Acta*, 579: 142, 1979

**Plasminogen, Glu-**

*Synonyms:* Profibrinolysin

**Cortex CP2104U** Human >98%

**Calbiochem 528180** Human plasma MW 90k Liquid in 50 mM Tris-HCl, 100 mM NaCl, pH 7.5; single band purity (SDS-PAGE); no plasmin activity detected; SA: 23-27 U/mg protein; one U is the amount of enzyme that changes absorbance by 1.0 U at 275 nm/20 min at 37°C, pH 7.5 using casein as substrate; prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Can be activated to the serine protease plasmin via action of streptokinase, tissue plasminogen activator or urokinase; *Merck Index*, 12: 7679

**Sigma P 2422** Human plasma Lyophilized from 0.02 M phosphate buffer, pH 7.3; contains 0.1 M NaCl; vial contains ~0.5 mg protein ( $E_{280}$  at 1%); unit definition same as for Sigma P 9156 | Source material negative for HIV & HBsAg; not suitable for clot formation procedure for streptokinase; 1 Sigma U = 3 WHO U (1<sup>st</sup> British standard-78/646)

**Plasminogen, Lys-**

*Synonyms:* Profibrinolysin

**Cortex CP2108U** >98%

**Calbiochem 528185** Human plasma MW 83k Liquid in 50 mM Tris-HCl, 100 mM NaCl, pH 7.4; homogeneous purity (SDS-PAGE); prepared from plasma shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Purified from homogeneous Glu-plasminogen by activation with plasmin; activation results in the release of a 76 residue peptide (Glu<sup>1</sup>-Lys<sup>76</sup>); Lys<sup>77</sup>-plasminogen readily converted to Lys<sup>77</sup>-plasmin by any of the common plasminogen activators; *Merck Index*, 12: 7679

**Platelet Activating Factor, Lyso N-(Me-<sup>14</sup>C)-**

**ARC ARC-405** 50-60 mCi/mmol; 1.85-2.22 GBq/mmol; in toluene:ethanol (1:1) | Radiochemical

**Platelet Derived Endothelial Cell Growth Factor**

**Sigma P 5208** Human recombinant, expressed in Sf 21 insect cells MW 45k >97% (SDS-PAGE); 0.2  $\mu$ m filtered & lyophilized from phosphate buffered saline containing 500  $\mu$ g BSA; proliferative activity is measured in culture by using a human umbilical vein endothelial cells; endotoxin tested | Endothelial cell mitogen originally purified from human platelets; doesn't bind to heparin & doesn't stimulate the proliferation of fibroblasts; this is in contrast with the effect of PDGF which stimulates the growth of human foreskin fibroblasts, but was inactive on endothelial cells; stimulates endothelial cells *in vitro* & *in vivo*; chemotactic for bovine aortic endothelial cells however doesn't induce smooth muscle cell migration; involved in angiogenesis & has potent angiogenic activity both in the developing vascular system of the chick chorioallantoic membrane & vascularization of tumor cells in nude mice; has a pI of 4.0-4.8; Miyazano, K et al, *J Biol Chem*, 262: 4098, 1987; Lobb, RR et al, *Analyt Biochem*, 154: 1, 1986; Ishikawa, F et al, *Nature*, 338: 557, 1989; Usuki, K et al, *Cell Regulation*, 1: 577, 1990

**ICN 195740** Human recombinant, expressed in Sf21 >97%; lyophilized; ED<sub>50</sub> = 20-40 ng/mL

**Platelet Derived Growth Factor**

**ICN 154131** Human platelet >97%; lyophilized carrier free; ED<sub>50</sub> = 1.0-3.0 ng/mL, 1 U stimulates dose-dependent uptake of <sup>3</sup>H-thymidine by NR6R-3T3 fibroblasts

**Biogenesis 7460-0504** Human platelets Lyophilized

**Calbiochem 521200** Human platelets MW 28k, 32k >97% (SDS-PAGE); lyophilized from filter-sterilized 25% acetonitrile, 0.1% TFA; biological activity: ED<sub>50</sub>=1.0-3.0 ng/mL as measured in a mitogenic assay using quiescent NR6-3T3 fibroblasts; endotoxin:  $\leq$ 100 pg/ $\mu$ g PDGF | Consists of ~70% PDGF-AB & may contain ~30% PDGF-BB; action is mediated by cell surface  $\alpha$ - &  $\beta$ -receptors; *Merck Index*, 12: 7683; Abboud, HE et al, *J Cell Physiol*, 158: 140, 1994; Soma, Y et al, *Exp Cell Res*, 212: 274, 1994; Hammacher, A et al, *J Biol Chem*, 263: 16493, 1988

**Sigma P 8147** Human platelets MW 28-31k >95% (SDS-PAGE); lyophilized & carrier-free; 0.25  $\mu$ g/vial; endotoxin tested | Principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985

**ICN 150204** Human platelets (outdated) Lyophilized;  $\geq 5 \times 10^4$  U/mg protein, 1 U stimulates DNA synthesis in 50% of the 3%<sup>3</sup> cells in a confluent monolayer using a microtiter plate (0.2 mL/well) assay system; partially purified via cation-exchange, size-exclusion & hydrophobic systems

**ICN 150020** Porcine platelet Partially purified, sterile solution in 400 mL 1 M NaCl, 10 mM NaPO<sub>4</sub>, pH 7.4, 50% (v/v) ethanediol; 1 U gives 50% maximal stimulation of untransformed Swiss 3T3 cells in a DNA synthesis assay in 2 mL serum-free medium in a 30 mm tissue culture dish | Stroobant, P & MD Waterfield, *EMBO J*, 3:2963, 1984

**ICN 153503** Porcine platelet >95%; frozen liquid, 30% acetonitrile, 0.1% TFA;  $\geq 30,000$  U/mg protein, 1 U gives 50% maximal stimulation of untransformed Swiss 3T3 cells in a DNA synthesis assay in 2 mL serum-free medium in a 30 mm tissue culture dish

**Biogenesis 7460-2002** Porcine platelets Liquid

**Calbiochem 521300** Porcine platelets MW 38k >97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA; endotoxin:  $\leq$ 100 pg/ $\mu$ g PDGF | Consists primarily of PDGF-BB homodimers; *Merck Index*, 12: 7683; Fretto, LJ et al, *J Biol Chem*, 268: 3625, 1993; Stroobant, P & Waterfield, MD, *EMBO J*, 3: 2963, 1984

**Sigma P 8953** Porcine platelets ≥97% (SDS-PAGE); lyophilized & carrier-free; biological activity was determined by measuring the PDGF dependent <sup>3</sup>H-thymidine incorporation in quiescent NR6R-3T3 fibroblasts; endotoxin tested | Principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985

<b>Biogenesis 7460-0604</b>	r-DNA	Lyophilized
<b>Biogenesis 7460-0625</b>	r-DNA	<sup>125</sup> I conjugated; liquid
<b>Biogenesis 7460-0654</b>	r-DNA	Lyophilized
<b>Biogenesis 7460-0704</b>	r-DNA	Liquid
<b>Biogenesis 7460-1004</b>	r-DNA	<sup>125</sup> I conjugated; liquid

**Platelet Derived Growth Factor AA**

**Biodesign A52113H** *E. coli* MW 26.5k Purified  
**Chemicon GF017** Human ≥95%

**BioSource International PHG0034** Human recombinant  
**Oncogene PF009** Human recombinant MW 30k (dimer, SDS-PAGE) ≥97% (SDS-PAGE); lyophilized; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by NIH/3T3 fibroblasts ~2 ng/mL | Species reactivity: human & mouse; for proliferation studies & Western blot; will act on both human & mouse cells

**Sigma P 3076** Human recombinant ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA without stabilizer proteins; endotoxin tested | Recombinant human PDGF-AA is the dimer of the A chain of human PDGF expressed in *E. coli*; principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985

**Calbiochem 521215** Human recombinant, expressed in *E. coli* MW 29k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA; endotoxin: ≤100 pg/µg PDGF-AA | Disulfide-linked dimer of two a-chain monomers; AA sequence is the long form of mature human PDGF-A chain & is identical to that deduced from the native human nucleotide sequence except for the addition of an N-terminal methionine group; implicated in the differentiation of cells of the oligodendrocyte lineage; *Merck Index*, 12: 7683; Butt, AM et al, *J Neurosci Res*, 48: 588, 1997; Westermarck, B & Heldin, C-H, *Cancer Res*, 51: 5087, 1991; Betsholtz, C et al, *Nature*, 320: 695, 1986

**Fitzgerald 30-AP28** Human recombinant, expressed in *E. coli*

**ICN 153476** Human recombinant, expressed in *E. coli* MW ~28k >97%; lyophilized; ED<sub>50</sub> = 1.0-5.0 ng/mL; 1 U stimulates <sup>3</sup>H-thymidine incorporation by NR6R-3T3 fibroblasts

**PeproTech 100-13A** Human recombinant, expressed in *E. coli* MW 28.5k (A chain homodimer) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent mitogen for a wide range of cell types including fibroblasts, smooth muscle & connective tissue; composed of a dimer of two chains, A & B; present as AA or BB homodimers or AB heterodimer; 250 amino acids; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BALB/c 3T3 cells

**IBT GF-080-3, GF-080-5** Human recombinant, expressed in yeast >95 %; lyophilized powder | Composed of 2 identical polypeptide chains attached by disulfide bonds; fully active as measured by mitogenic assay involving stimulation of <sup>3</sup>H-thymidine incorporation into NIH-3T3 cells

**Amersham VPF009** Recombinant Human & rat cross-reactivity | Useful for proliferation assay; growth/death factor interactions

**Platelet Derived Growth Factor AA, α-**

**Harlan BT-3020** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3021** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg

**Platelet Derived Growth Factor AB**

**Biodesign A52000H** *E. coli* MW 25.5k Purified

**BioSource International PHG0134** Human recombinant

**Sigma P 3326** Human recombinant ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA without carrier proteins; endotoxin tested | Recombinant human PDGF-AB is the heterodimer of the A & B chains of PDGF expressed in *E. coli* & disulfide linked; principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985

**Sigma P 6684** Human recombinant ≥95% (SDS-PAGE); 0.2 µm filtered solution of 0.2 mL acetate buffered saline without stabilizer proteins; endotoxin tested | Recombinant human PDGF-AB is the heterodimer of the A & B chains of PDGF expressed in *E. coli* & linked by glutathione-facilitated dimerization; principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985

**Calbiochem 521220** Human recombinant, expressed in *E. coli* MW 27k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA; endotoxin: ≤100 pg/µg PDGF-AB | Produced by the *in vitro* dimerization of PDGF-A & PDGF-B monomers; *Merck Index*, 12: 7683; Hannink, M & Donoghue, DJ, *Biochim Biophys Acta*, 989: 1, 1989; Williams, LT, *Science*, 243: 1564, 1989; Betsholtz, C et al, *Nature*, 320: 695, 1986; Deuel, TF, *Ann Rev Cell Biol*, 3: 443, 1987; Johnson, A et al, *EMBO J*, 3: 921, 1984

**ICN 160063** Human recombinant, expressed in *E. coli* >97%; lyophilized; ED<sub>50</sub> = 1.0-3.0 ng/mL; 1 U stimulates <sup>3</sup>H-thymidine incorporation by NR6R-3T3 fibroblasts | Homodimer

**PeproTech 100-00AB** Human recombinant, expressed in *E. coli* MW 25.5k (heterodimer, 13.3k A & 12.2k B chain) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent mitogen for a wide range of cell types including fibroblasts, smooth muscle & connective tissue; composed of a dimer of two chains, A & B; present as AA or BB homodimers or AB heterodimer; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BALB/c 3T3 cells

**Platelet Derived Growth Factor BB****Biodesign A52114H** *E. coli* MW 25k Purified**Chemicon GF018** Human ≥95%**BioSource International PHG0044** Human recombinant**Oncogene PF010** Human recombinant MW 32k (homodimer) >97% (SDS-PAGE); lyophilized with 100 µg BSA; biological activity: half maximal stimulation of <sup>3</sup>H-thymidine uptake by 3T3 fibroblasts ~2 ng/mL | Species reactivity: human; for proliferation studies & Western blot**Sigma P 3201** Human recombinant ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA without stabilizer proteins; biological activity is tested in culture by measuring its ability to stimulate <sup>3</sup>H-thymidine incorporation in NR6R-3T3 fibroblasts; endotoxin tested | Recombinant human PDGF-BB is the dimer of the B chain of human PDGF expressed in *E. coli*; principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985**Sigma P 4306** Human recombinant ≥95% (SDS-PAGE); 0.2 µm filtered & lyophilized without stabilizer proteins; endotoxin tested | Recombinant human PDGF-BB is the dimer of the B chain of human PDGF expressed in *E. coli*; principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985**Calbiochem 521225** Human recombinant, expressed in *E. coli* MW 25k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA; endotoxin: ≤100 pg/µg PDGF-BB | Disulfide-linked dimer of two 109 AA B-chain monomers; potent chemoattractant for neutrophils, mesenchymal & mononuclear cells; same AA sequence as mature human PDGF-B; rapidly activates protein kinase D in vascular smooth muscle cells; *Merck Index*, 12: 7683; Westermarck, B & Heldin, C-H, *Cancer Res*, 51: 5087, 1991; Abedi, H et al, *FEBS Lett*, 427: 209, 1998; Abboud, HE et al, *J Cell Physiol*, 158: 140, 1994; Johnson, A et al, *EMBO J*, 3: 921, 1984**Fitzgerald 30-AP29** Human recombinant, expressed in *E. coli***ICN 153477** Human recombinant, expressed in *E. coli* >97%; lyophilized; ED<sub>50</sub> = 1.0-3.0 ng/mL; 1 U stimulates <sup>3</sup>H-thymidine incorporation by NR6R-3T3 fibroblasts | Homodimer; suitable for receptor binding applications & iodination procedures**PeproTech 100-14B** Human recombinant, expressed in *E. coli* MW 24.3k (B chain homodimer) >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent mitogen for a wide range of cell types including fibroblasts, smooth muscle & connective tissue; composed of a dimer of two chains, A & B; present as AA or BB homodimers or AB heterodimer; 250 amino acids; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by dose-dependent stimulation of thymidine uptake by BALB/c 3T3 cells**IBT GF-070-3, GF-070-5** Human recombinant, expressed in yeast >97%; lyophilized powder | Fully active as determined by its mitogenic activity measured by stimulation of <sup>3</sup>H-thymidine incorporation into human foreskin fibroblasts**Sigma P 4056** Rat recombinant, expressed in *E. coli* ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA containing 2.5 mg BSA; biological activity is tested in quiescent NR6R-3T3 fibroblasts; endotoxin tested | Principal mitogen found in mammalian serum & is released from platelets during clot formation; elicits multifunctional actions with a variety of cells, including mitogenesis of mesoderm-derived cells, increased extracellular matrix synthesis, & chemotaxis & activation of neutrophils, monocytes & fibroblasts; mitogenic for dermal & tendon fibroblasts vascular smooth muscle cells, glial cells & chondrocytes; appears to interact with Transforming Growth Factor-1 in accelerating wound healing; pathogenic in arteriosclerosis & neoplasia; the mitogenic activities of all PDGF products are tested in culture using Swiss 3T3 cells or NR6-3T3 fibroblasts; Pierce, G et al, *J Cell Biol*, 109: 429, 1989; Ross, R et al, *Proc Natl Acad Sci USA*, 71: 1207, 1974; Ross, R, *Arteriosclerosis*, 1: 293, 1981; Raines, E et al, *Meth Enzymol*, 109: 749, 1985**Amersham VPF010** Recombinant Human cross-reactivity | Useful for proliferation assay; growth/death factor interactions**Platelet Derived Growth Factor BB, β-****Harlan BT-3022** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg**Harlan BT-3023** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg**Platelet Derived Growth Factor Receptor α, Human Extracellular Domain****IBT GR-080-3, GR-080-5** Human recombinant, expressed in *Spodoptera frugiperda* insect cells (Sf9) >85%; 0.50 mg prot/mL in 10 mM Tris-HCl, pH 7.0 | Binds the ligand (PDGF), as demonstrated by immobilizing the PDGF receptor extracellular domain & establishing competition of binding with radioiodinated PDGF**Platelet Derived Growth Factor Receptor β (Fc Chimera)****Oncogene PF079** Human recombinant MW 84k/150k (glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.01-0.03 µg/mL in the presence of 4 ng/mL of recombinant human PDGF BB as measured by its ability to inhibit PDGF BB induced <sup>3</sup>H-thymidine incorporation in NR6R-3T3 fibroblasts | Species reactivity: human; for proliferation studies; as a result of glycosylation, the recombinant human PDGF Rβ/Fc migrates as a 150 k protein in SDS-PAGE**Platelet Derived Growth Factor Receptor β, Human Extracellular Domain****IBT GR-070-3, GR-070-5** Human recombinant, expressed in *Spodoptera frugiperda* insect cells (Sf9) >85%; 0.50 mg prot/mL in 10 mM Tris-HCl, pH 7.0 | Binds the ligand (PDGF), as demonstrated by immobilizing the PDGF receptor extracellular domain & establishing competition of binding with radioiodinated PDGF**Platelet Derived Growth Factor Soluble Receptor α****Oncogene PF080** Human recombinant MW 56k >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 1-3 µg/mL in the presence of 10 ng/mL of recombinant human PDGF AA as measured by its ability to inhibit PDGF AB or recombinant human PDGF AA in quiescent NR6R-3T3 fibroblasts | Species reactivity: human; for competition studies**Platelet Factor IV****Biodesign A52316H** *E. coli* MW 8k Purified**Chemicon GF019** Human ≥95%**Cortex CP3096U** Human >98%

## Proteins

**Sigma F 1385** Human fresh platelet-rich plasma Lyophilized from 1 mL protein solution containing 0.4 M NaCl & 10 mM Tris, pH 8.2 | In double diffusion assay, protein gives a single arc against anti-human platelet factor 4 & no arc against anti-human whole serum; Campbell, PJ, *J Biol Stand*, 2: 259, 1974

**ICN 195808** Human platelets ≥98%; lyophilized; negative for HBsAg & HIV | Heparin-binding protein from α-granules of activated platelets

**Fitzgerald 30-AP50** Human recombinant, expressed in *E. coli*

**ICN 160264** Human recombinant, expressed in *E. coli* ≥98%; lyophilized; ED<sub>50</sub> = 50 ng/mL; 1 U exerts maximal chemotactic activity on human fibroblasts in a modified Boyden chamber | Heparin neutralizing protein which affects the immune response; may increase the normal immune response or restore suppressed immune systems

**PeproTech 300-16** Human recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 70 AA; structurally related to human IL-8 & GROα; chemoattractant for human fibroblasts & certain other cells; SA determined by its ability to chemoattract human fibroblasts

### Pleiotrophin

**Synonyms:** Heparin Binding Brain Mitogen; Heparin Binding Growth Factor VIII; Heparin Binding Growth Associated Molecule; Osteoblast Specific Factor I

**BioSource International PHC7075** Human recombinant

**Oncogene PF050** Human recombinant MW 15.3k >97% (SDS-PAGE); lyophilized in PBS; biological activity: optimal neurite outgrowth of cerebral cortical neurons of E10 chick embryos was observed with 3-8 µg/mL of recombinant human pleiotrophin | Species reactivity: human; for proliferation studies; can be used as an attachment substrate to stimulate neurite outgrowth in mixed cultures of embryonic rat, mouse or chicken brain cells

**Sigma P 5333** Human recombinant, expressed in Sf 21 insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline; pleiotrophin is measured in culture by neurite outgrowth of chick embryos; endotoxin tested | May be the first member of a family of developmentally regulated cytokines; active in growth & development; pleiotrophin gene is highly expressed in brain, uterus, gut, muscle, lung & skin; pleiotrophin mRNA is expressed in osteoblasts, chondrocytes, fibroblasts, astrocytes, Schwann cells & tumor cells; mitogenic & neurite outgrowth activity; extraordinary conservation between AA sequences of bovine, human & rat species; Li, YS et al, *Science*, 250: 1690, 1990; Tezuka, KI et al, *Biochem Biophys Res Commun*, 173: 246, 1990; Milner, PG et al, *Biochem Biophys Res Commun*, 165: 1096, 1990; Merenmies, J et al, *J Biol Chem*, 265: 28, 1990; Hampton, BS et al, *Mol Biol Cell*, 3: 85, 1992

**ICN 195727** Human recombinant, expressed in Sf21 ≥97%; lyophilized | Enhances neurite outgrowth of cerebral cortical neurons

### Pokeweed Antiviral Toxin

**ICN 158825** *Phytolacca americana* (pokeweed) leaves MW 29k (PAP), MW 30k (PAP II) PAP mitogen free (SDS-PAGE); 1 U inhibits protein synthesis by 50% (IC<sub>50</sub>) in a cell-free translation system | Hemitoxin with A chain but no B chain activity; plant protein with antiviral & anticellular activity; specific site of action is the Ef-2 mediated translocation step to the elongation cycle during protein synthesis; exists as two forms: pokeweed antiviral protein (PAP, 29k MW) & PAP II (30k MW)

### PRAK, Active

**USBio P5600-05**

### PRAK, Inactive

**USBio P5600-07** Recombinant, expressed in Sf9 cells Recombinant full-length human PRAK with an N-terminal His-tag; purified using Ni-NTA agarose

## Pregnancy Specific βI-Glycoprotein

**Synonyms:** SP1; Schwangerschaft Protein

**Calbiochem 529580** Human retroplacental serum MW 100k Lyophilized solid; ≥90% (SDS-PAGE); immunological activity: fully active in ELISA with anti-SP1 antibodies; prepared from serum shown to be negative for HBsAg & for antibodies to HIV & HCV | Produced by syncytiotrophoblastic cells; useful for screening normal & pathological pregnancy, screening & monitoring trophoblastic disease & differentiating between benign & malignant trophoblastic disease; lower levels are also indicative of Down's syndrome; Joe, TW et al, *Biochim Biophys Acta*, 1219: 195, 1994; Kalenga, MK et al, *Eur J Pharm Mol Pharmacol*, 16: 231, 1994; Wu, S-M & Chan, W-Y, *Am J Human Genetics*, 55: A290, 1994

### Proinsulin

**ICN 156374** Human recombinant, expressed in *E. coli*

**Sigma P 4672** Human recombinant, expressed in *E. coli* Lyophilized; may contain trace of NH<sub>4</sub>HCO<sub>3</sub>

### Prolactin

**Cortex CP1114** >95%

**Cortex CP1114P** >40%

**ICN 151951** Human Iodination grade; >98%; lyophilized; 30 IU/mg; <0.3% hFSH, hTSH; <1.0% hLH | WHO/IRP 75/504

**USBio P9009-21** Human ≥80% (SDS-PAGE); hFSH/hTSH/hCG <0.01%, hLH <0.03%, hGH <0.1%; lyophilized from 0.5 M ammonium bicarbonate | Suitable for antigenic applications in immunological protocols

**Biogenesis 7770-0959** Human pituitary MW ~22.8k (multiple bands on SDS-PAGE) Tested negative for antibodies to HBsAg, HCV, HIV-1 and HIV-2; SA: 100 mIU/vial; purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 7770-1009** Human pituitary MW 23k <0.30% hLH, <0.1% hGH, <0.05% hFSH, <0.2% hTSH; essentially salt free; tested negative for HBsAg, HCV, HIV 1 and 2; purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 7770-1009-1mg** Human pituitary MW 23k <0.30% hLH, <0.1% hGH, <0.05% hFSH, <0.2% hTSH; essentially salt free; tested negative for HBsAg, HCV, HIV 1 and 2; purified; from 0.05 M NH<sub>4</sub>HCO<sub>3</sub>, pH 8.0; lyophilized

**Biogenesis 7770-1104** Human pituitary Lyophilized

**Calbiochem 869039** Human pituitary MW 22.8k Iodination grade; lyophilized solid; immunopotency: ≥30 IU/mg (WHO 1<sup>st</sup> IRP 75/504); soluble in ethanol & methanol; hLH, hTSH, hGH: ≤1.0%; hFSH: ≤0.5%; shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; may be carcinogenic/teratogenic | Single chain peptide hormone required for lactation in mammals; inhibits secretion of gonadotropins; prolactin receptors are present in breast tissue, adrenals, ovary, testis, kidney & liver; *Merck Index*, 12: 7961

**Fitzgerald 30-AP05** Human pituitary gland Affinity purity

**Fitzgerald 30-AP10** Human pituitary gland Standard purity

**USBio P9009-25** Human pituitary gland ≥98% (SDS-PAGE); hFSH/hTSH/hCG <0.01%, hLH <0.03%, hGH <0.1%; lyophilized from 0.5 M ammonium bicarbonate | Suitable for antigenic applications in immunological protocols

**Biodesign A86848H** Human pituitary glands 98%

**USBio P9009-27** Human pituitary glands ≥40% (SDS-PAGE); lyophilized from 50mM ammonium bicarbonate

**Biogenesis 7770-3004** Ovine pituitary MW 24k Purified; from 0.05 M ammonium bicarbonate buffer, pH 8.0; lyophilized | A member of the growth-hormone placental lactogen family; has 2 disulfide bonds and one Asn-Thr-Ser glycosylation site; partially glycosylated representing 70% of the circulating prolactin

**Biogenesis 7770-3509** Porcine pituitary <0.5% pGH, <0.1% pLH/pFSH/pTSH; purified; 0.05 M NH<sub>4</sub>HCO<sub>3</sub>; lyophilized

**Biogenesis 7770-5504** Rat pituitary <0.5% rGH, <0.05% rLH, <0.03% rTSH/rFSH; purified; 0.05M ammonium bicarbonate, pH 8.0; lyophilized | A member of the growth hormone-placental lactogen family; 2 disulfide bonds and free amino and carboxy-terminal AA; 1 Asn-Thr-Ser glycosylation site; partially glycosylated and is thought to represent 70% of circulating prolactin

**Fitzgerald 30-AP06** Recombinant expressed in *E. coli*

**USBio P9009-26** Recombinant, expressed in *E. coli* ≥99% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized | Suitable for antigenic applications in immunological protocols; SA: 20-30 IU

### Pronectin F

**BioSource International PNE0013**

### Prostaglandin F2a

**USBio P9054-05** ≥99%; lyophilized | Suitable for antigenic applications in immunological protocols

### Prostate Specific Antigen

**Cortex CP1017** >95%

**Cortex CP1017P** >40%

**Cortex CP1017U** >98%

**Fitzgerald 30-AP15E** Enzymatically active High purity

**USBio P9054-52** Human Iodination grade, 99%; PSA content determined by Abbott ELISA, total protein by Lowry & Optical density; SDS-PAGE shows single band; 2.7 mg/mL (Abbott IMX) supplied in 50 mM Tris buffer, 150 mM NaCl, pH 8.0; sterile filtered; no azide added | Suitable for antigenic applications in immunological protocols

**Biodesign A32310H** Human fluids ≥50% | Tumor marker, cancer antigens & oncogenes

**Biodesign A32874H** Human fluids ≥95% | Tumor marker, cancer antigens & oncogenes

**Biogenesis 7820-0504** Human seminal fluid Tested negative for HIV I and II antibodies, Hepatitis B surface antigen and HCV antibody; purified; 0.05 M Phosphate buffer, pH 7.5, 0.15 M NaCl, 0.1% NaN<sub>3</sub>; liquid

**Biogenesis 7820-0604** Human seminal fluid Liquid

**Calbiochem 539832** Human seminal fluid Liquid in 10 mM Tris, 0.1% NaN<sub>3</sub>, pH 8.0; sterile-filtered; preservative- & reductant-free; no perchloric acid or detergents were used; ≥98% (SDS-PAGE); prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | Prostate tumor marker; higher levels are reported in patients with prostate cancer; Culkun, DJ et al, *Prostate*, 26: 1, 1995

**Calbiochem 539834** Human seminal fluid MW 30k Liquid in 150 mM NaCl, 50 mM Tris-HCl, 0.1% NaN<sub>3</sub>, sterile-filtered; >95% (SDS-PAGE); enzymatic activity: fully biologically active as tested by its ability to hydrolyze the synthetic peptide substrate MeO-Suc-Arg-Pro-Tyr-pNA; prepared from fluids of individuals shown to be negative for HBsAg & for antibodies to HIV & HCV | Enzymatically active; single-chain glycoprotein, with one Asn-linked carbohydrate side chain; a preeminent clinical tumor marker in the management of patients with prostate cancer; Higashihara, E et al, *J Urol*, 156: 1964, 1996; Stamey, TA et al, *N Engl J Med*, 317: 909, 1987; Papsidero, LD et al, *Cancer Res*, 40: 2428, 1980; Kablin, JN, *Geriatrics*, 47: 23, 1992

**Fitzgerald 30-AP15** Human seminal fluid High purity

**Fitzgerald 30-AP16** Human seminal fluid Standard purity

**Sigma P 3338** Human seminal fluid ≥95% (SDS-PAGE); highly purified; solution in 0.15 M phosphate buffered saline, pH 7.4 containing 0.1% sodium azide | Not assayed by Sigma; Ambruster, DA, *Clin Chem*, 39: 181, 1993; Zhou, AM et al, *Clin Chem*, 39: 2483, 1993

**USBio P9054-51** Human seminal fluid ~75% (SDS-PAGE); ~1 mg/mL; supplied in PBS buffer, pH 7.5, 0.1% Proclin added as a preservative; 0.2 µm sterile filtered | Suitable for antigenic applications in immunological protocols; major band at ~30kD

**Biogenesis 7820-0370** Human, monoclonal mouse >90% (SDS-PAGE); affinity purified Ig; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid

**Scipac P117-7** Seminal fluid >96%; liquid in phosphate buffer; sterile filtered through 0.2µm membrane; 0.5-5 mg/mL | Tumor marker

**Scipac P117-8** Seminal fluid 40-90%; liquid in phosphate buffer; sterile filtered through 0.2µm membrane; 0.5-5 mg/mL | Tumor marker

### Prostate Specific Antigen, ACT Complex

**Cortex CP1097** >95%

**Biodesign A31029H** Human seminal fluid >95% | Tumor marker, cancer antigens & oncogenes

**Fitzgerald 30-AP13** Human seminal fluid High purity

**Fitzgerald 30-AP21** Human seminal fluid Standard purity

**USBio P9054-62** Human seminal fluid & ACT from human plasma >96% (SDS-PAGE); major band at 95kD; ~1 mg/mL liquid in 50 mM PBS, pH 7.5, 0.05% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Scipac P192-3** Seminal fluid & serum >96%; frozen in phosphate buffer; 0.75-3 mg Complex/mL | Tumor marker

### Prostate Specific Antigen, Azide Free

**Cortex CP1099** >95%; azide-free

**Scipac P117-9E** Seminal fluid >96%; liquid in phosphate buffer; azide free | Tumor marker

### Prostate Specific Antigen, Enzymatically Active

**Cortex CP1095** >95%

**USBio P9054-66** Human seminal fluid Iodination grade, 99%; enzymatically active PSA antigen; PSA content determined by Abbott ELISA, total protein by Lowry & optical density; SDS-PAGE shows single band; 1.2 mg/mL (Abbott IMX) sterile-filtered liquid in PBS, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Prostate Specific Antigen, Enzymatically Active Azide Free

**Cortex CP1105** >95%; azide-free

### Prostate Specific Antigen, Free

**Cortex CP1118** >95%

**Fitzgerald 30-AP14** Human seminal fluid High purity

**USBio P9054-60** Human seminal fluid Iodination grade, ≥99%; SDS-PAGE shows a major band at ~30kD; no contamination with the complex Alpha-1 antichymotrypsin; ~1 mg/mL supplied in 100 mM PBS, pH 7.4, 2.5% sucrose, 0.02% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

### Prostate Specific Protein 94

**USBio P9054-64** Human ≥99% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AP30** Human seminal fluid High purity

### Proteasome α-Subunit 20S

**ICN 193626** *Methanosarcina thermophila* recombinant, expressed in *E. coli* MW ~24k

**ICN 193627** *Methanosarcina thermophila* recombinant, expressed in *E. coli* MW ~22k

### Protein 14-3-3

**Synonyms:** Protein 130; Protein 131

**Biogenesis 7835-1109** Human pathogen-free brain MW 26k & 29k 98% (SDS-PAGE); 2 subunits; purified; 50 mM Tris-HCl, pH 7.4; liquid | Boston et al, *J Neurobiochem*, 38:1466, 1982

### Protein A

**Cortex CX4511** >95%

**ICN 55832** Lyophilized; salt free | Tested for binding to human IgG using radial immunodiffusion

**Fitzgerald 30-AP75** Recombinant, expressed in *E. coli*

## Proteins

**Biogenesis 7840-0604** *S. aureus* MW 42k Purified; no preservatives; lyophilized | Good binding with: human IgG1/IgG2/IgG4, mouse IgG2a/IgG2b/IgG3, rat IgG1/IgG2c, Guinea pig IgG1/IgG2, rabbit IgG, dog IgGa/IgGb/IgGc/IgGd, cow IgG2; low binding with: human IgM/IgA2, mouse IgG1, sheep/Goat IgG2

**Biogenesis 7840-2054** *S. aureus* allophycocyanin conjugated

**Biogenesis 7840-2074** *S. aureus* ; biotin conjugated; 25 mM borate, 0.9% NaCl, pH 8.0, with BSA and 0.05% NaN<sub>3</sub>; liquid | >85% activity vs immobilised human gamma globulins; >90% reactive against avidin matrix

**Biogenesis 7840-2104** *S. aureus* FITC conjugated

**Biogenesis 7840-2154** *S. aureus* FluoroBlue conjugated

**Biogenesis 7840-2204** *S. aureus* ; HRP conjugated; liquid | Homogenous band on SDS-Page at 50k

**Biogenesis 7840-2264** *S. aureus* phycocyanin conjugate

**Biogenesis 7840-0704** *S. aureus* r-DNA Lyophilized

**ICN 797001/797002** *S. aureus*, Cowan I Lyophilized; Ab binding achieved in <30 min at 4-37°C | Bacterial adsorbent; binds the F<sub>c</sub> portion of immunoglobulin of many different animal species

**ICN 797051** *S. aureus*, Cowan I 1 mg typically binds 8-12 mg human IgG | Used as a lymphocytic mitogen; stimulates polyclonal Ab secretion from human B cells

**ICN 153891** *S. aureus*, Cowan I recombinant Binding grade; lyophilized; 12-15 mg human IgG/mg solid binding capacity | Carboxy truncated with 301 AA residues; non-binding regions removed to minimize potential steric interference; F<sub>c</sub>-binding domains exhibit affinity for IgG subclasses in most mammalian species

**ICN 987051** *S. aureus*, Cowan I recombinant Lyophilized; salt free; 98%; SA equal to the most active Protein A preparations from *S. aureus*

**ICN 150050** *S. aureus*, Cowan strain MW ~42k Lyophilized, essentially salt free; 6-8 mg human IgG/mg solid binding capacity | Single polypeptide chain; 4 regions with binding activity; detects cell surface Ag & circulating immune complexes; useful in isolating IgG, as a lymphocyte mitogen, & to stimulate polyclonal Ab production from human B cells

**ICN 150051** *S. aureus*, Cowan strain Lyophilized, essentially salt free; 9-11 mg human IgG/mg solid binding capacity

**ICN 150052** *S. aureus*, Cowan strain Lyophilized, essentially salt free; 11-14 mg human IgG/mg solid binding capacity

**Biogenesis 7840-2284** *Staphylococcal* MW 240k ); PE conjugated; 3.0 M ammonium sulphate, pH 7.0, 50 mM sodium phosphate & 0.02% NaN<sub>3</sub>; liquid | Conjugate molar extinction coefficient: 1.9 x 10<sup>6</sup> at 565nm; emission max: 575nm (using excitation at 500nm

**Fitzgerald 30-AP76** *Streptococcus aureus* High purity

### Protein A, (<sup>125</sup>I)-

**ICN 68038** Immunological grade; >30 μCi/μg, >1.11 MBq/μg; 0.1 M KPB, pH 7.5, EtOH (1:1) with 0.5% BSA

**ICN 68049** Immunological grade; 2-10 μCi/μg, 74-370 kBq/μg; 0.1 M KPB, pH 7.5, EtOH (1:1) with 0.5% BSA

**ICN 68061** Immunological grade; 70-100 μCi/μg, 2.59-3.7 MBq/μg; 0.1 M KPB, pH 7.5, EtOH (1:1) with 0.5% BSA

### Protein A, Actibind SF

**ICN 684951**

### Protein A, Actibind-Ald

**ICN 684921** Prepk Col

**ICN 684941** Magnetic

**ICN 685011**

## Protein A, Agarose

**ICN 191284 ICN 797011** 5 atoms hydrophilic spacer arm; 1.2-1.5 mg protein A/mL gel; ~12-15 mg human IgG/mL gel binding capacity; suspension in PBS, 0.02% NaN<sub>3</sub> | Useful for purification of some IgG molecules

**ICN 191314 ICN 678791** Binding reagent; preweighed solid buffer mixture | Facilitates binding of monoclonal mouse IgG to protein A

**ICN 191315 ICN 678781** Fast flow grade; 5 atoms hydrophilic spacer arm; 1.2-1.5 mg Protein A/mL gel; ~12-15 mg human IgG/mL gel binding capacity; suspension in PBS, 0.02% NaN<sub>3</sub>; 3000 cmh<sup>-1</sup> flow rate possible, medium pressure matrix | Useful for purification of some IgG molecules

**ICN 191316 ICN 678891** Elution reagent; nondenaturing nontoxic neutral buffer solution, effective pH 4.0-7.0 | Elution of Ag from immunoabsorbents or immunoglobulins from Protein a

**Oncogene IP02** Solution | Recombinant bacterial agarose conjugates for the immunoprecipitation of antibodies or antibody containing complexes

**Oncogene IP06** Recombinant bacterial agarose conjugates for the immunoprecipitation & purification of antibodies or antibody containing complexes

## Protein A, Alkaline Phosphatase Conjugated

**Sigma P 9650** Lyophilized powder containing ~50% protein (Biuret); balance primarily tris-aspartate containing trace magnesium chloride & zinc sulfate; 1-2 moles Protein A (Sigma P 6650) conjugated/mole alkaline phosphatase (Sigma P 5521); alkaline phosphatase activity: 300-900 U/mg protein; 1 U hydrolyzes 1.0 μmole p-nitrophenyl phosphate/min at pH 10.4, 37°C; binding capacity: 2-5 mg of human IgG/mg protein | Coupled by a modification of the procedure of O'Sullivan, MS et al, *FEBS Lett*, 95: 311, 1978 which favors low MW conjugates

**Fluka 82494** *S. aureus*, Bovine intestinal mucosa ≥300 U/mg protein; lyophilized; 50% protein content; binding capacity: 2 mg Human IgG/mg protein; contains TRIS-aspartate salts & traces of magnesium sulfate & zinc sulfate; 1 U corresponds to the amount of enzyme which hydrolyzes 1 μmol 4-nitrophenyl phosphate/min at pH 9.8, 25°C; 0.5 M alkaline phosphatase/M protein A | Sensitive reagent to immunoscreen an expression cDNA plasmid library; Tuan, RS & Fitzpatrick, DF, *Anal Biochem*, 159: 329, 1986

## Protein A, Biotin Conjugated

**ICN 622651** Typical dilution range = 1:200-1:5000, depending on procedure | May replace labeled second Ab in many immunological studies

**ICN 678741**

**Sigma P 2065** *S. aureus* Lyophilized powder containing ~95% protein (Biuret); balance primarily sodium citrate; prepared from Sigma P 6031, coupled to biotin by an amide bond through an aminocaproyl spacer; contains 3-5 moles biotin/mole protein A

**ICN 191367** *S. aureus*, Cowan I Conjugated with AH-biotin hydroxysuccinimide ester to minimize steric interaction between biotinylated protein & avidin or streptavidin

## Protein A, DTAF Conjugated

**Sigma P 9899** Lyophilized, essentially salt-free; 10-30 μg DTAF/mg solid; binding capacity: 4-9 mg of human IgG/mg solid | Blakeslee, D & Baines, MG, *J Immunological Methods*, 13: 320, 1977

## Protein A, Extracellular

**Fluka 82485** *Staphylococcus aureus* MW 41k ≥90% protein; lyophilized; ~90% (GE) | Nature's universal anti-antibody; Suroia, A et al, *Trends Biochem Sci*, 7: 74, 1982; Lindmark, R et al, *J Immunol Meth*, 62: 1, 1983

**Fluka 82493** *Staphylococcus aureus* MW 41k Binding capacity: ~10 mg human IgG/mg solid

**Protein A, Extracellular Agarose CL-4B**

**Fluka 82483** *Staphylococcus aureus* Immobilized on cross-linked CNBr-activated agarose 4B stabilized with lactose; binding capacity: 20 mg human IgG/mL gel; 1 g powder yields 4 mL swollen gel | Immobilized for affinity chromatography

**Fluka 82486** *Staphylococcus aureus* Immobilized on cross-linked 4-nitrophenylcarbonate-activated agarose 4B; 50% suspension in 0.9% NaCl containing 0.02% thimerosal; binding capacity: 10 mg human IgG/mL gel | Immobilized for affinity chromatography; Wilchek, M & Miron, T, *Biochem Int*, 4: 629, 1982

**Fluka 82487** *Staphylococcus aureus* Immobilized on hydrophilic macroporous oxirane acrylic beads (150 µm) with an electroneutral mechanism for binding proteins via a C<sub>2</sub>-spacer; binding capacity: 5 mg human IgG/mL gel | Immobilized for affinity chromatography

**Fluka 82491** *Staphylococcus aureus* Immobilized on cross-linked CNBr-activated agarose 4B; 50% suspension in 0.5 M NaCl containing 0.02% thimerosal; binding capacity: 30 mg human IgG/mL gel | Immobilized for affinity chromatography

**Fluka 82492** *Staphylococcus aureus* Immobilized on cross-linked CNBr-activated agarose 4B stabilized with lactose; binding capacity: 20 mg human IgG/mL gel; 1 g powder yields 4 mL swollen gel | Immobilized for affinity chromatography

**Protein A, Ferritin Conjugated**

**Sigma P 6530** Sterile filtered solution containing 0.025 M sodium phosphate buffer, pH 7.5, & 0.025 M NaCl; ~25:1 mole ratio of protein A (Sigma P 6650) & Ferritin (Type I, Sigma F 4503); unbound protein A removed by gel filtration chromatography | Conjugated by the method of Carlsson, J et al, *Biochem J*, 173: 723, 1978, using SPDP; useful in electron microscopy; Wolf, P, *Anal Biochem*, 129: 143, 1983; Templeton, CL et al, *FEBS Lett*, 85: 95, 1978

**Protein A, FITC Conjugated**

**ICN 55881** Liquid in 0.02 M PBS, pH 7.3, 1% BSA, 10% glycerol, 0.05% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; tested for appropriate fluorochrome: protein ratio & immunofluorescence on purified rabbit IgG

**ICN 622801** Typical dilution range = 1:50-1:200 with PBS; modified Goding procedure | May replace labeled second Ab in many immunological studies

**ICN 797061**

**Sigma P 5145** Lyophilized, essentially salt-free; ≥50 µg FITC/mg solid; binding capacity: ≥5 mg of human IgG/mg solid | McKinney, RM et al, *Anal Biochem*, 14: 421, 1966

**ICN 191371** *S. aureus*, Cowan I Lyophilized, salt free; FITC:Protein A = 2.5-3.0; Abs max = 495 nm, Emission max = 515 nm; recommended dilutions = 1:50 to 1:200 with PBS

**Fluka 82484** *Staphylococcus aureus* ≥95% (GE); binding capacity: ~10 mg human IgG/mg solid; conjugate: 0.1 mg FITC/mg | For fluorescence; McKinney, RM et al, *Anal Biochem*, 14: 421, 1966

**Protein A, FITC/Gold Conjugated**

**ICN 154095** 5 nm colloidal gold

**ICN 154096** 10 nm colloidal gold

**ICN 154097** 15 nm colloidal gold

**Protein A, Gold Conjugated**

**ICN 154092** 5 nm colloidal gold

**ICN 154093** 10 nm colloidal gold

**ICN 154094** 15 nm colloidal gold

**ICN 678621 ICN 678622** 5 nm colloidal gold | Useful in electron microscopy

**ICN 678631 ICN 678632** 10 nm colloidal gold | Useful in electron microscopy

**ICN 678641 ICN 678642** 20 nm colloidal gold | Useful in electron microscopy

**Sigma P 1039** 10 nm Colloidal Gold labeled; mean particle diameter 8-12 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein A, extracellular (Sigma P 6031) adsorbed to colloidal gold; Horisberger, M & Clerc, MF, *Histochem*, 82: 219, 1985

**Sigma P 9660** 5 nm Colloidal Gold labeled; mean particle diameter 3.5-6.5 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein A, extracellular (Sigma P 6031) adsorbed to colloidal gold; Horisberger, M & Clerc, MF, *Histochem*, 82: 219, 1985

**Sigma P 9785** 20 nm Colloidal Gold labeled; mean particle diameter 17-23 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein A, extracellular (Sigma P 6031) adsorbed to colloidal gold; Horisberger, M & Clerc, MF, *Histochem*, 82: 219, 1985

**Fluka 82479** *Staphylococcus aureus* Labeled with colloidal gold (5 nm); suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 200 & 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; blotting test: ≤10 ng human IgG | Horisberger, M & Clerc, MF, *Histochem*, 82: 219, 1985

**Fluka 82481** *Staphylococcus aureus* Labeled with colloidal gold (10 nm); suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 200 & 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; blotting test: ≤5 ng human IgG | Roth, J, *J Microsc*, 143: 125, 1986

**Fluka 82482** *Staphylococcus aureus* Labeled with colloidal gold (20 nm); suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M sodium phosphate, pH 7.4, 0.02% PEG 200 & 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; blotting test: ≤2 ng human IgG | Bendayan, M, *J Elect Microsc Tech*, 1: 243, 1984; Taatjes, DJ et al, *Eur J Cell Biol*, 45: 151, 1987

**Protein A, Horse Radish Peroxidase Conjugated**

**ICN 55901** Liquid in 0.01 M Na PB, 0.15 M NaCl, pH 7.4, 1% Ovalbumin, 40% glycerol, 0.1% proclin

**ICN 622811** Typical dilution range = 1:1500-1:2500 for immunoblotting, 1:3000-1:5000 for ELISA | May replace labeled second Ab in many immunological studies

**ICN 191374** *S. aureus*, Cowan I 1.5 mg conjugate/mL; recommended dilution = 1:3000 to 1:5000 for ELISA

**Protein A, Insoluble**

**Sigma P 7155** *S. aureus* (Cowan strain) cells Formalin treated; ~10% (wet wt/vol) of essentially non-viable cells in 0.04 M sodium phosphate buffer, pH 7.2, 0.15 M NaCl, 0.05% sodium azide; binding capacity: ≥1.2 mg human IgG/mL suspension; produced in pure culture | Immunoabsorbent prepared to ensure reproducible binding of IgG; may be used directly as an immunoabsorbent; not intended for use as a starter culture; not processed or packaged aseptically

**Sigma P 9151** *S. aureus* (Cowan strain) cells Lyophilized cell powder containing ~20% PVP & 0.5% sodium azide; binding capacity: ≥4.0 mg human IgG bound/100 mg solid; produced in pure culture | Immunoabsorbent; yields a superior cell suspension for use as an IgG adsorbent; not intended for use as a starter culture; not processed or packaged aseptically

**Fluka 82496** *Staphylococcus aureus* Crude, lyophilized cell powder of *Staphylococcus aureus*, containing 20% PVP & 0.5% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; binding capacity: 0.05 mg human IgG/mg solid | For immunoprecipitation & isolation of antigens from cells; Kessler, SW, *Meth Enzymol*, 73: 442, 1981

**Fluka 82503** *Staphylococcus aureus* Crude 10% suspension of non-viable *Staphylococcus aureus* cells in 0.05 M potassium phosphate buffer, pH 7.5, containing 0.2% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; binding capacity: 1 mg human IgG/mg solid

**Protein A, MagaBeads™-Immobilized**

**Cortex CM3510** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

## Proteins

**Cortex CM3511** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

### Protein A, MagaCell™-Immobilized

**Cortex CM2510** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

**Cortex CM2511** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

### Protein A, Peroxidase Conjugated

**Sigma P 8651** Lyophilized powder containing ~90% protein (A<sub>205</sub>); balance primarily sodium citrate; binding capacity: 2-5 mg of human IgG/mg solid; peroxidase activity: 100-200 U/mg protein; 1 U forms 1 mg purpurogallin/20 sec from pyrogallol at pH 6.0 at 20°C | Extracellular Protein A coupled to peroxidase, Type VI by a modification of the procedure of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low MW conjugates

**Fluka 82504** *Staphylococcus aureus*, Horseseradish Binding capacity: 2-5 mg human IgG/mg solid; 150 U/mg; lyophilized; 10% sodium citrate; 1 mol peroxidase/mol protein A; 1 U corresponds to the amount of enzyme which oxidizes 1 µmol ABT/min at pH 5.0, 25°C

### Protein A, Peroxidase/Gold Conjugated

**ICN 154098** 5 nm colloidal gold

**ICN 154099** 10 nm colloidal gold

**ICN 154100** 15 nm colloidal gold

### Protein A, Pregnancy Associated Plasma

**Biodesign A86864H** Pooled retroplacental blood Purified

### Protein A, Sepharose 6MB

**Fluka 82507** Immobilized for affinity chromatography

### Protein A, Sepharose CL-4B

**Fluka 82506** Immobilized for affinity chromatography; Lindmark, R et al, *J Immunol Meth*, 62: 1, 1983

### Protein A, Soluble

**Sigma P 7837** Recombinant, expressed in *E. coli* MW 45k ≥95% (HPLC); sterile-filtered solution in water; protein concentration: ≥50 mg/mL; endotoxin tested | US Patent No. 5,151,350

**Sigma P 2164** Recombinant, produced by cDNA expressed in *E. coli* MW ~15k ≥90% (SDS-PAGE); IgG-binding fragment

**Sigma P 4931** *S. aureus* Prepared from Sigma P 6031; aseptically filled

**Sigma P 6031** *S. aureus* Purified from culture medium of a protein A-secreting *S. aureus* strain; lyophilized, essentially salt-free; binding capacity: 7-14 mg of human IgG/mg solid | Bacterial strain is a derivative of a strain from Cohen, S & Sweeney, HM, *J Bact*, 140: 1028, 1979

**Sigma P 3838** *S. aureus* (Cowan strain) cell walls Purified from cell walls; lyophilized, essentially salt-free; binding capacity: 7-14 mg of human IgG/mg solid

**Sigma P 3963** *S. aureus* (Cowan strain) cell walls Purified from cell walls; lyophilized, essentially salt-free; binding capacity: 4-9 mg of human IgG/mg solid

**Sigma P 9267** *S. aureus* (Cowan strain) cell walls Partially purified from cell walls; lyophilized, essentially salt-free; binding capacity: 3-6 mg of human IgG/mg solid | Prepared by a modification of Sjoquist, J et al, *Eur J Biochem*, 29: 572, 1972, using ion exchange chromatography

**Fluka 82526** *Staphylococcus aureus* (Cowan strain) Binding capacity: 10 mg human IgG/mg; powder

### Protein A, Sulforhodamine 101 Acid Chloride (Texas Red)

**Sigma P 8162** Lyophilized, essentially salt-free; ~1:1 mole ratio protein A: Texas Red; binding capacity: 4-9 mg of human IgG/mg solid; purified by gel filtration

### Protein A, TRITC Conjugated

**Sigma P 1775** Lyophilized, essentially salt-free; ~6:1 mole ratio TRITC: protein A; binding capacity: 4-9 mg of human IgG/mg solid | Amante, L et al, *J Immunological Methods*, 1: 289, 1972

### Protein A, β-Galactosidase Conjugated

**Sigma P 7650** Solution in 45% glycerol, 0.01 M potassium phosphate, pH 7.3, containing 10<sup>-6</sup> M magnesium chloride, 0.15 M NaCl, 1% BSA & 10 ppm 4-chloro-3,5-dimethylphenol; ~3:1 mole ratio conjugate of protein A & β-galactosidase | Used in immunosorbent detection of human IgG

### Protein A/G

**Cortex CX4513** >95%

**ICN 154601** Recombinant, *S. aureus* Cowan I strain Protein A gene & binding domains of *Strept. sp.* Lancefield Group G Protein G strain MW 45-47k Lyophilized; crystalline; salt free; 14-18 gm human IgG/mg fusion protein binding capacity | Unique fusion protein consisting of the F<sub>c</sub>-binding portions of Protein A & Protein G; will sufficiently bind F<sub>c</sub> of IgG from: human, mouse, rabbit, goat, bovine, sheep, porcine, dog, cat, horse; will not bind mouse IgA or IgM, BSA or HSA

### Protein B

**Biogenesis 7845-5006** *S. aureus* group B ; 0.1 M PBS, pH 7.5; liquid | Specific for the Fc portion of both subclasses of serum and secretory human IgA; *infect Immun*, 57:1573, 1989; *Biotechniques*, 10:748, 1991

### Protein C

**Cortex CP3047U** Bovine >98%

**ICN 194913** Bovine plasma 50% glycerol/H<sub>2</sub>O | Precursor to activated protein C (APC); Kisiel, W et al, *Methods Enzymol*, 80:320, 1981

**Cortex CP2110U** Human >98%

**ICN 194080** Human plasma Purified protein containing glycine & NaCl; <0.05 µg Factors II, VII, IX, X & Protein S | Inactivates factors V & VIII in the presence of phospholipids & Ca; Stenflo, J & RM Bertina (ed), *Churchill Livingstone*, 21, 1988

**ICN 194912** Human plasma 50% glycerol/H<sub>2</sub>O | Precursor to activated protein C (APC); Kisiel, W et al, *Methods Enzymol*, 80:320, 1981

**Biogenesis 7850-0709** Plasma Liquid

### Protein C, Activated

**ICN 194185** Human plasma Purified; <0.01 µg Factors II, VII, X & Protein S

### Protein G

**Synonyms:** IgG Fc Receptor Type III; IgG Fc Receptor Type III; IgG Fc Receptor Type III; Protein G'

**Biogenesis 7860-0207** Alkaline phosphate conjugated

**Biogenesis 7860-0504** Biotin conjugated

**Cortex CX4512** >95%



**Sigma P 2169** Group C *Streptococcus* sp. (derivative of strain 26RP66) Formalin fixed; ~10% (wet wt/vol) Cell suspension in 5 mM potassium phosphate, pH 7.2, 150 mM NaCl, 0.05% sodium azide; binding capacity: ≥100 µg human IgG/mL suspension | IgG Fc Receptor Type III; binds more efficiently to bovine, goat & sheep IgG than does Protein A; Björck, L & Kronvall, G, *J Immunol*, 133: 969, 1984; Taatjes, DJ et al, *Eur J Cell Biol*, 45: 151, 1987

**Sigma P 9659** Group C *Streptococcus* sp. (derivative of strain 26RP66) Purified; lyophilized, salt-free; binding capacity: ~9 mg human IgG/mg solid (determined by radial immunodiffusion) | Binds more efficiently to bovine, goat & sheep IgG than does Protein A; Reis, K et al, *J Immunol*, 132: 3098, 1984; Becker, W, *Immunochem*, 6: 539, 1969; Björck, L & Kronvall, G, *J Immunol*, 133: 969, 1984; Taatjes, DJ et al, *Eur J Cell Biol*, 45: 151, 1987

**Biogenesis 7860-0104** r-DNA *E. coli* MW 22k pI: 6; purified; essentially salt free; lyophilized | Binds Fc-fragment of all subclasses of IgG from human, mouse, rat, rabbit, sheep and Goat; does not bind human IgM, IgA, IgD or albumin

**Sigma P 5170** Recombinant Lyophilized, essentially salt-free; binding capacity: ~5 mg human IgG/mg solid | Engineered to eliminate non-specific binding with human serum albumin; binds more efficiently to bovine, goat & sheep IgG than does Protein A; Björck, L & Kronvall, G, *J Immunol*, 133: 969, 1984; Taatjes, DJ et al, *Eur J Cell Biol*, 45: 151, 1987

**ICN 152342 ICN 672651** Recombinant, *Streptococcal* origin Lyophilized; salt free; freely soluble in H<sub>2</sub>O & standard buffers; stable pH 2-10 | 2 IgG-binding B regions; binds both F<sub>c</sub> & F<sub>ab</sub> fragments of IgG; does not cross react with human albumin

**Fluka 82489** *Staphylococcus* species (group C) Binding capacity: 9 mg human IgG/mg solid | Reis, K et al, *J Immunol*, 132: 3098, 1984; Björck, L & Kronvall, G, *J Immunol*, 133: 969, 1984; Akerstrom, B et al, *J Immunol*, 135: 2589, 1985

**Fluka 82509** *Staphylococcus* species recombinant from *E. coli* MW 33.8k ~85% (GE); ≥90% protein content; binding capacity: 5 mg human IgG/mg solid | Protein G binds more efficiently to bovine, goat & sheep IgG than does protein A; no binding to human serum albumin; Björck, L & Kronvall, G, *J Immunol*, 133: 969, 1984

**Sigma P 4689** *Streptococcus* sp. recombinant, expressed in *E. coli* Lyophilized from a Tris-HCl buffer solution | Genetically engineered truncated protein G which retains its affinity for IgG, but lacks albumin- & Fab binding sites & membrane-binding regions; Goward, CR et al, *Biochem J*, 267: 171, 1990

**Fitzgerald 30-AP77** *Streptococcus* species High purity

**Biogenesis 7860-0056** *Streptococcus* spp Suspension

**Biogenesis 7860-0556** *Streptococcus* spp FITC conjugated

**Biogenesis 7860-1904** *Streptococcus* spp Allophycocyanin conjugated

**Biogenesis 7860-2004** *Streptococcus* spp PE conjugated

#### Protein G Plus, Agarose Conjugated

**Oncogene IP04** Suspension | Recombinant bacterial agarose conjugates for the immunoprecipitation of antibodies or antibody containing complexes

**Oncogene IP08** Recombinant bacterial agarose conjugates for the immunoprecipitation & purification of antibodies or antibody containing complexes

#### Protein G Plus/Protein A, Agarose Conjugated

**Oncogene IP05** Suspension | Recombinant bacterial agarose conjugates for the immunoprecipitation of antibodies or antibody containing complexes

**Oncogene IP10** Recombinant bacterial agarose conjugates for the immunoprecipitation & purification of antibodies or antibody containing complexes

#### Protein G, (<sup>125</sup>I)-

**ICN 68089** 2-15 µCi/µg, 74-555 kBq/µg; 0.1 M KPB, pH 7.5, 0.5% BSA:EtOH (1:1)

#### Protein G, Biotin Conjugated

*Synonyms:* Protein G'

**Sigma P 8045** Recombinant from Protein G' Lyophilized powder containing ~90% protein (Biuret); balance primarily sodium citrate; contains 2-4 moles d-biotin/mole protein; binding capacity: ~5 mg of human IgG/mg protein | Prepared using biotinamidocaproate *N*-hydroxysuccinimide which incorporates an aminocaproyl spacer

#### Protein G, FITC Conjugated

**Sigma P 7670** Lyophilized, essentially salt-free; ≥20 µg FITC/mg solid; binding capacity: 6-10 mg of human IgG/mg solid | McKinney, RM et al, *Anal Biochem*, 14: 421, 1966

#### Protein G, Gold

**Sigma P 1796** 20 nm Colloidal Gold labeled; mean particle diameter 17-23 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M Tris, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein G, Sigma P 9659, adsorbed to colloidal gold; Bendayan, M, *J Electron Microscopy Technique*, 6: 7, 1987; Bendayan, M & Gavzon, S, *J Histochem Cytochem*, 6: 597, 1988

#### Protein G, (<sup>125</sup>I)-

**ICN 68089** 2-15 µCi/µg, 74-555 kBq/µg; 0.1 M KPB, pH 7.5, 0.5% BSA:EtOH (1:1)

#### Protein G, Biotin Conjugated

*Synonyms:* Protein G'

**Sigma P 8045** Recombinant from Protein G' Lyophilized powder containing ~90% protein (Biuret); balance primarily sodium citrate; contains 2-4 moles d-biotin/mole protein; binding capacity: ~5 mg of human IgG/mg protein | Prepared using biotinamidocaproate *N*-hydroxysuccinimide which incorporates an aminocaproyl spacer

#### Protein G, FITC Conjugated

**Sigma P 7670** Lyophilized, essentially salt-free; ≥20 µg FITC/mg solid; binding capacity: 6-10 mg of human IgG/mg solid | McKinney, RM et al, *Anal Biochem*, 14: 421, 1966

#### Protein G, Gold

**Sigma P 1796** 20 nm Colloidal Gold labeled; mean particle diameter 17-23 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M Tris, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein G, Sigma P 9659, adsorbed to colloidal gold; Bendayan, M, *J Electron Microscopy Technique*, 6: 7, 1987; Bendayan, M & Gavzon, S, *J Histochem Cytochem*, 6: 597, 1988

#### Protein G, Gold Conjugated

**ICN 154101** 5 nm colloidal gold

**ICN 154102** 10 nm colloidal gold

**ICN 154103** 15 nm colloidal gold

**ICN 678651 ICN 678652** 5 nm colloidal gold | Useful for electron microscopy

**ICN 678661 ICN 678662** 10 nm colloidal gold | Useful for electron microscopy

**ICN 678671 ICN 678672** 20 nm colloidal gold | Useful for electron microscopy

**Sigma P 1546** 5 nm Colloidal Gold labeled; mean particle diameter 3.5-6.5 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M Tris, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration: A<sub>520</sub> ~5.0 | Protein G, Sigma P 9659, adsorbed to colloidal gold; Bendayan, M, *J Electron Microscopy Technique*, 6: 7, 1987; Bendayan, M & Gavzon, S, *J Histochem Cytochem*, 6: 597, 1988

## Proteins

**Sigma P 1671** 10 nm Colloidal Gold labeled; mean particle diameter 8-12 nm; monodisperse; suspension in 50% glycerol containing 0.15 M NaCl, 0.01 M Tris, pH 7.4, 0.02% PEG 20, 0.02% sodium azide; concentration:  $A_{520} \sim 5.0$  | Protein G, Sigma P 9659, adsorbed to colloidal gold; Bendayan, M, *J Electron Microscopy Technique*, 6: 7, 1987; Bendayan, M & Gavzon, S, *J Histochem Cytochem*, 6: 597, 1988

### Protein G, Horse Radish Peroxidase Conjugated

**ICN 152343 ICN 672681** Recombinant Conjugated with highly purified HRP; stabilized with 0.05% methiolate preservative; recommended dilutions 1:1000 to 1:3000 for ELISA, 1:5000 for Western Blotting

### Protein G, Immobilized

**Fluka 82508** *Staphylococcus* species (group C) Attached to CNBr-activated 4% cross-linked beaded agarose stabilized with lactose; binding capacity: 15 mg human IgG/mL gel; 1 g powder yields 4 mL swollen gel | For affinity chromatography

### Protein G, MagaBeads™-Immobilized

**Cortex CM3520** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

**Cortex CM3521** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

### Protein G, MagaCell™-Immobilized

**Cortex CM1520** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

**Cortex CM1521** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

### Protein G, Peroxidase Conjugated

**Sigma P 8170** Recombinant Lyophilized powder containing ~80% protein ( $E^{1\%}$ ); balance primarily sodium citrate; protein G activity: >95% of conjugate binds to IgG agarose; peroxidase activity: ~170 U/mg protein; 1 U forms 1 mg purpurogallin/20 sec from pyrogallol at pH 6.0 at 20°C; conjugate purified by IgG affinity chromatography | Labeled with Peroxidase, Type VI, by a modification of the procedure of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978, which favors low MW conjugates

### Protein Gene Product 9.5

**Biogenesis 7863-2108** Human brain (pathogen free) Purified; 50 mM TRIS/HCl, pH 7.4 with 1 mM beta mercaptoethanol; liquid | Thompson et al, *Brain Res*, 278:224, 1983

### Protein Kinase A Heat Stable Inhibitor, Isoform $\alpha$

**Calbiochem 539488** Rabbit recombinant, expressed in *E. coli* MW 8k Liquid in 75 mM NaCl, 30 mM MES, 10 mM BME, 100  $\mu$ M EDTA, 50% glycerol, pH 6.5; >90% (SDS-PAGE); phosphatases, proteases, RNases: none detected; activity: 9000 U/mL; one unit is the amount of PKI- $\alpha$  that inhibits 1.0 unit of PKA by >95% | 77 AA protein that is a highly specific inhibitor of the protein kinase A (PKA) catalytic subunit; not known to inhibit any other kinase; shown that PKI- $\alpha$  expression & intracellular localization vary as a function of cell cycle progression; Wen, W et al, *J Biol Chem*, 270: 2041, 1995; Baude, EJ et al, *J Biol Chem*, 269: 2316, 1994; Thomas, J et al, *J Biol Chem*, 266: 10906, 1991; Scott, JP et al, *PNAS*, 82: 5732, 1985

### Protein Kinase A, cAMP-Dependent

**Alexis 202-027** Bovine heart MW ~40k ≥95% (SDS-PAGE); 20  $\mu$ g/mL solution in 25 mM MES, pH 6.5, 0.1 mM EDTA, 30 mM BME, 50% ethylene glycol & 100 mM NaCl; SA: ~1000 U/ $\mu$ g protein; 1 unit is the amount of enzyme that will transfer 1.0 pmole of phosphate to histone/minute at 30°C | Catalytic subunit

### Protein Kinase A, Catalytic Subunit

**USBio P9102-91E** Bovine heart Frozen solution in 30 mM potassium phosphate, pH 7.0, 1 mM DTT, 1 mM EDTA, 0.15 M KCl | Tested & incorporated 3304 pmol phosphate/min/ $\mu$ g enzyme into the Kemptide substrate peptide; purified to electrophoretic homogeneity by anion-exchange chromatography (DEAE-Sephacel), ammonium sulfate fractionation, cation exchange chromatography (CM-Sephadex C-50) in the absence & presence of cAMP, & gel filtration (Sephacryl S200)

### Protein Kinase C $\alpha$ , Standard

**Calbiochem 539617** Human recombinant MW 76,799 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\alpha$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

### Protein Kinase C $\beta$ , Standard

**Calbiochem 539619** Human recombinant MW 76,790 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\beta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

### Protein Kinase C $\beta$ , Standard

**Calbiochem 539621** Human recombinant MW 76,933 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\beta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

### Protein Kinase C $\delta$ , Standard

**Calbiochem 539623** Human recombinant MW 77,517 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\delta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

**Calbiochem 539625** Human recombinant MW 84,474 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\delta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

**Calbiochem 539627** Human recombinant MW 78,366 Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\delta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

**Calbiochem 539629** Human recombinant MW 77.6k Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\delta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

**Calbiochem 539632** Human recombinant MW 118k Liquid; possesses no enzymatic activity | Denatured human recombinant protein kinase C $\delta$  expressed in baculoviral insect expression system; for use as a positive control & for discriminating PKC isozymes by Western blotting

### Protein Kinase Inhibitor Type II

**Sigma P 8140** Bovine heart Lyophilized powder containing ~50% protein (Biuret) & 30% glycerophosphate & 20% EDTA; activity: 1.0 µg inhibits 0.75-2.0 phosphorylating units of cAMP-dependent protein kinase | Fractionated essentially by procedure of Walsh, DA et al, *J Biol Chem*, 246: 1977, 1971; general comments for Sigma Protein kinase inhibitors apply

#### Protein Kinase Inhibitor Type III

**Sigma P 0393** Porcine heart Lyophilized powder containing ~50% protein (Biuret) & 30% glycerophosphate & 20% EDTA; activity: 1.0 µg inhibits 1-3 units of cAMP-dependent protein kinase | Fractionated essentially by procedure of Walsh, DA et al, *J Biol Chem*, 246: 1977, 1971; general comments for Sigma Protein kinase inhibitors apply

#### Protein Kinase Inhibitor, Crude

**Sigma P 5015** Rabbit muscle Lyophilized powder containing ~95% protein (Biuret) & 5% potassium phosphate; activity: 1.0 µg inhibits 0.2-1.0 unit of cAMP-dependent protein kinase | Fractionated essentially by procedure of Walsh, DA et al, *J Biol Chem*, 246: 1977, 1971, through TCA precipitation; general comments for Sigma Protein kinase inhibitors apply

#### Protein Kinase M

**Chemicon AG610** Rat brain ≥95% | Catalytic subunit of PKC; purified protein for apoptosis & signal transduction

#### Protein L

**Sigma P 3101** *Peptostreptococcus magnus* recombinant, expressed in *E. coli* MW 35,824 Lyophilized, essentially salt-free; >98% (SDS-PAGE); contains four Ig-binding domains | Binds immunoglobulins (Ig) primarily through kappa light chain interactions without interfering with the antigen binding sites of Igs; Bjorck, L, *Immunol*, 140: 1194, 1988; Kastern, W et al, *J Biol Chem*, 267: 12820, 1992

#### Protein L, Peroxidase Conjugated

**Sigma P 3226** Recombinant Solution in 0.01 mM phosphate buffer with 50% glycerol

#### Protein Phosphatase 2A Inhibitor

Synonyms:  $I_1^{PP2A}$ ,  $I_2^{PP2A}$

**Calbiochem 539612** Bovine kidney MW 30k >95% (SDS-PAGE); liquid in 25 mM Tris-HCl, 14 mM BME, 1 mM benzamidine; 100 µM PMSF, 1 mM EDTA, 10% glycerol, pH 7.4 | Potent, heat- & specific inhibitor of protein phosphatase 2A (PP2A); inhibits PP2A with myelin basic protein, histone H1 or phosphorylase as substrates but not with casein as the substrate; inhibits PP2A in a noncompetitive manner; does not inhibit protein phosphatase 1, protein phosphatase 2B, protein phosphatase 2C or pyruvate dehydrogenase phosphatase; Li, M et al, *Biochemistry*, 35: 6998, 1996; Li, M et al, *Biochemistry*, 34: 1988, 1995

**Calbiochem 539614** Bovine kidney MW 20k >95% (SDS-PAGE); liquid in 25 mM Tris-HCl, 14 mM BME, 1 mM benzamidine; 100 µM PMSF, 1 mM EDTA, 10% glycerol, pH 7.4 | Potent, heat- & specific inhibitor of protein phosphatase 2A (PP2A); inhibits PP2A with myelin basic protein, histone H1 or phosphorylase as substrates but not with casein as the substrate; inhibits PP2A in a noncompetitive manner; does not inhibit protein phosphatase 1, protein phosphatase 2B, protein phosphatase 2C or pyruvate dehydrogenase phosphatase; Li, M et al, *Biochemistry*, 34: 1988, 1995

#### Protein Phosphatase 2A Inhibitor $I_1$

Synonyms:  $I_1^{PP2A}$

**ICN 195929** Bovine kidney MW 30k ≥95%; 150 ng/vial | Potent, specific, stable inhibitor of PP2A with myelin basic protein, Histone H1 or phosphorylase as substrates, but not with casein; will not inhibit PP1, PP2B, PP2C or pyruvate dehydrogenase phosphatase

#### Protein Phosphatase 2A Inhibitor $I_2$

Synonyms:  $I_2^{PP2A}$

**ICN 195928** Bovine kidney MW 20k ≥95%; 150 ng/vial | Potent, specific, stable inhibitor of PP2A with myelin basic protein, Histone H1 or phosphorylase as substrates, but not with casein; will not inhibit PP1, PP2B, PP2C or pyruvate dehydrogenase phosphatase

#### Protein Phosphatase 2BA

**Chemicon AG645** *N. crassa* recombinant ≥95% | Purified protein for apoptosis & signal transduction

#### Protein Phosphatase I Catalytic Subunit, $\alpha$ -Isoform

**Sigma P 7937** Rabbit recombinant, expressed in *E. coli* Lyophilized powder containing imidazole buffer, pH 7.4, NaCl, DTT, EDTA, MnCl<sub>2</sub>, Tween 20 & trehalose as stabilizer; activity: 5000-15,000 U/mg protein; 1 U hydrolyzes 1 nmole of p-nitrophenyl phosphate/min at pH 7.0 at 30°C | Protein phosphatase 1 (PP1) is a heterodimeric enzyme with serine/threonine phosphatase activity; comprises a catalytic subunit & a targeting subunit or a specific protein inhibitor; targeting subunit determines the enzyme localization, e.g. to glycogen particles (subunit G) or to myofibrils (subunit M); PP1 is involved in glycogen metabolism & in regulation of muscle contractility; also implicated in cell cycle & transcriptional regulation; properties in common with the native rabbit muscle protein: size is 37.5 kDa, requires Mn<sup>2+</sup> for activity, specific activity for phosphorylase a & inhibition by okadaic acid, microcystin LR & phosphatase inhibitor 2 (I-2); Faux, MC & Scott, JD, *Trends Biochem Sci*, 21: 312, 1996; Cohen, P, *Ann Rev Biochem*, 58: 453, 1989; Hunter, T, *Cell*, 80: 225, 1995; Zhang, Z et al, *J Biol Chem*, 267: 1484, 1992

#### Protein Phosphatase I Inhibitor

Synonyms: Inhibitor II

**USBio 17653** Human ≥95% as determined by SDS PAGE; frozen solution in 20 mM ammonium acetate, pH 7.0, 0.1 mM EGTA & 1 mM DTT | A heat-stable protein that inhibits PP1 but not PP2, which makes it a useful tool for distinguishing between PP1 & PP2 activities in cells & during purification of PP; purified by ion exchange chromatography

#### Protein Phosphatase Inhibitor II

**Calbiochem 539516** Rabbit muscle recombinant, expressed in *E. coli* MW 22.8k >95% (SDS-PAGE); liquid in 50 mM Tris-HCl, 1 mM EDTA, 50% glycerol, 0.01% BRIJ, pH 7.0; specific activity: 500,000 U/mg; 1 U inhibits 0.01 units of PP1 by 50%; 1 U of PP1 releases 1.0 nmol phosphate from phosphorylase/min at 30°C, pH 7.0; DNases, phosphatases, proteases, RNases: none detected | 204 AA, heat-stable protein that specifically inhibits the catalytic subunit of protein phosphatase 1; for distinguishing type 1 from type 2 protein phosphatases; a good substrate for CKI, CKII, GSK3β & PKA; Park, I et al, *J Biol Chem*, 269: 944, 1994; Cohen, P, *Methods Enzymol*, 201: 389, 1991

**Sigma P 8218** Rabbit recombinant, expressed in *E. coli* Lyophilized powder containing ~15% protein (Bradford); balance Tris buffer, pH 7, EDTA & leupeptin; activity: 5000-25,000 U/mg protein; 1 U inhibits 1 unit of protein phosphatase 1 (PP1) catalytic subunit by 50%; 1 unit of PP1 releases 1.0 nmol phosphate/min at pH 7.5 at 30°C from phosphorylase a | Specific inhibitor of protein phosphatase 1 (PP1); constitutes the regulatory subunit of the cytosolic form of PP1 known also as ATP-Mg dependent phosphatase or protein phosphatase 1I (PP1I); activation of PP1I can be achieved by phosphorylation of I-2 on the Thr-72 by glycogen synthase kinase-3 (GSK-3); activation is increased by casein kinase phosphorylation in a synergistic mechanism; rabbit muscle I-2 is a 204 AA heat stable protein with MW of 31 kDa; inhibits PP1 activity at nanomolar concentrations; protein phosphatase inhibitor-2 cloned & expressed in *E. coli* to yield an active protein; Cohen, P, *Ann Rev Biochem*, 58: 453, 1989; Plyte, S et al, *Biochim Biophys Acta*, 1114: 147, 1992; DePaoli-Roach, A, *J Biol Chem*, 259: 12144, 1984; Cohen, P et al, *Meth Enzym*, 159: 427, 1988; Park, I-K et al, *J Biol Chem*, 269: 944, 1994

#### Protein S

**Cortex CP3109U** Human >98%

## Proteins

**Biogenesis 7861-1079** Human plasma MW 69k Tested negative for all communicable diseases including HIV-1, HIV-2, HBsAg and HCV; purified; 20 mM Tris-HCl, 0.1 M NaCl, 1 mM Benzamide, pH 7.4; liquid

**ICN 194081** Human plasma Purified, containing glycine & NaCl | Vitamin K-dependent protein & cofactor of activated protein C (APC); increases affinity of APC for phospholipids leading to Factor V & VIII inhibition; plays an essential role in regulation of the coagulation system; Dahlback, B, *Biochem J*, 209:837, 1983

**ICN 194932** Human plasma In 50% glycerol/H<sub>2</sub>O | Vitamin K-dependent protein & cofactor of activated protein C (APC); functions in the coagulation & complement cascade; Walker, FJ, *Semin Thromb Haemostas*, 10:131, 1984

### Protein Z

**Synonyms:** Vitamin K-Dependent Protein

**ICN 194082** Human plasma Purified protein | Thrombin associates with phospholipid vesicles in the presence of Protein Z; Hogg, DJ & J Stenflo, *JBC*, 17:266, 1991

### Protein, α-

**ICN 900539**

### Proteoglycan Aggregate

**ICN 191484** Bovine nasal cartilage ≥80% aggregate purity; lyophilized; <1% collagen (AA analysis); galactosamine:glucosamine ≥ 10:1; no preservatives, reconstitute with PBS | Isolated under dissociative conditions by finely mincing tissue at low T in the presence of protease inhibitors

**ICN 971501** Bovine nasal cartilage Binds hyaluronic acid at the protein core near one end of the molecule, while most of the chondroitin sulfate (CS) chains are at the opposite end with a keratin sulfate (KS) rich region; CS chains are sulfated at 4 & 6 positions; substrate for proteoglycan digesting enzymes such as chondroitinase ABC or AC; standard & competitive labels in RIA & EIA for quantitating proteoglycan Ag recognized by ICN monoclonal Ab when labeled

**ICN 971511** Bovine nasal cartilage Protein core has ~100 chondroitin sulfate chains & ~40 keratin sulfate chains attached; binding site for hyaluronic acid is located on the protein core near one end of the molecule; most of the CS chains are located at the opposite end, with a KD-rich region between; CS chains are sulfated in the 6- (80%) & 4- (20%) positions; substrate for digesting enzymes like chondroitinase ABC & AC; when labeled, is a competitive label in RIA & EIA for quantitating proteoglycan Ag recognized by monoclonal Ab

**ICN 191485** Rat chondrosarcoma ≥80% aggregate purity; lyophilized; <1% collagen (AA analysis); galactosamine:glucosamine ≥ 10:1; no preservatives, reconstitute with PBS | Isolated under dissociative conditions by finely mincing tissue at low T in the presence of protease inhibitors

**ICN 971521** Rat chondrosarcoma Similar to ICN 971501; lacks keratin sulfate; chondroitin sulfate sulfated almost entirely in the 4-position of the galactosamine residue

### Proteoglycan Monomer

**ICN 191486** Bovine nasal cartilage MW 250k Protein core ≥80% monomer purity; lyophilized; <1% collagen (AA analysis); galactosamine:glucosamine ≥ 10:1 | Isolated under dissociative conditions; protein core has chondroitin sulfate & keratin sulfate chains attached; prepared from proteoglycan aggregate by CsCl density gradient centrifugation in 4 M guanidine HCl

**ICN 191487** Rat chondrosarcoma MW 250k Protein core ≥90% monomer purity; lyophilized; protein:uronic acid = 0.22-0.26; uronic acid:galactosamine = 1.00-1.05 | Isolated under dissociative conditions; protein core has chondroitin sulfate & keratin sulfate chains attached; prepared from proteoglycan aggregate by CsCl density gradient centrifugation in 4 M guanidine HCl

**ICN 971531** Rat chondrosarcoma Lacking keratin sulfate; chondroitin sulfate chains are sulfated almost entirely in the 4-position of the galactosamine residue; standard or substrate for proteoglycan digesting enzymes like chondroitinase ABC or AC; when labeled, serves as a competitive label in RIA & EIA

### Prothrombin

**Synonyms:** Factor II; Factor II

**Cortex CP3049U** Bovine >98%

**ICN 154164** Bovine plasma High purity grade; >125 NIH U/mg protein, 1 U produces 1 US unit of clotting activity in the presence of sufficient thromboplastin & Ca; <3% moisture;

**ICN 194915** Bovine plasma 50% glycerol:H<sub>2</sub>O | Precursor to α-thrombin; Mann, KG et al, *Methods Enzymol*, 45:156, 1976

**ICN 101033** Bovine plasma fraction III-2 pI = 4.2

**Cortex CP3048U** Human >98%

**Biodesign A86863H** Human plasma >98% | Platelets & Hemostasis reagents

**ICN 194189** Human plasma Purified; <0.1 μg Factor X, proteins C & S; <0.5 μg Factor VII

**ICN 194914** Human plasma 50% glycerol:H<sub>2</sub>O | Precursor to α-thrombin; Kiesel, W et al, *Biochem Biophys ACTA*, 304:103, 1973

**ICN 159841** *Oxyuranus scutellatus* (Australian taipan) venom MW ~56k Single band (SDS-PAGE) | Useful in blood Factor II assays; provides precise clotting time vs use of crude venom

### Pseudomonas Exotoxin A

**Sigma P 0184** *Pseudomonas aeruginosa* Lyophilized powder containing ~30% protein (E<sub>280</sub> at 1%); balance primarily Tris buffer, EDTA, NaCl & lactose | Purified by a modification of a method by Kozak; shown to be toxic to animals & to cell lines, & to inhibit protein synthesis via ADP ribosylation of elongation factor 2; Kozak, KJ & Saelinger, CB, *Meth Enzymol*, 165: 147, 1988; Middlebrook, JL & Dorland, RB, *Can J Microbiol*, 23: 183, 1977; Iglesky, BH et al, *Inf Immun*, 15: 138, 1977

### PTEN

**USBio P9182** Human recombinant GST-fusion protein purified from *E. coli* ≥60% (SDS-PAGE & Coomassie blue staining); frozen solution in 100 μL of 20 mM Tris-HCl, pH 8.0, 1 mM EDTA, 10 mM glutathione, 50% glycerol | PTEN is a candidate tumor suppressor gene mapping to the homozygous deletion on human chromosome 10q23; appears to be mutated at considerable frequency in human cancers; the predicted PTEN protein has a protein tyrosine phosphatase domain & extensive homology to tensin; purified PTEN catalyzes dephosphorylation of PtdIns(3,4,5)P<sub>3</sub>, specifically at position 3 on the inositol ring; possibility that PTEN acts *in vivo* as a phosphoinositide 3-phosphatase by regulating PtdIns(3,4, 5)P<sub>3</sub> levels; although PTEN has the consensus sequence of a protein tyrosine phosphatase, it dephosphorylates p-nitrophenylphosphate & other synthetic & protein substrates poorly; the greatest catalytic activity has been observed with the highly negatively charged, multiply phosphorylated polymer of (Glu-Tyr)<sub>n</sub>; immunoblotting with anti-GST antibody showed that the major contaminant at 27- 29kD was a GST protein; SA: 1.12 pmol/min/ng using 25ng PTEN with PtdIns(3,4, 5)P<sub>3</sub> (PIP<sub>3</sub>); purified by glutathione-sepharose chromatography

### Rab 1A

**Chemicon GPR055** Recombinant ≥95% | Purified protein for apoptosis & signal transduction

### Rab 5A

**Chemicon GPR070** Recombinant ≥95% | Purified protein for apoptosis & signal transduction

### Rab 8A

**Chemicon GPR074** Recombinant ≥95% | Purified protein for apoptosis & signal transduction

**Rab10, His-Tagged**

**Calbiochem 552114** Rat brain recombinant, produced by overexpression of a full-length Rab10 cDNA clone in *E. coli* MW 25.6k ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase that has been found to be associated with membranes in the perinuclear region & apical transport vesicles; C-terminal XXCC motif for post-translational geranylgeranylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Chen, YT et al, *PNAS*, 90: 6508, 1993; Huber, LA et al, *J Cell Biol*, 123: 35, 1993

**Rab11B, His-Tagged**

**Calbiochem 552115** Rat brain recombinant, produced by overexpression of a full-length Rab11B cDNA clone in *E. coli* MW 27.2k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; plays a role in the vesicular transport machinery; corresponds to yeast Ypt3; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Lai, F et al, *Genomics*, 22: 610, 1994

**Rab13, His-Tagged**

**Calbiochem 552118** Human brain recombinant, produced by overexpression of a full-length Rab13 cDNA clone in *E. coli* MW 25,495 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; localized in the junctional complex region of a variety of epithelia, including intestinal, renal & hepatic; also co-localizes with a tight junction marker protein, ZO-1; disruption of tight junctions by incubation in low Ca<sup>2+</sup> medium induces the redistribution of Rab13; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Zahraoui, A et al, *J Cell Biol*, 124: 101, 1994

**Rab14, His-Tagged**

**Calbiochem 552120** Rat brain recombinant, produced by overexpression of a full-length Rab14 cDNA clone in *E. coli* MW 25k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase thought to function in the regulation of membrane trafficking; transcripts of Rab14 are detected in brain, heart, kidney, lung & other tissues; C-terminal XXCC motif for post-translational geranylgeranylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Elferink, LA et al, *J Biol Chem*, 267: 5768, 1992

**Rab15, His-Tagged**

**Calbiochem 552122** Rat brain recombinant, produced by overexpression of a full-length Rab15 cDNA clone in *E. coli* MW 27,008 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; expression patterns suggest that Rab15 may act in concert with Rab3A in regulating aspects of synaptic vesicle membrane flow within the nerve terminal; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Elferink, LA et al, *J Biol Chem*, 267: 5768 & 22693, 1992

**Rab18, His-Tagged**

**Calbiochem 552125** Rat brain recombinant, produced by overexpression of a full-length Rab18 cDNA clone in *E. coli* MW 25,757 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small protein involved in vesicular transport; localized on the apical side of epithelial cells & may play a role in endocytosis & membrane recycling; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Yu H et al, *Gene*, 132: 273, 1993; Lang, V et al, *Plant Mol Biol*, 21: 581, 1992; Lutcke, A et al, *J Cell Sci*, 107: 3437, 1994

**Rab1A, His-Tagged**

**Calbiochem 552080** Rat brain recombinant, produced by overexpression of a full-length Rab1A cDNA clone in *E. coli* MW 25.3k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase that is located in the endoplasmic reticulum, pre-Golgi intermediates & Golgi stack; required for transport between the endoplasmic reticulum & the *cis*-Golgi compartment; a C-terminal XXCC motif for post-translational geranylgeranylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Plutner, H et al, *J Cell Biol*, 115: 31, 1991; Zahraoui, A et al, *J Biol Chem*, 264: 12394, 1989

**Rab2, His-Tagged**

**Calbiochem 552090** Rat brain recombinant, produced by overexpression of a full-length Rab2 cDNA clone in *E. coli* MW 24.5k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein associated with structures characteristic of the intermediate between the endoplasmic reticulum & the *cis*-Golgi compartment; a C-terminal XXCC motif for post-translational geranylgeranylation & membrane targeting; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Lotti, VR et al, *J Cell Biol*, 118: 43, 1992; Tisdale, EJ et al, *J Cell Biol*, 119: 749, 1992; Touchot, N et al, *PNAS*, 84: 8210, 1987

**Rab24, His-Tagged**

**Calbiochem 552127** Rab24 cDNA clone in *E. coli* MW 24.3k ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase localized to the endoplasmic reticulum, Golgi apparatus & late endosomes by immunostaining; C-terminal CCXX motif that is a potential site for post-translational geranylgeranylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Olkkonen, VM et al, *J Cell Sci*, 106: 249, 1993

**Rab3A**

**Calbiochem 552100** Human recombinant, expressed in *E. coli* MW 21k ≥90% (SDS-PAGE); liquid in 45 mM NaCl, 20 mM Tris-HCl, 5 mM MgCl<sub>2</sub>, 50% glycerol, 1 mM DTT, pH 8.0; GDP binding: ≥1:4 stoichiometry (GDP:Rab3A) | GTP binding protein; member of the Rab family of small GTP-binding proteins; involved in the fusion of exocytotic vesicles with the plasma membrane in neural & pituitary cells; Physiological substrate for geranylgeranyltransferase II; Prenylation at the C-terminus modulates interaction with proteins that control the guanine nucleotide-bound state of the protein; Cox, AD & Der, CJ, *Curr Opin Cell Biol*, 4: 1008, 1992; Geppert, M et al, *Nature*, 369: 493, 1994; Bourne, HR et al, *Nature*, 348: 125, 1990

**Rab3A, His-Tagged**

**Calbiochem 552105** Rat brain recombinant, produced by overexpression of a full-length Rab3A cDNA clone in *E. coli* MW 27.6k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein associated with synaptic vesicles in neurons; has been shown to control late steps of exocytosis expressed in various regions of the rat brain; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Li, JY et al, *Eur J Cell Biol*, 67: 297, 1995; Singh, G et al, *Am J Physiol*, 269: G400, 1995; Stettler, O et al, *Eur J Neurosci*, 7: 720, 1995

**Rab4A, His-Tagged**

**Calbiochem 552107** Human brain recombinant, produced by overexpression of a full-length Rab4A cDNA clone in *E. coli* MW 25k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase localized in early endosomes that is involved in endocytosis & controls exit from early endosomes; also contains a C-terminal CXC motif for post-translational geranylgeranylation & a single site for phosphorylation by p34<sup>cdc2</sup> kinase; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Van der Sluijs, P et al, *Cell*, 70: 729, 1992; van der Sluijs, P et al, *EMBO J*, 11: 4379, 1992; van der Sluijs, P et al, *PNAS*, 88: 6313, 1991; Zahraoui, A et al, *J Biol Chem*, 264: 12394, 1989

**Rab5A, His-Tagged**

**Calbiochem 552110** Human retina recombinant, produced by overexpression of a full-length Rab5A cDNA clone in *E. coli* MW 25.9k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase that regulates the fusion of endocytic vesicles to early endosomes; also involved in axonal & dendritic endocytosis; corresponds to yeast Ypt51; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Li, G et al, *Arch Biochem Biophys*, 316: 529, 1995; Singer-Kruger, B et al, *J Cell Sci*, 108: 3509, 1995; deHoop, MJ et al, *Neuron*, 13: 11, 1994

**Rab6A, His-Tagged**

**Calbiochem 552111** Human brain recombinant, produced by overexpression of a full-length Rab6A cDNA clone in *E. coli* MW 26,314 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein of the Ras superfamily that mediates intra-Golgi vesicular trafficking; C-terminal CXC motif that is geranylgeranylated on both cysteines; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Feldmann, G et al, *Biol Cell*, 83: 121, 1995; Beranger, F et al, *Mol Cell Biol*, 14: 744, 1994

**Rab7, His-Tagged**

**Calbiochem 552112** Rat brain recombinant, produced by overexpression of a full-length Rab7 cDNA clone in *E. coli* MW 24.7k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small 23.5 kDa GTPase localized in late endosomes; regulates late endocytic membrane traffic between endosomes & lysosomes; C-terminal CXC motif for post-translational geranylgeranylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Vitelli, R et al, *J Biol Chem*, 272: 4391, 1997; Chavrier, P et al, *Cell*, 62: 317, 1990; Bottger, G et al, *J Biol Chem*, 271: 29191, 1996

**Rab8, His-Tagged**

**Calbiochem 552113** Human brain recombinant, produced by overexpression of a full-length Rab8 cDNA clone in *E. coli* MW 26,389 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small Ras-like GTPase that regulates polarized membrane transport in neurons & in epithelial cells; regulates transport process during morphological maturation in 95% of neurons; localized in the Golgi regions, in vesicular structures & in the basolateral plasma membrane; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Peranen, J et al, *J Cell Biol*, 135: 153, 1996; Huber, LA et al, *Mol Cell Biol*, 15: 918, 1993; Huber, LA et al, *J Cell Biol*, 123: 35, 1993

**RabGDI-α, His-Tagged**

*Synonyms:* RabGDP Dissociation Inhibitor

**Calbiochem 552128** Rat brain recombinant, produced by overexpression of a full-length RabGDI-α cDNA clone in *E. coli* MW 53,240 ≥70% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; forms complexes with cytoplasmic GDP-bound Rab proteins & releases Ras proteins for association with GTP; functions in vesicle-membrane transport to recycle & regulate Rab GTPases; in the cytoplasm, interaction between Rab6 protein & RabGDI is enhanced by the geranylgeranylation of Rab6; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Horiuchi, H et al, *J Biol Chem*, 270: 11257, 1995; Beranger, F et al, *J Biol Chem*, 269: 13637, 1994

**Rac1 (G12V)-GST, Agarose Conjugated**

**Calbiochem 553501** Human Purified; in a 50% agarose slurry | GTP binding protein; Gly<sup>12</sup> to Val mutation was introduced to eliminate intrinsic GTPase activity from the recombinant Rac1-GST fusion protein; Rac1 (G12V)-GST is supplied bound to glutathione-agarose beads to facilitate adsorption of Rac-binding proteins such as PAK1 & PAK2 from cellular extracts; full-length soluble Rac1 (G12V) can be released from the beads by incubation with thrombin, or the Rac1 (G12V)-GST fusion protein can be eluted with 10 mM glutathione

**Rac1, GST-Tagged**

**Calbiochem 552134** Human recombinant, expressed in *E. coli* MW 48,451 ≥90% (SDS-PAGE); liquid in 20 mM HEPES, 5 mM MgCl<sub>2</sub>, 40% glycerol, 1 mM NaN<sub>3</sub>, pH 8.0; GTPγS binding: ≥400 mmol/mol | GTP binding protein; small GTPase that regulates lamellipodia formation in response to growth factor stimulation, as well as activation of NADPH-oxidase in phagocytic lymphocytes & JNK-MAP kinase cascade; useful as a positive control in Western blotting & as an affinity precipitation reagent using immobilized glutathione resin; Kuroda, S et al, *J Biol Chem*, 271: 23363, 1996; Lamarche, N et al, *Cell*, 87: 519, 1996; Ridley, AJ et al, *Cell*, 70: 401, 1992

**Rac1, His-Tagged**

**Calbiochem 552137** Human recombinant, expressed in *E. coli* MW 22,151 ≥90% (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 40% glycerol, 5 mM imidazole, pH 7.9; GTPγS binding: ≥600 mmol/mol | GTP Binding Protein small GTPase that belongs to the Ras superfamily & regulates lamellipodia formation in response to growth factor stimulation as well as activation of NADPH-oxidase in phagocytic lymphocytes; useful as a positive control in Western blotting & as an affinity precipitation reagent using Ni<sup>2+</sup>-charged metal chelate resin; Lamarche, N et al, *Cell*, 87: 519, 1996; Ridley, AJ et al, *Cell*, 70: 401, 1992

**Calbiochem 552132** Rat brain recombinant, produced by overexpression of a full-length Rac1 cDNA clone in *E. coli* MW 22,560 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small protein of the Rho family that regulates the reorganization of the actin cytoskeleton in all eukaryotic cells; reported to stimulate rapid polymerization of actin & to induce membrane ruffling when injected into quiescent Swiss 3T3 cells; may be involved in controlling the c-Jun amino-terminal kinase (JNK) pathway; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Best, A et al, *J Biol Chem*, 271: 3756, 1996; Coso, OA et al, *Cell*, 81: 1137, 1995; Qui, RG et al, *Nature*, 374: 457, 1995; Ridley, AJ et al, *Cell*, 70: 401, 1992

**Rac1-GST, Agarose Conjugated**

**Calbiochem 553503** Full-length human Rac1 recombinant, amplified by PCR & cloned into *E. coli* Purified; in a 50% agarose slurry | GTP binding protein; supplied bound to glutathione-agarose beads to facilitate adsorption of Rac-binding proteins such as PAK1 & PAK2 from cellular extracts; full-length soluble Rac1 can be released from the beads by incubation with thrombin, or the Rac1-GST fusion protein can be eluted with 10 mM glutathione

**Rac2, His-Tagged**

**Calbiochem 552151** Human recombinant, produced by overexpression of a full-length Rac2 cDNA clone in *E. coli* MW 21,910 ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTPase that belongs to the Ras superfamily; regulates the activity of NADPH oxidase in phagocytic cells; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Dorseuil, O et al, *J Biol Chem*, 271: 83, 1996; el Benna, J et al, *J Biol Chem*, 269: 6729, 1994

**Raf-1 Truncated, Active**

**USBio R0495-08**

**Raf-1, Active**

**USBio R0495-05** Human recombinant from Sf9 insect cell lysate In 50 µL of 20 mM Tris-acetate, pH 7.5, 0.27 M sucrose, 1 mM EDTA, 1 mM EGTA, 1 mM sodium orthovanadate, 10 mM β-glycerophosphate, 50 mM NaF, 5 mM sodium pyrophosphate, 1% Triton X-100, 0.1% β-MSH, 0.2 mM PMSF, 5 mg/mL leupeptin, 5 mg/mL aprotinin | Full length untagged recombinant human Raf-1; at the convergence of two lines of inquiry: the search for activators of MAP Kinase Kinase (MEK) & the search for effectors of the Ras oncoprotein; Raf-1 binds the effector loop of p21 Ras when Ras is in complex with GTP, by virtue of its amino-terminal regulatory domain; while the interaction itself is insufficient to activate Raf-1, recruitment of Raf-1 to the plasma membrane consequent to Ras binding results in Raf-1 activation & the requirement for Ras can be bypassed if Raf-1 is constitutively localized to the membrane; Raf-1 associates with members of the 14-3-3 family of proteins, which appear to protect active Raf-1 from phosphatase action; important regulatory phosphorylation events occur on Tyr<sup>340,341</sup> & Ser<sup>259,499</sup> (activating), Ser<sup>43</sup> (prevents Ras:GTP binding) & Ser<sup>621</sup> (constitutive, required for activity)

**RalB, His-Tagged**

**Calbiochem 553201** Rat brain recombinant, produced by overexpression of a full-length RalB cDNA clone in *E. coli* MW 24.4k ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein associated with the synaptic vesicles & human platelet dense granules; detected in adrenal glands, brain, kidney, spleen & testis; thought to mediate a downstream signaling pathway from Ras that facilitates cellular transformation; a C-terminal CCLL motif & is most likely geranylgeranylated; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Hermann, C et al, *J Biol Chem*, 271: 6794, 1996; Mark, BL et al, *Biochem Biophys Res Commun*, 225: 40, 1996; Wildey, GM et al, *Biochem Biophys Res Commun*, 194: 552, 1993

**Ran, His-Tagged**

**Calbiochem 553203** Rat brain recombinant, produced by overexpression of a full-length Ran cDNA clone in *E. coli* MW 25.5k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein located in the nucleus; regulates the check point between completion of DNA synthesis & initiation of mitosis; also required for import of proteins into the nucleus; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Ren, M et al, *J Cell Biol*, 120: 313, 1993; Moore, MS et al, *PNAS*, 91: 10212, 1994; Bischoff, FR et al, *PNAS*, 88: 10830, 1991

**RANK**

**Synonyms:** TNFRSF11A; NF-κB Receptor Activator

**R&D Systems 683-RK-100** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 4-10 ng/mL | Species specificity: human; member of the TNF receptor superfamily; TRANCE (TNF-related activation-induced cytokine) is the ligand for RANK; a number of biological functions are mediated through RANK, including activation of NF-κB; soluble RANK can block TRANCE-induced biological activity; Anderson, DM et al, *Nature*, 390: 175, 1997; Nakagawa, N et al, *BBRC*, 245: 382, 1998

**R&D Systems 692-RK-100** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 5-15 ng/mL | Species specificity: mouse; member of the TNF receptor superfamily; TRANCE (TNF-related activation-induced cytokine) is the ligand for RANK; a number of biological functions are mediated through RANK, including activation of NF-κB; soluble RANK can block TRANCE-induced biological activity; Anderson, DM et al, *Nature*, 390: 175, 1997; Nakagawa, N et al, *BBRC*, 245: 382, 1998

**RANK Ligand**

**BioSource International PHP0034** Human recombinant

**RANK Ligand, Soluble**

**Synonyms:** sRANKL; OPGL; TRANCE; ODF; TNFRSF11A; NF-κB Receptor Activator

**Chemicon GF091** Human ≥95% | Purified protein for apoptosis & signal transduction

**Alexis 522-012** Human recombinant Novel member of the TNF family expressed in activated T cells, lymph nodes & in stromal cell lines; interacts with its receptor RANK expressed on mature dendritic cells (DC) & mature osteoclasts, leading to the inhibition of apoptosis, probably through the upregulation of bcl-x; useful tool for enhancing DC & osteoclast survival & activity; Lacey, DL et al, *Cell*, 93: 165, 1998; Anderson, DA et al, *Nature*, 390: 175, 1997; Wong, BR et al, *J Exp Med*, 186: 2075, 1997

**PeproTech 310-01** Human recombinant, expressed in *E. coli* MW 20.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Receptor activator of NF-KappaB; newly discovered member of the TNFR family; a dendritic cell membrane protein; a soluble protein comprising the full-length of the TNF-like extracellular domain of RANKL; ED<sub>50</sub> < 10.0 ng/mL; SA determined by the dose-dependent stimulation of IL-8 production by human PBMC

**RANKL**

**Kamiya** MW 27.8k >98% (SDS-PAGE) & HPLC

**RANTES**

**Synonyms:** MCP2; Macrophage/Monocyte Chemoattractant Protein II; hSIS δ Protein

**Biodesign A52007M** *E. coli* MW 7.8k Purified | Species specificity: mouse

**Biodesign A52013H** *E. coli* MW 7.9k Purified | Species specificity: rat

**Biodesign A52306H** *E. coli* MW 8k Purified

**Chemicon GF020** Human ≥95%

**BioSource International PHC1054** Human recombinant

**Calbiochem 553500** Human recombinant, expressed in *E. coli* MW 7.8k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg RANTES; biological activity: ED<sub>50</sub>=50-200 ng/mL as measured by its monocyte chemotactic ability; endotoxin: ≤100 pg/µg RANTES | RANTES (regulated on activation, normal T cell expressed & secreted) is a member of the β (CC) chemokine family; chemoattractant for unstimulated CD4<sup>+</sup>/CD45RO<sup>+</sup> memory T cells; induces Ca<sup>2+</sup> mobilization in T cells; acts as an antigen-independent activator of T cells *in vitro*; Bacon, KB et al, *Science*, 269: 1727, 1995; Devergne, O et al, *J Exp Med*, 179: 1689, 1994

**Fitzgerald 30-AR50** Human recombinant, expressed in *E. coli*

**Harlan BT-3024** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3025** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**ICN 158419** Human recombinant, expressed in *E. coli* ≥98%; lyophilized; ED<sub>50</sub> = 50.0 ng/mL, 1 U is the amount of RANTES needed for maximal chemotactic activity on human blood monocytes | Important member of the PF4 superfamily of chemoattractant proteins shown to selectively attract T cells of the CD4<sup>+</sup>/CD45RO<sup>+</sup> phenotype *in vitro*; useful with human IL-8 & MCAF/MCP1 in inflammatory response research

**PeproTech 300-06** Human recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Chemoattractant for peripheral blood monocytes; selectively attracts T cells of the CD4<sup>+</sup>/CD45RO<sup>+</sup> phenotype *in vitro*; 68 AA; SA determined by its ability to chemoattract human blood monocytes

**Sigma R 6267** Human recombinant, expressed in *E. coli* MW 7.8k >97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile, 0.1% trifluoroacetic acid containing 500 µg BSA; activity tested in culture by measuring monocyte chemotactic activity; endotoxin tested | Member of the chemokine superfamily, platelet factor 4 (PF4) which is characterized by 4 positionally conserved cysteine residues & has been subdivided according to the position of the first 2 cysteines into 2 branches, the chemokine α family & the chemokine β subfamilies; member of the chemokine β family; chemoattractant for peripheral blood monocytes & will selectively attract T cells of the CD4<sup>+</sup>/CD45RO<sup>+</sup> phenotype *in vitro*; Schall, T et al, *Nature*, 347: 669, 1990; Staacke, M et al, *New Biol*, 2: 313, 1990; Brown, K et al, *J Immunol*, 142: 679, 1989; Schall, T et al, *Cytokine*, 3(3): 165, 1991; Schall, T et al, *Nature*, 347: 669, 1990

**BioSource International PMC1054** Mouse recombinant

**Chemicon GF082** Murine ≥95%

**PeproTech 250-07** Murine recombinant, expressed in *E. coli* MW 7.8k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Chemo-attractant for peripheral blood monocytes; selectively attracts T cells of the CD4<sup>+</sup>/CD45RO<sup>+</sup> phenotype *in vitro*; 68 AA; SA determined by its ability to chemoattract total human lymphocyte population & total murine T cell population

**Chemicon GF045** Rat ≥95%

**BioSource International PRC1054** Rat recombinant

**Fitzgerald 30-AR51** Rat recombinant, expressed in *E. coli*

**ICN 193968** Rat recombinant, expressed in *E. coli* ≥95%; lyophilized | Homolog of human RANTES, a chemoattractant to monocytes & eosinophils

**PeproTech 400-13** Rat recombinant, expressed in *E. coli* MW 7.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Chemoattractant for peripheral blood monocytes; selectively attracts T cells of the CD4<sup>+</sup>/CD45RO<sup>+</sup> phenotype *in vitro*; 69 AA; SA determined by its ability to chemoattract rat peritoneal macrophages

### Rap1a, His-Tagged

**Calbiochem 553205** Human brain recombinant, produced by overexpression of a full-length Rap1a cDNA clone in *E. coli* MW 22.1k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein that antagonizes the Ras transforming activity through tight binding to Ras-GAP; interferes with Ras-dependent Raf1 activation by inhibiting binding of Ras to the cysteine-rich region of Raf1; localized in the endoplasmic reticulum, late endosomes & lysosomes, indicating its potential role in the regulation of intracellular protein degradation; a C-terminal CLLL motif for post-translational geranylgeranylation & a single site for phosphorylation by protein kinase A; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Hu, CD et al, *J Biol Chem*, 272: 1702, 1997; Pizon, V et al, *J Cell Sci*, 107: 1661, 1994; Rubinfeld, B et al, *Cell*, 65: 1033, 1991; Kitayama, H et al, *Cell*, 56: 77, 1989

### Rap1b, His-Tagged

**Calbiochem 553207** Human brain recombinant, produced by overexpression of a full-length Rap1b cDNA clone in *E. coli* MW 21.9k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein that belongs to the Rap subgroup of Ras-related proteins; reported to have a stimulating effect on B-Raf activity; distribution of Rap1b is restricted to late endosome/lysosomal structures, suggesting a potential role in the regulation of intracellular protein degradation; a C-terminal CQLL motif for post-translational geranylgeranylation & a single site for phosphorylation by protein kinase A; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Kuroda, S et al, *J Biol Chem*, 271: 14680, 1996; Pizon, V et al, *J Cell Sci*, 107: 1661, 1994; Lapetina, E et al, *PNAS*, 86: 3131, 1989; Pizon, V et al, *Nucl Acids Res*, 16: 7719, 1988

### Rap2a, His-Tagged

**Calbiochem 553209** Human brain recombinant, produced by overexpression of a full-length Rap2a cDNA clone in *E. coli* MW 21.7k ≥90% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein expressed mainly in brain, muscle, platelet & testis; thought to play a role in the regulation of granule organization; a C-terminal CNIQ motif for post-translational farnesylation; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Carnero, A et al, *Biochem Biophys Res Commun*, 216: 748, 1995; Farrell, FX et al, *Biochem J*, 289: 349, 1993; Pizon, V et al, *Oncogene*, 3: 201, 1988

### Ras

**Sigma R 9894** Human wild type recombinant, expressed in *E. coli* MW 21k ~95% (SDS-PAGE); solution in 50% glycerol containing 20 mM Tris, pH 7.6, 5 mM MgCl<sub>2</sub>, 50 mM NaCl, 1 mM DTT; GDP binding: ≥0.25 mole GDP/mole H-Ras | Guanine-nucleotide binding protein that couples tyrosine kinase receptor signals to MAP kinase cascade; Ras is a substrate for farnesyltransferase (Ftase), when farnesylated it is anchored to the membrane; membrane localization of Ras is crucial for its cellular activity; inhibition of Ras farnesylation is a target for new anti-cancer drug development, since abnormally active Ras is present in >50% of human cancer; Tucker, J et al, *EMBO J*, 5: 1351, 1986; Egan, SE & Weinberg, RA, *Nature*, 365: 781, 1993; Tamanoi, F, *TIBS*, 18: 349, 1993

### Ras (G12V)-GST, Agarose Conjugated

**Calbiochem 553574** Human Purified; in a 50% agarose slurry | GTP binding protein; binds Raf-1, GAP & SOS in cellular extracts; a glycine 12 to valine mutation was introduced to eliminate intrinsic GTPase activity from the recombinant Ras-GST fusion protein; Ras (G12V)-GST is supplied bound to glutathione-agarose beads to facilitate adsorption of Ras-binding proteins such as Raf1, GAP & SOS from cellular extracts; full-length soluble Ras (G12V) can be released from the beads by incubation with factor Xa, or the Ras (G12V)-GST fusion protein can be eluted with 10 mM glutathione; Vojtek, AB et al, *Cell*, 74: 205, 1993

### Ras Modified

**Synonyms:** Ras-Cys-Val-Leu-Leu

**Sigma R 0145** Human recombinant, expressed in *E. coli* MW 21k ~95% (SDS-PAGE); solution in 50% glycerol containing 20 mM Tris HCl, pH 8.0, 5 mM MgCl<sub>2</sub>, 45 mM NaCl, 1 mM DTT | Modified Ras protein which terminates in the tetrapeptide Cys-Val-Leu-Leu; substrate for geranylgeranyl transferase I; Cox, AD et al, *Mol Cell Biol*, 12: 2606, 1992



**Ras, CVLL Type***Synonyms:* Geranylgeranyltransferase Substrate

**Calbiochem 553322** Human recombinant, expressed in *E. coli* MW 20k ≥90% (SDS-PAGE); liquid in 45 mM NaCl, 5 mM MgCl<sub>2</sub>, 20 mM Tris-HCl, 1 mM DTT, 50% glycerol, pH 8.0; GDP binding: ≥1:4 stoichiometry of GDP:H-Ras | GTP binding protein; Marshall, MS et al, *FASEB J*, 9: 1311, 1995; Casey, P et al, *PNAS*, 88: 8631, 1991

**Ras, Wild-Type***Synonyms:* Farnesyltransferase Substrate

**Calbiochem 553325** Human recombinant, expressed in *E. coli* MW 20k ≥90% (SDS-PAGE); liquid in 45 mM NaCl, 5 mM MgCl<sub>2</sub>, 20 mM Tris-HCl, 1 mM DTT, 50% glycerol, pH 8.0; GDP binding: ≥1:4 stoichiometry of GDP:H-Ras | GTP binding protein; Marshall, MS et al, *FASEB J*, 9: 1311, 1995; Reiss, Y et al, *Cell*, 62: 81, 1990

**Ras-GST, Agarose Conjugated**

**USBio R1198-20** Recombinant MW ~47k ≥95%; frozen suspension of 50% agarose gel slurry suspended in PBS for a total volume of 50 µL per vial; each vial containing 25 µg of GST-Ras is bound to 25 µL of packed agarose beads | Non-covalently bound to glutathione-agarose (50% bead slurry); although it is supplied linked to glutathione-agarose, GST-Ras protein can be eluted from the beads with 10mM glutathione; full length, soluble Ras can be released by incubation of the beads with factor Xa

**RecA Protein**

**Fluka 83543** 0.5 U/mg protein (≥1 mg/mL); 1 U corresponds to the amount of enzyme which liberates 1 µmol inorganic phosphate from ATP in the presence of single stranded calf thymus DNA/min at pH 7.5, 37°C | Rigas, B et al, *PNAS*, 83: 9591, 1986

**Fluka 83548** *E. coli* KM 1842 ~0.5 U/mg protein (~5 mg/mL); 1 U corresponds to the amount of enzyme which liberates 1 µmol inorganic phosphate from ATP in the presence of single stranded calf thymus DNA/min at pH 7.5, 37°C | Koob, M, *Meth Enzymol*, 216: 321, 1992

**Amersham E70028Y/E70028Z** purified from an exonuclease I-deficient *E. coli* that carries the cloned *recA* gene from *E. coli*. MW 37.8k 1-5 mg/mL by A<sub>280</sub>; >95% pure (PAGE); free of endonuclease, exonuclease, DNA & RNA; 20 mM Tris-HCl, pH 7.5, 1.0 mM DTT, 0.1 mM EDTA, 20% glycerol | Participates in general recombination, repair of DNA & regulation of repair mechanisms; has been observed *in vitro* to have DNA-dependent ATPase activity, promote proteolytic cleavage of repressors & to catalyze DNA strand-pairing & exchange; forms helical filaments with ss- & duplex DNA

**Promega M1691** Recombinant, expressed in *E. coli* Binds cooperatively & stoichiometrically to ss-DNA & is active in strand exchange as a nucleoprotein filament containing 1 RecA monomer (38 kDa) per 3 bases of ss-DNA; can locate & pair a ss-DNA sequence to its homologous ds-DNA sequence in the presence of ATP-γ-S; Honigberg, SM et al, *PNAS*, 83: 9591, 1986; Ferrin, LJ & Camerini-Otero, RD, *Science*, 254: 1494, 1991; Taidi-Laskowski, B et al, *Nucl Acids Res*, 16: 8157, 1988; Rigas, B et al, *PNAS*, 83: 9591, 1986; Koob, M et al, *Nucl Acids Res*, 20: 5831, 1992; Krasnow, MA et al, *Nature*, 304: 559, 1983

**Renin**

**Biogenesis 7930-0004** Humankidney Tested negative for HBsAg; purified; lyophilized

**Respiratory Syncytial Virus Antigen**

**Biodesign R02712** Lysate | Infectious disease antigen

**Restrictin***Synonyms:* Tenascin-R; Janusin

**Chemicon CC116** Chicken brain MW 180k Chromatographically purified | Extracellular matrix protein; a large glycoprotein that forms disulfide-linked trimers; structurally related to tenascin & contains EGF-like repeats, fibronectin type III repeats & a region homologous to fibrinogen; the expression of restrictin is limited to the nervous system; can function as an anti-adhesive molecule

**Restrictocin***Synonyms:* Ribosome Inactivating Protein

**Sigma R 0389** *Aspergillus restrictus* Lyophilized from 0.3 mL of 0.5% NaCl; ~70% of protein is active restrictocin | Acts by specifically cleaving rRNA

**Retinol Binding Protein**

**Cortex CP1024** >95%

**Cortex CP1024P** >40%

**Cortex CP1024U** >98%

**USBio R1701** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 1.15 mg/mL (Lowry) supplied in 10 mM Tris-HCl; pH 7.4, 150 mM NaCl | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AR20** Human urine High purity

**Biogenesis 7970-0504** Human urine from patients with chronic renal tubular proteinuria MW 21k Tested negative for HIV 1 and 2 antibodies, hepatitis B surface antigen and HCV antibodies; purified; from 0.02M NH<sub>4</sub>HCO<sub>3</sub>, may contain traces of buffer salts; lyophilized

**Scipac P124-0** Urine of patients with chronic renal tubular proteinuria >99%; lyophilized; < 0.1% A1M, B2M and albumin | Nutritional protein

**Scipac P124-1** Urine of patients with chronic renal tubular proteinuria >98%; lyophilized | Nutritional protein

**Scipac P124-2** Urine of patients with chronic renal tubular proteinuria 40-90%; lyophilized; available on request | Nutritional protein

**RhoA, GST-Tagged**

**Calbiochem 555466** Human recombinant, expressed in *E. coli* MW 48,769 ≥90% (SDS-PAGE); liquid in 20 mM HEPES, 5 mM MgCl<sub>2</sub>, 40% glycerol, 0.06% NaN<sub>3</sub>, pH 8.0; GTPγS binding: ≥400 mmol/mol | GTP binding protein; small GTPase that belongs to the Ras superfamily & regulates stress fiber formation in response to growth factor stimulation; useful as a positive control in Western blotting & as an affinity precipitation reagent using immobilized glutathione resin; Ridley, AJ et al, *Curr Biol*, 6: 1256, 1996; Ridley, AJ & Hall, A, *Cell*, 70: 389, 1992

**RhoA, His-Tagged**

**Calbiochem 555470** Human recombinant, expressed in *E. coli* MW 22,469 ≥90% (SDS-PAGE); liquid in 150 mM NaCl, 20 mM Tris-HCl, 40% glycerol, 5 mM imidazole, pH 7.9; GTPγS binding: ≥600 mmol/mol | GTP binding protein; small GTPase that belongs to the Ras superfamily & regulates stress fiber formation in response to growth factor stimulation; useful as a positive control in Western blotting & as an affinity precipitation reagent using Ni<sup>2+</sup>-charged metal chelate resin; Ridley, AJ et al, *Curr Biol*, 6: 1256, 1996; Ridley, AJ & Hall, A, *Cell*, 70: 389, 1992

**RhoB**

**Chemicon GPR082** Recombinant ≥95% | Purified protein for apoptosis & signal transduction

**RhoB, His-Tagged**

**Calbiochem 555475** Rat brain recombinant, produced by overexpression of a full-length RhoB cDNA clone in *E. coli* MW 24,844 ≥85% (SDS-PAGE); liquid in 200 mM BME, 50 mM Tris-HCl, 10% glycerol, 2% SDS, 0.005% bromophenol blue, pH 6.8 | GTP binding protein; small GTP-binding protein that is implicated in the regulation of the microfilament network & in cell transformation; Perinuclear & vesicular localization of the endogenous RhoB protein is also inducible by growth factors; also plays a role in the G<sub>1</sub>/S phase transition &/or in the S phase of the cell cycle; suitable for use as a positive control or to assay for cross-reactivity by Western blotting; Armstrong, SA et al, *J Biol Chem*, 270: 7864, 1995; Fritz, G et al, *J Biol Chem*, 270: 25172, 1995; Zalzman, G et al, *Oncogene*, 10: 1935, 1995; Hall, A et al, *Ann Rev Cell Biol*, 10: 31, 1994

**Rhodopsin**

**Calbiochem 555520** Bovine retina MW 30,007 ≥95% (SDS-PAGE); dark-adapted membrane suspension in 20 mM Tris-HCl, 10 mM BME, 100 μM EDTA, pH 7.5; activity: activates equimolar amounts of transducin as measured by GTPγS binding; must open in complete darkness | G-protein-coupled receptor localized in retinal rod outer segment membranes; absorption of light by the chromophore 11-*cis*-retinal in the active site of rhodopsin is the initial event in the conversion of light energy to neural excitation; Ting, TD et al, *Methods Neurosci*, 15: 180, 1993; Papermaster, DS, *Biochemistry*, 13: 2438, 1982

**Riboflavin Binding Protein**

**Fluka 83806** Chicken egg white MW 32.3k ≥98.0% (GE); ~10 U/mg protein; 1 U corresponds to the binding of 1 μg riboflavin at pH 7.5, 25°C | Very heat-stable phosphoglycoprotein; dissociation constant for riboflavin: 1.3x10<sup>-9</sup> M; occurs readily <pH 4.0; Becvar, J & Palmer, G, *JBC*, 257: 5607, 1982; Sanberlich, ME, *Ann Rev Nutr*, 4: 377, 1984; Tillotson, JA & Bashor, MM, *Anal Biochem*, 107: 214, 1980

**Riboflavin Binding Protein, Apo Form**

**Sigma R 8628** Chicken egg white Lyophilized powder; binding capacity: 1 mg of protein (Biuret) binds 5-15 μg of riboflavin; essentially free of riboflavin & salts | Useful in the fluorometric determination of riboflavin; 1 mg sufficient for 20 riboflavin determinations; Farrell, HM Jr et al, *Biochim Biophys Acta*, 194: 433, 1969; Tillotson, JA & Bashor, MM, *Anal Biochem*, 107: 214, 1980

**Riboflavin Binding Protein, Holo Form**

**Sigma R 3754** Chicken egg white Lyophilized powder; contains 5-15 μg of protein-bound riboflavin/mg protein | Not useful in the determination of riboflavin

**Ribonuclease S Protein Grade XII-PR**

**Sigma R 6250** Bovine pancreas A protein component obtained from RNase S (protease-modified RNase A); when mixed with S-peptide, full enzymatic activity is restored | Richard, R & Vithayathil, P, *J Biol Chem*, 234: 1459, 1959

**Ribosomal P Antigen**

**Biodesign A07305B** Bovine/rabbit mixture Purified | Autoimmune reagent

**Ristocetin**

**Sigma R 7752** Sulfate salt; >90% Ristocetin A; balance primarily Ristocetin B | Glycopeptide antibiotic complex; Jordan, DC in *Antibiotics*, Vol 1, D Gottlieb & P Shaw, eds, Springer-Verlag (New York: 1967), 84

**Ristocetin Reagent**

**Sigma 885-7** Reconstitute with 1 mL water to obtain Ristocetin solution, ~15 mg/mL, with buffer

**ROK α/ROCK-II, Active**

**USBio R2998**

**Rubella Core Protein**

**Biodesign R3B901** Recombinant >95% | Infectious disease antigen

**S-100 Antigen**

**USBio S0051** Human ≥98% (SDS-PAGE); no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 40,000 U/mg; lyophilized | Suitable for antigenic applications in immunological protocols

**S-100 Protein**

**Calbiochem 559284** Bovine brain MW 21k >95% (SDS-PAGE); lyophilized solid; solubilized in 100 mM Tris, pH 7.5 | Calcium-modulated protein with some structural similarity to calmodulin; interacts with glial fibrillary acidic protein & inhibits its polymerization in a Ca<sup>2+</sup>-dependent manner; originally detected in neural tissue, principally in the cytoplasm of glial cells; also found in chondrocytes, T lymphocytes & skin; involved in microtubule dissociation & inhibition of microtubule assembly; Delvalle, ME et al, *Neurosci Lett*, 168: 247, 1994; Lackmann, M et al, *J Biol Chem*, 267: 7499, 1992; Marshak, DR et al, *PNAS*, 78: 6793, 1981

**Sigma S 6552** Bovine brain Lyophilized powder containing ≥50% (w/w) S-100 proteins; actual percentage determined by HPLC provided on label

**Calbiochem 559291** Human brain MW 21k ≥98% (SDS-PAGE); salt-free lyophilized powder; solubilized in PBS, pH 7.2 | Calcium-binding protein found in neuronal tissue, principally in the cytoplasm of glial cells; also found in chondrocytes, T lymphocytes & skin; prepared from tissues of individuals that have been shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV

**Fitzgerald 30-AS07** Human brain High purity >98%

**S-100A (α,α) Protein**

**Calbiochem 559287** Bovine brain MW 21k ≥90% (SDS-PAGE); ≥95% (HPLC); lyophilized solid | Homodimeric S-100 isoform composed of αα-subunits; Ogoma, Y et al, *J Biol Macromol*, 14: 279, 1992; Usul, A et al, *Clin Chem*, 36: 639, 1990

**Sigma S 6927** Bovine brain ~90% (HPLC); ≥85% (PAGE); lyophilized powder containing ~90% protein (Biuret) | Ca<sup>2+</sup> binding protein found in glial cell cytoplasm in two major dimeric forms, S-100A (α,β) & S-100B (β,β) & one minor form S-100 (α,α); inhibits microtubule assembly

**S-100A Protein**

**Sigma S 6802** Bovine brain ~90% (HPLC); ≥70% (PAGE); lyophilized powder containing ~90% protein (Biuret) | Ca<sup>2+</sup> binding protein found in glial cell cytoplasm in two major dimeric forms, S-100A (α,β) & S-100B (β,β) & one minor form S-100 (α,α); inhibits microtubule assembly

**S-100B Protein**

**Biogenesis 8200-0990** Bovine brain 94% protein (Biuret); purified; lyophilized

**Calbiochem 559290** Bovine brain MW 21k >98% (SDS-PAGE); ≤10% α-chain (HPLC); lyophilized solid; soluble in aqueous buffer, pH >6.0 | Homodimeric S-100 isoform composed of ββsubunits; Momotani, E et al, *J Comp Pathol*, 108: 291, 1993; Baudier, J et al, *PNAS*, 89: 11627, 1992; Donato, R et al, *Cell Calcium*, 12: 713, 1991; Isobe, T et al, *Biochim Biophys Acta*, 494: 222, 1977

**Sigma S 6677** Bovine brain ~90% (HPLC); ≥70% (PAGE); lyophilized powder containing ~90% protein (Biuret) | Ca<sup>2+</sup> binding protein found in glial cell cytoplasm in two major dimeric forms, S-100A (α,β) & S-100B (β,β) & one minor form S-100 (α,α); inhibits microtubule assembly

**SAA****BioSource International PHA0014** Human**SAPK2/p38 Inhibitor****Synonyms:** SB 203580

**USBio S0096-26** ≥98% by HPLC; soluble in DMSO at 50 mg/mL; pale yellow solid | A highly specific inhibitor (IC<sub>50</sub>: 600 nM); suppresses the activation of MAPKAP Kinase-2 & MAPKAP Kinase-3; does not significantly inhibit SAPK/JNK or Erk/MAPkinases at 100mM; inhibits IL-1 & TNF-α production from LPS-stimulated human monocytes & the human monocyte cell line THP-1; inhibits activation of the HIV-1 long terminal repeat by IL-1 & TNF-α; an effective inhibitor of inflammatory cytokine production *in vivo* in mice & rats

**Saporin****Synonyms:** Ribosome Inactivating Protein

**Sigma S 9896** *Saponaria officinalis* seeds Lyophilized powder containing ~20% protein (Lowry); balance primarily glucose & sodium phosphate buffer salts | Stirpe, F et al, *Biochem J*, 216: 617, 1983; Stirpe, F & Barbieri, L, *FEBS Lett*, 195: 1, 1986

**sCD40L/Trap****BioSource International PHP0024** Human recombinant**Scl-70 Antigen**

**Biodesign A07301B** Bovine/rabbit thymus mixture Purified | Autoimmune reagent

**Biodesign A2A550R** Rabbit thymus Purified | Autoimmune reagent

**SDF-1α****BioSource International PHC1354** Human recombinant**BioSource International PHC1364** Human recombinant**Secretory Leukocyte Protease Inhibitor**

**ICN 195731** Human recombinant, expressed in *E. coli* ≥97%; inhibits trypsin activity at a 1:1 molar ratio to active trypsin

**Selectin, E-****Synonyms:** Selectin, rhsE-; CD62E; ELAM-1

**Alexis BMS316** Human recombinant produced in an insect cell line >95%; 170 µg/mL in PBS | Chimera of the CA21 epitope, a part of the L-selectin cytoplasmic domain & truncated E-selectin (lectin domain, EGF domain, & two consensus repeats)

**Calbiochem 561300** Human recombinant, expressed in CHO cell line MW 58.8k Lyophilized from PBS containing calcium & magnesium with a stabilizer; ≥95% (SDS-PAGE); activity: shown to bind to E-selectin ligands on U937 cells | Recombinant form of E-selectin consisting of 535 AA minus the transmembrane & cytoplasmic domains; transiently expressed on vascular endothelial cell surfaces where it is able to bind to ligands such as sialyl Lewis x found on leukocytes; this initial binding event is followed by a second interaction involving ICAM & VCAM-1 leading to vascular penetration & leukocyte invasion into the extracellular matrix tissue

**Selectin, L-****Synonyms:** CD62L; LECAM-1; MEL-14

**Calbiochem 561303** Human recombinant, expressed in CHO cell line MW 33k Lyophilized from PBS containing calcium & magnesium with a stabilizer; ≥95% (SDS-PAGE); activity: shown to bind to L-selectin ligands on LS180 cells | Recombinant form of E-selectin consisting of 294 AA minus the transmembrane & cytoplasmic domains; expressed on leukocytes & acts along with P-selectin & E-selectin in establishing an initial interaction between circulating leukocytes & the endothelium

**Selectin, P-****Synonyms:** CD62P; GMP-140; LECAM-3; PADGEM

**Calbiochem 561306** Human recombinant, expressed in CHO cell line MW 80k Lyophilized from PBS containing calcium & magnesium with a stabilizer; ≥95% (SDS-PAGE); activity: shown to bind to P-selectin ligands on U937 cells | Recombinant form of E-selectin consisting of 730 AA minus the transmembrane & cytoplasmic domains; expressed on activated platelets & endothelial cells; a specific interaction between P-selectin & P-selectin Glycoprotein ligand-1, present on numerous cells types, promotes adhesion & acts along with L-selectin in establishing an initial interaction between circulating leukocytes & the endothelium

**Serum Amyloid A**

**Scipac P127-1** Serum/plasma >96%; lyophilized | Acute phase protein

**Scipac P127-2** Serum/plasma 10-50%; lyophilized | Acute phase protein

**Serum Proteins**

**Sigma S 2396** Human Lyophilized powder containing ~95% protein (Biuret); balance primarily citrate buffer salts; 1 mL serum yields ~45 mg lyophilized proteins; 1-3 moles hexose (as fructosamine)/mole albumin | Glycated *in vitro* & packaged as 'serum equivalents'; Armbruster, DA, *Clin Chem*, 33: 2513, 1987; Furth, AJ, *Anal Biochem*, 175: 347, 1988

**Sex Hormone Binding Globulin****Synonyms:** Testosterone-Estradiol Binding Globulin

**USBio S1012-54** Human pregnancy plasma ≥98% (SDS-PAGE); purified by affinity chromatography; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized in 0.01 M PBS, 0.02% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols.

**Biogenesis 8280-1004** Human serum MW 85k Tested negative for HBsAg, HCV antibody and HIV 1 and 2 antibodies; purified; 0.05 M Tris HCl, pH 7.4, with 10% glycerol; liquid

**Calbiochem 581228** Human serum MW 94k Liquid in 10 mM CaCl<sub>2</sub>, 10 mM Tris, 50% glycerol, pH 7.4; ≥90% (SDS-PAGE); prepared from serum shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Circulating transport glycoprotein originating from the liver & possessing a high affinity binding site for the gonadal steroids; Loukovaara, M et al, *J Clin Endocrinol Metab*, 80: 160, 1995

**Scipac P145-1** Serum/plasma >98%; lyophilized | Acute phase protein

**Scipac P145-2** Serum/plasma 10-50%; lyophilized; available on request | Acute phase protein

**SHP-1/SHPTP-1, Agarose Conjugated**

**USBio S1013-26** Recombinant human SHPTP1 Frozen preparation in 50 µg of SHP-1/GST fusion protein bound to glutathione-agarose beads & formulated as a 50% agarose bead slurry in 125 µL of 25 mM HEPES, 150 mM NaCl, 5 mM DTT, and 10% glycerol | Bound to glutathione-agarose beads for the easy removal of enzyme by centrifugation or filtration following dephosphorylation reactions

### Single Strand Binding Protein

**Amersham E70032Y/E70032Z** Cloned; *E. coli* strain M5248/pKAC27 1-5 mg/mL by A<sub>280</sub>; 4 identical 18,900 DA subunits; >98% pure (PAGE); free of non-specific endonuclease, exonuclease & ribonuclease; 50 mM Tris-HCl, pH 7.5, 200 mM NaCl, 1 mM EDTA, 50% glycerol | Subunits bind with high affinity & cooperatively to ss-DNA; subunits don't bind well to ds-DNA; involved in DNA replication & recombination *in vivo*; DNA binding & recombination have been studied *in vitro*; used to visualize ss-DNA by electron microscopy; used with recA protein for carrying out site-directed mutagenesis & to select specific sequences from libraries of ds-DNA; may also stimulate specific DNA polymerases used in DNA sequencing reactions; in conjunction with appropriate oligonucleotides & restriction endonucleases, has been used to target restriction endonuclease digestion to specific restriction sites in ss-DNA for subsequent mutagenesis

**Promega M3011** *E. coli* MW 75.6k (4 identical 18.9k subunits) Binds with high affinity in a cooperative manner to ss-DNA but not well to ds-DNA; involved in DNA replication & recombination *in vivo*; Sancer et al, *PNAS*, 78: 4274, 1981; Chase, JW & Williams, KR, *Ann Rev Biochem*, 55: 103, 1986; Krauss, G et al, *Biochemistry*, 20: 5346, 1981; Weiner, JH et al, *JBC*, 250: 1972, 1975

**Sigma S 3917** *E. coli* >95% (SDS-PAGE); solution (1.5 mg/mL) in 20 mM Tris-HCl, pH 8.0, 0.5 M NaCl, 0.1 mM EDTA, 0.1 mM DTT, 50% glycerol; DNase, RNase: none detected | Binds with high specificity to ss-DNA; useful in enhancing the specificity of PCR & in enabling the sequencing of problematic DNA templates; Schwarz, K et al, *Nucl Acids Res*, 18: 1079, 1990

### Smith Antigen

**Biodesign A07303B** Bovine spleen/thymus mixture Purified | Autoimmune reagent

**Biodesign A2A650R** Rabbit thymus Purified | Autoimmune reagent

### Smith/RNP Antigen

**Biodesign A07304B** Bovine/Rabbit mixture Purified | Autoimmune reagent

**Biodesign A2A250R** Rabbit thymus Purified | Autoimmune reagent

### Snake Toxin

**Sigma T 4307** *Crotalus vergrandis* (Uracoan rattlesnake)

### snRNP

**Biodesign A08050M** Hela cells MW 70k Purified | Autoimmune reagent

### snRNP A Protein

**Biodesign A08051M** Hela cells Purified | Autoimmune reagent

### snRNP B Protein

**Biodesign A08052M** Hela cells Purified | Autoimmune reagent

### Sodium Glucose Transporter I Control Peptide

**Chemicon AG661** ≥95% | Purified protein for apoptosis & signal transduction; for use with Chemicon AB1352

### SPARC

**Synonyms:** Osteonectin; BM-40

**Sigma S 5174** Mouse parietal yolk sac (PYS-2) cells MW 43k ~80% (SDS-PAGE); lyophilized from phosphate buffered saline | Secreted protein acidic & rich in cysteine; calcium binding glycoprotein; binds albumin, collagen & thrombospondin; inhibits spreading of endothelial & smooth muscle cells & fibroblasts; Lane, TF & Sage, HE, *FASEB J*, 8: 163, 1994; Sage, HE, *J Cell Biol*, 109: 341, 1989

### sRANK Receptor

**PeproTech 310-08** Human recombinant, expressed in *E. coli* MW 19.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Receptor activator of NF-KappaB; member of the TNFR family, derived from dendritic cells; soluble protein containing 175 AA residues comprising the full-length of the TNF receptor-like extracellular domain of RANK Receptor; SA determined by its ability to suppress the production of IFN-g from human PBMCs

### src SH2 Protein, Agarose Conjugated

**Oncogene SH01A** Liquid; negative control: BSA conjugated with biotin or to agarose; positive control: any cell line | Reacts with any phosphoproteins that bind src via the SH2 domain; recombinant SH2 domain of c-src coupled to agarose; species reactivity: broad range of species; for immunoprecipitation, antibody purification & affinity chromatography

### src SH2 Protein, Biotin Conjugated

**Oncogene SH01B** Liquid; negative control: BSA conjugated with biotin or to agarose; positive control: any cell line | Reacts with any phosphoproteins that bind src via the SH2 domain; conjugated recombinant SH2 domain of c-src; species reactivity: broad range of species; for immunoprecipitation, antibody purification & Western blot

### SS-A (RO) Antigen

**Biodesign A07300B** Bovine Purified | Autoimmune reagent

**Biodesign A2A750B** Porcine spleen Purified | Autoimmune reagent

### SS-A60 (RO) Antigen

**Biodesign A43130H** Recombinant, expressed in *E. coli* Purified | Autoimmune reagent

### SS-B (La) Antigen

**Biodesign A41022H** Bovine/Rabbit Purified | Autoimmune reagent

**Biodesign A2A350R** Rabbit thymus Purified | Autoimmune reagent

**Biodesign A43315H** Recombinant, expressed in *E. coli* Purified | Autoimmune reagent

### SSL1/p44

**IBT TA-400-1** Human recombinant, expressed in *E. coli*

### Stem Cell Factor

**Synonyms:** c-kit Ligand; Mast Cell Growth Factor; c-kit Ligand; Mast Cell Growth Factor

**Biodesign A52307H** *E. coli* MW 18.5k Purified

**Chemicon GF021** Human ≥95%

**Calbiochem 569600** Human recombinant, expressed in *E. coli* MW 18.5k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg SCF; biological activity: ED<sub>50</sub>=2.5-5.0 ng/mL as measured in a cell proliferation assay using a factor-dependent human erythroleukemic cell line; endotoxin: ≤100 pg/µg SCF | Hematopoietic growth factor that stimulates the growth of cells of multiple lineage; McNiece, IK et al, *Leuk Lymphoma*, 15: 405, 1994; Huang, E et al, *Cell*, 63: 225, 1990; Martin, FH et al, *Cell*, 63: 203, 1990

**Fitzgerald 30-AS60** Human recombinant, expressed in *E. coli*

**Harlan BT-3026** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3027** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**PeproTech 300-07** Human recombinant, expressed in *E. coli* MW 18.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Hematopoietic growth factor; exerts its activity at the early stages of hematopoiesis; stimulates proliferation of myeloid, erythroid, & lymphoid progenitors in bone marrow cultures; 164 AA; ED<sub>50</sub> ≤ 0.01 ng/mL; SA ≥ 10<sup>5</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of the human MO7e cells

**Sigma S 7901** Human recombinant, expressed in *E. coli* MW 18.5k >97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 500 μg BSA; proliferative activity is tested using TF-1 cells; endotoxin tested | Single chain; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; peptide growth factor/cytokine with broad activities, especially hematopoiesis; among SCF's many activities are the ability to act on early hematopoietic progenitor/stem cells & to stimulate the proliferation & survival of mast cells; also one of the most potent stimulators of multilineage progenitors (CFU-GEMM) in both human & murine bone marrow cells; acts synergistically with other growth factors including erythropoietin, G-CSF, M-CSF, GM-CSF, IL-3 & IL-6 to increase the number & size of colonies of hematopoietic progenitors; appears to play an important role in the survival, proliferation or migration of primordial germ cells & melanoblasts during development & maturation stages; Zsebo, KM et al, *Cell*, 63: 195, 1990;nocka, K et al, *EMBO J*, 9: 3287, 1990; Williams, DE et al, *Cell*, 63: 167, 1990; Broxmeyer, HE et al, *Blood*, 77: 2142, 1991; Martin, F et al, *Cell*, 63: 203, 1990; Orr-Urtreger, A et al, *Development*, 109: 911, 1990

**Biogenesis 8407-5066** Mouse r-DNA Liquid

**Calbiochem 569610** Mouse recombinant, expressed in *E. coli* MW 18.6k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 μg BSA/μg SCF; biological activity: ED<sub>50</sub>=5.0-10.0 ng/mL as measured in a cell proliferation assay using a factor-dependent human erythroleukemic cell line; endotoxin: ≤100 pg/μg SCF | Hematopoietic growth factor; Morstyn, G et al, *Oncology*, 51: 205, 1994; Huang, E et al, *Cell*, 63: 225, 1990; Martin, FH et al, *Cell*, 63: 203, 1990

**Sigma S 9915** Mouse recombinant, expressed in *E. coli* MW 18.5k >97% (SDS-PAGE); 0.2 μm filtered & lyophilized from phosphate buffered saline containing 250 μg BSA; proliferative activity is tested using TF-1 cells; endotoxin tested | Single chain; Kitamura, T et al, *J Cell Physiol*, 140: 323, 1989; peptide growth factor/cytokine with broad activities, especially hematopoiesis; among SCF's many activities are the ability to act on early hematopoietic progenitor/stem cells & to stimulate the proliferation & survival of mast cells; also one of the most potent stimulators of multilineage progenitors (CFU-GEMM) in both human & murine bone marrow cells; acts synergistically with other growth factors including erythropoietin, G-CSF, M-CSF, GM-CSF, IL-3 & IL-6 to increase the number & size of colonies of hematopoietic progenitors; appears to play an important role in the survival, proliferation or migration of primordial germ cells & melanoblasts during development & maturation stages; Zsebo, KM et al, *Cell*, 63: 195, 1990;nocka, K et al, *EMBO J*, 9: 3287, 1990; Williams, DE et al, *Cell*, 63: 167, 1990; Broxmeyer, HE et al, *Blood*, 77: 2142, 1991; Martin, F et al, *Cell*, 63: 203, 1990; Orr-Urtreger, A et al, *Development*, 109: 911, 1990

**Chemicon GF049** Murine ≥95%

**PeproTech 250-03** Murine recombinant, expressed in *E. coli* MW 18.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized with no additives | Hematopoietic growth factor; exerts its activity at the early stages of hematopoiesis; stimulates proliferation of myeloid, erythroid, & lymphoid progenitors in bone marrow cultures; 164 AA; ED<sub>50</sub> ≤ 20 ng/mL; SA ≥ 5 × 10<sup>4</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of the human MO7e cells

**Biogenesis 8407-5056** r-DNA Liquid

### Stem Cell Growth Factor

**Biodesign A52122H** *E. coli* Purified

**Chemicon GF072** Human ≥95%

**PeproTech 100-22** Human recombinant, expressed in *E. coli* MW 29.0k >95%; 165 AA; lyophilized from 25 mM HEPES, pH 6.5, 0.25 NaCl, 0.25 mM DTT; activity determined by a cell proliferation assay using human MO7e cells in the absence of serum

### Stem Cell Growth Factor α

**PeproTech 100-22A** Human recombinant, expressed in *E. coli* MW 33.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered hematopoietic growth factor; exerts its activity at the early stages of hematopoiesis; non-glycosylated species-specific cytokine that can support growth of primitive hematopoietic cells; in combination with EPO or GM-CSF, promotes proliferation of erthroid or myeloid progenitors, respectively; ED<sub>50</sub> ≤ 7 ng/mL; SA determined by its inhibitory effect on the proliferation of TF-1 cells previously grown in media containing GM-CSF

**PeproTech 100-22B** Human recombinant, expressed in *E. coli* MW 29k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Newly discovered hematopoietic growth factor; exerts its activity at the early stages of hematopoiesis; non-glycosylated species-specific cytokine that can support growth of primitive hematopoietic cells; in combination with EPO or GM-CSF, promotes proliferation of erthroid or myeloid progenitors, respectively; ED<sub>50</sub> ≤ 7 ng/mL; SA determined by its inhibitory effect on the proliferation of TF-1 cells previously grown in media containing GM-CSF

### Streptavidin

**Fluka 85878** *Streptomyces avidinii* MW 60k ~14 U/mg protein; lyophilized from 10 mM potassium phosphate; affinity purified; 1 U corresponds to the amount of protein which binds 1 μg (+)-biotin at pH 7.5; binding capacity: streptavidin binds 1 molecule of biotin/subunit | Comparison of biotin binding & absorbance measurements indicates that ≤5% binding sites are occupied; Fuccillo, DA, *BioTechniques*, 3: 494, 1985; Haeuptle, M-T et al, *JBC*, 258: 305, 1983

**Sigma S 4762** *Streptomyces avidinii* Affinity purified; lyophilized powder; essentially salt-free; activity: ~14 U/mg protein (E<sub>282</sub> at 1%); 1 mole of streptavidin binds 4 moles of biotin; 1 U binds 1.0 μg biotin | Chalet, L & Wolf, F, *Arch Biochem Biophys*, 106: 1, 1964; Green, NM, *Meth Enzymol*, 18A: 418, 1970; Haeuptle, M-T et al, *J Biol Chem*, 258: 305, 1983

**Sigma S 0677** *Streptomyces avidinii*; recombinant, expressed in *E. coli* Lyophilized from 0.02 M potassium phosphate buffer, pH 6.5, with no preservative added; 1 mole of streptavidin binds 4 moles of biotin; 1 U binds 1.0 μg biotin | Chalet, L & Wolf, F, *Arch Biochem Biophys*, 106: 1, 1964; Green, NM, *Meth Enzymol*, 18A: 418, 1970; Haeuptle, M-T et al, *J Biol Chem*, 258: 305, 1983

### Streptavidin Albumin, Gold Conjugated

**Sigma S 4275** *Streptomyces avidinii* 10 nm Colloidal Gold; mean particle size 8-12 nm; monodisperse; streptavidin, (Sigma S 4762) coupled through spacer to albumin-coated colloidal gold for enhanced detection of biotinylated compounds; suspension in ~50% glycerol containing 0.15 M NaCl, 0.01 M BES, pH 7.4, 0.25% BSA & 0.02% sodium azide | Liesi, P et al, *J Histochem Cytochem*, 34: 923, 1986; Bonnard, C et al, *Immunolabeling for Electron Microscopy*, JM Polak, IM Varndell, eds, Elsevier Science Publishers, New York, NY, p 95, 1984

### Streptavidin, Agarose CL-4B

**Fluka 85881** 50% Suspension in 0.01 M sodium phosphate buffer, pH 7.2, containing 0.15 M NaCl & 0.02% NaN<sub>3</sub>; streptavidin attached to 4% beaded cross-linked agarose via a C<sub>6</sub>-spacer (1.2 mg streptavidin/mL packed gel); binding capacity: 4 mg biotinylated rabbit IgG/mL packed gel | Buckie, JW & Cook, MW, *Anal Biochem*, 156: 463, 1986

### Streptavidin, Alkaline Phosphatase Conjugated

**Sigma S 2890** Lyophilized powder containing ~50% protein (Biuret); balance primarily trehalose with EPPS, phosphate & traces of MgCl<sub>2</sub> & zinc chloride; streptavidin activity: 4-8 U/mg protein; alkaline phosphatase activity: 700-1400 DEA U/mg protein; 1 U hydrolyzes 1.0 μmole *p*-nitrophenyl phosphate/min at pH 9.8, 37°C

**Sigma S 5795** Lyophilized powder containing ~50% protein (BCA); balance primarily trehalose & sodium citrate; streptavidin coupled to polymerized alkaline phosphatase, from calf intestine mucosa, by thioether linkage; purified by gel filtration chromatography; streptavidin activity: 1-4 U/mg protein; alkaline phosphatase activity: 800-1600 DEA U/mg protein; 1 U hydrolyzes 1.0  $\mu$ mol *p*-nitrophenyl phosphate/min at pH 9.8, 37°C | For highly sensitive detection of biotin conjugates, at least 10-fold more sensitive than monomeric enzyme conjugate, Sigma S 2890

#### Streptavidin, FITC Conjugated

**Sigma S 3762** Lyophilized powder; essentially salt-free; contains 4-8 moles FITC/mole streptavidin

#### Streptavidin, Gold Conjugated

**Sigma S 1139** 10 nm Colloidal Gold labeled; mean particle size 8-12 nm; monodisperse; streptavidin, (Sigma S 4762) adsorbed to colloidal gold for detection of biotinylated compounds; suspension in ~50% glycerol containing 0.15 M NaCl, 0.02% PEG, pH 7.4, 0.01 M phosphate buffer & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0 | Liesi, P et al, *J Histochem Cytochem*, 34: 923, 1986

**Sigma S 2390** 5 nm Colloidal Gold labeled; mean particle size 3.6-6.5 nm; monodisperse; streptavidin, (Sigma S 4762) adsorbed to colloidal gold for detection of biotinylated compounds; suspension in ~50% glycerol containing 0.15 M NaCl, 0.02% PEG, pH 7.4, 0.01 M phosphate buffer & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0 | Liesi, P et al, *J Histochem Cytochem*, 34: 923, 1986

**Sigma S 6514** 20 nm Colloidal Gold labeled; mean particle size 17-23 nm; monodisperse; streptavidin, (Sigma S 4762) adsorbed to colloidal gold for detection of biotinylated compounds; suspension in ~50% glycerol containing 0.15 M NaCl, 0.02% PEG, pH 7.4, 0.01 M phosphate buffer & 0.02% sodium azide; concentration:  $A_{520}$  ~5.0 | Liesi, P et al, *J Histochem Cytochem*, 34: 923, 1986

#### Streptavidin, Isoluminol Conjugated

**Sigma S 8532** Lyophilized powder containing ~85% protein (Biuret); balance sodium phosphate buffer salts; prepared by the method of Brockelbank | Suitable as a chemiluminescent detection reagent in avidin/biotin systems; Brockelbank, JL et al, *Ann Clin Biochem*, 21: 284, 1984; Wood, WG & Missler, V, in *Luminescence, Immunoassay & Molecular Applications*, CRC Press, 141, 1990

#### Streptavidin, MagaBeads™-Immobilized

**Cortex CM3450** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

**Cortex CM3455** Uniform magnetizable particles | Used for protein & DNA separation techniques, cell isolation, enzyme immobilization & bacterial capture

#### Streptavidin, MagaCell™-Immobilized

**Cortex CM5450** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

**Cortex CM5455** Magnetizable cellulose/iron oxide | Large porous surface which offers a high capacity for binding large quantities of biomolecules; vicinal hydroxyl groups are activated by employing surface chemistries including cyanogen bromide, carbodiimidazole, epoxide & periodate

#### Streptavidin, Maleimide

**Sigma S 9415** *Streptomyces avidinii* Lyophilized powder containing ~90% protein ( $E_{280}$  at 1%); balance sodium citrate; streptavidin activated with maleimidocaproic acid *N*-hydroxysuccinimide ester (Sigma M 4650); streptavidin activity: 10-16 U/mg protein; contains 4-8 moles maleimide/mole protein | Suitable for direct conjugation to compounds containing free sulfhydryl groups; Liu, FT et al, *Biochem*, 18(4): 690, 1979; Kitagawa, T et al, *Chem Pharm Bull*, 29(4): 1131, 1981; Duncan, RJS et al, *Anal Biochem*, 132: 68, 1983

#### Streptavidin, Peroxidase Conjugated

**Sigma S 5512** Lyophilized powder containing ~80% protein ( $E_{280}$  at 1%); balance citrate buffer salts; purified by affinity chromatography; streptavidin activity: 5-9 U/mg protein; 1 U binds 1.0  $\mu$ g biotin; peroxidase activity: 80-150 U/mg protein; 1 U forms 1 mg purpurogallin/20 sec from pyrogallol at pH 6.0, 20°C | Labeled with Type VI peroxidase by a modification of the method of O'Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978; sold on the basis of weight of protein

**Sigma S 9420** Lyophilized powder containing ~50% protein (BCA); balance primarily trehalose & sodium citrate; purified by gel filtration chromatography; streptavidin activity: 1-4 U/mg protein; peroxidase activity: 100-200 U/mg protein; 1 U forms 1 mg purpurogallin/20 sec from pyrogallol at pH 6.0, 20°C | Streptavidin coupled to polymerized horseradish peroxidase by thioether linkage; for highly sensitive detection of biotin conjugates; at least 10-fold more sensitive than monomeric enzyme conjugate, Sigma S 5512

**Fluka 85876** *Streptomyces avidinii*/ Horseradish ~5 U/mg activity; powder;  $\geq 80$  U/mg peroxidase activity; 1 U corresponds to the amount of enzyme which oxidizes 1  $\mu$ mol ABTS/min at pH 6.0, 25°C; 1 U corresponds to the amount of protein which binds 1  $\mu$ g (+)-biotin at pH 8.9 | Labeled by a modification of the method of Sullivan, MJ et al, *FEBS Lett*, 95: 311, 1978; purified by affinity chromatography

#### Streptavidin, Sulforhodamine 101 Acid Chloride (Texas Red) Conjugated

**Sigma S 7261** Lyophilized powder; essentially salt-free; purified by affinity chromatography; streptavidin activity: 8-16 U/mg protein ( $E_{280}$  at 1%); 1 U binds 1.0  $\mu$ g biotin; streptavidin: Texas Red molar ratio: ~ 1:2 | Green, NM, *Meth Enzymol*, 18A: 418, 1970

#### Streptavidin, $\beta$ -Galactosidase Conjugated

**Sigma S 3887** Lyophilized powder containing  $\geq 80\%$  protein (Biuret); balance primarily Tris buffer salts; streptavidin activity: 1-2 U/mg protein; 1 U binds 1  $\mu$ g biotin;  $\beta$ -galactosidase activity: 300-700 U/mg protein; 1 U hydrolyzes 1.0  $\mu$ mol *o*-nitrophenyl- $\beta$ -D-galactoside to *o*-nitrophenol/min at pH 7.3, 37°C | O'Sullivan, M et al, *FEBS Lett*, 95: 311, 1978; Green, NM, *Meth Enzymol*, 18A: 418, 1970; streptavidin &  $\beta$ -Galactosidase Grade VIII are conjugated by a modification of the method of O'Sullivan & purified by gel filtration; sold on basis of weight of active streptavidin

#### Stromal Cell Derived Factor 1 $\alpha$

**Biodesign A52028H** *E. coli* MW 8k Purified

**Chemicon GF073** Human  $\geq 95\%$

**PeproTech 300-28A** Human recombinant, expressed in *E. coli* MW 8.0k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered protein belonging to the  $\alpha$ -chemokine (C-X-C) family of cytokines; 68 AA; SA determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2

**PeproTech 250-20A** Murine recombinant, expressed in *E. coli* MW 7.9k  $>98\%$  (SDS-PAGE) & HPLC;  $<0.1$  ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered protein belonging to the  $\alpha$ -chemokine (C-X-C) family of cytokines; 68 AA; SA determined by its ability to chemoattract human peripheral blood monocytes

**Biodesign A52328H** *E. coli* MW 8.5k Purified

**Chemicon GF074** Human  $\geq 95\%$

**PeproTech 300-28B** Human recombinant, expressed in *E. coli* MW 8.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered protein belonging to the a-chemokine (C-X-C) family of cytokines; 72 AA; SA determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2

**PeproTech 250-20B** Murine recombinant, expressed in *E. coli* MW 8.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered protein belonging to the a-chemokine (C-X-C) family of cytokines; 72 AA; SA determined by its ability to chemoattract human peripheral blood monocytes

#### Stromal Cell Derived Factor I $\beta$ /Pre-B Cell Growth Stimulating Factor

**Sigma S 8406** Human recombinant, expressed in *E. coli* Lyophilized from 30% acetonitrile/0.1% TFA containing 0.5 mg BSA; endotoxin tested; cell culture tested

#### Stromal Cell Derived Factor $\alpha$

**USBio S7975-55**

**USBio S7975-60**

#### Sulodexide

**Sigma H 1642** Bovine intestine Sodium salt; anti-clotting activity: 50-70 IU/mg (WHO STD); dermatan sulfate: 20-35%; chondroitin sulfate: 2-7%; remainder is mostly a fast-moving electrophoretic fraction with ~5% slow-moving electrophoretic fraction | Heparin-like substance; not assayed by Sigma

#### Superfibronectin

**Sigma S 5171** Human Solution in 0.05 M Tris buffered saline; sterile-filtered | A complex of recombinant human FF III<sub>1</sub>-C & human plasma fibronectin; resembles *in vivo* matrix form of fibronectin; source material tested for HBsAg & HIV antibody

#### T4 Gene 32 Protein

**Amersham E70029Y/E70029Z** Cloned from *E. coli* strain M5248/pYS6 MW 33.5k >95% pure (SDS-PAGE); free of contaminating, non-specific endonuclease, exonuclease & ribonuclease; 20 mM Tris-HCl, pH 8.0, 100 mM NaCl, 0.15 mM EDTA, 1mM  $\beta$ -MSH, 50% glycerol | ss-DNA binding protein required for T4 DNA replication, recombination & repair; binds co-operatively to ss-DNA & is required in stoichiometric rather than catalytic quantities; also binds ss-RNA (10<sup>-10</sup> lower affinity than DNA), allowing it to control its own rate of synthesis at the level of translation; widely used in studies of DNA-protein interactions & for marking regions of ss-DNA in cytological preparations viewed by electron microscopy; on a primed ss-DNA template, its addition results in a 5-10 fold increase in the rate of synthesis by T4 DNA polymerase; eliminates pausing when sequencing through regions of ds- & ss-DNA with strong secondary structure

#### TAG-72 Carcinoma Marker

**Synonyms:** CA 72-4

**Biogenesis 8580-0109** Human fluids Tested negative for HBsAg and HIV and HCV antibodies; contaminants: trace alpha1-acid glycoprotein, CA 15-3, CA 19-9, CA 125, CEA and HAS; purified; SA: 10,500 U/mL; PBS buffer, pH 7.4, 0.1% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Useful in immunoassays, standards and controls; Guadagni et al, *Cancer Invest*, 13:227, 1995

#### Taicatoxin

**Alexis 630-031** *Oxyuranus scutellatus scutellatus* MW 52k  $\geq$ 97% (SDS-PAGE); lyophilized powder; soluble in water; potent neurotoxin | Reversible, selective & voltage-dependent blocker of L-type, voltage-gated Ca<sup>2+</sup> channels in excitable membranes; Brown, AM et al, *Circul Res*, 61: Suppl. 1, I6, 1987; Possani, LD et al, *Toxicon*, 30: 1343, 1992

**Calbiochem 574785** *Oxyuranus scutellatus scutellatus* MW 52k >97% (SDS-PAGE); lyophilized powder; soluble in water; biological activity: shown to block spontaneous or K<sup>+</sup>-induced contractions of cardiac cells; harmful: LD<sub>50</sub>  $\leq$ 2000 mg/kg | Potent selective & reversible blocker of L-type Ca<sup>2+</sup> channels in excitable cardiac membranes; also blocks apamin-sensitive after-hyperpolarizing slow tail K<sup>+</sup> currents in rat chromaffin cells; Doorty, KB et al, *J Biol Chem*, 272: 19925, 1997; Possani, LD et al, *Toxicon*, 30: 1343, 1992

#### Taipoxin

**Alexis 630-029** *Oxyuranus scutellatus scutellatus* MW 46k  $\geq$ 97% (SDS-PAGE); lyophilized powder; soluble in water; potent neurotoxin | Extremely potent glycoprotein; blocks irreversibly Ca<sup>2+</sup>-dependent neuromuscular transmission; binds with high affinity to neuronal pentraxin; Fohlmann, J et al, *Eur J Biochem*, 68: 457, 1976; Schlimgen, AK et al, *Neuron*, 14: 519, 1995

#### Tamm Horsfall Glycoprotein

**Synonyms:** Uromucoid

**Biogenesis 8595-0210** Human normal urine Purified; in an aqueous solution with 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Suitable for use in competitive binding assays and for coating microtiter plates; Tamm & Horsfall, *Proc Soc Exp Biol Med*, 74:108, 1950; *Kidney Int*, 16:279, 1979; *Science*, 236:83, 1987; *Science*, 237:1479, 1987

**Biogenesis 8595-0204** Human urine MW 75k Purified; tested negative for HBsAg and HIV antibodies; aqueous solution containing 0.02% Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; liquid | Useful in competitive binding assays and for coating to polystyrene plates for solid phase ELISA and RIA

**Scipac P135-1** Normal urine >96%; lyophilized | Urine protein

#### TATA Binding Protein

**Synonyms:** TFIID

**Promega E3081** Human recombinant, expressed in *E. coli* MW 38k General transcription factor involved in the formation of an active complex *in vitro* capable of specifically initiating RNA synthesis by RNA polymerases I, II & III; exhibits sequence-specific DNA binding; used in gel shift assays, footprinting assays & transcriptional activation *in vitro*; Sharp, PA, *Cell*, 68: 819, 1992; Patterson, MG et al, *Science*, 248: 1625, 1990; Gaston, K et al, *Nucl Acids Res*, 20: 3391, 1992; Wiley SR et al, *PNAS*, 89: 5814, 1992

#### Tau Proteins

**Sigma T 7675** Bovine brain Purified by affinity chromatography; >90% (SDS-PAGE); lyophilized powder containing Tris buffer salt, NaCl, EGTA, DTT & sucrose as stabilizer; partially phosphorylated | Tau proteins are composed of several isoforms localized mainly in neuronal axons; stimulators of microtubule polymerization & are found in an abnormal state of phosphorylation in Alzheimer disease; tested as substrate for Protein Kinase C; Mercken, M et al, *J Neurochem*, 58: 548, 1992; Mandelkow, EM & Mandelkow, E, *Trends Biochem Sci*, 18: 480, 1993; Lindwall, G & Cole, RD, *J Biol Chem*, 259: 12241, 1984

#### T-Cell Attracting Chemokine, Cuteaneous

**Synonyms:** ALP; Skinkine; Eskine; MILC

**PeproTech 250-26** Murine recombinant, expressed in *E. coli* MW 10.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Predominantly expressed in the skin; selectively attracts skin-associated memory T-lymphocytes; 95 AA; SA determined by its ability to chemoattract CXCR3 transfected HEK/293 cells

#### T-Cell Growth Factor

**Chemicon TG203** High purity

## Proteins

### Tenascin

**Chemicon CC115** Chicken brain Purified | Extracellular matrix protein

**Chemicon CC066** Human Purified | Extracellular matrix protein

**Biogenesis 8640-0502** Human tumour cell line Purified; 50 mM phosphate buffer, pH 7.4, 0.4 M NaCl, 0.025% NaN<sub>3</sub>; liquid | Plays an active role in the development of the CNS and mesenchymal derived organs; present in adult tumor vasculature and has functions in cell adhesion

### Testosterone-Estradiol Binding Globulin

**Biogenesis 8681-5009** Human serum MW 85k Tested negative for HBsAg, and HCV, HIV-1 and HIV-2 antibodies; affinity purified; 0.05 M Tris HCl, pH 7.4 with 10% glycerol; liquid

### Tetanus Toxin C-Fragment

**Calbiochem 582235** *Clostridium tetani* MW 47k Single major band purity (SDS-PAGE); lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; soluble in water; may contain trace amounts of intact toxin; LD<sub>50</sub><2000 mg/kg | C-terminal binding portion of the heavy chain of tetanus toxin; the intact toxin is known to block neurotransmitter release at inhibitory synapses in cultured spinal cord cells; shows trans-synaptic retrograde transport in the central nervous system; Helting, TB & Zwisler, O, *J Biol Chem*, 252: 187, 1977; Poulain, B, *Pathol Biol*, 42: 173, 1994; Williamson, LC et al, *Soc Neurosci*, 19: Abstract 770.10, 1993; Evinger, C & Erichsen, JT, *Brain Res*, 380: 383, 1986

### Tetanus Toxin C-Fragment, FITC Conjugated

**Calbiochem 582239** Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; contains ~5 µg FITC bound/mg of C-fragment & shows no measurable toxicity; FITC binding ratio: >5 µg FITC/mg C-fragment | Robbins, N & Polak, J, *J Neurocytol*, 17: 545, 1988; Wood, BT et al, *J Immunol*, 95: 225, 1965

### Tetanus Toxin C-Fragment, Horseradish Peroxidase Conjugated

**Calbiochem 582241** Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; soluble in water; non-toxic as determined by LD<sub>50</sub> assay in mice | Fishman, PS & Savitt, JM, *Exp Neurol*, 106: 197, 1989; Avrameas, S & Ternynck, T, *Immunochemistry*, 8: 1175, 1971

### Tetanus Toxoid

**Calbiochem 582231** *Clostridium tetani* Lyophilized solid from 10 mM sodium phosphate buffer, pH 7.5; soluble in water; non-toxic as determined by LD<sub>50</sub> assay in mice | Prepared by formaldehyde inactivation of tetanus toxin

### TFN-α Cytokine

**Alexis BMS311** Murine recombinant, expressed in *E. coli* MW 17.3k >98% (SDS-gel electrophoresis, before addition of human serum albumin); solution, 3.4 mg/mL in 50 mM NaH<sub>2</sub>PO<sub>4</sub>, 0.4 M NaCl, pH 7.0; bioactivity: 3x10<sup>7</sup> U/mg (cytotoxicity on LM-cells)

### Thapsigargin

**USBio T3700** >99%, by HPLC; lyophilized | Potent cell permeable IP<sub>3</sub>-independent intracellular calcium releaser; stimulates arachidonic acid metabolism in macrophages; inhibits microsomal Ca<sup>2+</sup>-ATPase, IC<sub>50</sub>: 2-20 nM; mouse skin tumor promoter with potency somewhat weaker than teleocidin or PMA, but does not bind to protein kinase C or induce ornithine decarboxylase activity

### Thaumatococcus

**Sigma T 7638** *Thaumatococcus daniellii* A mixture of Thaumatin I & Thaumatin II with traces of other sweet proteins | ~10,000 times sweeter than sucrose on a molar basis; *Eur J Biochem*, 31: 22, 1972

### Thioredoxin

**Fluka 89032** *Spirulina* species Powder; ≥60% (GE); ≥60% protein content

### Thrombin

**Biogenesis 8810-0506** Bovine serum Lyophilized

**Biogenesis 8810-1006** Human plasma Tested negative for all communicable diseases, including HIV-1, HIV-2, HBsAg and HCV; SA: 3265 NIH U/mg, 11656 NIH U/mL; 50 mM sodium citrate/0.2 M NaCl/0.1% PEG-8000, pH 6.5; liquid | Activated from homogenous thrombin with factor Xa, factor Va and phospholipid (all removed after activation)

**Biogenesis 8810-1006-serum** Human plasma Tested negative for all communicable diseases, including HIV-1, HIV-2, HBsAg and HCV; SA: 3261 NIH U/mg, 6392 NIH U/mL; 50 mM sodium citrate/0.2 M NaCl/0.1% PEG-8000, pH 6.5; liquid | Activated from homogenous thrombin with factor Xa, factor Va and phospholipid (all removed after activation)

### Thromboglobulin, β-

**Biogenesis 8830-0502** Human platelets Lyophilized

**ICN 153511** Human platelets ≥95% (silver stained SDS-PAGE); 30% (v/v) acetonitrile, 0.1% trifluoroacetic acid | Moore, S et al, *BBA*, 379:360, 1975; Begg, GS et al, *Biochem*, 17:1739, 1978

**ICN 194939** Human platelets In 25 mM HEPES, 150 mM NaCl, pH 7.4 | Senior, RM et al, *J Cell Bio*, 96:382, 1983

**ICN 194933** Rabbit lung In 0.02% polidocanol, NaN<sub>3</sub> | Membrane glycoprotein; protein C cofactor in the anticoagulant pathway; Esmon, CT et al, *PNAS*, 78:2249, 1981

### Thrombomodulin

**Cortex CP1083** Human >95%

**Cortex CP4001U** Rabbit >98%

### Thrombomodulin Fragment (EGF 4-5-6)

*Synonyms:* M388L

**Alexis 201-001** Human recombinant, from yeast MW ~30k ≥95% (reversed-phase HPLC & N-terminal sequencing); purified by reversed-phase HPLC; 10 µg protein by AA analysis; lyophilized from Tris-buffered saline containing NaCl, pH 7.4; biological activity: Specific activity for activation of protein C is 1.1x10<sup>6</sup> U/mg (1 U activates 1 nmole of activated protein C/minute at 25°C); contains high mannose sugars at two N-linked glycosylation sites | Contains only the last 3 EGF-like domains from the extracellular domain; the mutation of M<sup>388</sup> to L<sup>388</sup> has been shown to increase the activity of this fragment by approx. a factor of two; fragment corresponds to AA E<sup>346</sup>-K<sup>466</sup> of human thrombomodulin with methionine<sup>388</sup> mutated to leucine; also active as an inhibitor of fibrinogen clotting; thrombomodulin is an endothelial cell surface protein that forms a 1:1 complex with thrombin; the resulting complex is inhibited for fibrinogen cleavage & is capable of activating protein C; full-length thrombomodulin is 70 kDa & contains a large extracellular domain, six EGF-like domains, a sulfated region, a transmembrane domain, & a short intracellular domain; Esmon, NL et al, *Thrombomodulin: Progr Hemostasis Thrombosis*, 9: 29, 1989; Esmon, CT, *J Biol Chem*, 264: 4743, 1989; Tsiang, M et al, *J Biol Chem*, 267: 6164, 1992; Glaser, CB et al, *J Clin Invest*, 90: 2565, 1992; Parkinson, JF et al, *BBRC*, 185: 567, 1992; Nagashima, M et al, *J Biol Chem*, 268: 2888, 1993

### Thromboplastin

**ICN 154162** Bovine lung extract >12,000 US U/mg protein, 1 U converts 1 U prothrombin to thrombin in the presence of calcium; <3% moisture

### Thrombopoietin

**Biodesign A52018H** *E. coli* MW 18.6k Purified

**Chemicon GF037** Human ≥95%

**BioSource International PHC1144** Human recombinant

**Cortex CP9131r** Human recombinant >95%



**ICN 195745** Human recombinant, expressed in Sf21 ≥97%; lyophilized; ED<sub>50</sub> = 1-3 ng/mL

**Calbiochem 605218** Human recombinant, expressed in *Spodoptera frugiperda* MW 35k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg TPO; biological activity: ED<sub>50</sub>=1.0-3.0 ng/mL as measured in cell proliferation assay using MO7e cells; endotoxin: ≤100 pg/µg TPO | Glycopeptide hormone that is a key regulator of megakaryocytopoiesis & thrombopoiesis *in vitro* & *in vivo*; ligand for the receptor encoded by the c-Mpl proto-oncogene; promotes maturation of megakaryocytes & increases platelet size & number; acts as both a proliferative & a maturation factor of megakaryocytes; *Merck Index*, 12: 9528; Foster, D et al, *PNAS*, 91: 13023, 1994; Lok, S & Foster, D, *Stem Cells*, 12: 586, 1994; McDonald, TP et al, *Am J Pediatr Hematol Oncol*, 14: 8, 1992; de Sauvage, FJ et al, *Nature*, 369: 533, 1994

**ICN 195771** Mouse recombinant, expressed in NSO ≥97%; lyophilized; ED<sub>50</sub> = 0.2-0.6 ng/mL

### Thrombopoietin, Mpl Ligand

**Synonyms:** MGDF

**PeproTech 300-18** Human recombinant, expressed in *E. coli* MW 16.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Stimulates proliferation & maturation of megakaryocytes; promotes increased circulation levels of platelets *in vivo*; 158 AA residues comprise the receptor binding domain of the Mpl-ligand protein; ED<sub>50</sub> ≤ 1.0 ng/mL; SA ≥ 10<sup>6</sup> U/mg; SA determined by the dose-dependent stimulation of the proliferation of human MO7e cells

### Thrombospondin

**Cortex CP3099U** Human >98%

**Biogenesis 8835-0056** Human platelets Purified; PBS buffer with 0.6 M NaCl and 1 mM Ca<sup>2+</sup>; liquid

**Calbiochem 605225** Human platelets Lyophilized from 600 mM NaCl, 20 mM Tris-HCl, 1 mM CaCl<sub>2</sub>, 20% sucrose, pH 8.0; >95% (SDS-PAGE); soluble in water; prepared from platelets shown to be negative for HBsAg & for antibodies to HIV & HCV | Adhesive Glycoprotein released in response to platelet activation by α-thrombin; inhibits FGF-induced neovascularization of the rat cornea; inducer of platelet aggregation; synthesized by a number of different cells & secreted into the extracellular matrix; involved in the regulation of cellular proliferation; Michaund, M & Poyet, O, *Anticancer Res*, 14: 1127, 1994; Koch, AE et al, *Pathobiology*, 61: 1, 1993; Castle, VP et al, *J Biol Chem*, 268: 2899, 1993; Tolsma, SS et al, *J Cell Biol*, 122: 497, 1993; Tuszyński, GP et al, *J Cell Biol*, 120: 513, 1993; Schon, P et al, *Eur J Cell Biol*, 59: 329, 1992; Good, DJ et al, *PNAS*, 87: 6624, 1990; *Merck Index*, 12: 9529

**ICN 194085** Human platelets Purified protein | Platelet protein found in alpha granules; binds to platelet membranes in a calcium-dependent mechanism; Agbanyo, FR & EF Plow, *Thromb Haemostas*, 69:563, 1993

**ICN 194934** Human platelets In 50% glycerol, Tris buffer | Heparin binding glycoprotein responsible for platelet aggregation & adherence; functions in cell-matrix interactions; Lawler, JW et al, *JBC*, 253:8609, 1978

**Sigma T 7043** Human platelets 20 µg protein/vial; lyophilized from a solution containing sucrose, NaCl & Tris buffer salts | For cell culture use

### Thymidine Phosphorylase

**Oncogene PF081** Human recombinant MW 49k >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 20-40 ng/mL as determined by the ability to stimulate <sup>3</sup>H-thymidine incorporation in human umbilical vein endothelial cells | Recombinant human protein based on a DNA sequence encoding AA 11-482 of PD-ECGF expressed in Sf21 cells; species reactivity: human; for proliferation studies

### Thymus and Activation Regulated Chemokine

**Biodesign A52330H** *E. coli* MW 8k Purified

**Chemicon GF075** Human ≥95%

**BioSource International PHC1264** Human recombinant

**PeproTech 300-30** Human recombinant, expressed in *E. coli* MW 8.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Recently discovered protein belonging to the b-chemokine (CC) family of cytokines; 71 AA; SA determined by its ability to chemoattract human T cells

### Thymus Expressed Chemokine

**Biodesign A52045H** *E. coli* Purified

**Chemicon GF087** Human ≥95% | Purified protein for apoptosis & signal transduction

**BioSource International PHC1625** Human recombinant

**PeproTech 300-45** Human recombinant, expressed in *E. coli* MW 14.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Novel CC chemokine identified in the thymus of a mouse & human; chemotactic activity for activated macrophages, dendritic cells & thymocytes; 127 AA; SA determined by its ability to chemoattract human monocytes

### Thyroglobulin

**Dako X0553** >95% | Antigen useful as an immunogen

**Sigma T 1001** Bovine Iodine: ~1%; nitrogen: ~14.5%; ash: ≥4%; electrophoretically heterogeneous

**Biogenesis 8900-1354** Bovine thyroid glands 95%; no preservatives; lyophilized

**Biogenesis 8900-1009** Human thyroid MW 600-900k <0.4% IgG, <0.3% IgA, 0.3% IgM; tested negative for HCV and HIV-1 and 2 antibodies and HBsAg; purified; 0.01M PO4 pH 7.8; liquid

**Fitzgerald 30-AT02** Human thyroid High purity >98%

**Biodesign A86852H** Human thyroid glands 98%

**Biogenesis 8900-1004** Human thyroid glands MW 330k subunit tested negative for HIV I and II antibodies, HBsAg, and HCV antibodies; purified; 0.02 M NH<sub>4</sub>HCO<sub>3</sub>, may contain traces of buffer salts; lyophilized

**Biogenesis 8900-1039** Human thyroid glands MW 600-900k 0.4% IgG, 0.3% IgM, <0.3% IgA; tested negative for HBsAg and HTLV III antibody; semi-pure; 2.25 mL 0.02 M PO4, pH 7.4 with 42% ammonium sulfate; suspension

**USBio T5300-10** Human thyroid glands MW ~600k ≥98%; no contaminants detected; single band by SDS-PAGE; lyophilized from 0.02 M NH<sub>4</sub>HCO<sub>3</sub> | Suitable for antigenic applications in immunological protocols; thyroglobulin levels are indicated in the diagnostic analysis for thyroid carcinoma & Graves disease; can be used to measure thyroid uptake levels

**Sigma T 1126** Porcine Iodine: ~1%; nitrogen: ~14.5%; ash: ≥4%; electrophoretically heterogeneous

**Scipac P128-0** Thyroid tissue >98%; lyophilized; protein A treated (IgG low); 10 mg min pack size | Autoimmunity protein; thyroid function protein

**Scipac P128-1** Thyroid tissue >96%; lyophilized; 10 mg min pack size | Autoimmunity protein; thyroid function protein

### Thyroid Microsomal Antigen

**Cortex CP1031** Crude Grade

**USBio T5350** Human ≥50% (SDS-PAGE); 1.87 mg/mL supplied in 0.05 M phosphate buffer, 0.15 M NaCl, pH 7.5, 0.1% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Scipac P137-0** Thyroid tissue 0.3-3 mg/mL; frozen in phosphate buffer; isolated by chromatography; Triton X-100 treated | Thyroid function protein

**Scipac P137-5** Thyroid tissue 1-5 mg/mL; frozen in phosphate buffer; produced by differential centrifugation method; solubilized by dispersion and ultrasonication | Thyroid function protein

**Scipac P137-6** Thyroid tissue 1-5 mg/mL; frozen in phosphate buffer; protein A treated; produced by differential centrifugation method; solubilized by dispersion and ultrasonication | Thyroid function protein

### Thyroid Stimulating Hormone

**Synonyms:** Thyrotropic Hormone; Thyrotropic Hormone; Thyrotropic Hormone; Thyrotropic Hormone; Thyrotropic Hormone

**Cortex CP9026U** Bovine >98%

**Biogenesis 8921-1004** Bovine pituitary Purified; lyophilized

**Biogenesis 8921-1004-1mg** Bovine pituitary Purified; lyophilized

**Biogenesis 8921-1204** Bovine pituitary MW 28k Semi-pure; lyophilized

**Calbiochem 609385** Bovine pituitary MW 28k Lyophilized solid; potency:  $\geq 0.7$  IU/mg as measured against the WHO standard or equivalent; 1 IU is the activity in 20 mg of the labeled preparation of the USP reference substance; soluble in aqueous buffers & water; harmful:  $LD_{50} \leq 2000$  mg/kg; may be carcinogenic/teratogenic | Glycopeptide hormone that exerts mild, continuous stimulation on the thyroid, resulting in maintenance of activity; its secretion is inhibited by somatostatin; *Merck Index*, 12: 9931

**Sigma T 8931** Bovine pituitary 10 IU/vial; activity: 2 IU/mg protein; contains phosphate buffer salts; not assayed by Sigma | 2 chain glycoprotein hormone, the  $\alpha$ -chain not active, biological specificity attributed to the  $\beta$ -chain; activates adenylate cyclase in the thyroid gland, thus stimulating iodine uptake, thyroxine synthesis & release; goitrogenic

**Fitzgerald 30-AT14** Bovine pituitary glands Standard grade

**Biogenesis 8921-5157** Canine pituitary Contains trace buffer salts; *J Clin Endocrinol Metab* 31, 331 (1970); semi-pure; 50 mM  $NH_4HCO_3$ , pH 8.0; lyophilized

**Cortex CP1026** Human >95%

**Cortex CP1026P** Human >40%

**Biogenesis 8920-0989** Human pituitary 250 mIU/vial; 190 IU/vial hLH, 150 IU/vial hFSH/hFSH; tested negative for antibodies to HCV, HIV-1 and HIV-2 and HBsAg; semi-pure; 0.05 M  $NH_4HCO_3$ , pH 8.0; lyophilized

**Biogenesis 8920-1004** Human pituitary MW 28k 1.8% hLH, <1.0% hFSH; tested negative for HBsAg, HCV and HIV-1 and 2; purified; 0.05 M  $NH_4HCO_3$ , pH 8.0; lyophilized | *Arch Int Physiol Biochim*, 85:905, 1977

**Biogenesis 8920-1204** Human pituitary Semi-pure; lyophilized

**Biogenesis 8920-1404** Human pituitary affinity purified

**Calbiochem 869006** Human pituitary MW 25k Iodination grade; lyophilized solid; immunopotency:  $\geq 6$  IU/mg (WHO 1<sup>st</sup> IRP 68/38); hLH:  $\leq 0.3\%$ ; hGH, hFSH:  $\leq 0.2\%$ ; hPRL:  $\leq 0.1\%$ ; soluble in iodination buffer; prepared from tissue shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV; harmful:  $LD_{50} \leq 2000$  mg/kg; may be carcinogenic/teratogenic | *Merck Index*, 12: 9931

**Sigma T 9265** Human pituitary Lyophilized powder containing hormone & salts from  $\sim 0.1$  mL 0.05 M phosphate buffer, pH 7.4; activity:  $\sim 7$  IU/mg hormone by RIA; not assayed by Sigma | Sold on the basis of mg hormone; 2 chain glycoprotein hormone, the  $\alpha$ -chain not active, biological specificity attributed to the  $\beta$ -chain; activates adenylate cyclase in the thyroid gland, thus stimulating iodine uptake, thyroxine synthesis & release; goitrogenic

**Biodesign A81159M** Human pituitary glands 99%

**Sigma T 4533** Human recombinant, expressed in CHO cells Activity:  $\geq 4$  IU/mg protein; not assayed by Sigma | 2 chain glycoprotein hormone, the  $\alpha$ -chain not active, biological specificity attributed to the  $\beta$ -chain; activates adenylate cyclase in the thyroid gland, thus stimulating iodine uptake, thyroxine synthesis & release; goitrogenic

**Biogenesis 8923-1004** Porcine pituitary MW 32k <0.1% pLH, <0.05% pFSH; virtually salt free; purified; 0.05M  $NH_4HCO_3$ , pH 8.0; lyophilized

**Sigma T 8785** Porcine pituitary 10 IU/vial; activity: 5 IU/mg protein; not assayed by Sigma | 2 chain glycoprotein hormone, the  $\alpha$ -chain not active, biological specificity attributed to the  $\beta$ -chain; activates adenylate cyclase in the thyroid gland, thus stimulating iodine uptake, thyroxine synthesis & release; goitrogenic

**Biogenesis 8924-1954** Rat pituitary glands rFSH/rLH <1.0%, rGH/rPRL <0.1%; purified; from 0.05 M  $NH_4HCO_3$ , pH 8.0; lyophilized

**Biogenesis 8924-1954-50 $\mu$ g** Rat pituitary glands <1.0% rFSH/rLH, <0.1% rGH/rPRL; purified; from 0.05 M  $NH_4HCO_3$ , pH 8.0; lyophilized

### Thyroid Stimulating Hormone, Intact

**Synonyms:** Thyrotropic Hormone

**USBio T5400-09** Bovine SA  $\geq 25$  U/mg; lyophilized; FSH/GH  $\leq 0.10\%$ , LH  $\leq 0.25\%$ , Prl  $\leq 0.01\%$  | Suitable for antigenic applications in immunological protocols

**USBio T5400-09A** Bovine SA  $\geq 2$  U/mg; lyophilized; bovine FSH/GH  $\geq 0.10\%$ , LH  $\geq 0.25\%$ , Prl  $\geq 0.01\%$  | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT11** Bovine pituitary gland High purity

**USBio T5400-14** Human  $\sim 60\%$  (SDS-PAGE);  $\sim 4.0$  IU/mg; lyophilized; hLH  $\leq 1.4\%$ , hGH  $\leq 0.1\%$ , hFSH  $\leq 0.2\%$ , hPrl/hCG  $\leq 0.1\%$  | Suitable for antigenic applications in immunological protocols

**USBio T5400-14A** Human  $\sim 60\%$  (SDS-PAGE);  $\sim 2$  IU/mg; lyophilized from 50 mM ammonium bicarbonate; hLH  $\leq 0.6\%$ , hFSH  $\leq 0.4\%$ , hPrl  $\leq 0.01\%$ , hGH  $\leq 0.1\%$  | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT05** Human pituitary gland Affinity purity

**Fitzgerald 30-AT10** Human pituitary gland High purity

**Fitzgerald 30-AT15** Human pituitary gland Standard purity

**USBio T5400-15** Human pituitary glands  $\geq 98\%$  (SDS-PAGE); 8.0 IU/mg (2nd IRP (80/558, WHO); lyophilized; hLH <2.5%, hFSH <0.2%, hPrl/hGH/hCG <0.1% | Suitable for antigenic applications in immunological protocols

**USBio T5400-07** Human recombinant prepared from mammalian cell culture  $\geq 98\%$  (SDS-PAGE);  $\sim 4.0$  IU/mg (WHO); lyophilized; hLH/hGH/hFSH  $\leq 0.1\%$ , hCG  $\leq 0.1\%$  | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT09** Recombinant, expressed in mammalian cell culture

### Thyroid Stimulating Hormone, $\alpha$ -

**Synonyms:** Thyrotropic Hormone; Thyrotropic Hormone; Thyrotropic Hormone

**USBio T5400-20** Human  $\geq 98\%$ ; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; lyophilized; human TSH  $\beta$  <1.00%, hFSH/hLH/h GH/hPrl <0% | Suitable for antigenic applications in immunological protocols

**Biogenesis 8925-1004** Human pituitary Purified; lyophilized

**Fitzgerald 30-AT20** Human pituitary gland High purity

**Biogenesis 8923-1054** Porcine pituitary Purified; lyophilized

**USBio T5400-25** Bovine  $\geq 98\%$  (SDS-PAGE);  $\geq 30$  IU/mg; lyophilized | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT26** Bovine pituitary gland High purity

**USBio T5400-24** Human  $\geq 98\%$  (SDS-PAGE); lyophilized; hTSHa: <1.00%, hFSH/hLH/hGH/hPrl <0% | Suitable for antigenic applications in immunological protocols

**Biogenesis 8926-1004** Human pituitary Purified; lyophilized

**Fitzgerald 30-AT25** Human pituitary gland High purity

**Biogenesis 8923-1104** Porcine pituitary Purified; lyophilized

### Thyroxine Binding Globulin

**Sigma T 2022** Human MW 54k Solution in 0.05 M Tris, pH 8.6, containing 0.25 M NaCl, 0.3 M glycine & 0.1% sodium azide;  $T_4$  content: <0.1 mole  $T_4$ /mole protein;  $T_4$  binding capacity:  $\geq 0.7$  mole  $T_4$ /mole protein; protein determined by Lowry | A glycoprotein produced in the liver that is the primary carrier of thyroxine & triiodothyronine in serum; Janssen, OE & Refetoff, S, *J Biol Chem*, 267: 13998, 1992

**USBio T5461-15** Human MW 60k  $\geq 98\%$ ; single band by SDS-PAGE; 4.0 mg/mL (RID, Lowry) supplied in 0.01 M PBS, pH 7.5, 0.1 %  $NaN_3$  | Suitable for antigenic applications in immunological protocols

<b>ICN 153980</b>	Human plasma	MW 58k	>95%; 150 mM NaCl, 0.1% NaN <sub>3</sub> , pH 8.5
<b>Biogenesis 8970-1004</b>	Human serum	Lyophilized	
<b>Biogenesis 8970-1054</b>	Human serum	Lyophilized	
<b>Calbiochem 612075</b>	Human serum	MW 54-64k	Sterile-filtered liquid in 140 mM NaCl, 10 mM Tris, 0.1% sodium azide, pH 8.0; ≥99% (SDS-PAGE); molar T <sub>4</sub> : <10% of the molar TBG; prepared from serum shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV   Liver glycoprotein & a major thyroid hormone carrier in serum; exhibits high sequence homology with α <sub>1</sub> -antitrypsin; affinity for the hormone is thought to be temperature-sensitive; Miura, Y et al, <i>Endocrinol J</i> , 40: 127, 1993; Janssen, OE et al, <i>J Biol Chem</i> , 267: 13998, 1992
<b>Scipac P125-1</b>	Pooled serum/plasma	>98	Thyroid function protein
<b>Scipac P125-3</b>	Pooled serum/plasma	>96%; frozen in TRIS buffer	Thyroid function protein
<b>Scipac P125-4</b>	Pooled serum/plasma	40-90%; frozen in sodium phosphate buffer; suitable for bulk requirements	Thyroid function protein
<b>Biogenesis 8970-3009</b>	Rat serum	Affinity isolated; liquid	
<b>Scipac P125-2</b>	Serum/plasma	40-90%; lyophilized; suitable for bulk requirements	Thyroid function protein

### Thyroxine Binding Globulin, Azide Free

<b>Scipac P125-0</b>	Pooled serum/plasma	>98%; frozen in TRIS-HCl	Thyroid function protein
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### Thyroxine, Sodium Salt

Synonyms: T4	
<b>USBio T5460-17</b>	≥99% by HPLC; lyophilized   Suitable for antigenic applications in immunological protocols

### Tissue Factor

<b>Synonyms:</b> CD xxx			
<b>Biogenesis 9010-6006</b>	Human r-DNA	MW 44k	>95% (SDS-PAGE); promotes clotting in a 2-stage prothrombin time test after relipidation; 10 mM TRIS/HCl, pH 8.0, 150 mM NaCl, 0.01% CHAPS & 200 mM mannitol; lyophilized   Nemerson et al, <i>J Clin Invest</i> , 48:322, 1969; Carson et al, <i>Science</i> , 208:307, 1980

### Tissue Inhibitor of Metalloproteinase I

Synonyms: TIMP-1; TIMP-1		
<b>Amersham VPF020</b>	Bovine recombinant	Bovine cross-reactivity   Growth/death factor interactions
<b>Calbiochem PF020</b>	Bovine recombinant	Lyophilized solid containing 100 µg BSA; >98% (SDS-PAGE); manufactured by Fuji Chemical Industries, Ltd; not available for sale in Japan   Glycoprotein that is expressed in a variety of cell types; forms a non-covalent stoichiometric complex with latent & active MMPs; preferentially binds & inhibits MMP-9; alters the metastatic potential of cancer cells & inhibits invasion & metastasis in animal models; for use in SDS-PAGE as a Western blot standard & in competition studies; Johnson, MD et al, <i>Proc Am Assoc Cancer Res</i> , 32: 81, 1991; Freudenstein, J et al, <i>Biochem Biophys Res Comm</i> , 171: 250, 1990; Liotta, LA & Stetler-Stevenson, WG, <i>Seminars in Cancer Biology</i> , (Gottesman, MM, ed), 1(2): 99, 1990
<b>Oncogene PF020</b>	Bovine recombinant	>98% (SDS-PAGE); lyophilized with BSA; purified from transfected CHO cells; IC <sub>50</sub> against 6.7 x 10 <sup>-9</sup> M; native human MMP-1 is 1-5 x 10 <sup>-9</sup> M   Species reactivity: bovine; for Western blot; CHO cell derived recombinant protein; migrates as a 24 k protein under reducing conditions in SDS-PAGE; manufactured by Fuji Chemical Industries; not available for sale in Japan

<b>Calbiochem 612080</b>	Human neutrophil granulocyte	MW 28k	Liquid in 200 mM NaCl, 50 mM Tris-HCl, 5 mM CaCl <sub>2</sub> , 1 μM ZnCl <sub>2</sub> , 0.05% BRIJ 35, 0.05% NaN <sub>3</sub> , pH 7.0; ≥90% (SDS-PAGE); from stimulated neutrophils shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV   Member of a family of inhibitors that participate in the activation & regulation of MMP activity; forms a non-covalent stoichiometric complex with latent & active MMPs; binds to pro-MMP-9 & MMP-9 via their C-terminal domains; Kolkenbrock, H et al, <i>Biol Chem</i> , 377: 529, 1996; Kolkenbrock, H et al, <i>Biol Chem</i> , 376: 495, 1995
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<b>Biogenesis 9013-1559</b>	Human recombinant	Purified; acetate buffer; liquid	Inhibits all active forms of the MMP family
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<b>Calbiochem PF019</b>	Human recombinant	Lyophilized solid containing 100 μg BSA; >98% (SDS-PAGE); manufactured by Fuji Chemical Industries, Ltd; not available for sale in Japan	For use in SDS-PAGE as a Western blot standard & in competition studies; Johnson, MD et al, <i>Proc Am Assoc Cancer Res</i> , 32: 81, 1991; Liotta, LA & Stetler-Stevenson, WG, <i>Seminars in Cancer Biology</i> , (Gottesman, MM, ed), 1(2): 99, 1990
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<b>Oncogene PF019</b>	Human recombinant	MW 24k	>98% (SDS-PAGE); lyophilized with BSA; purified from transfected CHO cells; IC <sub>50</sub> against 6.7 × 10 <sup>-9</sup> M; native human MMP-1 is 1-5 × 10 <sup>-9</sup> M   Species reactivity: human; for Western blot; manufactured by Fuji Chemical Industries; not available for sale in Japan
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<b>Amersham VPF019</b>	Human recombinant,	Human cross-reactivity	Growth/death factor interactions
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### Tissue Inhibitor of Metalloproteinase II

<b>Synonyms:</b> TIMP-2; TIMP-2		
<b>Biogenesis 9013-2559</b>	Human r-DNA	Purified; 25 mM Sodium cacodylate, 1 M NaCl, 10 mM CaCl <sub>2</sub> , 0.02% NaN <sub>3</sub> , 0.05% brij, pH 7.5; liquid
<b>Amersham VPF021</b>	Human recombinant reactivity   Growth/death factor interactions	Human cross-reactivity
<b>Calbiochem PF021</b>	Human recombinant	Lyophilized solid containing 100 µg BSA; >98% (SDS-PAGE); manufactured by Fuji Chemical Industries, Ltd; not available for sale in Japan   Glycoprotein that is expressed in a variety of cell types; forms a non-covalent stoichiometric complex with latent & active MMPs; preferentially binds & inhibits MMP-2; alters the metastatic potential of cancer cells & inhibits invasion & metastasis in animal models; for use in SDS-PAGE as a Western blot standard & in competition studies; Johnson, MD et al, <i>Proc Am Assoc Cancer Res</i> , 32: 81, 1991; Boone, TC et al, <i>PNAS</i> , 87: 2800, 1990; Liotta, LA & Stetler-Stevenson, WG, <i>Seminars in Cancer Biology</i> , (Gottesman, MM, ed), 1(2): 99, 1990
<b>Oncogene PF021</b>	Human recombinant	MW 24k (reducing conditions) >98% (SDS-PAGE); lyophilized with BSA; purified from transfected CHO cells   Species reactivity: human; for Western blot; CHO cell derived recombinant protein; migrates as a 24 k protein under reducing conditions in SDS-PAGE; manufactured by Fuji Chemical Industries; not available for sale in Japan

<b>Calbiochem 612084</b>	Human rheumatoid synovial fibroblast	MW 24k	Liquid in 200 mM NaCl, 50 mM Tris-HCl, 5 mM CaCl <sub>2</sub> , 1 μM ZnCl <sub>2</sub> , 0.05% BRIJ 35, 0.05% NaN <sub>3</sub> , pH 7.0; ≥90% (SDS-PAGE); from culture medium of human rheumatoid synovial fibroblasts shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV   Member of a family of inhibitors that participate in the activation & regulation of MMP activity; forms a non-covalent stoichiometric complex with latent & active MMPs; inhibits the activities of MMP-1, MMP-2, MMP-12 & transin; Greene, J et al, <i>J Biol Chem</i> , 271: 30375, 1996; Miyazaki, K et al, <i>J Biol Chem</i> , 268: 14387, 1993
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### Tissue Necrosis Factor Receptor I

<b>Kamiya</b>	Human	>95% (SDS-PAGE)
<b>BioSource International PHR3015</b>	Human recombinant	

### Tissue Necrosis Factor Receptor II

<b>Kamiya</b>	Human	>95% (SDS-PAGE)
<b>BioSource International PHR3025</b>	Human recombinant	

### Tissue Necrosis Factor Related Activation Inducing Cytokine

**Synonyms:** TRANCE; RANK Ligand; TNFSF11

**R&D Systems 462-TR-010** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 5-15 ng/mL | Species specificity: mouse TRANCE; a member of the TNF family & involved in regulating the function of dendritic cells & osteoclasts; RANK is the cell surface signaling receptor for TRANCE; osteoprotegerin also binds TRANCE & serves as a decoy receptor that counterbalances the effects of TRANCE

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand

**Synonyms:** ApoII Ligand; TNFRSF10

**Alexis 522-003** Human recombinant ≥95% (SDS-PAGE); lyophilized containing 10 µg protein; contains PBS | Binds to human & mouse TRAIL-R1 (DR4) & TRAIL-R2 (DR5); does not induce apoptosis in the absence of the enhancer (Alexis Prod. No. 804-034); Kit (Alexis Prod. No. 850-018) contains rhsTRAIL & enhancer; Wiley, SR et al, *Immunity*, 3: 673, 1995; Marsters, SA et al, *Curr Biology*, 6: 750, 1996; Pitt, RM et al, *J Biol Chem*, 271: 12687, 1996; Pan, G et al, *Science*, 276: 111, 1997; Pan, G et al, *Science*, 277: 815, 1997; Sheridan, JP et al, *Science*, 277: 818, 1997; Thome, M et al, *Nature*, 386: 517, 1997; Irmeler, M et al, *Nature*, 388: 190, 1997

**Kamiya** Human recombinant (Apo-2L) MW 28k >95% (SDS-PAGE).

**Alexis 522-004** Human recombinant embryo kidney cells MW 54k (chimera protein) under reducing conditions >95% (SDS-PAGE); lyophilized containing 25 µg protein; contains PBS | The extracellular domain of rhTRAIL-R1 (AA 24-239) is fused to the Fc portion of human IgG1 & inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (concentration range: 2-10 ng/mL); for the detection of surface TRAIL by flow cytometry use rhTRAIL-R2.Ig:Fc-FITC (Alexis Prod. No. 522-005F); Golstein, P et al, *Curr Biol*, 7: 750, 1997; Marsters, SA et al, *Curr Biology*, 7: 1003, 1997; Schneider, P et al, *FEBS Lett*, 416: 329, 1997; Pan, G et al, *Science*, 276: 111, 1997; Schneider, P et al, *Immunity*, 7: 831, 1997; Walczak, H et al, *EMBO J*, 16: 5386, 1997

**Alexis 522-005** Human recombinant embryo kidney cells MW 46k (chimera protein) under reducing conditions >95% (SDS-PAGE); lyophilized containing 50 µg protein; contains PBS | The extracellular domain of rhTRAIL-R2 (AA 52-212) is fused to the Fc portion of human IgG1 & inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (concentration range: 0.1-0.5 ng/mL) & can be used for immunoprecipitation of TRAIL; References are the same as for Alexis 522-004

**Alexis 522-005F** Human recombinant embryo kidney cells MW 46k (chimera protein) under reducing conditions >95% (SDS-PAGE); lyophilized containing 50 µg protein; contains PBS | The extracellular domain of rhTRAIL-R2 (AA 52-212) is fused to the Fc portion of human IgG1 & inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (concentration range: 0.1-0.5 ng/mL) & can be used for immunoprecipitation of TRAIL; rhTRAIL-R2.Ig:Fc-FITC (Alexis Prod. No. 522-005F) is useful for the detection of surface TRAIL by flow cytometry; References are the same as for Alexis 522-004

**Alexis 522-006** Human recombinant embryo kidney cells MW 66k (chimera protein) under reducing conditions >95% (SDS-PAGE); lyophilized containing 25 µg protein; contains PBS | The extracellular domain of rhTRAIL-R3 (AA 25-240) is fused to the Fc portion of human IgG1 & inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (concentration range: 50-100 ng/mL); for the detection of surface TRAIL by flow cytometry use rhTRAIL-R2.Ig:Fc-FITC (Alexis Prod. No. 522-005F); References are the same as for Alexis 522-004

**Alexis 522-011** Human recombinant embryo kidney cells MW 54k (chimera protein) under reducing conditions >95% (SDS-PAGE); lyophilized containing 25 µg protein; contains PBS | The extracellular domain of rhTRAIL-R4 (AA 56-212) is fused to the Fc portion of human IgG1 & inhibits soluble TRAIL (sTRAIL)-mediated lysis of TRAIL sensitive cells (concentration range: 2-10 ng/mL); for the detection of surface TRAIL by flow cytometry use rhTRAIL-R2.Ig:Fc-FITC (Alexis Prod. No. 522-005F); References are the same as for Alexis 522-004

**PeproTech 310-04** Human recombinant, expressed in *E. coli* MW 19.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Cytotoxic protein; activates rapid apoptosis in tumor cells but not in normal cells; comprises the full-length of the TNF-like extracellular domain of TRAIL; ED<sub>50</sub> ≤ 10.0 ng/mL; induction of apoptosis of LNCap (human prostate cancer cells) by TRAIL/Apo2L was typically 2-3 fold higher after 48 hours; SA determined by the dose-dependent stimulation of IL-8 production by human PBMC

**R&D Systems 375-TL-010** NSO-Expressed >97%; lyophilized; ED<sub>50</sub>: 4-12 ng/mL | Species specificity: human TRAIL; member of the TNF family of cytokines; several TRAIL receptors have been identified including decoy receptors that function to antagonize TRAIL-induced apoptosis

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand Receptor I

**Kamiya** Human recombinant >95% (SDS-PAGE)

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand Receptor II

**Kamiya** Human recombinant >95% (SDS-PAGE)

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand Receptor II, FITC Conjugated

**Kamiya** Human recombinant >95% (SDS-PAGE)

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand Receptor III

**Kamiya** Human recombinant >95% (SDS-PAGE)

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand, Soluble

**Alexis BMS310** Human recombinant, produced in bacteria MW 28k >95% (SDS-PAGE); 10 µg lyophilized powder at 0.1 mg/mL | The extracellular domain of human TRAIL (AA 95-281) is fused at the N-terminus to a FLAG-tag & a 8 AA linker protein; the enhancer is an antibody reacting with rh sTRAIL thereby increasing its activity; in the presence of the enhancer, rh sTRAIL induces apoptosis of TRAIL sensitive cells at concentration ≥1 ng/mL e.g. if added with enhancer, rh sTRAIL induces apoptosis of Jurkat T lymphoma cells in a concentration of 1-100 ng/mL

### Tissue Necrosis Factor Related Apoptosis Inducing Ligand/Apo2 Ligand

**Biodesign A52104H** *E. coli* Purified

**Chemicon GF092** Human ≥95% | Purified protein for apoptosis & signal transduction

### Tissue Necrosis Factor Related Apoptosis-Inducing Ligand II, N-Terminal Peptide

**Chemicon AG620** ≥95% | Purified protein for apoptosis & signal transduction

### Tissue Necrosis Factor Related Apoptosis-Inducing Ligand III, N-Terminal Peptide

**Chemicon AG621** ≥95% | Purified protein for apoptosis & signal transduction

### Tissue Necrosis Factor Related Apoptosis-Inducing Ligand Receptor III

**R&D Systems 630-TR-100** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 2.5-7 ng/mL | Species specificity: human TRAIL Receptor 3/Fc Chimera

**Tissue Necrosis Factor Related Apoptosis-Inducing Ligand Receptor II**

**R&D Systems 631-T2-100** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 0.7-2 ng/mL | Species specificity: human TRAIL Receptor 2/Fc Chimera

**Tissue Necrosis Factor Related Apoptosis-Inducing Ligand Receptor IV**

**R&D Systems 633-TR-100** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 30-60 ng/mL | Species specificity: human TRAIL Receptor 4/Fc Chimera

**Tissue Necrosis Factor Related Apoptosis-Inducing Ligand Receptor I**

**R&D Systems 347-DR-100** SF21-Expressed >97%; lyophilized; ED<sub>50</sub>: 1-3 ng/mL | Species specificity: human TRAIL Receptor 1/Fc Chimera

**Tissue Necrosis Factor  $\alpha$** 

**Kamiya** Human >95% (SDS-PAGE); soluble

**BioSource International PHC3011** Human recombinant

**Kamiya** Mouse >95% (SDS-PAGE); soluble

**BioSource International PMC3014** Mouse recombinant

**BioSource International PRC3014** Rat recombinant

**BioSource International PSC3014** Swine recombinant

**Tissue Necrosis Factor  $\alpha$  Receptor I, Soluble**

**Synonyms:** Tumor Necrosis Factor Receptor Type I; p60

**PeproTech 310-07** Human recombinant, expressed in *E. coli* MW 18.3k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | 162 AA residues comprising the extra cellular domain of TNF; ED<sub>50</sub> = 0.05 mg/mL; SA determined by its inhibitory effect of the TNF-alpha mediated cytotoxicity in murine L929 cells

**Tissue Necrosis Factor  $\alpha$  Receptor II, Soluble**

**Synonyms:** Tumor Necrosis Factor Receptor Type II

**PeproTech 310-12** Human recombinant, expressed in *E. coli* MW 18.9k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Inhibitor of TNF & can block TNF bioactivity; soluble; 174 AA residues comprising the extra cellular domain of TNF; ED<sub>50</sub> = 0.125 mg/mL; SA determined by its inhibitory effect of the TNF-alpha mediated cytotoxicity in murine L929 cells

**Tissue Necrosis Factor  $\beta$** 

**Synonyms:** Lymphotoxin

**BioSource International PHC3024** Human recombinant

**Tissue Plasminogen Activator**

**USBio T5600-15** Human ≥95%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; two-chain tPA; 50 mg salt-free, lyophilized preparation | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT50** Human melanoma cell line Standard purity

**Biogenesis 9020-1026** Human serum MW 65k Purified; from 100 mM PBS, 35 mg/mL L-arginine, 0.01% Tween 80; lyophilized | Bos et al, *Biotherapy*, 5:187, 1992

**Tissue Plasminogen Activator, Single-Chain**

**Calbiochem 612200** Human MW 65k Lyophilized solid; ≥95% (SDS-PAGE); soluble in water | Thrombolytic agent isolated from a melanoma cell line; serine protease that contains a single chain of 527 AA; binds to fibrin via lysine binding sites at its amino terminus & activates bound plasminogen; cleaves plasminogen to form active plasmin, the proteolytic enzyme that dissolves clots; reported to be involved in neurite outgrowth, regeneration & migration; Plays an important role in excitotoxin-induced neuronal degeneration; dihydropyridine Ca<sup>2+</sup> antagonists increase levels of tPA; Tsirka, SE et al, *Nature*, 377: 340, 1995; Winther, K et al, *J Cardiovasc Pharmacol*, 19: S21, 1992

**Sigma T 7776** Human melanoma cell culture MW 68k Lyophilized with each vial containing 10 µg t-PA with BSA & d-mannitol; fibrinolytic activity: ~400,000 IU/mg t-PA | Fibrinolytic serine protease found in many tissues & body fluids; works by converting plasminogen to plasmin, which then dissolves fibrin, a major component of blood clots; amidolytic activity is determined by the method of Verheijen using the substrate D-Ile-Pro-Arg p-nitroanilide; Bachmann, F & Kruithof, E, *Seminars in Thrombosis & Hemostasis*, 10: 6, 1984; Klausner, A, *Bio/Technology*, 4: 706, 1986; Verheijen, JH et al, *Methods of Enzymatic Analysis*, 3<sup>rd</sup> ed. (Bergmeyer, J & Grassi, M, eds), Vol 5: 425, 1984

**Tissue Plasminogen Activator, Two-Chain**

**Sigma T 4055** Human melanoma cell culture MW 30k & 40k (2 chains) Solution in 1 M ammonium bicarbonate with each vial containing 50 µg t-PA; fibrinolytic activity: ≥200,000 IU/mg t-PA | Fibrinolytic serine protease found in many tissues & body fluids; works by converting plasminogen to plasmin, which then dissolves fibrin, a major component of blood clots; amidolytic activity is determined by the method of Verheijen using the substrate D-Ile-Pro-Arg p-nitroanilide; Bachmann, F & Kruithof, E, *Seminars in Thrombosis & Hemostasis*, 10: 6, 1984; Klausner, A, *Bio/Technology*, 4: 706, 1986; Verheijen, JH et al, *Methods of Enzymatic Analysis*, 3<sup>rd</sup> ed. (Bergmeyer, J & Grassi, M, eds), Vol 5: 425, 1984

**Sigma T 4432** Human melanoma cell culture MW 30k & 40k (2 chains) Lyophilized with each vial containing 10 µg t-PA with BSA & D-mannitol; fibrinolytic activity: ≥300,000 IU/mg t-PA | Fibrinolytic serine protease found in many tissues & body fluids; works by converting plasminogen to plasmin, which then dissolves fibrin, a major component of blood clots; amidolytic activity is determined by the method of Verheijen using the substrate D-Ile-Pro-Arg p-nitroanilide; Bachmann, F & Kruithof, E, *Seminars in Thrombosis & Hemostasis*, 10: 6, 1984; Klausner, A, *Bio/Technology*, 4: 706, 1986; Verheijen, JH et al, *Methods of Enzymatic Analysis*, 3<sup>rd</sup> ed. (Bergmeyer, J & Grassi, M, eds), Vol 5: 425, 1984

**Tissue Polypeptide Antigen**

**Calbiochem 612312** Human breast epithelium carcinoma cell line Liquid in 130 mM NaCl, 80 mM sodium phosphate buffer, 20 mM potassium phosphate buffer, 20 mM KCl, 0.1% NaN<sub>3</sub>, pH 7.4, sterile-filtered; activity: 100-500 units/mL (RIA); antigen derived from cell culture | Reported to be related to cytoplasmic intermediate filaments; serves as a tumor marker, particularly in breast cancer evaluation; elevated serum levels of hTPA are present in breast, gastrointestinal, gynecologic, lung & urologic cancers; suitable for use in immunoassays & as an immunogen; Gion, M et al, *Eur J Clin Chem Clin Biochem*, 32: 779, 1994; Giovagnoli, MR et al, *Anticancer Res*, 14: 635, 1994; Kuman S et al, *J Urol*, 53: 578, 1981; Luthgens, M & Schlegel, G, *J Tumor Marker Oncol*, 2: 261, 1987

**Sigma T 9181** Human cell culture Partially purified solution in 0.15 M phosphate buffered saline, pH 7.4, containing 0.1% sodium azide; activity: ≥100 U/mL; 1 U is an arbitrary unit related to a reference antigen preparation using the Byk Sangtec-RIA method | Cancer-associated TPA; Kumar, S et al, *Br J Urology*, 53: 578, 1981; Luthgens, M & Schlegel, G, *J Tumor Marker Oncol*, 2: 261, 1987

## Proteins

### Toxic Shock Syndrome Toxin I

**Synonyms:** Staphylococcal Enterotoxin F

**Sigma T 5662** *Staphylococcus aureus* Contains ~50% protein (Lowry); balance primarily NaCl & sodium phosphate buffer | A superantigen for T-lymphocytes; Marrack, P & Kappler, J, *Science*, 248: 705, 1990; Misfeldt, ML, *Infection Immun*, 58: 2409, 1990; Blanco, L et al, *Infection Immun*, 58: 3020, 1990

### Toxin, *Pasteurella multocida*

**Calbiochem 512742** *Pasteurella multocida* recombinant MW 14.7k >95% (SDS-PAGE); liquid in 50 mM Tris-HCl, 10% glycerol, pH 7.5; harmful: LD<sub>50</sub> ≤2000 mg/kg | Bacterial protein toxin that binds to & enters eukaryotic cells via receptor-mediated endocytosis; acts intracellularly to initiate the inositol trisphosphate signaling pathway, Ca<sup>2+</sup> mobilization & DNA synthesis; stimulates tyrosine phosphorylation of multiple substrates including focal adhesion kinase; exerts its action on the α-subunit of the G<sub>q</sub> family of G-proteins; used for the activation of G<sub>q</sub>-protein-coupled phosphatidylinositol-specific phospholipase C (PLC) intact cells, making PMT useful as a tool for studying G<sub>q</sub>-linked signal transduction; Wilson, BA et al, *J Biol Chem*, 272: 1268, 1997; Lacerda, HM et al, *J Biol Chem*, 271: 439, 1996; Higgins, TE et al, *PNAS*, 89: 4240, 1992; Murphy, AC et al, *J Biol Chem*, 267: 25296, 1992

### *Toxoplasma gondii* Surface Antigen

**Biogenesis 9070-2029** *T. gondii* strain RH Purified; 50 mM TRIS/HCl pH 8.0, 0.005% Merthiolate, 40 μM PMSF, 100 IU/mL aprotinin; liquid | Contains high concentration of *T. gondii* surface antigens, mainly P30 antigen; useful in EIA

### Transcription Factor IIA

**IBT TA-200-1** Human recombinant, expressed in *E. coli*

### Transcription Factor IIB

**IBT TA-210-1** Human recombinant, expressed in *E. coli*

### Transcription Factor IIF

**Synonyms:** RAP-30

**IBT TA-250-1** Human recombinant, expressed in *E. coli*

### Transcription Factor IIF, Large Subunit

**Synonyms:** RAP-74

**IBT TA-100-1** Human recombinant, expressed in *E. coli*

### Transcription Factor YY1

**Synonyms:** NF1

**IBT TA-150-1** Human recombinant, expressed in *E. coli*

### Transducin

**Calbiochem 616410** Bovine retina MW 40, 36 & 8k, (α-, β- & γ-subunits) ≥95% (SDS-PAGE); liquid in 20 mM Tris-HCl, 10 mM BME, 100 mM NaCl, 5 mM magnesium acetate, 1.5 mM NaN<sub>3</sub>, 50% glycerol, pH 7.5; activity: activates equimolar amounts of transducin as measured by GTPγS binding; must open in complete darkness | The G-protein transducin couples the reception of a photon of light by a rhodopsin molecule to the activation of cyclic GMP phosphodiesterase; heterotrimer; biologically active preparation characterized by GTPγS binding to the α-subunit; Bubis, J & Khorana, HG, *J Biol Chem*, 265: 12995, 1990

### Transferrin

**Synonyms:** Siderophilin; Siderophilin, Partially Saturated; Siderophilin, Partially Iron Loaded; Serotransferrin

**Scipac P158-5** >98%; lyophilized; H<sub>2</sub>O dialyzed (low NH<sub>3</sub>); suitable for bulk requirements; 1g min pack size | Nutritional protein

**Fluka 90192** Bovine serum MW 77k ≥80.0% (GE); ≤6% water; ≥98% protein; ≤0.01% iron

**ICN 152154** Guinea pig ≥98%; purified by affinity chromatography; concentrated; supplied sterile & frozen | Iron binding protein displaying bacteristatic & fungistatic characteristics

**Cortex CP4060** Human >95%

**ICN 55915** Human Purified

**Sigma T 3309** Human ≥98% (agarose electrophoresis); iron content 300-600 μg/g; endotoxin level <1 EU/mg protein

**Sigma T 7559** Human 5% solution in water; aseptically filled; ≥98% (agarose electrophoresis); iron content 300-600 μg/g; endotoxin level <1 EU/mg protein

**Sigma T 8158** Human ~98%; partially iron saturated; source material tested for HBsAg & HIV antibodies; endotoxin tested; cell culture tested | Heat treated at 60°C for 10 hours

**Fluka 90190** Human blood serum MW 79,550 ~95.0% (GE); ≤0.1% iron | Crichton, RR & Charl-Wauters, M, Eur J Biochem, 164: 485, 1987; Gorinsky, B, *Adv Red Blood Cell Biol* (DJ Weatherall, et al, eds), 7, 1981, Raven, New York

**Biodesign A50132H** Human plasma Purified

**Fitzgerald 30-AT31** Human plasma High purity

**ICN 160076** Human plasma ≥95% total protein; per vial: 10 mg transferrin, 10 mg mannitol, 1 mg NaCl; readily soluble in 1 mL H<sub>2</sub>O | Conveys essential metabolites to cultured cells; binds & makes iron available to cells in a recognizable form; cellular iron is an enzymatic cofactor in key metabolic pathways such as ATP generation; strong promoter of cell growth in culture; frequent cell culture supplement in serum-free media

**ICN 55943** Mouse Purified

**Biogenesis 9100-5504** Mouse serum Lyophilized

**ICN 152155** Murine 90%; purified by affinity chromatography; concentrated; sterile filtered

**ICN 55953** Rat Purified

**Scipac T102-1** Serum/plasma >96%; lyophilized; iron content 0.3-0.8 mg/g protein; endotoxin <1.0 EU/mg; available on request | Cell culture protein

### Transferrin Receptor

**Synonyms:** CD71; CD71

**Cortex CP1113** Human >95%

**Biodesign A86001H** Human placenta Purified

**Biogenesis 9110-0300** Human placenta Tested negative for HIV I and II antibodies, Hepatitis B surface antigen and Hepatitis C antibodies; purified; 0.1 M HEPES, pH 7.5, with 0.15 M NaCl & 0.05% NaN<sub>3</sub>; liquid

**Fitzgerald 30-AT60** Human placenta High purity

**USBio T8199-20** Human placenta ≥95%; no contaminants were detected by SDS-PAGE analysis & IEP; lyophilized in PBS, pH 7.4, 0.01% NaN<sub>3</sub> | Suitable for antigenic applications in immunological protocols

**Biogenesis 9110-0320** Human serum Liquid

**Scipac P185-3** Placenta >96%; frozen in HEPES buffer; 0.5-2 mg/L | Nutritional protein

**Scipac P185-8** Serum/plasma Extract; frozen in Phosphate buffer; >50 mg of sTfR /L | Nutritional protein

### Transferrin, 30% Iron Saturated

**ICN 820551** Bovine plasma Highly purified | Suitable growth factor for primary, continuous 7 transformed cell lines

**ICN 823421** Human plasma Highly purified; trace IgG | Excellent growth factor for primary, continuous 7 transformed cell lines

### Transferrin, 90% Iron Saturated

**ICN 820571** Bovine plasma Highly purified; trace IgG | Ideal growth factor for primary, continuous 7 transformed cell lines

**ICN 823431** Human plasma Highly purified; no detectable IgG | Excellent growth factor for primary, continuous 7 transformed cell lines

**Transferrin, Apo-**

**Synonyms:** Siderophilin, Iron Poor; Siderophilin, Iron Poor; Siderophilin, Iron Poor

**Sigma T 0178** Bovine MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 1428** Bovine ≥98%; substantially iron free; cell culture tested

**ICN 152334** Bovine plasma 98% (FPLC); buffer-free, off-white powder | Useful transport factor in cell culture to convey essential metabolites to cells; important factor when culturing cells in defined medium

**Sigma T 6011** Dog MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 0904** Guinea pig MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 1147** Human >97% (agarose electrophoresis); substantially iron free; source material tested for HBsAg & HIV antibodies; cell culture tested

**Sigma T 2036** Human ~98%; substantially iron free; source material tested for HBsAg & HIV antibodies; endotoxin tested; cell culture tested

**Sigma T 2252** Human MW 76-81k >98% (agarose electrophoresis) | Non-heme iron transport protein; human source material negative for HIV & HBsAg; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 4382** Human MW 76-81k ≥98% (agarose electrophoresis); iron content <30 µg/g | Non-heme iron transport protein; human source material negative for HIV & HBsAg; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 5391** Human >97%; lyophilized; substantially iron free; source material tested for HBsAg & HIV antibodies; sterilized by γ-irradiation; endotoxin tested; cell culture tested

**Sigma T 0523** Mouse MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 6136** Rabbit MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Sigma T 6013** Rat MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980; Gordon, AH & Louis, LN, *Biochem J*, 88: 409, 1963

**Scipac P130-1** Serum/plasma >96%; lyophilized; <30mg Fe/g protein | Nutritional protein

**Scipac T100-1** Serum/plasma >98%; lyophilized; <15 mg Cl/mL; <10 mg Na/mL; <0.03 mg Fe/g protein; <1.0 EU endotoxin/mg; <5% moisture; available on request | Cell culture protein

**Sigma T 5037** Sheep MW 76-81k ~98% (agarose electrophoresis) | Non-heme iron transport protein; Aisen, P & Listowsky, I, *Ann Rev Biochem*, 49: 357, 1980

**Transferrin, Biotin Conjugated**

**Sigma T 3915** Human Prepared from human holotransferrin, coupled to biotin by an amide bond through an aminocaproyl spacer; lyophilized powder containing ~90% protein (Biuret); balance primarily sodium citrate; contains 4-8 moles d-biotin/mole transferrin

**Transferrin, Holo-**

**Synonyms:** Siderophilin, Iron Saturated

**Sigma T 0156** Bovine >95% (agarose electrophoresis); similar to Sigma T 1408

**Sigma T 1283** Bovine ~98%; endotoxin tested; cell culture tested

**Sigma T 1408** Bovine ~98% (agarose electrophoresis)

**ICN 152335** Bovine plasma 98% (FPLC); buffer-free, off-white powder | Useful transport factor in cell culture to convey essential metabolites to cells; important factor when culturing cells in defined medium

**Sigma T 0665** Human ~98%; source material tested for HBsAg & HIV antibodies; endotoxin tested; cell culture tested

**Sigma T 4132** Human ≥98% (agarose electrophoresis); iron content 1200-1600 µg/g | Human source material negative for HIV & HBsAg

**Sigma T 7434** Human 5% solution in water; aseptically filled (0.1 µm filter); ≥98% (agarose electrophoresis); iron content 1200-1600 µg/g; endotoxin level <1 EU/mg protein | Human source material negative for HIV & HBsAg

**Scipac T101-1** Pooled serum/plasma >96%; lyophilized; iron content 1.2-1.7 mg/g protein; endotoxin <1.25 EU/mg | Cell culture protein

**Scipac P133-1** Serum/plasma >98%; lyophilized | Nutritional protein

**Transferrin, Iron Poor**

**ICN 820561** Bovine plasma <1.0% iron, low endotoxin, trace IgG

**ICN 823411** Human plasma Highly purified; <1.0% iron, trace to non-detectable IgG | Ideal growth factor for primary, continuous 7 transformed cell lines

**Transferrin, Iron Saturated Holo-**

**USBio T8199-12** Human ≥99%; no contaminants were detected by SDS-PAGE analysis & IEP; <0.1% Fe; 10 mg/mL supplied in 50% mannitol & 5% NaCl as stabilizers | Suitable for antigenic applications in immunological protocols

**Transferrin, Partially Iron Saturated**

**Scipac P158-0** Pooled serum/plasma >99%; lyophilized; ultra-pure grade suitable for cell culture, research and the most demanding applications | Nutritional protein

**Scipac P158-1** Serum/plasma >96%; lyophilized; suitable for bulk requirements; 1g min pack size | Nutritional protein

**Transferrin, Poly(Lys) FITC Conjugated**

**Sigma T 0288** Human Prepared from apo-transferrin covalently linked to FITC-labeled polylysine; iron incorporated after purification of conjugate; lyophilized powder containing ~90% protein (Biuret); balance primarily HEPES buffer salts; contains 0.3-0.6 moles polylysine/mole transferrin & ~1 mole FITC/mole polylysine | Potentially useful for receptor-mediated transport of polyanions, e.g. DNA, & the detection of transferrin-binding compounds; source material negative for HIV & HBsAg; Wagner, E et al, *Bioconj Chem*, 2: 226, 1991; Kurrie, A et al, *Biochemistry*, 29: 8274, 1990

**Transforming Growth Factor α**

**Oncogene WA32** MW 5546 >98% (HPLC); liquid | Western Blot standard; protein is denatured in SDS; species reactivity: human

**Biodesign A52116H** *E. coli* MW 5.5k Purified

**Chemicon GF022** Human ≥95%

**Chemicon TG011** Human ≥95%

**Biogenesis 9130-0254** Human r-DNA *E. coli* MW 5547 (50 AA) Purified; no preservatives; lyophilized | Equivalent to native TGF in receptor binding assay on cultured A431 cells and in mitogenesis assay on fibroblasts

**Amersham VPF007** Human recombinant Human cross-reactivity | Growth/death factor interactions

**BioSource International PHG0051** Human recombinant

**Oncogene PF008** Human recombinant MW 5546 (AA analysis) >98% (HPLC); lyophilized with 100 µg BSA; biological activity: fully active in EGF receptor binding & mitogenesis assays | Species reactivity: human; for proliferation studies & binding studies; exerts its biological effects in the concentration range of 10-100 pM; reconstitute in 10mM acetic acid

## Proteins

**Calbiochem 616430** Human recombinant, expressed in *E. coli* MW 6k ≥97% (SDS-PAGE); lyophilized from 30% acetonitrile, 0.1% TFA; biological activity: ED<sub>50</sub>=0.1-0.4 ng/mL as measured by the ability to stimulate <sup>3</sup>H-thymidine incorporation in the mouse fibroblast cell line Balb/3T3; endotoxin: ≤100 pg/μg TGF-α | Plays an important role in cell-cell adhesion & cell growth & differentiation; reported to play a role in the development of hormonal insensitivity in estrogen-receptor-positive breast cancers; Nicholson, RI et al, *Cancer Res*, 54: 1684, 1994; Massague, J, *J Biol Chem*, 265: 21393, 1990

**Fitzgerald 30-AT62** Human recombinant, expressed in *E. coli*

**Harlan BT-3028** Human recombinant, expressed in *E. coli* Lyophilized; 0.025 mg

**Harlan BT-3029** Human recombinant, expressed in *E. coli* Lyophilized; 0.1 mg

**IBT UU020, UM100** Human recombinant, expressed in *E. coli* MW 5546 >95%; dried from 0.1 M acetic acid | Promotes proliferation & differentiation of cell types displaying the EGF receptor; biological effects of TGF-α are mediated by autocrine & paracrine mechanisms in adult & embryonic cells, as well as in a variety of tumours & retrovirally transformed cells

**ICN 150217** Human recombinant, expressed in *E. coli* >95%; lyophilized; ED<sub>50</sub> = 0.1-10 ng/mL, measured as the ability to maximally stimulate human foreskin fibroblast proliferation | Growth factor released by cancer cells; structurally related to epidermal growth factor (EGF); binds EGF receptors; mediates cell growth

**ICN 153507** Human recombinant, expressed in *E. coli* ≥95%; lyophilized; ED<sub>50</sub> = 2.0 ng/mL, measured via dose dependent <sup>3</sup>H-thymidine uptake by 3T3 cells | 50 residue protein with activity similar to EGF; stimulates a wide range of epithelial & epidermal cell types; related to autocrine growth of selected transformed cells

**PeproTech 100-16A** Human recombinant, expressed in *E. coli* MW 5.5k >98%; 50 AA; lyophilized with no additives; ED<sub>50</sub>: 0.2-0.7 ng/mL as determined by the stimulation of thymidine uptake by Balb/c 3T3 cells

**Sigma T 7924** Human recombinant, expressed in *E. coli* MW 5.5k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from 30% acetonitrile & 0.1% trifluoroacetic acid; endotoxin tested | Reversibly confers a transformed phenotype upon normal non-neoplastic cells, such as normal rat kidney fibroblasts; this activity also requires the presence of TGF-β which potentiates the action of TGF-α via a separate receptor; TGF-α is structurally homologous to EGF & exerts its action through the EGF receptor; mitogenic activities of all TGF-α products are tested in culture using BALB/MK cells, 4MBr-5 cells or BALB/3T3 cells; Derynck, R, *Cell*, 54: 593, 1988; Anzano, M et al, *Cancer Res*, 42: 4776, 1982; Marquardt, H et al, *Proc Natl Acad Sci USA*, 80: 4684, 1983; Todaro, G et al, *Proc Natl Acad Sci USA*, 77: 5258, 1980

**Sigma T 9533** Rat synthetic ~90% (HPLC); lyophilized & γ-irradiated; endotoxin tested | Reversibly confers a transformed phenotype upon normal non-neoplastic cells, such as normal rat kidney fibroblasts; this activity also requires the presence of TGF-β which potentiates the action of TGF-α via a separate receptor; TGF-α is structurally homologous to EGF & exerts its action through the EGF receptor; mitogenic activities of all TGF-α products are tested in culture using BALB/MK cells, 4MBr-5 cells or BALB/3T3 cells; Derynck, R, *Cell*, 54: 593, 1988; Anzano, M et al, *Cancer Res*, 42: 4776, 1982; Marquardt, H et al, *Proc Natl Acad Sci USA*, 80: 4684, 1983; Todaro, G et al, *Proc Natl Acad Sci USA*, 77: 5258, 1980

**Biogenesis 9130-0304** r-DNA <sup>125</sup>I conjugated

**Amersham V654205** Recombinant Human cross-reactivity | Growth/death factor interactions

### Transforming Growth Factor α, Long Human

**IBT VU200, VM001** Recombinant, expressed in *E. coli* MW 7113 >90%; dried from 0.1 M acetic acid | 64 AA analog of human TGF-α, comprising the complete human TGF-α sequence & a 14 AA extension peptide at the N-terminus; engineered as an inexpensive, high quality potent analog for use in serum-free or low serum cell culture

### Transforming Growth Factor α, N-Ac-Ethyl-Amide

**Chemicon TG013** ≥95%

### Transforming Growth Factor α, N-Ac-OME

**Chemicon TG014** ≥95%

### Transforming Growth Factor β

**Chemicon TG010** Human ≥95%

**Biogenesis 9130-1504** Human platelets Purified to homogeneity (SDS-PAGE); lyophilized; significant losses may result by with neutral buffers, use of glass implements or extensive manipulations; supplemented with 3.5 μg BSA to enhance recovery and stability | Assoian et al, *JBC*, 258:7155, 1983; Childs et al, *PNAS*, 79:5312, 1982

**Biogenesis 9130-1704** Porcine platelets <sup>125</sup>I conjugated

**Biogenesis 9130-1604** r-DNA Lyophilized

### Transforming Growth Factor βI

*Synonyms:* Latency Associated Peptide

**Chemicon GF056** Human ≥95%

**Oncogene PF051** Human MW 25k >97% (SDS-PAGE); lyophilized in 30% acetonitrile, 0.1% TFA containing 50 mg of BSA per 1 mg of cytokine; reconstitute in sterile 4 mM HCl containing at least 0.1% HSA or BSA; biological activity: EC<sub>50</sub> of 0.02-0.06 ng/mL as determined by the ability to inhibit IL-4-dependent <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells | Species reactivity: human & mouse; stimulatory for cells of mesenchymal origin & inhibitory for cells of epithelial or neuroectodermal origin; for proliferation studies & growth inhibition assay

**Biogenesis 9130-1506** Human platelets Purified Ig; lyophilized

**Calbiochem 616450** Human platelets MW 25k >97% (SDS-PAGE); lyophilized aseptically in the presence of 50 μg BSA/μg TGF-β1; biological activity: ED<sub>50</sub>=20-60 pg/mL; endotoxin: ≤100 pg/μg TGF-β1 | Promotes apoptosis in resting human B lymphocytes, glioma cells & trigeminal neurinoma cells; prepared from blood shown by certificate to be negative for HBsAg & antibodies to HIV & HCV; *Merck Index*, 12: 9707; Lomo, J et al, *J Immunol*, 154: 1634, 1995; Marushige, K & Marushige, Y, *Anticancer Res*, 14: 2419, 1995

**BioSource International PHG9104** Human recombinant

**Oncogene PF016** Human recombinant MW ~25k >92% (SDS-PAGE); lyophilized from a volatile buffer; contains 100 μg lipid free BSA as carrier; reconstitute in 50 mL of 10mM HCl/10% EtOH in siliconized vial; biological activity: a concentration of 1-5 ng/mL for initial cell inhibition assays is recommended | Reactive on many cell types

**Sigma T 7039** Human recombinant, expressed in a mammalian cell line MW 25k ≥97% (SDS-PAGE); 0.2 μm filtered & lyophilized from an acetonitrile/TFA solution containing 50 μg BSA per μg of cytokine; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**PeproTech 100-21** Human recombinant, expressed in A293 cells MW 25.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of a superfamily of homologous, disulfide-linked, homodimeric proteins; regulates proliferation & differentiation of normal & transformed cells; 112 AA/subunit; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 × 10<sup>7</sup> U/mg; SA determined by the ability to inhibit mouse IL-4-dependent proliferation of mouse HT-2 cells



**PeproTech 100-21R** Human recombinant, expressed in Baculovirus High-5 infected cells MW 25.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of a superfamily of homologous, disulfide-linked, homodimeric proteins; regulates proliferation & differentiation of normal & transformed cells; 112 AA/subunit; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 × 10<sup>7</sup> U/mg; SA determined by the ability to inhibit mouse IL-4-dependent proliferation of mouse HT-2 cells

**Calbiochem 616455** Human recombinant, expressed in CHO cell line MW 25k ≥97% (SDS-PAGE); lyophilized from filter-sterilized solution of 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg TGF-β1; biological activity: ED<sub>50</sub>=20-60 pg/mL; endotoxin: ≤100 pg/µg TGF-β1 | Promotes apoptosis in resting human B lymphocytes, glioma cells & trigeminal neuroinoma cells; induces the accumulation of extracellular matrix in various diseases; *Merck Index*, 12: 9707; Yamazaki, M et al, *Am J Pathol*, 144: 221, 1994; Lomo, J et al, *J Immunol*, 154: 1634, 1995; Marushige, K & Marushige, Y, *Anticancer Res*, 14: 2419, 1995

**Sigma T 3408** Human recombinant, expressed in Sf 21 insect cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; activity is tested in culture by using a mouse T cell line HT-2; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**Sigma T 1654** Natural human platelets MW 25k ≥97% (SDS-PAGE); aseptically prepared & lyophilized from acetonitrile solution containing 50 µg BSA; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**Oncogene PF052** Porcine MW 25k >97% (SDS-PAGE); lyophilized in 25% acetonitrile, 0.1% TFA containing 50 mg of BSA per 1 g of cytokine; reconstitute in sterile 4 mM HCl containing at least 0.1% HSA or BSA; biological activity: EC<sub>50</sub> of 0.02-0.06 ng/mL | Species reactivity: pig & mouse; stimulatory for cells of mesenchymal origin & inhibitory for cells of epithelial or neuroectodermal origin; for proliferation studies & growth inhibition assay

**Biogenesis 9131-2002** Porcine platelets Purified Ig; lyophilized

**Biogenesis 9131-3002** Porcine platelets Purified Ig; lyophilized

**Calbiochem 616460** Porcine platelets MW 25k >97% (SDS-PAGE); lyophilized aseptically in the presence of 50 µg BSA/µg TGF-β1; biological activity: ED<sub>50</sub>=20-60 pg/mL; endotoxin: ≤100 pg/µg TGF-β1 | *Merck Index*, 12: 9707

**Sigma T 5050** Porcine platelets ≥97% (SDS-PAGE visualized by silver stain); 0.2 µm filtered & lyophilized in the presence of 50 µg BSA; bioactivity is measured by its inhibitory effect on <sup>3</sup>H-thymidine incorporation in the mouse IL-4 dependent HT-2 cells; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**Amersham V616455** Recombinant Human cross-reactivity | Growth/death factor interactions

### Transforming Growth Factor βI Receptor II Soluble Fragment

**Sigma T 3301** Human recombinant, expressed in NSO mouse myeloma cells ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 1.25 mg BSA; receptor mediated activity is measured by its ability to inhibit the TGF-β1 bioactivity in HT-2 cells | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

### Transforming Growth Factor βI&II

**Biogenesis 9131-4002** Porcine platelets Purified Ig; lyophilized

### Transforming Growth Factor βII

**Oncogene PF017** Human recombinant MW ~25k >92% (SDS-PAGE); lyophilized from a volatile buffer; contain 100 µg lipid free BSA as carrier; reconstitute in 50 mL of 10mM HCl/10% EtOH in siliconized vial; biological activity: a concentration of 1-5 ng/mL for initial cell inhibition assays is recommended | Reactive on many cell types

**IBT GF-240-2** Human recombinant, expressed in *E. coli* MW 25k (dimer) >98%; 1 mg/mL solution, pH 2.5 | Stimulatory for cells of mesenchymal origin; inhibitory for cells of epithelial or neuroectodermal origin

**Sigma T 7289** Human recombinant, expressed in *E. coli* MW 25k (dimer) ≥93% (SDS-PAGE); 0.2 µm filtered liquid containing 30% acetonitrile & 0.1% TFA; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**Oncogene PF053** Porcine MW 25k >97% (SDS-PAGE); lyophilized in 30% acetonitrile, 0.1% TFA containing 50 mg of BSA per 1 mg of cytokine; reconstitute in sterile 4 mM HCl containing at least 0.1% HSA or BSA; biological activity: EC<sub>50</sub> of 0.1-0.2 ng/mL as determined by the ability to inhibit IL-4-dependent <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells | Species reactivity: pig & mouse; stimulatory for cells of mesenchymal origin & inhibitory for cells of epithelial or neuroectodermal origin; for proliferation studies

**Sigma T 5300** Porcine platelets ≥97% (SDS-PAGE visualized by silver stain); 0.2 μm filtered & lyophilized in the presence of 50 μg BSA; bioactivity is measured by its inhibitory effect on <sup>3</sup>H-thymidine incorporation in the mouse IL-4 dependent HT-2 cells; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

**Biogenesis 9130-1616** r-DNA Purified Ig; liquid

### Transforming Growth Factor βIII

**Calbiochem PF073** Human recombinant MW 25k >97% (SDS-PAGE); lyophilized; biological activity: ED<sub>50</sub>=30-100 pg/mL | For use in growth inhibition assays & other assays designed to study cellular responses & receptor interactions involving TGF; expression of TGF-β3 is linked to progression osteosarcoma; Kloen, P et al, *Cancer*, 80: 2230, 1997

**Oncogene PF073** Human recombinant MW 25k (disulfide-linked homodimeric) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.01-0.03 ng/mL as determined by the ability to inhibit IL-4-dependent <sup>3</sup>H-thymidine incorporation by mouse HT-2 cells | Recombinant human protein based on a DNA sequence encoding TGF-β3 prepropeptide (containing chicken TGF-β signal & latency associated peptide sequence & human mature TGF-β3 sequence) expressed in Sf21 cells; species reactivity: human & mouse; for growth inhibition assay

**PeproTech 100-36** Human recombinant, expressed in *E. coli* MW 25.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Member of a superfamily of homologous, disulfide-linked, homodimeric proteins; regulate proliferation & differentiation of normal & transformed cells 112 AA; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 × 10<sup>8</sup> U/mg; SA determined by ability to inhibit mouse IL-4-dependent proliferation of mouse HT-2 cells

**Sigma T 5425** Human recombinant, expressed in Sf 21 insect cells ≥97% (SDS-PAGE); purified by sequential chromatography; 0.2 μm filtered & lyophilized from 35% acetonitrile & 0.1% TFA containing 100 μg BSA; bioactivity is measured by its inhibitory effect on <sup>3</sup>H-thymidine incorporation in the mouse IL-4 dependent HT-2 cells; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

### Transforming Growth Factor βV

**Sigma T 2926** Amphibian recombinant, expressed in Sf 21 cells ≥97% (SDS-PAGE); purified by sequential chromatography; 0.2 μm filtered & lyophilized from 30% acetonitrile & 0.1% TFA containing 100 μg BSA; proliferative activity is tested in culture by using a mouse cell line HT-2; endotoxin tested | Multifunctional protein capable of influencing cell proliferation, differentiation & a variety of cellular functions; stimulates growth of cells of mesenchymal origin, but inhibits growth of hepatocytes, epithelial cells, T & B lymphocytes; known to interact with several other agents including EGF, FGF, TGF-α, PDGF & IL-2; bioactivity of TGF-β is tested in culture using Mv1Lu cells, a mink lung epithelial cell line, whereby 1 U is the amount of TGF-b required to induce half-maximal inhibition of Mv1Lu cells as measured in an MTT dye assay or by measuring <sup>3</sup>H-thymidine incorporation in mouse HT-2 cells; Cheifetz, S et al, *Cell*, 48: 409, 1987; Roberts, A & Sporn, M, *Adv Cancer Res*, 51: 107, 1988; Sporn, M et al, *Science*, 233: 532, 1986; Tsang, M et al, *Lymphokine Res*, 9: 607, 1990

### Trichosanthin

**Sigma T 0794** *Trichosanthes kirilowii* Solution in 0.05 M Tris, pH 7.4, containing 50% glycerol; >99% | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

**Sigma T 3797** *Trichosanthes kirilowii* Lyophilized powder containing ~15% protein (Lowry); balance primarily sodium phosphate & preservatives; ~95% (SDS-PAGE) | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

### Trichostatin A

**Synonyms:** Histone Deacetylase Inhibitor

**USBio T8375** Streptomyces >98%; powder; soluble in DMSO, DMF, acetonitrile, & EtOH | Incubation of A431 cells with 50-100 ng/mL Trichostatin A for 24 hours inhibited deacetylation of histones *in vivo*

### Tropomyosin

**Sigma T 4770** Bovine muscle Lyophilized powder; may contain Tris buffer salts, CaCl<sub>2</sub> & mercaptoethanol; SDS electrophoresis shows 2 major bands | In the absence of Ca<sup>2+</sup>, inhibits muscle contractility by blocking the myosin binding sites on actin; prepared by a modification of the procedure of Greaser, ML & Gergely, J, *J Biol Chem*, 246: 4226, 1971

**Sigma T 3026** Chicken gizzard Lyophilized powder; may contain Tris buffer salts; SDS electrophoresis shows 2 major bands | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

**Sigma T 1646** Chicken muscle Lyophilized powder; may contain Tris buffer salts; SDS electrophoresis shows 2 major bands | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

**Cortex CP3034** Human >95%

**Sigma T 2400** Porcine muscle Lyophilized powder; may contain Tris buffer salts; SDS electrophoresis shows 2 major bands | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

**Sigma T 3640** Rabbit muscle Lyophilized powder; may contain Tris buffer salts; SDS electrophoresis shows 2 major bands | Active principle of the traditional Chinese medicinal plant with abortifacient activity; potent protein synthesis inhibitor *in vitro* & an inhibitor of HIV replication; Maraganore, JM et al, *J Biol Chem*, 262: 11628, 1987; Barbieri, L et al, *J Chromatogr*, 408: 235, 1987; McGrath, MS et al, *Proc Natl Acad Sci USA*, 86: 2844, 1989

### Troponin

*Synonyms:* Actin Associated Protein

**Sigma T 4895** Bovine muscle Lyophilized powder containing ~85% protein (Biuret); balance Tris buffer salts; SDS gel electrophoresis shows the 3 major bands for troponin | In the absence of  $\text{Ca}^{2+}$ , inhibits muscle contractility by causing tropomyosin to block the myosin binding sites on actin; prepared by a modification of the procedure of Greaser, ML & Gergely, J, *J Biol Chem*, 246: 4226, 1971

**Sigma T 1771** Chicken muscle Lyophilized powder containing ~90% protein (Biuret); balance Tris buffer salts; SDS gel electrophoresis shows the 3 major bands for troponin | In the absence of  $\text{Ca}^{2+}$ , inhibits muscle contractility by causing tropomyosin to block the myosin binding sites on actin; prepared by a modification of the procedure of Greaser, ML & Gergely, J, *J Biol Chem*, 246: 4226, 1971

**Sigma T 2275** Porcine muscle Lyophilized powder containing ~85% protein (Biuret); balance Tris buffer salts; SDS gel electrophoresis shows the 3 major bands for troponin | In the absence of  $\text{Ca}^{2+}$ , inhibits muscle contractility by causing tropomyosin to block the myosin binding sites on actin; prepared by a modification of the procedure of Greaser, ML & Gergely, J, *J Biol Chem*, 246: 4226, 1971

**Sigma T 3515** Rabbit muscle Lyophilized powder containing ~85% protein (Biuret); balance Tris buffer salts; SDS gel electrophoresis shows the 3 major bands for troponin | In the absence of  $\text{Ca}^{2+}$ , inhibits muscle contractility by causing tropomyosin to block the myosin binding sites on actin; prepared by a modification of the procedure of Greaser, ML & Gergely, J, *J Biol Chem*, 246: 4226, 1971

### Troponin C

*Synonyms:* Actin Associated Protein

**Biodesign A86857H** Human heart >98% | Cardiac marker

**Calbiochem 648475** Human heart MW 18k ≥95% (SDS-PAGE); liquid in phosphate buffer containing 250 mM NaCl, pH 7.2 | Regulates muscle contractions by  $\text{Ca}^{2+}$  binding, which results in the reorganization of the interactions between the troponin-tropomyosin complex; prepared from tissues of individuals that have been shown by certified tests to be negative for HBsAg & for antibodies to HIV & HCV; Malnic, B et al, *J Biol Chem*, 273: 10594, 1998

**Chemicon AG751** Human heart ≥95%

**Fitzgerald 30-AT44** Human heart High purity

**Cortex CP3035** Rabbit >95%

**Fitzgerald 30-AT64** Recombinant, expressed in *E. coli* 98%

### Troponin Complex

*Synonyms:* Troponin C, Cardiac I & T

**USBio T8665-12** Human ≥98%; no contaminants detected; single band by SDS-PAGE, IEP, &/or RID; 0.14 mg/mL supplied in 2 mM  $\text{NaHCO}_3$ , 5 mM  $\text{CaCl}_2$ , pH 7.5 | Suitable for antigenic applications in immunological protocols; Troponin Complex is native & corresponds to the presentation of troponin complex in serum of AMI patients

**Biodesign A86862H** Human heart Cardiac marker

**Fitzgerald 30-AT49** Human heart 95% | Troponin C, I & T

**Fitzgerald 30-AT54** Human heart 97% | Troponin C, I & T

### Troponin I

*Synonyms:* Actin Associated Protein

**Cortex CP3036** Human >95%

**USBio T8665-13** Human cardiac ≥95%; no contaminants were detected by SDS-PAGE analysis & IEP; <0.1% Fe; ~2 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**USBio T8665-16** Human cardiac ≥98%; no contaminants were detected by SDS-PAGE analysis & IEP; ≤ 0.1% Fe; ~2 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols

**Biodesign A86813H** Human heart >98% | Cardiac marker

**Biodesign A86853H** Human heart >95% | Cardiac marker

**Biogenesis 9202-0707** Human heart Tested negative for antibodies to HBsAg, HCV and HIV1; purified; from 10 mM HCl; lyophilized | Suitable for iodination, as standard or for antibody production

**Chemicon AG750** Human heart ≥95%

**Fitzgerald 30-AT43** Human heart High purity

**Sigma T 9924** Human heart Affinity-purified, lyophilized powder | Inhibiting subunit of troponin, responsible for preventing actin-myosin binding & ATPase activity

**Chemicon AG752** Human skeletal ≥95%

**Biodesign A86824H** Human skeletal muscle >95% | Cardiac marker

**Biodesign A86825H** Human skeletal muscle >95% | Cardiac marker

**Fitzgerald 30-AT48** Human skeletal muscle High purity

**USBio T8665-21** Human skeletal muscle ≥95%; no contaminants were detected by SDS-PAGE analysis & IEP; <0.1% Fe; 1 mg/mL; lyophilized from 10 mM HCl | Suitable for antigenic applications in immunological protocols

**Fitzgerald 30-AT63** Recombinant, expressed in *E. coli* 96%

**Biodesign A3B003H** Recombinant, expressed in *Pichia pastoris* >95% | Cardiac marker

### Troponin I, Cardiac Calibrator Set

*Synonyms:* Actin Associated Protein

**Biodesign A86860H** Human heart Calibrator set (NHS base) | Cardiac marker

### Troponin T

*Synonyms:* Actin Associated Protein; Actin Associated Protein; Actin Associated Protein

**Cortex CP3037** Human >95%

**USBio T8665-23** Human ≥98%; no contaminants were detected by SDS-PAGE analysis & IEP; <0.1% Fe; 1.45 mg/mL; lyophilized | Suitable for antigenic applications in immunological protocols; suitable for Western Blot, Immunohistochemistry & ELISA Capture

**Biogenesis 9202-1107** Human heart Tested negative for HBsAg, HIV-1 and HIV-2 antibodies and HCV; purified; 10 mM HCl; lyophilized

**Chemicon AG754** Human heart ≥95%

**Fitzgerald 30-AT38** Human heart High purity

**Sigma T 0175** Human heart ≥60% (SDS-PAGE); affinity-purified, lyophilized powder | Tropomyosin-binding subunit of troponin

**Chemicon AG756** Human skeletal ≥95%

**Biogenesis 9202-1157** Human skeletal muscle Tested negative for HBsAg and HIV antibodies; purified; PBS buffer, pH 7.2; lyophilized

**Biodesign A3B002H** Recombinant, expressed in *Pichia pastoris* >95% | Cardiac marker

### Troponin, Complex

**Scipac P184-4** Heart tissue 1-10%; frozen in TRIS buffer; >10,000 ng/mL; contains Troponin I/T/C complex | Cardiac marker protein

### Trypsin Inhibitor

**Synonyms:** Ovomuroid; PCI; Hageman Factor Inhibitor; Popcorn Inhibitor; Ovomuroid; SBTI; Kunitz Soybean Trypsin Inhibitor

**Fluka 93616** Chicken egg white Powder; ~10,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C; no chymotrypsin inhibition detected | Prepared by method C of Tomimatsu Y et al, *Arch Biochem Biophys*, 115: 536, 1966

**Fluka 93621** Chicken egg white Powder; ~10,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C; chymotrypsin inhibition 12 U/mg

**Fluka 93622** Corn kernels MW 12,028 Solution in 20 mM TRIS HCl, 30 mM NaCl, pH 8.2; ≥30,000 U/mL; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C

**ICN 198905** Duck egg 95% (SDS-PAGE); lyophilized; 1 mg inhibits 1 mg trypsin with activity of 10,000 BAEE U/mg protein

**Fluka 93609** Lima beans Powder; ~10,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C | Birk, Y, *Meth Enzymol*, 45: 707, 1976

**Fluka 93618** Soybean Powder; ~5000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C; chymotrypsin inhibition ≤30 U/mg

**Fluka 93619** Soybean MW 20k Lyophilized; ~12,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C | Prepared by method of Kunitz, M, *J Gen Physiol*, 29: 149, 1946

**Fluka 93620** Soybean Lyophilized; essentially salt-free; ~10,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C | Prepared by method of Kunitz, M, *J Gen Physiol*, 29: 149, 1946; Ozawa, K & Laskowski, M, *JBC*, 241: 3955, 1966; Birk, Y, *Meth Enzymol*, 45: 700, 1976; Katoh, S et al, *Polym Prep J Am Chem Soc, Div Polym Chem*, 21: 94, 1980

**Sigma T 1021** Soybean pI 4.6; vial contains ~2 mg | IEF Marker

**Sigma T 9416** Soybean MW 20.1k Vial contains enough FITC-conjugated protein to run 50 mini-gels or 25 standard size gels; protein band be visualized by using UV light or Brilliant Blue stain | Fluorescent marker for SDS-page & protein transfer; suitable for use as molecular weight standards in both SDS-PAGE & transfer membranes

**Fluka 93623** Turkey egg white Powder; ~11,000 U/mg; 1 U corresponds to the amount of inhibitor which reduces the trypsin activity by 1 BAEE-U; 1 BAEE-U is the amount of enzyme which increases the absorbance at 253 nm by 0.001/min at pH 7.6, 25°C; chymotrypsin inhibition 28 U/mg

### Trypsin Inhibitor Type III-O

**Sigma T 2011** Chicken egg white Purified ovomucoid free of ovoinhibitor prepared from Type II-O using method C of Tomimatsu; 1 mg inhibits ~1 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret) | Selective inhibitor; 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; Tomimatsu, Y et al, *Arch Biochem Biophys*, 115: 536, 1966

### Trypsin Inhibitor Type II-L

**Sigma T 9378** Lima bean Crude powder; 1 mg inhibits ~1 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret) | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; prepared by a modification of the method of Tauber, H et al, *J Biol Chem*, 179: 1155, 1949 (modified)

### Trypsin Inhibitor Type II-O

**Sigma T 9253** Chicken egg white Partially purified ovomucoid containing ovoinhibitor; 1 mg inhibits ~1 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret); may inhibit ≤0.3 mg chymotrypsin with activity of ~40 BTEE U/mg protein | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; ovomucoid, from chicken egg white, does not itself inhibit chymotrypsin; chymotrypsin inhibition is a measure of ovoinhibitor contamination by method of Feeney, RE et al, *J Biol Chem*, 238: 1415, 1963; Lineweaver, H & Murray, CW, *J Biol Chem*, 171: 565, 1947

### Trypsin Inhibitor Type II-S

**Sigma T 9128** Soybean MW ~20k Crude; soluble powder; 1 mg inhibits 1.5-2.5 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret) | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C

### Trypsin Inhibitor Type II-T

**Sigma T 4385** Turkey egg white 1 mg inhibits 0.9-1.3 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret); 1 mg inhibits 0.4-1.0 mg  $\alpha$ -chymotrypsin with activity of ~40 BTEE U/mg protein | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; Lineweaver, H & Murray, CW, *J Biol Chem*, 171: 565, 1947

### Trypsin Inhibitor Type I-P

**Synonyms:** BPTI

**Sigma T 0256** Bovine pancreas Crystallized & lyophilized, essentially salt-free; 1 mg inhibits 1.5-3.0 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret); 1 mg inhibits ~0.8 mg  $\alpha$ -chymotrypsin with activity of ~40 BTEE U/mg protein | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; prepared by the method of Kunitz & Northrup, *J Gen Physiol*, 19: 991, 1936

### Trypsin Inhibitor Type I-S

**Sigma T 9003** Soybean MW ~20k Lyophilized; chromatographically prepared; 1 mg inhibits 1-3 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret) | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C

**Sigma T 9008** Soybean MW ~20k 1% sterile filtered solution prepared from Type I-S | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; for use in the staphylococcal clumping & serial dilution-protamine sulfate tests for detecting fibrin/fibrinogen degradation products

**Trypsin Inhibitor Type IV-O***Synonyms:* Chymotrypsin Inhibitor

**Sigma T 1886** Chicken egg white Purified ovininhibitor prepared from Type II-O using method C of Tomimatsu; 1 mg inhibits ~1 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret); 1 mg inhibits ~1 mg chymotrypsin with activity of ~40 BTEE U/mg protein | Selective inhibitor; 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; Tomimatsu, Y et al, *Arch Biochem Biophys*, 115: 536, 1966

**Trypsin Inhibitor, DITC Glass Conjugated**

**Sigma T 9024** Soybean MW ~20k Inhibitor Sigma T 9003 covalently attached to DITC controlled pore glass (80-120 mesh, 700 Angstrom average pore size); 1 g solid yields ~2 mL packed volume; 1 g solid inhibits 2-25 mg trypsin with activity of ~10,000 BAEE U/mg protein (Biuret) | 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C

**Trypsin Inhibitor, Ovomucoid Gold Conjugated**

**Sigma T 2654** Chicken egg white 10 nm Colloidal Gold labeled; mean particle size 8-12 nm; monodisperse; suspension in ~40% glycerol containing 0.15 M NaCl, 0.01 M potassium phosphate, pH 7.2, 0.02% PEG 20; 0.02% sodium azide; concentration:  $A_{520}$  ~5.0; Sigma T 2011 adsorbed to colloidal gold | Useful in a 2-step (indirect) labeling of lectin binding sites with GlcNAc specificity; 1 Trypsin U =  $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C; Geoghegan, WD & Ackerman, GA, *J Histochem Cytochem*, 31: 1394, 1983

**Trypsin/Chymotrypsin Inhibitor***Synonyms:* Bowman-Birk Inhibitor

**Sigma T 9777** Soybean Lyophilized powder containing ~80% protein (Biuret); balance primarily phosphate buffer salts, pH 7.6; 1 mg inhibits 3-5 mg trypsin with activity of ~10,000 BAEE U/mg protein; unit definition: 1 trypsin U= $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C; reaction volume=3.2 mL (1 cm light path); 1 chymotrypsin U hydrolyzes 1.0  $\mu$ mole BTEE/min at pH 7.8, 25°C | Birk, Y, *Int J Peptide Protein Res*, 25: 113, 1985

**Trypsinogen**

**Sigma T 1143** Bovine pancreas Dialyzed & lyophilized, essentially salt-free; activity: 10,000-15,000 BAEE U/mg protein ( $E_{280}$  at 1%) after activation to trypsin; contains <1000 BAEE U/mg protein prior to activation; unit definition: 1 BAEE U= $\Delta A_{253}$  of 0.001/min with BAEE as substrate at pH 7.6, 25°C & a reaction volume of 3.2 mL (1 cm light path) | Wilimowska-Pelc, A & Mejbaum-Katzenellenbogen, W, *Anal Biochem*, 90: 816, 1978

**Sigma T 1146** Bovine pancreas pI 9.3; vial contains ~2 mg | IEF Marker

**Trypsase**

**Sigma T 7063** Human lung Highly purified; solution in 10 mM MES, 300 mM NaCl, 0.02 mM heparin, pH 6.1, containing 0.02% sodium azide; activity:  $\geq 5000$  U/mg; unit definition: 1 U hydrolyzes 1.0  $\mu$ mole *N*-benzyl-*DL*-arginine-pNA | *J Biol Chem*, 259: 11046, 1984; Addington, AK & Johnson, D, *Biochem*, 197: 13511, 1996; Schwartz, LB & Bradford, TR, *J Biol Chem*, 261: 7372, 1986

**Tryptic Soy Broth**

**Sigma T 8261** Soybean Soybean casein digest broth

**Tryptone***Synonyms:* EZMix™

**Sigma T 2559** Pancreatic digest of casein; same formulation as Sigma T 9410 with the added advantage of being dust-free, allowing easier weighing & handling | Used to supplement media in the cultivation of anaerobes

**Sigma T 9410** ~13% total nitrogen | Pancreatic digest of casein; used to supplement media in the cultivation of anaerobes (clostridia & other fermenting organisms, e.g. Lactobacilli)

**Tubulin**

**Sigma T 4925** Bovine brain Lyophilized powder containing MES buffer salts, EGTA, EDTA, MgCl<sub>2</sub>, DTT, GTP, leupeptin, aprotinin & sucrose as stabilizer; contains ~15% microtubule associated proteins; vial contains > 7.5 mg protein in assembled form which will give >5 mg soluble protein after disassembly | Primary protein of microtubules; Ringel, I & Horwitz, SB, *J Pharmacol Exp Ther*, 259: 855, 1991; purified by temperature-dependent assembly-disassembly cycles

**Biogenesis 9280-3050** Porcine brain Liquid

**Tubulin,  $\alpha$ - &  $\beta$ -**

**ICN 771121/771122** Bovine brain MW 55k 10 mg/mL in 80 mM PIPES buffer, 1 mM EGTA, 1 mM GTP, 10% glycerol; 1 U = 5.0 mg purified protein; 1.0 U/mL increases  $A_{340}$  from 0-0.650 (35°C, 30 min), microtubule mass = 3.6 mg/mL; mean microtubule length ~10 nm (immunofluorescence microscopy); average microtubules/mL =  $1.0 \times 10^{12}$  | Heterodimer composed of  $\alpha$ - &  $\beta$ -tubulin; polymerization forms microtubules 25 nm (diameter) X ~1650 heterodimers/ $\mu$ m length

**Tumor Necrosis Factor Receptor I**

**R&D Systems 225-B1-025** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.03-0.06  $\mu$ g/mL | Species specificity: human; soluble TNF RI

**R&D Systems 425-R1-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.5-1.5  $\mu$ g/mL | Species specificity: mouse; soluble TNF RI

**Chemicon GF103** Human  $\geq 95\%$

**R&D Systems 372-RI-050** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 0.4-1 ng/mL | Species specificity: human; domain fused to human IgG1 Fc

**R&D Systems 430-RI-050** NSO-Expressed >90%; lyophilized; ED<sub>50</sub>: 0.2-0.6 ng/mL | Species specificity: mouse; domain fused to human IgG1 Fc

**Tumor Necrosis Factor Receptor I, Soluble**

**Oncogene PF055** Human recombinant MW 18k (non-glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.03-0.06  $\mu$ g/mL as determined by the ability to inhibit the cytotoxic effects of 0.25 ng/mL recombinant human TNF- $\alpha$  in mouse L929 cells | Species reactivity: mouse, human; neutralizes the biological activity of TNF- $\alpha$  at least 10-fold more efficiently than it neutralizes TNF- $\beta$

**Oncogene PF056** Murine recombinant MW 21k (non-glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.5-1.5  $\mu$ g/mL as determined by the ability to inhibit the cytotoxic effects of 0.1 ng/mL recombinant mouse TNF- $\alpha$  in mouse L929 cells | Species reactivity: mouse; neutralizes the biological activity of TNF- $\alpha$  at least 10-fold more efficiently than it neutralizes TNF- $\beta$

**Tumor Necrosis Factor Receptor II, Soluble**

**R&D Systems 226-B2-025** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.2-0.6  $\mu$ g/mL | Species specificity: human

**R&D Systems 426-R2-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 1-3  $\mu$ g/mL | Species specificity: mouse

**Oncogene PF057** Human recombinant MW 20k (non-glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 0.2-0.06 µg/mL as determined by the ability to inhibit the cytotoxic effects of 0.25 ng/mL TNF-α in mouse L929 cells | Species reactivity: mouse, human; neutralizes the biological activity of both TNF-α & TNF-β with approximately equal efficiency

**Oncogene PF058** Murine recombinant MW 25k (non-glycosylated) >97% (SDS-PAGE); lyophilized; biological activity: EC<sub>50</sub> of 1-3 µg/mL as determined by the ability to inhibit the cytotoxic effects of 0.1 ng/mL TNF-α in mouse L929 cells | Species reactivity: mouse; neutralizes the biological activity of both TNF-α & TNF-β with approximately equal efficiency

**R&D Systems 726-R2-050** NSO-Expressed >95%; lyophilized; ED<sub>50</sub>: 0.004-0.016 µg/mL | Species specificity: human

### Tumor Necrosis Factor α

**Synonyms:** TNFSF2; Cachectin, rh-; Cachectin; Cachectin, rm-

**Biodesign A52014H** *E. coli* MW 17.9k Purified | Species specificity: rat

**Biodesign A52150H** *E. coli* MW 18.5k Purified | Species specificity: mouse

**Biodesign A52301H** *E. coli* MW 17.5k Purified

**R&D Systems 210-TA-010** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: human

**R&D Systems 210-TA-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: human

**R&D Systems 410-MT-010** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: mouse

**R&D Systems 410-MT-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: mouse

**R&D Systems 410-TRNC-010** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 5-10 pg/mL | Species specificity: mouse; amino terminal truncated form of mouse TNF-α

**R&D Systems 410-TRNC-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 5-10 pg/mL | Species specificity: mouse; amino terminal truncated form of mouse TNF-α

**R&D Systems 510-RT-010** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 10-20 pg/mL | Species specificity: rat

**R&D Systems 510-RT-050** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 10-20 pg/mL | Species specificity: rat

**R&D Systems 690-PT-025** *E. coli*-Expressed >97%; lyophilized; ED<sub>50</sub>: 0.003-0.018 ng/mL | Species specificity: porcine

**Chemicon GF023** Human >95%

**Biogenesis 9295-1302** Human r-DNA expressed in *E. coli* MW 17.5k SA: ~2x10(e)7 U/mg; endotoxin <0.1 ng/µg; purified; additive and carrier free; lyophilized | 157 AA; Carswell et al, *PNAS USA*, 72:3666, 1975; Aggerwal et al, *JBC*, 260:2345, 1985; Rosenblum & Donato, *Crit Rev Immunol*, 9:21, 1989

**Oncogene PF007** Human recombinant MW 17k >97% (SDS-PAGE); lyophilized; biological activity: half maximal cytotoxicity of murine L929 cells in the presence of Actinomycin D is 0.2 ng/mL | Species reactivity: mouse, human; used in cytotoxicity assays & Western blot; use 2 mg per gel lane, 68 for Western blot; acts on human & mouse cells

**Calbiochem 654205** Human recombinant, expressed in *E. coli* MW 17.5k >97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg TNF-α; biological activity: ED<sub>50</sub>=20-50 pg/mL as measured in a cytotoxicity assay with the TNF-α-susceptible murine L-929 cell line in the presence of Actinomycin D; endotoxin: ≤100 pg/µg TNF-α; May be carcinogenic/teratogenic | Activates a variety of immune defense mechanisms by interactions with polymorphonuclear leukocytes, T cells, antibody-producing B lymphocytes, fibroblasts & hematopoietic bone marrow cells; activity is not species-specific; induces apoptosis in human blood & bone marrow neutrophils & in endothelial cells; increases the iNOS levels in vascular smooth muscle cells; involved in pathophysiological processes of several chronic & acute diseases; stimulates stress activated protein (SAP) kinase; *Merck Index*, 12: 9943; Tsuchida, H et al, *J Immunol*, 154: 2403, 1995; Westwick, JK et al, *J Biol Chem*, 270: 22689, 1995; Polunovsky, VA et al, *Exp Cell Res*, 214: 584, 1994; Koide, M et al, *FEBS Lett*, 318: 213, 1993; Vilcek, J & Lee, TH, *J Biol Chem*, 266: 7313, 1991

**Fitzgerald 30-AT70** Human recombinant, expressed in *E. coli*

**Harlan BT-3030** Human recombinant, expressed in *E. coli* Lyophilized; 0.01 mg

**Harlan BT-3031** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**PeproTech 300-01A** Human recombinant, expressed in *E. coli* MW 17.4k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid factor; exerts cytotoxic effects on a wide range of tumor cells & certain other target cells; 157 AA; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 x 10<sup>7</sup> U/mg; SA determined by the cytolysis of murine L929 cells in the presence of actinomycin D

**Sigma T 6674** Human recombinant, expressed in *E. coli* MW 17k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; endotoxin tested | Two closely related agents, TNF-α & TNF-β elicit similar inflammation & anti-tumor activities by acting upon the same cellular receptor; they share a 30% homology in primary structure & both may exist in multimeric forms under certain conditions; TNF-α is secreted by lipopolysaccharide-stimulated macrophages while TNF-β is secreted by activated T-lymphocytes; TNF cause cytolysis of certain transformed cells & are directly toxic to vascular endothelial cells; they are mitogenic to certain other cell types; TNF-α is undergoing clinical trials for treatment of certain cancers; Sigma's growth factors, cytokines & receptor research reagents are for research only; TNF cytolytic activity is tested in cell culture using a mouse fibrosarcoma line, L929 cells or its derivatives, whereby 1 U is the amount of TNF required to induce half-maximal cytolysis in the presence of actinomycin D measured by crystal violet staining; Hass, P et al, *J Biol Chem*, 260: 12214, 1985; Carswell, E et al, *Proc Natl Acad Sci USA*, 72: 3666, 1975; Ruddle, N et al, *J Exp Med*, 128: 1267, 1968; Helson, L et al, *Nature*, 258: 731, 1975; Sato, N et al, *JNCI*, 76: 1113, 1986; Jones, A & Selby, P, *Prog Growth Factor Res*, 1: 107, 1989; Lejeune, F et al, in: *Tumor Necrosis Factor: Molecular & Cellular Biology & Clinical Relevance*, Fiers, W et al, eds, Karger, Basel p.1, 1993; Sheehan, K et al, *J Immunol*, 142: 3884, 1989

**Alexis 520-002** Human recombinant, expressed in yeast MW ~17k Cell culture grade; ≥98% (SDS-PAGE); lyophilized containing 50 µg D-mannitol/µg rhTNF-α; soluble in water or most aqueous buffers; activity: 1x10<sup>8</sup> units/mg protein; biological activity: ED<sub>50</sub> as determined by the cytolysis of murine L929 cells in the presence of mitomycin C is 0.2 ng/mL | For most *in vitro* applications, rhTNF-α exerts its biological activity in the concentration range of 0.05 to 20 ng/mL

**IBT GF-090-3, GF-090-4** Human recombinant, expressed in yeast MW 17k (monomer) >95%; 1 mg/mL solution in 0.02 M Tris-HCl, 0.15 M NaCl, pH 8.0 | Antitumor activity *in vivo* & *in vitro*; activates polymorphonuclear leukocytes; antiviral activity; induces release of Interleukin-1 or colony stimulating factor from various sources

**Sigma T 0157** Human recombinant, expressed in yeast MW 17k >95% (SDS-PAGE); 0.2 µm filtered solution in 1 mL phosphate buffered saline containing 500 µg BSA; activity: 2x10<sup>7</sup> U/mg; cell culture tested; endotoxin tested | Two closely related agents, TNF-α & TNF-β elicit similar inflammation & anti-tumor activities by acting upon the same cellular receptor; they share a 30% homology in primary structure & both may exist in multimeric forms under certain conditions; TNF-α is secreted by lipopolysaccharide-stimulated macrophages while TNF-β is secreted by activated T-lymphocytes; TNF cause cytolysis of certain transformed cells & are directly toxic to vascular endothelial cells; they are mitogenic to certain other cell types; TNF-α is undergoing clinical trials for treatment of certain cancers; Sigma's growth factors, cytokines & receptor research reagents are for research only; TNF cytolytic activity is tested in cell culture using a mouse fibrosarcoma line, L929 cells or its derivatives, whereby 1 U is the amount of TNF required to induce half-maximal cytolysis in the presence of actinomycin D measured by crystal violet staining; Hass, P et al, *J Biol Chem*, 260: 12214, 1985; Carswell, E et al, *Proc Natl Acad Sci USA*, 72: 3666, 1975; Ruddle, N et al, *J Exp Med*, 128: 1267, 1968; Helson, L et al, *Nature*, 258: 731, 1975; Sato, N et al, *JNCI*, 76: 1113, 1986; Jones, A & Selby, P, *Prog Growth Factor Res*, 1: 107, 1989; Lejeune, F et al, in: *Tumor Necrosis Factor: Molecular & Cellular Biology & Clinical Relevance*, Fiers, W et al, eds, Karger, Basel p.1, 1993; Sheehan, K et al, *J Immunol*, 142: 3884, 1989

**Alexis BMS301** Human recombinant, produced in *E. coli* MW 52k (trimer composed of 17.3k monomers) >98% (SDS-gel electrophoresis prior to addition of human serum albumin); 10 µg lyophilized powder in phosphate-buffered saline containing 10 mg/mL BSA; SA: 5x10<sup>7</sup> units/mg; bioactivity: L-M cytotoxicity assay was performed in the presence of 1 µg/mL Actinomycin D

**Biogenesis 9295-1355** Mouse r-DNA

**Calbiochem 654245** Mouse recombinant, expressed in *E. coli* MW 17k ≥97% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg TNF-α; biological activity: ED<sub>50</sub>=20-50 pg/mL as measured in a cytotoxic assay with the TNF-α-susceptible murine L-929 cell line in the presence of Actinomycin D; endotoxin: ≤100 pg/µg TNF-α; May be carcinogenic/teratogenic | Has the ability to kill certain tumor cells directly; referred to as an inflammatory cytokine as it initiates the cascade of other cytokines & factors that make up the immune system's response to infection & cancer; reported to mediate changes in bone metabolism during inflammation; *Merck Index*, 12: 9943; Scharla, SH et al, *Eur J Endocrinol*, 131: 293, 1994; Eck, MJ et al, *J Biol Chem*, 267: 2119, 1992

**Sigma T 7539** Mouse recombinant, expressed in *E. coli* MW 17k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline, pH 7.4 containing 500 µg BSA per µg of cytokine; endotoxin tested | Two closely related agents, TNF-α & TNF-β elicit similar inflammation & anti-tumor activities by acting upon the same cellular receptor; they share a 30% homology in primary structure & both may exist in multimeric forms under certain conditions; TNF-α is secreted by lipopolysaccharide-stimulated macrophages while TNF-β is secreted by activated T-lymphocytes; TNF cause cytolysis of certain transformed cells & are directly toxic to vascular endothelial cells; they are mitogenic to certain other cell types; TNF-α is undergoing clinical trials for treatment of certain cancers; Sigma's growth factors, cytokines & receptor research reagents are for research only; TNF cytolytic activity is tested in cell culture using a mouse fibrosarcoma line, L929 cells or its derivatives, whereby 1 U is the amount of TNF required to induce half-maximal cytolysis in the presence of actinomycin D measured by crystal violet staining; Hass, P et al, *J Biol Chem*, 260: 12214, 1985; Carswell, E et al, *Proc Natl Acad Sci USA*, 72: 3666, 1975; Ruddie, N et al, *J Exp Med*, 128: 1267, 1968; Helson, L et al, *Nature*, 258: 731, 1975; Sato, N et al, *JNCI*, 76: 1113, 1986; Jones, A & Selby, P, *Prog Growth Factor Res*, 1: 107, 1989; Lejeune, F et al, in: *Tumor Necrosis Factor: Molecular & Cellular Biology & Clinical Relevance*, Fiers, W et al, eds, Karger, Basel p.1, 1993; Sheehan, K et al, *J Immunol*, 142: 3884, 1989

**Chemicon GF027** Murine ≥95%

**PeprTech 315-01A** Murine recombinant, expressed in *E. coli* MW 17.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid factor; exerts cytotoxic effects on a wide range of tumor cells & certain other target cells; 156 AA; ED<sub>50</sub> ≤ 0.1 ng/mL; SA ≥ 1 x 10<sup>7</sup> U/mg; SA determined by the cytolysis of murine L929 cells in the presence of actinomycin D

#### Tumor Necrosis Factor α

**Fitzgerald 30-AT72** Murine recombinant, expressed in *E. coli*

**Chemicon GF046** Rat ≥95%

**PeprTech 400-14** Rat recombinant, expressed in *E. coli* MW 17.5k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid factor; exerts cytotoxic effects on a wide range of tumor cells & certain other target cells; 157 AA; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 x 10<sup>7</sup> U/mg; SA determined by the cytolysis of murine L929 cells in the presence of actinomycin D

**Fitzgerald 30-AT73** Rat recombinant, expressed in *E. coli*

#### Tumor Necrosis Factor α, Soluble

**Alexis 522-008** Human recombinant MW 19k under reducing conditions Cell culture grade; ≥95% (SDS-PAGE); lyophilized containing 50 µg protein | The extracellular domain is fused at the N-terminus to FLAG-tag & an 8 AA linker peptide; Recognizes human & mouse TNF-R1; combined with an enhancer (Alexis Kit Prod. No. 850-060-KI01), recognizes human & mouse TNF-R1, but only human TNF-R2; Schneider, P et al, *J Exp Med*, 187: 1205, 1998

**Alexis 522-009** Mouse recombinant MW 20k under reducing conditions Cell culture grade; >95% (SDS-PAGE); lyophilized containing 50 µg protein | The extracellular domain of the mouse TNF-α (AA 77-235) is fused at the N-terminus to FLAG-tag & an 8 AA linker peptide; recognizes human, mouse & rat TNF-R1; combined with an enhancer (Alexis Kit Prod. No. 850-061-KI01), recognizes human & mouse TNF-R1 & TNF-R2; Schneider, P et al, *J Exp Med*, 187: 1205, 1998

#### Tumor Necrosis Factor β

*Synonyms:* TNFSF2; Lymphotoxin; Lymphotoxin

**Biodesign A52310H** *E. coli* MW 18.5k Purified

**R&D Systems 211-TB-010** *E. coli*-Expressed >95%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: human

**R&D Systems 211-TB-050** *E. coli*-Expressed >95%; lyophilized; ED<sub>50</sub>: 0.02-0.05 ng/mL | Species specificity: human

**Chemicon GF024** Human ≥95%

**Biogenesis 9295-3305** Human r-DNA

**Calbiochem 654215** Human recombinant, expressed in *E. coli* MW 18.8k ≥95% (SDS-PAGE); lyophilized from sterile-filtered PBS containing 50 µg BSA/µg TNF-β; biological activity: ED<sub>50</sub>=20-50 pg/mL as measured in a cytotoxicity assay with the TNF-β-susceptible murine L-929 cell line in the presence of Actinomycin D; endotoxin: ≤100 pg/µg TNF-β; May be carcinogenic/teratogenic | Secreted by activated T lymphocytes; structurally & functionally related to TNF-α & is active on murine cells; shown to induce necrosis of tumors in mouse models; exerts inflammatory & cytotoxic effects; *Merck Index*, 12: 9943; Loetscher, H et al, *Cancer Cells*, 3: 221, 1991

**Fitzgerald 30-AT71** Human recombinant, expressed in *E. coli*

**Harlan BT-3032** Human recombinant, expressed in *E. coli* Lyophilized; 20 µg

**Harlan BT-3033** Human recombinant, expressed in *E. coli* Lyophilized; 0.05 mg

**PeprTech 300-01B** Human recombinant, expressed in *E. coli* MW 18.6k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | Potent lymphoid factor; exerts cytotoxic effects on a wide range of tumor cells & certain other target cells; 172 AA; ED<sub>50</sub> ≤ 0.05 ng/mL; SA ≥ 2 x 10<sup>7</sup> U/mg; SA determined by the cytolysis of murine L929 cells in the presence of actinomycin D

**PeprTech 315-01B** Human recombinant, expressed in *E. coli* MW 18.6k >98%; 171 AA; lyophilized from 10 mM NaPB pH 7.2, 20 mM NaCl; ED<sub>50</sub>: 0.05-1.0 ng/mL as determined by the cytolysis of murine L929 cells in the presence of Actinomycin D

**Sigma T 7799** Human recombinant, expressed in *E. coli* MW 18.8k ≥95% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline containing 500 µg BSA; endotoxin tested | Two closely related agents, TNF-α & TNF-β elicit similar inflammation & anti-tumor activities by acting upon the same cellular receptor; they share a 30% homology in primary structure & both may exist in multimeric forms under certain conditions; TNF-α is secreted by lipopolysaccharide-stimulated macrophages while TNF-β is secreted by activated T-lymphocytes; TNF cause cytolysis of certain transformed cells & are directly toxic to vascular endothelial cells; they are mitogenic to certain other cell types; TNF-α is undergoing clinical trials for treatment of certain cancers; Sigma's growth factors, cytokines & receptor research reagents are for research only; TNF cytolytic activity is tested in cell culture using a mouse fibrosarcoma line, L929 cells or its derivatives, whereby 1 U is the amount of TNF required to induce half-maximal cytolysis in the presence of actinomycin D measured by crystal violet staining; Hass, P et al, *J Biol Chem*, 260: 12214, 1985; Carswell, E et al, *Proc Natl Acad Sci USA*, 72: 3666, 1975; Ruddie, N et al, *J Exp Med*, 128: 1267, 1968; Helson, L et al, *Nature*, 258: 731, 1975; Sato, N et al, *JNCI*, 76: 1113, 1986; Jones, A & Selby, P, *Prog Growth Factor Res*, 1: 107, 1989; Lejeune, F et al, in: *Tumor Necrosis Factor: Molecular & Cellular Biology & Clinical Relevance*, Fiers, W et al, eds, Karger, Basel p.1, 1993; Sheehan, K et al, *J Immunol*, 142: 3884, 1989

## Proteins

**Alexis BMS302** Human recombinant, produced in *E. coli* MW 16.5k >98% (SDS-gel electrophoresis prior to addition of human serum albumin); 10 µg lyophilized powder in phosphate-buffered saline containing 10 mg/mL BSA; SA: 3x10<sup>8</sup> units/mg; bioactivity: L-M cytotoxicity assay was performed in the presence of 1 µg/mL Actinomycin D | This product is the 16 kDa form of the full length 18 kDa human TNF-β protein & expresses identical bioactivity to that displayed by natural human TNF-β

### TWEAK

**Chemicon GF102** Human ≥95%

**PeproTech 310-06** Human recombinant, expressed in *E. coli* MW 17.0k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized | New secreted ligand in the tumor necrosis factor family; weakly induces apoptosis; induced interleukin-8 synthesis in a member of cell lines; comprises the TNF-like extracellular domain of TWEAK; ED<sub>50</sub> < 10ng/mL; SA determined by the dose-dependent stimulation of IL-8 production by human PBMC

### Tyrphostin A25

**Synonyms:** Protein Tyrosine Kinase Inhibitor

**USBio T9250** >99%; lyophilized; soluble in DMSO or EtOH | IC<sub>50</sub>: 3 nM

### Tyrphostin A51

**Synonyms:** Protein Tyrosine Kinase Inhibitor

**USBio T9250-05** >99%; lyophilized; soluble in DMSO or EtOH | IC<sub>50</sub>: 800 nM

### Tyrphostin AG 1288

**Synonyms:** Protein Tyrosine Kinase Inhibitor

**USBio T9250-10** >99%; lyophilized; soluble in DMSO or DMF | Has activity similar to that of Tyrphostin A10; prevents lipopolysaccharide-induced lethal toxicity (septic shock) in mice

### Tyrphostin AG 490

**Synonyms:** jak2 Protein Tyrosine Kinase Inhibitor

**USBio T9250-15** >99% by HPLC; lyophilized; soluble in DMSO | Specific & potent inhibitor; also, inhibits EGF receptor autophosphorylation, IC<sub>50</sub>: 100 nM; inhibits DNA synthesis & cell growth; induces apoptosis; blocks growth of leukemic cells *in vitro* & *in vivo*

### Ubiquitin

**Synonyms:** ATP-Dependent Proteolytic Factor

**Biogenesis 9400-1502** Bovine RBCs Lyophilized

**Fluka 93950** Bovine red blood cells MW 181.19 ≥90.0% (GE); ≥90% protein | Stimulation of ATP-dependent proteolysis; Wilkinson, KD & Audhya, TK, *JBC*, 256: 9235, 1981

**Sigma U 6253** Bovine red blood cells MW 8.5k Lyophilized, essentially salt-free powder; ≥90% (SDS gel electrophoresis); contains ≥5.4 moles glycine/mole protein | 76-AA protein bound covalently by a conjugating enzyme to proteins that are targeted for degradation by 26S proteasome; occurs in virtually all eukaryotes, including plants (thus its name); sequence is highly conserved, identical in animal sources from insects to humans; Wilkinson, KD & Audhya, TK, *J Biol Chem*, 256: 9235, 1981; Coux, O et al, *Ann Rev Biochem*, 65: 801, 1996

### Ubiquitin, (His<sup>10</sup>)-

**R&D Systems 701-UB-025** *E. coli*-Expressed 95%; frozen without a carrier protein | Species specificity: human His<sup>10</sup> ubiquitin; used in *in vitro* apoptosis assays

### Ubiquitin, (Me)-

**Sigma U 1632** Bovine Lyophilized, essentially salt-free powder; ≥90% (SDS-PAGE); prepared from bovine ubiquitin by reductive methylation of primary amino groups | Can be ligated to proteins but cannot form polyubiquitin chains; inhibits the elongation of polyubiquitin chains & inhibits ubiquitin-dependent protein degradation; Hershko, A & Heller, H, *Biochem Biophys Res Commun*, 128: 1079, 1985; Zeigenhagen, R et al, *FEBS Lett*, 271: 71, 1990; Hershko, A et al, *J Biol Chem*, 266: 16476, 1990

### Ubiquitin+1, (His<sup>10</sup>)-

**R&D Systems 703-UB-025** *E. coli*-Expressed 95%; frozen without a carrier protein | Species specificity: human His<sup>10</sup> ubiquitin+1; used in *in vitro* apoptosis assays

### Urease Large Subunit Antigen, *Helicobacter pylori*

**IBT HPA-5030-4, HPA-5030-5** Yeast cells MW 63k >90%; 0.50 mg/mL solution in PBS, 0.1% SDS, 10 mM EDTA, pH 7.4 | Covers Met<sup>1</sup> to Lys<sup>559</sup> of *H. pylori* urease large subunit

### Urease Small Subunit Antigen, *Helicobacter pylori*

**IBT HPA-5020-4, HPA-5020-5** Yeast cells MW 27k >92%; .50 mg/mL solution 0 in PBS, 0.1% SDS, 10 mM EDTA, pH 7.4 | Covers Met<sup>1</sup> to Glu<sup>238</sup> of *H. pylori* urease small subunit

### Urinary Protein Lyophilizate

**Sigma U 8126** Human male urine Lyophilized preparation containing 30-70% protein (Lowry) & ~ 2% sodium phosphate; contains those components of urine >10,000 1 mg protein represents ~20-40 mL urine | Sold on basis of protein content

### Urinary Trypsin Inhibitor

**Scipac P205-1** Urine of patients with chronic renal tubular proteinuria >96%; lyophilized; available on request | Urine protein

### Urine Protein I

**Synonyms:** Clara Cell 16 Protein

**Scipac P174-4** Urine of patients with chronic renal tubular proteinuria 30-70%; in Phosphate buffer; available on request | Urine protein

### Urogastrone

**Sigma U 9129** Human pregnancy urine Crude extract containing ~ 40% protein (Biuret) | Potent stimulator of cell proliferation; structurally similar to & has the same intrinsic biological activity as EGF; Morimoto, T et al, *Yakugaku Zasshi*, 89: 215, 1969

### Vac (Toxin) Antigen, *Helicobacter pylori*

**IBT HPA-5010-4, HPA-5010-5** Yeast cells, as a fusion with human superoxide dismutase MW 72k >90%; 0.50 mg/mL solution in PBS, 0.1% SDS, 1 mM EDTA, 10 mM DTT, pH 7.5 | Covers Gly<sup>311</sup> to Ile<sup>819</sup> of *H. pylori* vacuolating protein

### Vascular Endothelial Growth Factor

**Synonyms:** Vascular Endothelial Growth Factor 165; Placenta Growth Factor; Vasculotropin; Vasculotropin, rh-

**Kamiya** MW 19-22k Purified from culture medium by heparin-agarose chromatography

**Biodesign A52120H** *E. coli* MW 38k purified

**Biodesign A52532M** *E. coli* Purified | Species specificity: mouse

**Chemicon GF025** Human ≥95%

**Chemicon GF104** Human ≥95%

**Biogenesis 9532-7008** Human r-DNA MW 38k Purified; lyophilized | Whole dimeric protein is expressed; antigen is two 165 AA chains covalently linked by disulfide bonds; demonstrates mitogenic activity



<b>BioSource International PHG0114</b>	Human recombinant
<b>Fitzgerald 30-AV15</b>	Human recombinant, expressed in <i>E. coli</i>
<b>Harlan BT-3034</b>	Human recombinant, expressed in <i>E. coli</i> Lyophilized; 0.01 mg
<b>Harlan BT-3035</b>	Human recombinant, expressed in <i>E. coli</i> Lyophilized; 0.05 mg
<b>ICN 159302</b>	Human recombinant, expressed in <i>E. coli</i> ≥98%; lyophilized; 1-100 ng/mL, determined by mitogenic activity on human dermal microvascular endothelial cells   Stimulates endothelial cell growth, angiogenesis & capillary permeability
<b>PeproTech 100-20</b>	Human recombinant, expressed in <i>E. coli</i> MW 38.2k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg (1EU/mg); lyophilized   Homodimeric protein secreted by a variety of vascularized tissues; reported activities include stimulation of endothelial cell growth, angiogenesis & capillary permeability; two 165 AA polypeptide chains; SA determined by its mitogenic activity on human dermal microvascular endothelial cells using a concentration range of 1-100 ng/mL
<b>Sigma P 1588</b>	Human recombinant, expressed in <i>E. coli</i> MW 29k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from phosphate buffered saline solution containing 500 µg BSA; bioactivity is measured in a cell-based bioassay using HUVEC cells; endotoxin tested   165 AA; angiogenic growth factor which is heat & acid stable; dimeric heparin-binding glycoprotein; able to promote the growth of vascular endothelial cells isolated from bovine adrenal cortex, cerebral cortex, fetal & adult aorta & human umbilical vein; doesn't have a mitogenic effect on cultured corneal endothelial cells, vascular smooth muscle cells, BHK-12 fibroblasts, keratinocytes, human sarcoma cells or lens epithelial cells; biological activity is measured by its ability to stimulate <sup>3</sup> H- thymidine incorporation in human umbilical vein endothelial cells (HUVEC); member of the VEGF family of growth factors; Ferrara, N et al, <i>Biochem Biophys Res Commun</i> , 161: 851, 1989; Ferrara, N et al, <i>Endocrine Reviews</i> , 13: 18, 1992; Conn, G et al, <i>Proc Natl Acad Sci USA</i> , 87: 1323, 1990
<b>Sigma V 7259</b>	Human recombinant, expressed in Sf 21 cells MW 42k ≥97% (SDS-PAGE); 0.2 µm filtered & lyophilized from 30% acetonitrile & 0.1% TFA containing 250 µg BSA; endotoxin tested   165 AA; angiogenic growth factor which is heat & acid stable; dimeric heparin-binding glycoprotein; able to promote the growth of vascular endothelial cells isolated from bovine adrenal cortex, cerebral cortex, fetal & adult aorta & human umbilical vein; doesn't have a mitogenic effect on cultured corneal endothelial cells, vascular smooth muscle cells, BHK-12 fibroblasts, keratinocytes, human sarcoma cells or lens epithelial cells; biological activity is measured by its ability to stimulate <sup>3</sup> H- thymidine incorporation in human umbilical vein endothelial cells (HUVEC); member of the VEGF family of growth factors; Ferrara, N et al, <i>Biochem Biophys Res Commun</i> , 161: 851, 1989; Ferrara, N et al, <i>Endocrine Reviews</i> , 13: 18, 1992; Conn, G et al, <i>Proc Natl Acad Sci USA</i> , 87: 1323, 1990
<b>Calbiochem 676472</b>	Human recombinant, expressed in <i>Spodoptera frugiperda</i> MW 42k ≥97% (SDS-PAGE); lyophilized from filter-sterilized 30% acetonitrile, 0.1% TFA containing 50 µg BSA/µg VEGF; biological activity: ED <sub>50</sub> =2.0-6.0 ng/mL as measured by its ability to stimulate <sup>3</sup> H-thymidine incorporation into human umbilical vein endothelial cells; endotoxin: ≤100 pg/µg VEGF   Heparin-binding glycoprotein with potent angiogenic, endothelial cell-specific mitogenic & vascular permeability-enhancing activities; increases endothelial cell proliferation after vascular injury; Burke, PA et al, <i>Biochem Biophys Res Commun</i> , 207: 348, 1995; Neufeld, G et al, <i>Prog Growth Factor Res</i> , 5: 89, 1994
<b>Biogenesis 0100-0107</b>	Mouse r-DNA Lyophilized
<b>BioSource International PMG0114</b>	Mouse recombinant

**Sigma V 4512** Mouse recombinant, expressed in Sf 21 insect  
cells ≥97% (SDS-PAGE); lyophilized from 30% acetonitrile &  
0.1% TFA containing 250 µg BSA; endotoxin tested; cell culture  
tested | 165 AA; angiogenic growth factor which is heat & acid  
stable; dimeric heparin-binding glycoprotein; able to promote the  
growth of vascular endothelial cells isolated from bovine adrenal  
cortex, cerebral cortex, fetal & adult aorta & human umbilical vein;  
doesn't have a mitogenic effect on cultured corneal endothelial  
cells, vascular smooth muscle cells, BHK-12 fibroblasts,  
keratinocytes, human sarcoma cells or lens epithelial cells;  
biological activity is measured by its ability to stimulate <sup>3</sup>H-  
thymidine incorporation in human umbilical vein endothelial cells  
(HUVEC); member of the VEGF family of growth factors; Ferrara, N  
et al, *Biochem Biophys Res Commun*, 161: 851, 1989; Ferrara, N et  
al, *Endocrine Reviews*, 13: 18, 1992; Conn, G et al, *Proc Natl Acad  
Sci USA*, 87: 1323, 1990

**Chemicon GF060** Murine ≥95%

**PeproTech 450-32** Murine recombinant, expressed in *E. coli*  
MW 39k >98% (SDS-PAGE) & HPLC; <0.1 ng endotoxin per mg  
(1EU/mg); lyophilized | Homodimeric protein secreted by a  
variety of vascularized tissues; stimulates endothelial cell growth,  
angiogenesis & capillary permeability; homodimeric protein with  
two two 165 AA polypeptide chains; mitogenic activity was  
obtained for stimulation of (<sup>3</sup>H)thymidine incorporation & cell  
proliferation in a concentration range of 1.0-5.0 ng/mL; SA  
determined by the mitogenic activity on human umbilical vein  
endothelial cells and bovine aortic endothelial cells

**ICN 195772** Murine recombinant, expressed in Sf21 ≥97%;  
lyophilized; ED<sub>50</sub> = 2-4 ng/mL

**BioSource International PRG0114** Rat recombinant

#### Vascular Endothelial Growth Factor 121

**Oncogene PF083** Human recombinant MW 28k (predicted  
homodimeric) >97% (SDS-PAGE); lyophilized; biological  
activity: EC<sub>50</sub> of 5-10 ng/mL as determined by the ability to  
stimulate <sup>3</sup>H-thymidine uptake in human umbilical vein endothelial  
cells | Species reactivity: human; for proliferation studies

**ICN 195749** Human recombinant, expressed in *E. coli* ≥97%;  
lyophilized; ED<sub>50</sub> = 5-10 ng/mL

#### Vascular Endothelial Growth Factor 165

**Oncogene PF074** Human recombinant MW 42k  
(glycosylated) homodimeric >97% (SDS-PAGE); lyophilized;  
biological activity: EC<sub>50</sub> of 2-6 ng/mL as determined by the ability  
to stimulate <sup>3</sup>H-thymidine uptake in human umbilical vein  
endothelial cells | Species reactivity: human; for proliferation  
studies

#### Vascular Endothelial Growth Factor Receptor I

**Oncogene PF082** Recombinant MW ~100k/123k  
(glycosylated, SDS-PAGE) >97% (SDS-PAGE); lyophilized in a  
sterile-filtered PBS solution containing 50 mg of BSA per 1 mg of  
cytokine; reconstitute in sterile PBS containing at least 0.1% serum  
albumin

#### Vascular Endothelial Growth Factor/Placenta Growth Factor Heterodimer

**ICN 195748** Human recombinant, expressed in *E. coli* ≥97%;  
lyophilized; ED<sub>50</sub> = 100-200 ng/mL

#### Venom, Bee

**Sigma V 3125** *Apis mellifera* (honey bee) Dried whole  
venom; free of transglycosidase; contains numerous other enzymes  
& substances; entire non-volatile part of the venom obtained by  
stimulating bees to sting a sheet from which the venom is then  
gathered & dried | Contains hyaluronidase of the β-N-acetyl  
glucosaminidase type which hydrolyzes hyaluronic acid yielding a  
tetra & a hexasaccharide; Barker, SA et al, *Nature*, 199: 693,  
1963; *Clin Chim Acta*, 8: 902, 1963; 9: 339, 1964

## Proteins

**Sigma V 3250** *Apis mellifera* (honey bee) Natural suspension; essentially whole venom including a major part of the volatile constituents; ~50% solids; free of transglycosidase; contains numerous other enzymes & substances | Contains hyaluronidase of the  $\beta$ -N-acetyl glucosaminidase type which hydrolyzes hyaluronic acid yielding a tetra & a hexasaccharide; Barker, SA et al, *Nature*, 199: 693, 1963; *Clin Chim Acta*, 8: 902, 1963; 9: 339, 1964

**Sigma V 3375** *Apis mellifera* (honey bee) Lyophilized whole venom; this preparation comes from a different supplier & might be similar to the higher priced Sigma V 3125, but not enough data to be certain | Contains hyaluronidase of the  $\beta$ -N-acetyl glucosaminidase type which hydrolyzes hyaluronic acid yielding a tetra & a hexasaccharide; Barker, SA et al, *Nature*, 199: 693, 1963; *Clin Chim Acta*, 8: 902, 1963; 9: 339, 1964

**Sigma V 6878** *Megabombus fervidus* (bumble bee)

**Sigma V 7003** *Megabombus fervidus* (bumble bee)

### Vimentin

**Biodesign A08011B** Bovine lens >98%

**Biogenesis 9550-1004** Bovine lens MW 57k pI: 5.3; purified; 10 mM Sodium phosphate, pH 7.5, 2 mM DDT, 6 M urea, 1mM EDTA; lyophilized | Bloemendal et al, *FEBS Letts*, 180:2191, 1985

### Vinculin

**Biodesign A08012C** Chicken gizzard >90% | Platelets & hemostasis reagents

### Vitamin B2 Binding Protein

**Biogenesis 9579-9095** Chicken egg white MW ~30-35k 1 mg of protein (Biuret) will bind 5-15  $\mu$ g of riboflavin; pI: 3.9-4.5; essentially free of riboflavin and salts; lyophilized | Osuga et al, *Arch Biochem Biophys*, 124:560, 1968; Farrell et al, *Int J Biochem*, 1:168, 1975; Froehlich et al, *Comp Biochem Physiol*, 66B:397, 1980; Miller et al, *Comp Biochem Physiol*, 69B:681, 1981

### Vitamin D Binding Protein

*Synonyms:* Globulin, Gc-

**Biodesign A50674H** Human plasma Purified

**Biogenesis 9580-2750** Human plasma MW 52k Tested negative for HBsAg and for antibodies to HIV and HCV; purified; 150 mM NaCl, 20 mM sodium phosphate, pH 7.4; lyophilized

### Vitronectin

*Synonyms:* Serum Spreading Factor; Serum Spreading Factor; Serum Spreading Factor

**Biogenesis 9590-0102** Bovine plasma Purified; PBS buffer, pH 7.2, 0.1% NaN<sub>3</sub>; liquid | S-Protein of the SC5b-7 complex is vitronectin

**Sigma V 9881** Bovine plasma Non-sterile; may be filtered; lyophilized in buffered saline; cell culture tested | Antigenically unrelated to fibronectin

**BioSource International PHE0011** Human

**Biogenesis 9590-1504** Human outdated plasma Tested negative for HBsAg and HIV1 antibodies; purified; 20 mM ammonium carbonate buffer; liquid

**Alexis 200-082** Human plasma >95% (SDS-PAGE); liquid containing 100  $\mu$ g purified protein in 100  $\mu$ L sterile 0.15 M PBS, pH 7.4; activity: cell adhesion activity to NRK-49F cells is observed at concentration >0.5  $\mu$ g/mL; negative for HBs antigen & HIV antibody | Multifunctional adhesion glycoprotein with binding sites for e.g. collagen, heparin, perforin & integrins; ligand for the Ca<sup>2+</sup>-dependent CD41/CD61 complex, the major integrin of platelets; Suzuki, S et al, *EMBO J*, 4: 2519, 1985; Preissner, KT et al, *Ann Rev Cell Biol*, 7: 275, 1991; Felding-Habermann, B & Cheresh, DA, *Curr Opin Cell Biol*, 5: 864, 1993

**Calbiochem 681105** Human plasma MW 65k & 75k Lyophilized solid; >95% (SDS-PAGE); soluble in water & aqueous buffers; prepared from plasma of individuals shown by certified tests to be negative for HBsAg & antibodies to HIV & HCV | Extracellular matrix protein that promotes cell adhesion; mixture of 75 kDa & 65 kDa polypeptides; biochemically & immunologically distinct from fibronectin; intact protein & SDS-PAGE bands react with monoclonal antibodies to vitronectin, bind to heparin & promote cell adhesion; *Merck Index*, 12: 10167; Hayman, EG et al, *PNAS*, 80: 4003, 1983

**Chemicon CC080** Human plasma Purified | Extracellular matrix protein

**Promega G5381** Human plasma MW 75k A major plasma glycoprotein; circulates as a single-chain moiety of 75 kDa & a double-chain moiety of 65 kDa & 10 kDa; the plasma has been tested & found negative for HIV-1 antibody & Hepatitis B antigen | Contains the AA structural motif, Arg-Gly-Asp which is involved in cell attachment; inhibits the activity of antithrombin III on thrombin, binds  $\beta$ -endorphins & plasminogen activator inhibitor & prevents lysis *in vitro* of bystander cells by C5 $\beta$ -9 & perforin

**Sigma V 8379** Human plasma Non-sterile; may be filtered; lyophilized in buffered saline; cell culture tested | Antigenically unrelated to fibronectin

**Biogenesis 9590-1755** Mouse serum Purified; 20 mM ammonium carbonate buffer; liquid | Suitable for ELISA and promotion of cell adhesion; S-Protein of the SC5b-7 complex is vitronectin; Hayman et al, *PNAS USA*, 80:4003, 1983

**Cortex CP3038** Plasma >95%

**Sigma V 0132** Rat plasma Non-sterile; may be filtered; lyophilized in buffered saline; cell culture tested | Antigenically unrelated to fibronectin

### Von Willebrand Factor

**Cortex CP4002U** Human >98%

### Von Willebrand Factor, Factor VIII-Free

**Cortex CP4003U** Human >98%; factor VIII-free

### Wortmannin

*Synonyms:* Phosphatidylinositol-3-Kinase Inhibitor

**USBio W6000** Fungal  $\geq$ 95% by HPLC; lyophilized under inert gas; white to off-white powder; soluble in DMSO & EtOH | A fungal metabolite, cell-permeable, irreversible inhibitor of phosphatidylinositol 3-kinase (PI 3-Kinase), IC<sub>50</sub>: 5 nM; blocks the catalytic activity of PI 3-Kinase without affecting upstream signaling events such as insulin receptor tyrosinekinase activity; also inhibits the activities of myosin light chainkinase & PI 4-kinase at concentrations a hundred times higher than those required to inhibit PI 3-kinase

### Zein

**Fluka 96095** Maize (corn) MW 25-29k  $\leq$ 4% loss on drying;  $\leq$ 1% residue on ignition; alcohol-soluble mixture of two polypeptides | Larkins, BA et al, *Trends Biochem Sci*, 9: 306, 1984

**ICN 103306** Maize (corn)

### Zymosan A

**Fluka 97340** *Saccharomyces cerevisiae* Major components are glucose & mannose after hydrolysis;  $\leq$ 5% loss on drying | Complex cell wall polysaccharides & glycoproteins from yeast; Bar-Shavit, Z, & Goldman, R, *Meth Enzymol*, 132: 326, 1986; Absolom, DR, *Meth Enzymol*, 132: 138, 1986; Allen, RC, *Meth Enzymol*, 133: 458, 1986



Proteins, Peptides and Amino Acids SourceBook

White, J.S.; White, D.C.

2002, XI, 1063 p., Hardcover

ISBN: 978-0-89603-613-0

A product of Humana Press