

Contents

Preface	v
Contributors	xi
I ISOLATION AND PURIFICATION	
1 Isolation of Proteoglycans from Cell Cultures and Tissues Masaki Yanagishita	3
2 Isolation of Proteoglycans from Tendon Kathryn G. Vogel and Julie A. Peters	9
3 Purification of Proteoglycans from Mineralized Tissues Neal S. Fedarko	19
4 Purification of Perlecan from Endothelial Cells John Whitelock	27
5 Isolation and Characterization of Nervous Tissue Proteoglycans Yu Yamaguchi	35
6 Analysis of Proteoglycans and Glycosaminoglycans from <i>Drosophila</i> William D. Staatz, Hidenao Toyoda, Akiko Kinoshita-Toyoda, Kimberly Chhor, and Scott B. Selleck	41
7 Cartilage and Smooth Muscle Cell Proteoglycans Detected by Affinity Blotting Using Biotinylated Hyaluronan James Melrose	53
8 Preparation of Proteoglycans for N-Terminal and Internal Amino Acid Sequence Analysis Peter J. Neame	67
9 High-Specific-Activity ³⁵ S-Labeled Heparan Sulfate Prepared from Cultured Cells Nicholas W. Shworak	79
10 Selective Detection of Sulfotransferase Isoforms by the Ligand Affinity-Conversion Approach Nicholas W. Shworak	91
11 Particulate and Soluble Glycosaminoglycan-Synthesizing Enzymes: <i>Preparation Assay and Use</i> Geetha Sugumaran and Jeremiah E. Silbert	103

12	Disaccharide Composition of Hyaluronan and Chondroitin/Dermatan Sulfate: <i>Analysis with Fluorophore-Assisted Carbohydrate Electrophoresis</i> Anna H. K. Plaas, L. West, Ronald J. Midura, and Vincent C. Hascall	117
13	Integral Glycan Sequencing of Heparan Sulfate and Heparin Saccharides Jeremy E. Turnbull	129
14	Analytical and Preparative Strong Anion-Exchange HPLC of Heparan Sulfate and Heparin Saccharides Jeremy E. Turnbull	141
15	Proteoglycans Analyzed by Composite Gel Electrophoresis and Immunoblotting George R. Dodge and Ralph Heimer	149
16	Quantitation of Proteoglycans in Biological Fluids Using Alcian Blue Madeleine Karlsson and Sven Björnsson	159
17	Cellulose Acetate Electrophoresis of Glycosaminoglycans Yanusz Wegrowski and Francois-Xavier Maquart	175
18	Disaccharide Composition in Glycosaminoglycans/Proteoglycans Analyzed by Capillary Zone Electrophoresis Nikos K. Karamanos and Anders Hjerpe	181
19	Intact and Oligomeric Glycosaminoglycans Analyzed with Capillary Electrophoresis Nikos K. Karamanos and Anders Hjerpe	193
II	EXPRESSION, DETECTION, AND DEGRADATION	
20	Recombinant Expression of Proteoglycans in Mammalian Cells: <i>Utility and Advantages of the Vaccinia Virus/T7 Bacteriophage Hybrid Expression System</i> David J. McQuillan, Neung-Seon Seo, Anne M. Hocking, and Camille I. McQuillan	201
21	Purification of Recombinant Human Decorin and Its Subdomains Anna L. McBain and David M. Mann	221
22	Prokaryotic Expression of Proteoglycans Alan D. Murdoch and Renato V. Iozzo	231
23	Proteoglycan Gene Targeting in Somatic Cells Giancarlo Ghiselli and Renato V. Iozzo	239

24	Constitutive and Inducible Antisense Expression Melissa Handler and Renato V. Iozzo	251
25	Cell-Mediated Transfer of Proteoglycan Genes Jens W. Fischer, Michael G. Kinsella, David Hasenstab, Alexander W. Clowes, and Thomas N. Wight	261
26	Morphological Evaluation of Proteoglycans in Cells and Tissues Stephanie L. Lara, Stephen P. Evanko, and Thomas N. Wight...	271
27	Expression and Characterization of Engineered Proteoglycans Wei Luo, Chunxia Guo, Jing Zheng, and Marvin L. Tanzer.....	291
28	Intracellular Localization of Engineered Proteoglycans Tung-Ling L. Chen, Peiyin Wang, Seung S. Gwon, Nina W. Flay, and Barbara M. Vertel	301
29	Selection of Glycosaminoglycan-Deficient Mutants Xiaomei Bai, Brett Crawford, and Jeffrey D. Esko	309
30	Xyloside Priming of Glycosaminoglycan Biosynthesis and Inhibition of Proteoglycan Assembly Timothy A. Fritz and Jeffrey D. Esko	317
31	Inhibition of Heparan Sulfate Synthesis by Chlorate H. Edward Conrad.....	325
32	Detection of Proteoglycan Core Proteins with Glycosaminoglycan Lyases and Antibodies John R. Couchman and Pairath Tapanadechopone	329
33	Proteoglycan Core Proteins and Catabolic Fragments Present in Tissues and Fluids John D. Sandy.....	335
34	Degradation of Heparan Sulfate by Nitrous Acid H. Edward Conrad.....	347
35	Degradation of Heparan Sulfate with Heparin Lyases Laurie A. LeBrun and Robert J. Linhardt	353
36	Degradation of Chondroitin Sulfate and Dermatan Sulfate with Chondroitin Lyases María José Hernáiz and Robert J. Linhardt.....	363
37	In Vitro Assay for Hyaluronan Synthase Andrew P. Spicer	373
38	Hyaluronidase Activity and Hyaluronidase Inhibitors: Assay Using a Microtiter-Based System Susan Stair Nawy, Antonei B. Csóka, Kazuhiro Mio, and Robert Stern	383

39	Detecting Hyaluronidase and Hyaluronidase Inhibitors: <i>Hyaluronan-Substrate Gel and -Inverse Substrate Gel Techniques</i> Kazuhiro Mio, Antonei B. Csóka, Susan Stair Nawy, and Robert Stern	391
III INTERACTIONS		
40	Affinity Coelectrophoresis of Proteoglycan–Protein Complexes James D. San Antonio and Arthur D. Lander	401
41	Binding Constant Measurements for Inhibitors of Growth Factor Binding to Heparan Sulfate Proteoglycans Kimberly E. Forsten and Matthew A. Nugent	415
42	Interaction of Proteoglycans with Receptor Tyrosine Kinases David K. Moscatello and Renato V. Iozzo	427
43	Measuring Single-Cell Cytosolic Ca ²⁺ Concentration in Response to Proteoglycans Sandip Patel and Renato V. Iozzo	435
44	Serum Amyloid A Peptide Interactions with Glycosaminoglycans: <i>Evaluation by Affinity Chromatography</i> John B. Ansin and Robert Kisilevsky	449
45	Interactions of Lipoproteins with Proteoglycans Kevin Jon Williams	457
46	Hyaluronan and Hyaluronan-Binding Proteins: <i>Probes for Specific Detection</i> Bryan P. Toole, Qin Yu, and Charles B. Underhill	479
47	Novel Confocal-FRAP Analysis of Carbohydrate–Protein Interactions Within the Extracellular Matrix Philip Gribbon, Boon C. Heng, and Timothy E. Hardingham	487
48	Regulatory Roles of Syndecans in Cell Adhesion and Invasion J. Kevin Langford and Ralph D. Sanderson	495
49	Optical Biosensor Techniques to Analyze Protein–Polysaccharide Interactions Dave G. Fernig	505
50	Phage Display Technology to Obtain Antiheparan Sulfate Antibodies T. H. van Kuppevelt, G. J. Jenniskens, J. H. Veerkamp, G. B. ten Dam, and M. A. B. A. Dennissen	519
51	Tissue-Specific Binding by FGF and FGF Receptors to Endogenous Heparan Sulfates Andreas Friedl, Mark Filla, and Alan C. Rapraeger	535
	Index	547



<http://www.springer.com/978-0-89603-759-5>

Proteoglycan Protocols

Iozzo, R.V. (Ed.)

2001, XVI, 558 p., Hardcover

ISBN: 978-0-89603-759-5

A product of Humana Press