
Contents

Preface	v
Contributors	xi
PART I. IN VITRO SYSTEMS FOR STUDYING ASPECTS OF THE INFLAMMATORY RESPONSE AND TESTING ANTIINFLAMMATORY DRUGS	
1. Key Stages in the Acute Inflammatory Response and Their Relevance as Therapeutic Targets: <i>Introduction to Part 1</i> Paul G. Winyard	3
2. I κ B Kinase and NF- κ B Signaling in Response to Pro-Inflammatory Cytokines Mireille Delhase	7
3. Screening for Inhibitors of Transcription Factors Using Luciferase Reporter Gene Expression in Transfected Cells Deborah Phippard and Anthony M. Manning	19
4. Adhesion Molecule Expression on Cytokine-Stimulated Human Endothelial Cells Susan L. Cuvelier and Kamala D. Patel	25
5. Phagocytosis by Inflammatory Phagocytes: <i>Experimental Strategies for Stimulation and Quantification</i> M. Rachel Morris, Sharon Dewitt, Iraj Laffafian, and Maurice B. Hallett	35
6. Cytosolic Ca ²⁺ Measurement and Imaging in Inflammatory Cells Sharon Dewitt, Iraj Laffafian, M. Rachel Morris, and Maurice B. Hallett	47
7. Detection and Visualization of Oxidase Activity in Phagocytes Maurice B. Hallett, Caroline Cole, and Sharon Dewitt	61
8. Measurement of Complement Activation Tom Eirik Mollnes	69
9. Measurement of Matrix Metalloproteinase Activities in the Medium of Cultured Synoviocytes Using Zymography Linda Troeberg and Hideaki Nagase	77

10. Measurement of Aggrecanase-Generated Interglobular Domain Catabolites in the Medium and Extracts of Cartilage Explants Using Western Blot Analysis Clare E. Hughes, Christopher B. Little, and Bruce Caterson	89
11. In Vitro Model of Human Articular Cartilage Degradation William D. Shingleton	99
PART II. IN VIVO MODELS OF INFLAMMATION	
12. In Vivo Models of Inflammation: <i>Introduction to Part 2</i> Derek A. Willoughby	109
13. Carrageenan-Induced Paw Edema in the Rat and Mouse Christopher J. Morris	115
14. Pleural Models of Inflammation: <i>Immune and Nonimmune</i> Adrian R. Moore	123
15. Models of Acute Inflammation in the Ear Miklós Gábor	129
16. Migration of Specific Leukocyte Subsets in Response to Cytokine or Chemokine Application In Vivo Mauro Perretti and Stephen J. Getting	139
17. Inflammatory Joint Disease: <i>Clinical, Histological, and Molecular Parameters of Acute and Chronic Inflammation and Tissue Destruction</i> Nancy L. McCartney-Francis, James Chan, and Sharon M. Wahl	147
18. The Assessment of Inflammation, Cartilage Matrix, and Bone Loss in Experimental Monoarticular Arthritis of the Rat Michael P. Seed	161
19. Collagen-Induced Arthritis Adrian R. Moore	175
20. Air-Pouch Models of Inflammation and Modifications for the Study of Granuloma-Mediated Cartilage Degradation Paul Colville-Nash and Toby Lawrence	181
21. Quantitative Analysis of Angiogenesis Using the Murine Chronic Granulomatous Air Pouch Chandan A. S. Alam	191

22. Models of Coronary Artery Occlusion and Reperfusion for the Discovery of Novel Antiischemic and Antiinflammatory Drugs for the Heart Nicole S. Wayman, Michelle C. McDonald, Prabal K. Chatterjee, and Christoph Thiemermann	199
23. Assessment of Anticolitic Drugs in the Trinitrobenzene Sulfonic Acid (TNBS) Rat Model of Inflammatory Bowel Disease Brendan J. R. Whittle, Maryan Cavicchi, and Dominique Lamarque	209
24. An In Vivo Model of Ischemia/Reperfusion and Inflammation of the Kidneys of the Rat Prabal K. Chatterjee and Christoph Thiemermann	223
25. In Vivo Models of Inflammation: <i>Immune Rejection and Skin Transplantation In Vivo</i> Isabelle Binet and Kathryn J. Wood	239
26. Wound Healing: A Model of Dermal Wound Repair Annette Tomlinson and Mark W. J. Ferguson	249
PART III. PHARMACODYNAMIC ENDPOINTS IN EXPERIMENTAL MODELS AND IN CLINICAL STUDIES IN HUMANS	
27. An Iconoclastic Approach to Pharmacodynamics in Model Systems: Their Relevance to Humans: <i>Introduction to Part 3</i> David R. Blake and Gordon J. Taylor	263
28. A Reply to "An Iconoclastic Approach to Pharmacodynamics in Model Systems: Their Relevance to Humans" Derek A. Willoughby	269
29. Quantifying Inflammation In Vivo Using Radiolabeled Antibodies and Leukocytes Diane Marshall and Dorian O. Haskard	273
30. Immunoperoxidase Histochemistry for the Detection of Cellular Adhesion Molecule, Cytokine, and Chemokine Expression in the Arthritic Synovium Zoltan Szekanecz and Alisa E. Koch	283
31. Roles of Nitric Oxide and Superoxide in Inflammation Daniela Salvemini, Harry Ischiropoulos, and Salvatore Cuzzocrea	291
32. Analysis of Nitrite and Nitrate in the Study of Inflammation Claire A. Davies, Sophie A. Rocks, Meg C. O'Shaughnessy, David Perrett, and Paul G. Winyard	305

33. In Vivo Assays for COX-2 Chi-Chung Chan	321
34. Measurement of 8-epi-PGF _{2α} as a Marker of Lipid Peroxidation In Vivo by Immunoaffinity Extraction and Gas Chromatography-Mass Spectrometry Nitin K. Gopaul and Erik E. Änggård	329
35. Laboratory Assessment of the Acute Phase Response: Using CRP as a Model Robert F. Ritchie and Thomas B. Ledue	343
36. Assays of Matrix Metalloproteinases (MMPs) and MMP Inhibitors: Bioassays and Immunoassays Applicable to Cell Culture Medium, Serum, and Synovial Fluid Jon B. Catterall and Tim E. Cawston	353
Index	365



<http://www.springer.com/978-0-89603-970-4>

Inflammation Protocols

Winyard, P.; Willoughby, D.A. (Eds.)

2003, XII, 380 p., Hardcover

ISBN: 978-0-89603-970-4

A product of Humana Press