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: Introduction to Part 1
   Paul G. Winyard ........................................................................................................ 3

2. IκB Kinase and NF-κB 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: Experimental Strategies for Stimulation and Quantification
   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

   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: *Introduction to Part 2*
   *Derek A. Willoughby* ........................................................................ 109

13. Carrageenan-Induced Paw Edema in the Rat and Mouse
   *Christopher J. Morris* ................................................................. 115

14. Pleural Models of Inflammation: *Immune and Nonimmune*
   *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: *Clinical, Histological, and Molecular Parameters of Acute and Chronic Inflammation and Tissue Destruction*
   *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
Contents

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: Immune Rejection and Skin Transplantation In Vivo
   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 ENDOPOINTS IN EXPERIMENTAL MODELS AND IN CLINICAL STUDIES IN HUMANS

27. An Iconoclastic Approach to Pharmacodynamics in Model Systems: Their Relevance to Humans: Introduction to Part 3
   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
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Author(s)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>In Vivo Assays for COX-2</td>
<td>Chi-Chung Chan</td>
<td>321</td>
</tr>
<tr>
<td>34</td>
<td>Measurement of 8-epi-PGF$_2\alpha$ as a Marker of Lipid Peroxidation In Vivo by Immunoaffinity Extraction and Gas Chromatography-Mass Spectrometry</td>
<td>Nitin K. Gopaul and Erik E. Ånggård</td>
<td>329</td>
</tr>
<tr>
<td>35</td>
<td>Laboratory Assessment of the Acute Phase Response: Using CRP as a Model</td>
<td>Robert F. Ritchie and Thomas B. Ledue</td>
<td>343</td>
</tr>
<tr>
<td>36</td>
<td>Assays of Matrix Metalloproteinases (MMPs) and MMP Inhibitors: Bioassays and Immunoassays Applicable to Cell Culture Medium, Serum, and Synovial Fluid</td>
<td>Jon B. Catterall and Tim E. Cawston</td>
<td>353</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>365</td>
</tr>
</tbody>
</table>
Inflammation Protocols
Winyard, P.; Willoughby, D.A. (Eds.)
2003, XII, 380 p., Hardcover
ISBN: 978-0-89603-970-4
A product of Humana Press