

Metastasis Research Protocols

Second Edition

Edited by

Miriam Dwek


Molecular and Applied Biosciences, School of Life Sciences, University of Westminster, London, UK

Udo Schumacher

*Institute Anatomie und Experimentelle Morphologie, Universitätsklinikum Hamburg-Eppendorf,
Hamburg, Germany*

Susan A. Brooks

Department of Biological and Medical Sciences, Oxford Brookes University, Headington, Oxford, UK

 **Humana Press**

Contents

<i>Preface</i>	v
<i>Contributors</i>	ix
1 In Vitro Invasion Assay Using Matrigel™: A Reconstituted Basement Membrane Preparation <i>Debbie M.S. Hall and Susan A. Brooks</i>	1
2 Single Cell and Spheroid Collagen Type I Invasion Assay <i>Olivier De Wever, An Hendrix, Astrid De Boeck, Frank Eertmans, Wendy Westbroek, Geert Braems, and Marc E. Bracke</i>	13
3 Rocking Adhesion Assay System to Study Adhesion and Transendothelial Migration of Cancer Cells <i>Deepashree Bapu, Munira Khadim, and Susan A. Brooks</i>	37
4 Small-Cell Lung Cancer (SCLC) Cell Adhesion on E- and P-Selectin Under Physiological Flow Conditions <i>Ulrich Richter</i>	47
5 Adhesion of Tumor Cells to Matrices and Endothelium. <i>Clara M. Yates, Helen M. McGettrick, Gerard B. Nash, and G.Ed Rainger</i>	57
6 Cell Aggregation Assays <i>Delphine Debruyne, Tom Boterberg, and Marc E. Bracke</i>	77
7 Chick Heart Invasion Assay. <i>Marc E. Bracke, Virinder S. Parmar, Anthony L. DePass, Christian V. Stevens, Barbara W. Vanhoecke, and Marc M. Mareel</i>	93
8 Computer Simulation of the Metastatic Progression <i>Gero Wedemann, Anja Bethge, Volker Haustein, and Udo Schumacher</i>	107
9 Theoretical Considerations in Using Animal Models of Metastasis and Brief Methodology for In Vivo Colorectal Cancer Models in SCID and Nude Mice <i>Sue A. Watson and Rajendra Kumari</i>	117
10 Syngeneic Murine Metastasis Models: B16 Melanoma <i>Raffaella Giavazzi and Alessandra Decio</i>	131
11 Imageable Clinically Relevant Mouse Models of Metastasis <i>Robert M. Hoffman</i>	141
12 Imaging Metastatic Cell Trafficking at the Cellular Level In Vivo with Fluorescent Proteins <i>Robert M. Hoffman</i>	171

13 Ultrasound Techniques for the Detection of Tumors and Metastases
in Small Animals 181
Michael Didié and Wolfram-Hubertus Zimmermann

14 The PFP/RAG2 Double-Knockout Mouse in Metastasis
Research: Small-Cell Lung Cancer and Prostate Cancer 191
Imke Müller and Sebastian Ullrich

15 Ultrasound-Guided Intracardial Injection and In Vivo Magnetic
Resonance Imaging of Single Cells in Mice as a Paradigm
for Hematogenous Metastases 203
Johannes Salamon and Kersten Peldschus

16 Magnetic Resonance Imaging of Metastases in Xenograft
Mouse Models of Cancer 213
Kersten Peldschus and Harald Ittrich

17 Spontaneous and Experimental Metastasis Models: Nude Mice 223
Janet E. Price

18 Identifying the Origin and Phenotype of Cells in Tumor Xenografts 235
Rosemary Jeffery, Pooja Seedhar, and Richard Poulson

Index 247