Contents

Part I Technologies for CTC Identification

1 Significance of Studying Circulating Tumor Cells .......................... 3
   Ram H. Datar, Zheng Ao, and Richard J. Cote

2 Affinity-Based Enrichment of Circulating Tumor Cells .................. 17
   Zheng Ao, Richard J. Cote, and Ram H. Datar

3 Size-Based and Non-Affinity Based Microfluidic Devices
   for Circulating Tumor Cell Enrichment and Characterization ........... 29
   Zheng Ao, Kamran Moradi, Richard J. Cote, and Ram H. Datar

4 Molecular Assays for the Detection and Molecular
   Characterization of CTCs ............................................. 47
   Evi S. Lianidou, Athina Markou, and Areti Strati

5 Cancer Stem Cells and Circulating Tumor Cells: Molecular
   Markers, Isolation Techniques, and Clinical Implications ............... 75
   Ebrahim Azizi, Sunitha Nagrath, Molly Kozminsky, and Max S. Wicha

Part II Fundamental Studies of CTC

6 Circulating Tumor Cells and Tumor Dormancy ......................... 101
   Alison L. Allan and Ann F. Chambers

7 Prevention of Conversion of Tumor Dormancy into Proliferative
   Metastases ............................................................... 121
   Dalit Barkan and Ann F. Chambers

8 Genesis of Circulating Tumor Cells Through Epithelial–
   Mesenchymal Transition as a Mechanism for Distant
   Dissemination ............................................................ 139
   Bee Luan Khoo, Prashant Kumar, Chwee Teck Lim,
   and Jean Paul Thiery
Part III  CTC Analysis

9  CTC Analysis: FISH, ISH, Array-CGH, and Other Molecular Assays  ........................................ 185
   Verena Tiran, Marija Balic, and Nadia Dandachi

10 Genome-Wide Gene Copy Number Analysis of Circulating Tumor Cells  .................................... 201
    Mark Jesus M. Magbanua and John W. Park

11 Perspectives on the Functional Characterization and In Vitro Maintenance of Circulating Tumor Cells  215

12 Prognostic Implications of CTC in Breast Cancer  .......................... 233
    Jeffrey B. Smerage

Part IV  Potential Clinical Applications of CTC

13 CTC in Advanced Breast Cancer Prognosis, Monitoring, and Clinical Utility  .......................... 257
    Massimo Cristofanilli

14 Evolution of Metastatic Disease: The Need for Monitoring and Emerging Therapeutic Opportunities  271
    Bernhard Polzer and Christoph A. Klein

15 CTCs for Biomarker and Companion Diagnostic Development  ........ 293
    Shih-Min A. Huang and Mark R. Lackner

16 Perspectives on Clinical Applications of CTCs  ......................... 315
    Rajan P. Kulkarni and Stefanie S. Jeffrey

Index  ................................................................. 325
Circulating Tumor Cells
Cote, R.J.; Datar, R.H. (Eds.)
2016, XXIV, 333 p. 31 illus., 2 illus. in color., Hardcover
ISBN: 978-1-4939-3361-7