

CONTENTS

<i>Contributors</i>	<i>ix</i>
<i>Preface</i>	<i>xi</i>
1. Breast Cancer Epidemiology, Prevention, and Screening	1
Stella Winters, Charmaine Martin, Daniel Murphy and Navkiran K. Shokar	
1. Introduction	2
2. Breast Cancer Epidemiology	3
3. Risk Factors for Breast Cancer	6
4. Breast Cancer Prevention	13
5. Breast Cancer Early Detection and Screening	16
References	24
2. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions	33
Randi Ryan, Ossama Tawfik, Roy A. Jensen and Shrikant Anant	
1. Introduction and Background	34
2. Epidemiology	35
3. Natural History	35
4. Diagnosis	36
5. Imaging	37
6. Biopsy	42
7. Histologic Classification	43
8. Treatment	48
9. Adjuvant Therapy	51
10. Significance of Biologic Markers/Molecular Features—Future Directions in Possible Prognostic Indicators	55
11. Breast Cancer Stem Cells	61
References	62

3. Pregnancy and Breast Cancer	81
Ramadevi Subramani and Rajkumar Lakshmanaswamy	
1. Introduction	82
2. Development of the Mammary Gland	83
3. Types of Breast Cancer	84
4. Stages of Breast Cancer	86
5. Risk Factors	87
6. Early Full-Term Pregnancy and Breast Cancer	90
7. Potential Mechanisms of Early Full-Term Pregnancy-Induced Protection Against Breast Cancer	91
8. Conclusions	98
Acknowledgments	98
References	99
 4. Association of Cytokines and Chemokines in Pathogenesis of Breast Cancer	 113
Jeronay King, Hina Mir and Shailesh Singh	
1. Introduction	114
2. Cytokines in Breast Cancer	115
3. Chemokines and Breast Cancer Pathogenesis	121
4. Concluding Remarks	127
References	127
 5. Cancer Stem Cells and Metastasis	 137
Sushmita Bose Nandy and Rajkumar Lakshmanaswamy	
1. What is Metastasis?	138
2. The Concept of Cancer Stem Cells	139
3. Where and how are Cancer Stem Cells Involved in Metastasis?	141
4. The Process of Epithelial-to-Mesenchymal Transition and its Role in Metastasis	143
5. Molecular Basis of Epithelial-to-Mesenchymal Transition	144
6. The Process of Mesenchymal-to-Epithelial Transition and its Role in Metastasis	145
7. Molecular Basis of Mesenchymal-to-Epithelial Transition	147
8. Chemical Factors Influencing Cancer Cells in Favor of Metastasis	148
9. Physical Forces Influencing Cancer Cell Metastasis	153
10. Role of the Microenvironment in the Process of Metastasis	155
11. Strategies to Combat Metastasis Through CSCs and Designing Antimetastatic Therapy	159
12. Conclusions	163
References	163

6. Therapeutic Use of Estrogen Receptor β Agonists in Prevention and Treatment of Endocrine Therapy Resistant Breast Cancers: Observations From Preclinical Models	177
Kumaraguruparan Ramasamy, Cathy Samayoa, Naveen Krishnegowda and Rajeshwar R. Tekmal	
1. Introduction	178
2. Estrogen Receptors α and β	179
3. Estrogen Receptor β in Breast Cancer	181
4. Estrogen Receptor β Agonists in Breast Cancer	182
5. Liquiritigenin	185
6. LY500307	186
7. ER β Agonists on Transgenic Mouse Models of Breast Cancer	187
8. Conclusions and Future Perspectives	188
References	189
7. Experimental Therapy of Advanced Breast Cancer: Targeting NFAT1–MDM2–p53 Pathway	195
Jiang-Jiang Qin, Wei Wang and Ruiwen Zhang	
1. Introduction	196
2. The MDM2 Oncogene in Breast Cancer	197
3. NFAT1, an Oncogenic Transcription Factor in Breast Cancer	201
4. Targeting NFAT1–MDM2–p53 Pathway for Advanced Breast Cancer Therapy	204
5. Conclusions	207
Acknowledgments	209
References	209
8. Microbiota and Breast Cancer	217
Sridhar Mani	
1. Introduction	217
2. The Estrabolome and Breast Cancer	218
3. Bacteria and Breast Cancer Tissue	223
4. Intestinal Bacteria and Breast Cancer	224
5. Conclusions	225
6. Future Prospects	225
References	226

9. Complementary and Alternative Medicine and Breast Cancer	231
Ramadevi Subramani and Rajkumar Lakshmanaswamy	
1. Introduction	232
2. Types of Breast Cancer Treatment	232
3. Classification of CAM	233
4. Phytomedicine in Breast Cancer Prevention and Treatment	242
5. Prevalence of CAM Use	256
6. Advantages of CAM in Breast Cancer Patients	257
7. Disadvantages of CAM in Breast Cancer Patients	258
8. Conclusions	258
References	259
<i>Index</i>	275