# Contents

## Part I  Treatment for the Patients Having Breast Cancer High-Risk

1  Risk-Reducing Surgery for Breast Cancer Patients with BRCA Mutations .......................... 3  
Eun-Kyu Kim, Sung-Won Kim, and Dong-Young Noh

2  Prophylactic Risk-Reducing Surgery for Breast Cancer .......... 21  

3  Merits and Demerits of Practice for Hereditary Breast and Ovarian Cancer Syndrome (Advices and Issues) ............... 33  
Hideko Yamauchi

## Part II  Axillary Treatment

4  Sentinel Lymph Node Biopsy and Neoadjuvant Chemotherapy in Breast Cancer Patients .......................... 49  
John R. Benson

5  Axillary Reverse Mapping (ARM) as a Means to Reduce Lymphedema During Sentinel Lymph Node or Axillary Node Dissection .................................... 63  
V. Suzanne Klimberg and Michael Douek

6  Ultrasound for Axillary Staging ................................. 77  
Chiun-Sheng Huang

7  One-Step Nucleic Acid Amplification (OSNA) Assay for Primary Breast Cancer ............................... 93  
Seigo Nakamura and Katsutoshi Enokido

8  Management of the Clinically Node-Negative Axilla in Primary Breast Cancer ................................. 103  
Abdul Q. Alarhayem and Ismail Jatoi
9 Lymphatic Mapping and Optimization of Sentinel Lymph Node Dissection ................................................. 119
    Tomoharu Sugie and Takashi Inamoto

Part III Radiation Therapy
10 Personalisation of Radiotherapy for Breast Cancer .............. 131
    Ian H. Kunkler, Carol Ward, Corey Speers, Lori Pierce, Felix Feng,
    James Meehan, and Simon P. Langdon
11 New Technologies in Radiation Therapy .......................... 151
    Michio Yoshimura and Chikako Yamauchi
12 Radiotherapy Following Neoadjuvant Chemotherapy in Locally
    Advanced Breast Cancer ........................................ 171
    Nisha Ohri and Alice Ho

Part IV Preoperative Hormone Therapy
13 Novel Translational Research of Neo-adjuvant Endocrine
    Therapy ............................................................. 189
    Alexey A. Larionov
14 Alterations of Biomarkers by Neoadjuvant Endocrine Therapy ... 217
    Yukiko Shibahara and Hironobu Sasano

Part V Preoperative Chemotherapy
15 Essence of Neoadjuvant Therapy ................................. 235
    Jenny Furlanetto and Gunter von Minckwitz
16 The Challenge to Overcome Triple-Negative Breast Cancer
    Heterogeneity ....................................................... 247
    Hiroko Masuda and Norikazu Masuda
17 Surgical Management of Breast Cancer After Preoperative
    Systemic Treatment ............................................... 263
    John Mathew, Carol-Ann Courtney, Kelly K. Hunt,
    and John F. Robertson
18 Imaging of Tumor Response by Preoperative Systemic
    Treatment .......................................................... 295
    Shotaro Kanao and Masako Kataoka

Part VI Preoperative Anti-HER2 Therapy
19 Human Epidermal Growth Factor Receptor (HER) Family
    Molecular Structure ............................................... 311
    Mark D. Pegram and Ralf Landgraf
Part VII Mathematical Prediction/Assessment Model

21 Nomograms to Predict Positive Resection Margin and to Predict Three or More Positive Lymph Nodes

Eunshin Lee and Wonshik Han

22 Practical Use of Nomograms

José Luiz B. Bevilacqua, Paulo R. de Alcantara Filho, Lillian Fraianella, and Carla Curi

23 Data Mining and Mathematical Model Development

Masahiro Sugimoto and Masahiro Takada