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Molecular Genetics to Smart Therapy Systems -- 13. Intelligent Delivery: Adaptive Nanocarriers for Controlled Breast Cancer Treatment -- 14. High-Performance Nanoscale Technologies to Breast Cancer: Diagnosis and Therapy Techniques -- 15. ADVANCED BIOSENSORS FOR BREAST CANCER DIAGNOSIS -- 16. Quantum Dots and Nano Sensors: Visualizing Tumors at the Molecular Level -- 17. Overcoming Drug Resistance in Breast Cancer Treatment by Nanotechnology -- 18. Artificial Intelligence (AI)-Assisted Treatment of Breast Cancer -- 19. Artificial Intelligence (AI) for Breast Cancer Detection: Trends, Challenges, and Future Directions -- 20. Advancement In Metallic Nanoparticles For Diagnosis and Treatment Of Breast Cancer -- 21. Nano-theragnostic Platforms for Breast Cancer Diagnosis and Therapy: Current Advances, Translational Challenges, and Future Directions -- 22. Recent Developments in Biodegradable Nanoparticles for Detection and Therapy of Breast Cancer -- 23. Nanotheranostics in Hormone Therapy for Breast Cancer -- 24. Magnetic Nanoparticles: Enhancing Imaging and Treatment of Metastatic Breast Cancer -- 25. Psychosocial Aspects of Breast Cancer: Managing the emotional and mental health of patients.

Sommario/riassunto

This contributed volume explores the revolutionary impact of nanotechnology on breast cancer therapy, namely through the pioneering domain of nano-theragnostic. It emphasises the transformation of personalised medicine through the integration of diagnostics and therapy with nanomaterials. It analyses the influence of the tumour microenvironment on cancer advancement, particularly on metastasis. It discusses innovative diagnostic instruments, including sophisticated biosensors and liquid biopsy, that facilitate early diagnosis and accurate monitoring. Innovative therapeutic techniques, such as nanoparticles, liposomes, carbon nanotubes, and quantum dots, are examined for their potential to enhance diagnostic and therapy efficacy. The book highlights the importance of surmounting obstacles such as drug resistance and examines methods like photothermal and photodynamic therapy. The exploration includes the role of AI in improving diagnosis and therapy, as well as the importance of lifestyle modifications and psychological factors in cancer care. This book presents unique insights into the transformative potential of nanotechnology in breast cancer therapy, offering renewed hope for both patients and healthcare professionals. It is an insightful read for researchers, scientists as well as practitioners.