

Contents

Nanomedicine for Cancer Therapy	1
1 Introduction.	1
2 Conventional Therapy for Breast Cancer.	2
2.1 Limitation of Conventional Therapy	2
3 Multiple Drug Resistance (MDR)	3
3.1 Drug Efflux and Decrease in Drug Uptake	3
3.2 Alteration in Drug Target (Topoisomerase II).	5
3.3 Change in Detoxifying Enzyme Such Glutathione S-Transferase and Cytochrome P450	5
3.4 Increase in DNA Repair	5
3.5 Inhibition of Apoptosis by Disruption of Cell Signalling	5
3.6 Therapy with Multiple Drug Delivery.	6
4 Application of Nanoparticles in Cancer.	10
4.1 Types of Carriers (NPs) and Its Role in Nanomedicine for Cancer Therapy	10
5 Targeting or Delivery of NPs to the Cancer Cells.	18
5.1 Passive Targeting	18
5.2 Active Targeting or Ligand-Mediated Targeting	19
6 Role of Nanomedicine in Modern Day Cancer Therapy	22
6.1 Gene Therapy	22
6.2 Photodynamic Therapy	24
6.3 Drug Resistance and Heat.	29
6.4 Therapy Based Thermal Ablation and Hyperthermia	29
6.5 Nanoparticles Based Hyperthermia	35
6.6 Nanoparticles Based Magnetic Hyperthermia	36
6.7 Nano Radiofrequency Hyperthermia: NRFH.	37
6.8 Photothermal Therapy (PTT) with Nanoparticles Formulation	38
6.9 Nano High Intensity Focussed Ultrasound Hyperthermia (NHIFU).	45

7	Combinatorial Therapy with Hyperthermia	47
7.1	Hyperthermia and Radiation	47
7.2	Hyperthermia and Drugs	47
7.3	Hyperthermia with Photosensitization	51
8	Clinical Trials, Success, and Challenges	51
9	Conclusion	56
10	Challenges	56
11	Prospective	57
	References	58

Nanomedicine for Cancer Therapy
From Chemotherapeutic to Hyperthermia-Based
Therapy

Kumar, P.; Srivastava, R.

2017, VIII, 68 p. 17 illus., 2 illus. in color., Softcover

ISBN: 978-3-319-45825-0