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Functional biomedicine for image guided therapuetics of solid tumor -- Chapter 13. Multifacated nanoimaging agents and pre-clinical/clinical examinations for localized theranostics -- Chapter 14. Biosafety and Realibility of NanoImaging and Therapuetics -- Chapter 15. Cancer Imaging and Theranostics Intervention: Current Status and Future Perspective.

Sommario/riassunto

This book addresses the recent developments, trends, and challenges of nanosized biomedicine for solid tumors with reference to FDA approved imaging and therapeutic agents. In the last 25 years, about 300 nanosized imaging and therapeutic probes have been registered for clinical trials and only about 25 have qualified the necessary needs of FDA approval. None of the books or articles published so far cover the wide range of nanomedicine examples with multimode imaging and therapeutic applications. This book addresses this gap by discussing various examples of surface engineered functional nano(bio)medicine along with their challenges. This book covers the road map of cancer nanomedicine by focusing on (i) the basic design and bioengineering of safe medicines, (ii) physicochemical understanding of surface engineered medicines and their characteristics, (iii) various examples of site-specific bioimaging and multimode therapies, (iv) stimuli-responsive approaches for targeted drug delivery applications, (v) targeted therapeutic approaches for cancer cells or solid tumor ablations, (vi) targeted mechanisms of administrative biomedicines, (vii) impact of surface modification or engineering of biomedicines for site-selective tumor binding ability, (vii) requirements for clinical trials and FDA approval etc etc. The book covers these key topics by comprising of various chapters from well-establish research groups focusing on surface chemistry, oncomedicine, multimode diagnostics and therapeutics, and nanomedicines. Thus, this book aims to provide a comprehensive validation of cancer nanomedicine for advanced therapeutic approaches. This book is targeted at biomedical scientists, oncologists, researchers and graduate students in the domains of nanomedicine and nanotheranostics.