

1. Record Nr.	UNINA9910739472803321
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Titolo	Nanovaccinology : Clinical Application of Nanostructured Materials Research to Translational Medicine // edited by Kaushik Pal
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	9783031353956 3031353951
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (361 pages)
Disciplina	615.372
Soggetti	Nanotechnology Drug delivery systems Nanobiotechnology Virology Nanomedicine Drug Delivery Nanomedicine and Nanotoxicology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Global Nanotechnology research trends and commercialization in Nanomedicine -- Nanomedicine:Insight analysis of emerging biomedical research and developments -- Nanomedicine against therapeutic approach of Vaccinology to fight against SARS/COVID-19 -- Nanotechnology offers new vistas: An engineering of vaccine formulation of medical trials -- Nanoparticle as effective tool for the diagnosis of diseases and Vaccinology -- Nanovaccines chemistry of bioconjugation: Antiviral therapeutics for combating viral pandemic -- Functional metal oxide nanoparticles avenue for Nanomedicinal research -- Recent advancement of nanostructured materials for clinical challenges in Vaccinology -- Benefits of molecular medicine from self-assembled nanostructured materials -- Nanoparticles activities of Nanovaccinology: Current opportunities and limitations -- Nanoparticles function as delivery system or immune potentiation -- Vaccines against respiratory viruses and gene therapy applications --

Green nanotechnology revolution in biomedical application and treatments -- Drug delivery and therapeutics for the treatment of infectious diseases -- Biodegradable polymeric nanoparticle-based vaccine adjuvants -- Translational Nanomedicine insights from Vaccinology -- Gold nanoparticles preparation for antibodies and optimizations against infections -- Applied polymeric nanomaterials for drug delivery in the field of medicine -- Flexibility in the design of Nanomedicine using biomimetic immunomodulatory material -- Scopes and opportunities for actively targeted nanoparticle vaccines -- Concluding remarks on target Nanomedicine: Present and future.

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## Sommario/riassunto

This book provides an overview of the cumulative work on a driving force for innovation in medicine and modern healthcare, boosting advances in therapeutics, biosensors, vaccines, and clinical systems. The work presented shows how nanoparticles have been investigated as vaccine adjuvants because they possess chemical and structural properties that improve immunogenicity as well as the use of nanotechnology in the construction of immunization systems that has developed into the field of viral nanovaccinology. The volume highlights potential areas of research, innovation, and development of finished products for future commercialization and significant research exploration through nanoparticles that prove capable of surmounting most of the barriers like toxicity issues, clearance from biological system, DNA instability, and differences in expression systems. The contributing authors review the primary literature on principles, limitations, and recent breakthroughs in nanoparticle-based antigen delivery vehicles, their use in different diseases, the major bottlenecks, and related issues. Highlighting advances in nanoparticle engineering and the understanding of nanoparticle characteristics as well as critical legacy work done in the field of nanobiotechnology, the book is ideal for a range of researchers and students in the pure and applied sciences devoted to nanomaterials, vaccinology, and translational medicine. Explains unique trends of novel nanoparticles design, processing, and characterization for emerging nanovaccinology; Presents improvements of biosensors to prevent the need for multiple administrations of the vaccines; Discusses highly efficient and nontoxic vaccines to prevent virus infections.

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