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| Nota di contenuto | 1. Biopolymers in regenerative medicine : overview, current advances, and future trends / Juan M. Russo and Paula V. Messina -- 2. Application of natural, semi-synthetic, and synthetic biopolymers used in drug delivery systems design / Javier Sartuqui, Noelia L. D'Elia, A. Noel Gravina, and Luciano A. Benedini -- 3. Polysaccharide based biomaterials / Narendra Reddy and Divya Natraj -- 4. Biopolymers in the prevention of dental erosion / Javier Sotres -- 5. Drug carriers by liposomes physically coated with peptides / Qiufen Zhang, Cuicui Su, Nan Wang, and Dehai Liang -- 6. Biopolymers for in vitro tissue model biofabrication / Aleksander Skardal -- 7. Medical application of polyampholytes / Kazuaki Matsumura, Robin Rajan, Sana Ahmed, and Minkle Jain -- 8. Biomedical applications of recombinant proteins and derived polypeptides / Francisco Javier Arias, Sergio Acosta-Rodriguez, Tatjana Flora, and Sofia Serrano-Ducar -- 9. Cellulose nanofibers for biomedical applications / Marite Cardenas and Anna J. Svagan -- 10. Modelling and simulation of biological systems in medical applications / S. Balaji -- 11. High-order perturbation theory models of drug-target interactomes for proteins expressed on networks of hippocampus brain region of Alzheimer disease patients / Francisco J. Romero-Duran, |

Edgar Lopez-Castro, Xerardo Garcia-Mera, and Humberto Gonzalez-Diaz -- 12. Structural modeling for DNA and RNA bindings to breast anticancer drug tamoxifen and its metabolites / H.A. Tajmir-Riahi -- 13. Dynamic analysis of backbone-hydrogen-bond propensity for protein binding and drug design / C.A. Menendez, S.R. Accordino, J.A. Rodriguez Fris D.C. Gerbino and G.A. Appignanesi -- 14. Molecular dynamics simulations and comparison of two new and high selective imprinted xerogels / Riccardo Concu and M. Natalia D.S. Cordeiro.

Sommario/riassunto

This book presents an experimental and computational account of the applications of biopolymers in the field of medicine. Biopolymers are macromolecules produced by living systems, such as proteins, polypeptides, nucleic acids, and polysaccharides. Their advantages over polymers produced using synthetic chemistry include: diversity, abundance, relatively low cost, and sustainability. This book explains techniques for the production of different biodevices, such as scaffolds, hydrogels, functional nanoparticles, microcapsules, and nanocapsules. Furthermore, developments in nanodrug delivery, gene therapy, and tissue engineering are described.