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| Titolo                  | Chitin, chitosan, oligosaccharides and their derivatives : biological activities and applications // edited by Se-Kwon Kim                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Altri autori (Persone)  | KimSe-Kwon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Soggetti                | Chitin<br>Chitosan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Nota di contenuto       | Front cover; Contents; Preface; Editor; About the Book; Contributors; Part I: The Sources and Production of Chitin and Chitosan Derivatives; Chapter 1: Chitin and Chitosan from Terrestrial Organisms; Chapter 2: Chitin and Chitosan from Marine Organisms; Chapter 3: Chitin and Chitosan from Microorganisms; Chapter 4: Enzymatic Production of Chitin from Crustacean Shell Waste; Chapter 5: Continuous Production of Chitin Oligosaccharides by Enzymatic Hydrolysis; Chapter 6: Biosynthesis of Cellulose-Chitosan Composite; Part II: Physical and Chemical Aspects of Chitin and Chitosan Derivatives Chapter 7: Chemical Derivatization of Chitosan for Plasmid DNA Delivery: Present and Future Chapter 8: X-Ray Diffraction Studies of Chitin, Chitosan, and Their Derivatives; Chapter 9: Mechanical Properties of Chitosan and Chitosan-Poly(Vinyl Alcohol) Blend Films; Chapter 10: Electrostatic Properties of Chitosan; Chapter 11: Applications of Mass Spectrometry to Analyze Structure and Bioactivity of Chitin Oligosaccharides; Chapter 12: The Use of Various Types of NMR and IR Spectroscopy for Structural Characterization of Chitin and Chitosan; Part III: Structural Modifications of Chitin and Chitosan Derivatives Chapter 13: Chemical Modifications of Chitosan Intended for Biomedical Applications Chapter 14: Enzymatic Modifications of Chitin and |

Chitosan; Part IV: Biological Activities of Chitin and Chitosan Derivatives; Chapter 15: Antimicrobial Activity of Chitin, Chitosan, and Their Oligosaccharides; Chapter 16: Anti-Inflammatory Activity of Chitin, Chitosan, and Their Derivatives; Chapter 17: Chitosan Scaffolds for Bone Regeneration; Chapter 18: Antioxidative Activity of Chitosan, Chito oligosaccharides and Their Derivatives; Chapter 19: Effects of Chitin, Chitosan, and Their Derivatives on Human Hemostasis; Chapter 20: Antihypertensive Actions of Chitosan and Its Derivatives; Chapter 21: Anticancer Activity and Therapeutic Applications of Chitosan Nanoparticles; Chapter 22: Antidiabetic Activity and Cholesterol-Lowering Effect of Chitin, Chitosan, and Their Derivatives; Part V: Biomedical Applications of Chitin and Chitosan Derivatives; Chapter 23: Chitin/Chitosan Oligosaccharides: Effective Substrates for Functional Analysis of Chitinases/Chitosanases; Chapter 24: Low Molecular Weight Water-Soluble Chitosan with Free Amine Group for Drug Delivery; Chapter 25: Chitosan/Chitosan Derivatives as Carriers and Immunoadjuvants in Vaccine Delivery; Chapter 26: Chitosan-Conjugated DNA Nanoparticle Delivery Systems for Gene Therapy; Chapter 27: Chitinolytic Enzymes from the Moderately Thermophilic Bacterium *Ralstonia* sp. A-471: Characterization and Application; Chapter 28: Chitosan and Chitosan Derivatives as DNA and siRNA Carriers; Chapter 29: Metabolic Pathway of Chitin and Its Oligosaccharides in Marine Bacterium *Vibrio*; Chapter 30: Medical Applications of Chitin and Chitosan: Going Forward; Chapter 31: Radiation Functionalization and Applications of Chitosan and Its Derivatives

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#### Sommario/riassunto

Biopolymers found in marine animals and plants offer tremendous, largely untapped pharmaceutical potential. Research shows that these biopolymers can be used to combat various infectious as well as inflammatory, oxidative, and carcinogenic factors. Chitin, Chitosan, Oligosaccharides and Their Derivatives: Biological Activities and Applications covers the key aspects of these therapeutically valuable biopolymers and their derivatives, namely, their properties, sources, production, and applications in food science and technology as well as biological, biomedical, and

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