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Nota di contenuto	Front Cover; Controlled Drug Delivery; Copyright Page; Contents; List of figures; List of tables; Biography for book; 1 The concept of self-assembling and the interactions involved; 1.1 The concept of self-assembling; 1.1.1 The concept of self-assembling by association/interaction processes; 1.2 The nature of forces and types of interactions involved in self-assembly of macromolecules; 1.3 Hydrogels and their role in drug conception and development; 1.3.1 Organogels and micelles for drug delivery; 1.4 Self-assembling phenomena in solid dosage forms 1.4.1 Hydrogen association and flexibility of chains1.4.2 Ionically stabilized excipients; 1.4.2.1 Two-speed self-assembled monolithic devices; 1.4.3 Hydrophobic stabilization of excipients and drug release mechanisms; 1.4.3.1 The concept of self-assembling by inclusion processes; 1.4.3.2 Inclusion complexes of starch with fatty bioactive agents; 1.4.3.3 Inclusion complexes and hydrophobic assembly of starch excipients; 1.5 Conclusions; References; 2 Starch and derivatives as pharmaceutical excipients; 2.1 General aspects; 2.2 Structural considerations

2.3 Self-assembling in physically modified starches 2.3.1 Pregelatinized starch; 2.3.2 Multifunctional excipient: binder-filler and binder-disintegrant; 2.3.3 Extruded starch; 2.3.4 Soft starch capsules; 2.3.5 Hard capsules; 2.3.6 Starch films as functional coatings; 2.3.7 Starch microspheres and nanospheres in drug delivery; 2.3.8 Starch complexes; 2.3.9 Conclusions; 2.4 Chemically modified starches and their self-assembling; 2.4.1 Self-assembling in cross-linked starches; 2.4.2 Starch ethers; 2.4.3 Ionic starches and their self-assembling features; 2.4.3.1 CMS as pH-responsive excipient 2.4.3.2 Cationic starch 2.4.4 Conclusions; References; 3 Chitosan and its derivatives as self-assembled systems for drug delivery; Abbreviations; 3.1 Introduction; 3.2 Unmodified chitosan-self-assembled thermogels; 3.2.1 Mechanism of chitosan thermogelation; 3.2.2 Chitosan thermogels; 3.3 Amphiphilic chitosan derivatives; 3.3.1 Alkylated chitosan; 3.3.2 Acylated chitosan; 3.3.2.1 Acylated chitosan; 3.3.2.2 Acylated chitosan oligosaccharides; 3.3.3 Cholesterol-modified chitosan; 3.3.4 Cholic and deoxycholic acid-modified chitosan; 3.3.5 5-Cholanic acid-modified chitosan 3.3.6 Phthaloylchitosan and other hydrophobically modified chitosans 3.3.7 Hydrophobic drug-grafted chitosan; 3.4 Amphiphilic/amphoteric chitosan derivatives; 3.4.1 Hydrophobically modified carboxylated chitosan; 3.4.1.1 Alkyl-modified carboxylated chitosan; 3.4.1.2 Acyl-modified carboxylated chitosan; 3.4.1.3 Cholesterol-modified carboxylated chitosan; 3.4.1.4 Deoxycholic acid-modified carboxylated chitosan; 3.4.2 Hydrophobically modified sulfated chitosan; 3.5 Conclusion; References; 4 Chitosan-based polyelectrolyte complexes as pharmaceutical excipients; Abbreviations 4.1 Introduction to chitosan-based polyelectrolyte complexes

Sommario/riassunto

In complex macromolecules, minor modifications can generate major changes, due to self-assembling capacities of macromolecular or supramolecular networks. Controlled Drug Delivery highlights how the multifunctionality of several materials can be achieved and valorized for pharmaceutical and biopharmaceutical applications. Topics covered in this comprehensive book include: the concept of self-assembling; starch and derivatives as pharmaceutical excipients; and chitosan and derivatives as biomaterials and as pharmaceutical excipients. Later chapters discuss polyelectrolyte complexes as excipient