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Nota di contenuto	Intro -- PROTEIN AGGREGATION -- PROTEIN AGGREGATION -- Contents -- Preface -- Changes in Protein Structure under the Effects of Cryopreservation and Cryoprotective Agents -- Abstract -- Introduction -- Cold Denaturation of Proteins -- Disturbance of Protein Conformation Affected by Ice Formation -- Disturbance of Protein Conformation Affected by Dehydration -- Stabilizing Effects of Cryopotectant Agents on Proteins -- Aggregation Frozen-Thawed and Frozen-Dried Proteins -- Conclusion -- References -- Molecular Chaperones and Proteases as Suppressors of Protein Aggregation in Gram-Negative Bacteria -- Abstract -- Introduction -- The Cytoplasmic Protein Quality Control Systems -- Cytoplasmic Chaperones -- Hsp70 System -- Hsp60 System -- HtpG (Hsp90) -- sHsps -- Hsp100 -- Protein Unfolding and Degradation -- Proteolysis in the Bacterial Cytoplasm -- Structural Features of AAA+ Proteases -- Mechanisms of Substrate Recognition -- Proteolysis as a Control Mechanism under Stressful Conditions -- Role of Molecular Chaperones and Proteases in the Cytoplasmic Inclusion Bodies Processing -- The Extracytoplasmic Protein Quality Control Systems -- Skp -- SurA -- FkpA -- Acid-Stress Chaperones HdeA and HdeB -- Periplasmic Proteases -- HtrA -- Characterization of the Proteolytic Activity of HtrA -- Characterization of the Chaperone Activity of HtrA -- Other Extracytoplasmic Proteases -- Expression of Recombinant Proteins in the Periplasm -

Troubleshooting -- Conclusion -- References -- Native Functions of Amyloid -- Abstract -- Introduction -- 1. Functional Amyloids -- 22. Bacteerial Ammyloid -- 2.1. Curli Fibrils -- 2.2. Pili of Mycobacterium Tuberculosis -- 2.3. Chaplin Fibrils -- 2.4. Microcin Amyloid -- 2.5. Harpins of Plant Pathogenic Bacteria -- 2.6. Endospore -- 2.7. Biofilms -- 2.8. Bacterial Inclusion Bodies Contain Amyloid Like Structure. 3. Fungal Amyloid -- 3.1. Hydrophobins -- 3.1.1. SC3 Hydrophobin -- 3.1.2. EAS of Neurospora Crassa -- 3.2. Adhesins of Yeast -- 4. Fungal Prions -- 4.1. Het-s amyloid in Podospora anserine -- 4.2. Yeast Prions -- 4.2.1. Amyloid of Ure2p in [URE3] -- 4.2.2. Amyloid of Sup35 in [PSI+] -- 4.2.3. Amyloid of Rnq1 in [PIN+] -- 5. Mammalian Functional Amyloid -- 5.1. Biogenesis of Mammalian Melanosome -- 5.1.1. Pmel Amyloid and Melanin Synthesis -- 5.2. Amyloid in Secretory Granules Biogenesis -- 6. Other Functional Amyloids -- 7. Functional vs Disease Amyloid -- 8. Conclusion and Future Direction -- Acknowledgment -- References -- Nucleation Mechanisms and Morphologies in Insulin Amyloid Fibril Formation -- Abstract -- 1. Introduction -- 1.1. Nucleation Mechanisms in Protein Aggregation -- 1.1.1. Homogeneous and Secondary Nucleation -- 1.2. Model System, Experimental Approach and Aim of the Study -- 2. Results and Discussion -- 2.1. Human Insulin in Acetic Acid Solutions -- 2.1.1. Characterization of Fibril Formation -- 2.1.2. Correlation between FFV and 1/t50% -- 2.1.3. Statistical Study -- 2.2. Bovine insulin in HCl Solutions -- 2.2.1 Different Processes and Morphologies Occurring during the Fibrillation Kinetics -- 2.2.2. Lag Phase in the Low Concentration Regime -- 2.2.3. Initial Fibrils Growth in the Low Concentration Regime -- Conclusions -- Acknowledgments -- References -- On the Aggregation of Albumin: Influences of the Protein Glycation -- Abstract -- Introduction -- Importance of Albumin in Human Physiology -- Structural Aspect of Albumin -- Albumin Aggregation -- BSA Structural Modifications and Aggregation -- Albumin Aggregation - Consequences of the Protein Glycation -- Albumin Glycation Impact on Albumin Structure -- Albumin Glycation is Characterized by Aggregates Growth -- Glycated Albumin Showed Lower Propensity For Thermal Aggregation. Conclusion -- Acknowledgments -- References -- The Role of Conformational Domain Lability of Fibrinogen Molecules in Processes of Self-Assembly of Fibrin Monomers and Fibrinogen Aggregation -- Abstract -- Introduction -- The Self-Assembly of the Single-Stranded Fibrin Protofibrils -- Mechanism of Aggregation of Fibrinogen Molecules. The Influence of Fibrin-Stabilizing Factor -- Structural Modification of Fibrinogen as a Result of Free-Radical Oxidation -- References -- Two Faced Members of the Family: The Synucleins -- Abstract -- Introduction -- Physiological Functions of Synucleins -- -Synuclein -- -Synuclein -- -Synuclein -- Interaction of Amyloidogenic Proteins -- Oxidized -synuclein is Toxic and Acts as an Antichaperone -- Conclusion -- Acknowledgment -- References -- Inclusion Bodies: A New Concept of Biocatalysts -- Acknowledgments -- References -- Comparative Study of Bovine and Ovine Caseinate Aggregation Processes: Calcium-Induced Aggregation and Acid Aggregation -- Abstract -- Introduction -- Colloidal Stability Test -- Size Variations of the CCA -- Analysis of Conformational and Surface Hydrophobicity Changes -- Caseinate Acid Aggregation -- Rheological Properties of Acid Gels -- Conclusion -- References -- Protein Aggregation -- Abstract -- Introduction -- Protein Aggregation and Neurodegenerative Disease -- Protein Folding in Solution -- Many Factors Affect the Protein Aggregation Process -- Protein Aggregation and Cytotoxicity -- Conclusion -- Acknowledgments -- References -- Yeast Protein Aggregates, Containing Chaperones and Glucose

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Sommario/riassunto

Protein aggregation is the aggregation of mis-folded proteins, and is thought to be responsible for many degenerative diseases, such as Alzheimer's. This book presents current research from across the globe in the study of protein aggregation, including the processes of protein aggregation induced by freezing and lyophilization; functional amyloids; thermally induced aggregation of a model system protein - insulin; the aggregation of albumin; synucleins implicated in neurodegenerative diseases and some forms of cancer; yeast protein aggregates; and the folding and aggregation features of proteins.