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Titolo	Cellular Osmolytes : From Chaperoning Protein Folding to Clinical Perspectives // edited by Laishram Rajendrakumar Singh, Tanveer Ali Dar
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Disciplina	610.28
Soggetti	Biomedical engineering Cell physiology Proteins Cancer - Research Biochemistry Botanical chemistry Biomedical Engineering/Biotechnology Cell Physiology Protein-Ligand Interactions Cancer Research Animal Biochemistry Plant Biochemistry
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Polyols as exceptional Protein stabilizers -- Osmolyte mixtures versus individuals in protein folding and aggregation -- Molecular insights of Osmolyte-protein Interaction -- MDS simulation studies on osmolyte protein interactions -- Osmolytes as protein aggregation Modifiers -- Osmolytes as Nano-probes of conformational changes -- Inhibition of Protein fibrillation by Chemical chaperones: a Therapeutic strategy -- Osmolyte in Infectious Diseases -- Possible strategies for the therapeutic intervention of osmolyte in Cancer -- Antioxidant osmolytes -- Advances on the in vivo studies of the effect of osmolyte on various pathophysiological conditions -- TMAO in alpha Synuclein

aggregation -- Osmolytes: from cell physiology to Disease Prevention
-- Osmolytes in Cell-volume Regulation -- Role of Osmolytes in counteracting the deleterious effects of denaturant/pressure.

Sommario/riassunto

This book provides essential insights into improving protein folding/stability, which is a result of the balance between the intramolecular interactions of protein functional groups and their interactions with the solvent environment. Even a subtle change in the composition of the solvent environment will alter the fidelity of the protein folding process, and hostile environmental stresses represent one of the basic causes of challenges in protein folding or misfolding. Among the strategies employed in a wide range of species and cell types to circumvent the hostile environmental conditions is the elaboration of small organic molecules called osmolytes, and recent advances have revealed that certain specific osmolytes might be key biomarkers of cancer, infectious diseases and are useful in heterologous protein expression and vaccine flocculation. As such a large pool of data has been collected regarding their potential for therapeutic intervention in neurodegenerative diseases and other metabolic disorders caused by protein aggregation or proteiostasis failure.
