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Nota di contenuto	Preface -- Introduction to Sumoylation -- Part I Molecular Functions -- Roles of Sumoylation in mRNA Processing and Metabolsim -- SUMO and Chromatin Remodeling -- Functions of SUMO in the Maintenance of Genome Stability -- Regulation of Cellular Processes by SUMO: Understudied Topics -- The Molecular Interface Between The SUMO And Ubiquitin Systems -- . SUMO and Nucleocytoplasmic Transport -- SUMO Modification of Ion Channels -- The Roles of SUMO in Metabolic Regulation -- Part II Cell Growth Regulation -- The SUMO Pathway in Mitosis -- Wrestling with Chromosomes: The Roles of SUMO During Meiosis -- Sumoylation in Development and Differentiation -- The Role of Sumoylation in Senescence -- Regulation of Plant Cellular and Organismal Development by SUMO -- SUMO in Drosophila Development -- Part III Diseases -- SUMOylation: Implications for Neurodegenerative Diseases -- Sumoylation and Its Contribution to Cancer -- Sumoylation Modulates the Susceptibility to Type 1 Diabetes -- Sumoylation in Craniofacial Disorders -- Coordination of Cellular

Localization-Dependent Effects of Sumoylation in Regulating Cardiovascular and Neurological Diseases -- Viral Interplay with the Host Sumoylation System -- SUMOylation as an Integral Mechanism in Bacterial Infection and Disease Pathogenesis -- Index.

Sommario/riassunto

This is the second edition of a very well received book that details how the sumoylation system functions and how it modulates numerous cellular activities. SUMO is a post-translational modifier in the ubiquitin super-family that has gained recognition over the last twenty years as an essential and prevalent regulatory molecule. Individual chapters explore the biochemistry, molecular biology, and cell biology of the sumoylation system and its substrate proteins. The book is divided into three themed parts: Molecular Functions (I), Cell Growth Regulation (II), and Diseases (III). Parts I and II focus on the contribution of sumoylation to cellular activities in both the nuclear and cytoplasmic compartments. The nuclear activities covered include nucleic acid metabolism (both RNA and DNA), chromosome structure and replication, and nucleocytoplasmic transport. Cytoplasmic processes presented include regulation of membrane ion channels, general metabolism, and apoptotic signalling. Topics in Part III include the role of sumoylation in developmental abnormalities (craniofacial and cardiovascular), diabetes, neurodegenerative diseases, cancer, and infections with viruses and bacteria. Each of the corresponding chapter authors is an active researcher who has made significant contributions to understanding sumoylation. This second edition provides updates and revisions to most of the original chapters plus adds six new chapters to address important developing areas of sumoylation research. This volume is intended for a scientific audience from undergraduates to independent researchers. The content will serve as both a solid introduction for the novice reader and an in depth treatment for the advanced scholar.