The third volume in the series on protein degradation, this book explains the role of ubiquitin-mediated protein breakdown in cellular regulation and physiology.

Drawing combined knowledge from leading protein degradation experts, among them Nobel laureates, this handy reference complies up-to-date information on the action of the ubiquitin system in as diverse functions as organelle biogenesis, muscle development, the cellular response to hypoxia, extraction of proteins from the endoplasmic reticulum for degradation and the regulation of plant development.

The next volume in the series discusses malfunctions of the ubiquitin-proteasome system and the resulting diseases.

Required reading for molecular biologists, cell biologists and physiologists with an interest in protein degradation.

***R. John Mayer**, School of Biomedical Sciences, University of Nottingham Medical School, Queen's Medical Centre, Nottingham has studied mechanisms of intracellular proteolysis for 35 years. He was made a Fellow of the Royal College of Pathologists for the discovery by ubiquitin immunocytochemistry of cortical Lewy bodies and characterising the molecular neuropathology of dementia with Lewy bodies (DLB). DLB is the second commonest cause of cognitive decline in the elderly after Alzheimer's disease. Prof. Mayer also discovered ubiquitylated proteins in aggregates (inclusions) in neurones in the brain in all the chronic neurodegenerative diseases. Prof. Mayer is now using sophisticated genetic methods in transgenic mice to manipulate the ubiquitin proteasome system in the brain in order to model the chronic neurodegenerative diseases. Prof. Mayer also has a strong collaborative research programme with colleagues in the University of Kyoto on gankyrin which is the first liver oncoprotein and a subunit of the 26S proteasome which controls the ubiquitylation of proteins including p53.*

***Aaron Ciechanover** is a Distinguished Professor in the Cancer and Vascular Biology Research Center of the Technion Institute in Haifa, Israel. He received his M.Sc. (1971) and M.D. (1975) from "Hadassah" and the Habrew University in Jerusalem, and his D.Sc. (1982) from the Faculty of Medicine of the Technion. There, he and Avram Hershko discovered that covalent attachement of ubiquitin to the target substrate signals it for degradation. They also discovered the three enzymes that catalyze conjugation, elucidated their mode of action and proposed a model for ubiquitin action and recycling. As a postdoc with Harvey Lodish at MIT (Cambridge, MA, USA), he, together with Alexander Varshavsky and Daniel Finley, demonstrated that the ubiquitin system is involved in targeting normal short-lived proteins in cells. In 2004, he received the Nobel Prize for chemistry, jointly with Avram Hershko and Irwin Rose.*

***Martin Rechsteiner** is Professor of Biochemistry at the University of Utah. Intracellular proteolysis has been his principal scientific interest over the past twenty-five years. During that time his laboratory discovered and functionally characterized the 26S proteasome as well as several proteasome activators. They also proposed that PEST sequences, regions of the polypeptide sequence rich in proline (P), glutamic acid (E), serine (S), and threonine (T), target proteins for rapid degradation.*

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