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BOOK REVIEW

Protein Misfolding in Neurodegenerative Diseases. Mechanisms and Therapeutic Strategies

(H. John Smith, Claire Simons, and Robert D. E. Sewell, eds., CRC Press, CRC Enzyme Inhibitors Series, Taylor & Francis Group, Boca Raton, London, New York, 2008, 565 p., UK Pound Price 88.00)

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The book contains six parts and 14 chapters. In the first, introductory chapter, general topics related to protein conformation and misfolding in various cell compartments are considered. The result of such misfolding is the appearance of anomalous proteins with toxic properties.

The first part of the book is dedicated to Alzheimer's disease (AD) and consists of seven chapters. In the second chapter, the authors highlight epidemiology of AD, genetic factors of risk, peculiarities of the disease, and animal models of AD. Part of this chapter characterizes biomarkers and some approaches for treatment of AD.

Chapter 3 summarizes some steps for improving cholinergic transmission and considers certain molecular mechanisms of nerve impulse with participation of acetylcholinesterase, its substrates, and inhibitors.

Chapter 4 discusses formation of amyloidal products in AD and their degradation by various types of secretases.

Chapter 5 summarizes data about activators of carboanhydrase, which are considered as anti-AD agents.

Chapter 6 consists of data about detection and reduction of neurofibrillary lesions.

In chapter 7 protein misfolding in AD and its pathophysiological role in pathogenesis and protection is discussed.

Chapter 8 considers data about variations of retinoic acid concentration and transport in various brain compartments in the normal state and in AD.

The second part of the book deals with Parkinson's disease (PD).

Chapter 9, opening this part of the book, includes general characterization of PD, its causes, and approaches for treatment.

Chapter 10 deals with metabolic changes in PD and, particularly restoration of dopamine levels.

The third part of the book summarizes data related to Huntington's disease (HD). The single chapter 11 of this part consists of neuropathology, genetic, protein misfolding and aggregation, and therapeutic approaches.

The fourth part of the book describes biochemical and pathophysiological peculiarities of amyotrophic lateral sclerosis (ALS) (chapter 12).

The fifth part of the book discusses types of transmissible spongiform encephalopathies (TSE), their genetics, anomalies of protein molecules, and therapeutic approaches (chapter 13).

The sixth part (chapter 14) provides a general review of neurodegenerative diseases and discusses their biochemical and pathophysiological properties.

Each chapter contains a basic bibliography related to book topics, and a subject index is found at the end of the book. This book will be useful for researchers in protein chemistry and biochemistry, molecular biologists and physicians, and teachers and students of medical schools and universities specialized in proteomics.

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