Lehmann / Grassi

Techniques in Prion Research

Prion diseases, also known as Transmissible Spongiform Encephalopathies (TSEs), exist in both humans (Creutzfeldt-Jakob disease (CJD)) and animals (scrapie, bovine spongiform encephalopathy (BSE), chronic wasting disease) and have the unique property of being infectious, sporadic or genetic in origin. Although the precise nature of the infectious agent responsible for TSEs is not definitely identified, it is now clearly demonstrated that a protein named PrP (for Prion Protein) plays a critical role in the transmission and pathogenesis of TSEs. This book provides the general description as well as the details of the techniques currently used for the study of prion diseases. Taking into account the pivotal role played by PrP it is not surprising that many Chapters of this book deal with the purification, the detection and the characterization of the different forms of this protein. In addition, in vitro, cellular and animal models specifically adapted to the study of TSEs, as well as bio-safety procedures are described. Each Chapter is written by scientists involved for many years in their respective domain of prion biology who give the best of their knowledge in this technical document. This volume is a very useful tool for any laboratory which recently decided to contribute to the study of TSEs as well as for teams already engaged in this field for many years but interested in extending their technical capacity toward new methods. Features: Purification of PrPC and the Pathological Isoform of Prion Protein (PrPsc or PrP-res) Animal Models of TSEs Cell Culture Models of TSEs PrPsc Immunohistochemistry Western Immunoblotting Techniques Antibody Production and ELISA TSE Strain Typing in Mice Biosafety and Decontamination Procedures Cell-free Conversion of Prion Proteins Cytotoxicity of PrP Peptides Cyclic Amplification of Prion Protein Misfolding< Of interest to: Researchers and clinicians in the fields of cell biology, biomedicine, neuroscience/neuropathology, veterinary medicine and biochemistry.

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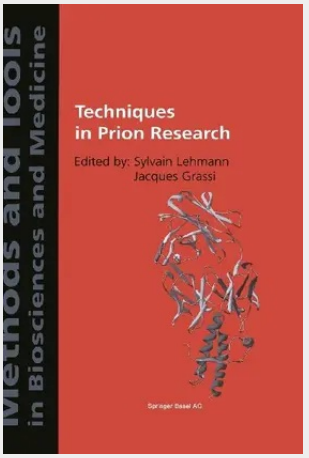

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