Handbook of Animal Models in Alzheimer’s Disease

Volume 1 Advances in Alzheimer’s Disease
Editor: G. Casadesus
June 2011, approx. 352 pp., hardcover
ISBN 978-1-60750-733-8 (online)
Price: US$218 / €150

Animals have been used to model diseases or test new treatments since around 300 BC, and undoubtedly our ability to model disease in animals – including transgenic animals – has provided major breakthroughs in all fields of biomedical research. Due to their complexity and plurality of pathology and symptomatology, the study of neurodegenerative diseases relies heavily on animal models. These models have been developed in many species in the attempt to uncover the complex nature of the disease mechanisms involved. The ultimate goal is to test promising therapies and to manage, prevent or cure neurodegenerative disease. But because most animal models in this area do not reproduce the full phenotypical disease spectrum and the etiology and clinical presentation of neurodegenerative diseases differ from one patient to the next, the testing of these diseases in animal models often translates poorly to indices of efficacy when applied to the clinical population. Written by experts in the field with these advances and challenges in mind, this handbook provides an updated overview of the animal models being developed and used to study complex disease dynamics. The first part of the book presents an overview of animal models of various species and includes a review of new invertebrate animal models to study neurodegeneration. The second section presents the use of animal models to pinpoint disease mechanisms, and the last part of the handbook examines the various therapeutic interventions being used in models of neurodegenerative disease.

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