

Book Review

Alzheimer's Disease and Frontotemporal Dementia: Methods and Protocols, edited by Erik D. Roberson, Humana Press, 2011, 270 p. ISBN 978-1-60761-743-3.

This is a collection of relatively modern methodologies, focused primarily on the study of amyloid- β processing, with some notable exceptions that include two chapters on tau pathobiology, one chapter on apolipoprotein E expression and purification, lentiviral vectors for manipulation of gene expression in the central nervous system, and real-time visualization of axonal transport, among others. The work is organized into 18 chapters that span some 277 pages including the index, and contains an author list, a portion of which is worthy of a "Who's Who" in neuroscience and Alzheimer's disease research. The various methods have sufficient detail to be "shovel ready" for immediate use, and in areas, are beautifully illustrated with color figures and various schematic diagrams.

Also laudable is Roberson's editorial commitment, in that the format of the chapters is consistent throughout, and avoids the choppy, "cut and paste" quality of other books with a similar format. Each chapter contains an introductory section that is appropriately succinct, followed by materials, methods, and notes. A sycophantic adherence to the amyloid cascade hypothesis tends to stand out in the introductory material, although this is expected given the subject matter of the various chapters. Research technicians will find the 'notes' sections particularly valuable, in that they highlight procedural details that are not intuitively obvious from the step-by-step instructions.

Particularly welcome was chapter 3 by Shankar et al., which outlines methodology for isolation of low-n amyloid- β oligomers in cell culture, cerebrospinal fluid, and brain, an area of investigation known for both its broad acceptance of pathogenic significance and capriciousness of results. Also welcome, albeit in a more educational rather than methodological fashion, was the comprehensive review of mouse models for Alzheimer's disease by Jeannie Chin (Chapter 13).

Given the proliferation of transgenic models and their heterogeneity in multiple respects, chapter 13 provides a nice reference for anyone interested in studying putative models of Alzheimer's disease.

Noteworthy in its absence were any methodologies describing experimental study, in any fashion, of the synapse. Given the increasing discussion, currently, of the synapse as the target for Alzheimer's disease pathogenesis, such an omission is striking. Moreover, no methods or protocols that involve *in situ* study of Alzheimer's disease brains *per se* are offered, aside from a general discussion of *in situ* hybridization. Rather, the bulk of the book is dedicated to *in vitro* analyses and cell biology, areas that have the advantage of manipulability of the model system and therefore ideally suited for Methods and Protocols-type publications, but still have the disadvantage of questions about relevance. The reader may also find the attempt at addressing cognition/behavioral issues somewhat superficial, as the chapter on this topic, while well written and copiously detailed by Kimberly Scearce-Levie, is limited to a single analysis—the Morris water maze. Finally, the reader will find the title misleading, in that none of the chapters pertain specifically to frontotemporal dementia, aside from a tangential examination of tau biology.

Overall, the book is well organized, well written, appropriately succinct, and exceedingly useful in those areas that are addressed, and provides a valuable reference to the basic scientist studying Alzheimer's disease.

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