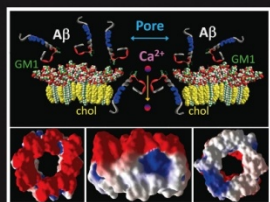


Brain Lipids in Synaptic Function and Neurological Disease

Clues to Innovative Therapeutic Strategies for Brain Disorders



JACQUES FANTINI AND NOUARA YAHY



Brain Lipids in Synaptic Function and Neurological Disease

Clues to Innovative Therapeutic Strategies for Brain Disorders

Jacques Fantini Molecular Interactions in Model and Biological Membranes

Laboratory, Faculty of Science and Technology, Marseille, France

Nouara Yahy Molecular Interactions in Model and Biological Membranes

Laboratory, Faculty of Science and Technology, Marseille, France



A reference on brain lipid structure and function, discussing the crucial roles they play at synapses and the neurological disorders associated with their dysfunction

KEY FEATURES

- Written to provide a "hands-on" approach for readers
- Biochemical structures explained with molecular models, and molecular mechanisms explained with simple drawings
- Step-by-step guide to memorize and draw lipid structures
- Each chapter features a content summary, up-to-date references for additional study, and a key experiment with an explanation of the technique

DESCRIPTION

Lipids are the most abundant organic compounds found in the brain, accounting for up to 50% of its dry weight. The brain lipidome includes several thousands of distinct biochemical structures whose expression may greatly vary according to age, gender, brain region, cell type, as well as subcellular localization. In synaptic membranes, brain lipids specifically interact with neurotransmitter receptors and control their activity. Moreover, brain lipids play a key role in the generation and neurotoxicity of amyloidogenic proteins involved in the pathophysiology of neurological diseases. The aim of this book is to provide for the first time a comprehensive overview of brain lipid structures, and to explain the roles of these lipids in synaptic function, and in neurodegenerative diseases, including Alzheimer's, Creutzfeldt-Jakob's and Parkinson's. To conclude the book, the authors present new ideas that can drive innovative therapeutic strategies based on the knowledge of the role of lipids in brain disorders.

RELATED TITLES

- Rubinstein and Rakic, *Neural Circuit Development and Function in the Healthy and Diseased Brain: Comprehensive Developmental Neuroscience*, HC, 848pp, 2013, 9780123972675, \$199.95
- Sanes, Reh and Harris, *Development of the Nervous System*, 3e, HC, 360pp, 2011, 9780123745392, \$89.95

ISBN: 978-0-12-800111-0

PUB DATE: July 2015

LIST PRICE: \$125.00

DISCOUNT: Until the end of April 2016, use discount code **NEURO2015** to receive

25% off your order

FORMAT: Hardback

PAGES: c. 388

TRIM: 7.5w x 9.25h

LIFE SCIENCES - NEUROSCIENCE

To order, visit <http://store.elsevier.com/product.jsp?isbn=9780128001110&pagename=search>

TABLE OF CONTENTS

Part I. Brain Lipids

1. Chemical basis of lipid biochemistry
2. Brain membranes
3. Lipid metabolism and oxidation in neurons and glial cells
4. Variations of brain lipid content

Part II. Brain Lipids and Synaptic Functions

5. A molecular view of the synapse
6. Protein-lipid interactions in the brain
7. Lipid regulation of receptor function

Part III. Brain Lipids and Neurodegenerative Disease

8. Common mechanisms in neurodegenerative diseases
9. Creutzfeldt-Jakob's disease
10. Parkinson's disease
11. Alzheimer's disease

Part IV. Brain Pathogens and Amyloidogenic Proteins: The Lipid Connection

12. Viral and bacterial diseases
13. A unifying theory
14. Therapeutic strategies for neurodegenerative diseases

Glossary