Drugs Discovery and Development for Alzheimer's Disease

2000

Howard M. Fillit, MD
Alan W. O'Connell, PhD
Editors

Springer Publishing Company
Contents

Contributors ix
Acknowledgments xvi

1 The Challenges of Drug Discovery and Drug Development for Cognitive Aging and Alzheimer's Disease
   Howard Fillit and Alan O'Connell

Part I. Early Detection

2 Genetic Correlates of Successful Cognitive Aging
   Thomas Perls

3 Genetic and Environmental Risk Factors for Alzheimer's Disease in Arabs Residing in Israel
   Robert P. Friedland, Amos Korczyn, and Lindsay Farrer

4 Telephonic Screening of Mental Status: A Feasibility Study in a Managed Care Clinic
   David Knopman, Thomas Vonsternberg, and Jim Haefemeyer

5 Use of Brain MRI Volumetric Analysis in a Mild Cognitive Impairment Trial to Delay the Diagnosis of Alzheimer's Disease
   Michael Grundman, Drahomira Sencakova, Clifford R. Jack, Jr.,
   Ronald C. Petersen, Hyun T. Kim, Arlan Schultz,
   Ronald G. Thomas, Leon J. Thal, for the Alzheimer's Disease Cooperative Study

6 Hippocampal Volume Assessment in Mild Cognitive Impairment
   Michael S. Mega, Paul M. Thompson, Arthur W. Toga, and Jeffrey L. Cummings
Brain Imaging Surrogate Markers for Detection and Prevention of Cognitive Aging and Alzheimer's Disease

Gary W. Small

Novel β-Amyloid Probes

Mei-Ping Kung, Zhi-Ping Zhuang, Catherine Hou, Daniel Skovronsky, Tamar Gur, Sumalee Chumpradit, Virginia M.-Y. Lee, John Q. Trojanowski, and Hank F. Kung

Early Clinical and Biological Manifestations of Alzheimer’s Disease: Implications for Screening and Treatment

Richard C. Mohs, Deborah Marin, and Vahram Haroutunian

Part II. Drug Discovery

Identification of Brain-Expressed ABC Transporters That May Mediate Detachment of β-Amyloid From Biological Membranes

Peter B. Reiner and Stéphane Le Bihan

Targeting an RNA Structure in the Amyloid Precursor Protein Gene as a New Therapeutic Strategy for Alzheimer’s Disease

Principal Investigator: Jack T. Rogers

Novel Tricyclic Pyrone Compounds Prevent Intracellular APP C99-Induced Cell Death

Lee-Way Jin, Duy H. Hua, Feng-Shiun Shie, Izumi Maezawa, Bryce Sopher, and George M. Martin

Novel Glycosaminoglycans as Antiamyloid Agents

Robert Kisilevsky and Walter A. Szarek

Strategies for Inhibiting Alzheimer’s γ-Secretase

Michael S. Wolfe

Phosphorylations of Tau and APP as Targets for Drug Discovery

John DeBernardis, Dan Kerkman, Cintia Vianna, and Peter Davies

Estrogen and ApoE: Drug Discovery Implications

Jonathan D. Smith and Justine A. Levin

Structure-Based Functional Design of Agonists and Antagonists for AMPA-Subtype Glutamate Receptors

Ming-Ming Zhou, Harel Weinstein, Diomedes E. Logothetis, and Eric Gouaux
Part III. Drug Development—Preclinical

19 Antioxidants in the Treatment of Alzheimer’s Disease: Breakthrough Potential of Indole-3-Propionic Acid
   Daniel G. Chain, Douglas Galasko, Eyal Neria, Miguel Pappolla, Paul E. Bendheim, and Burkhard Poeggeler

20 AF150(S) and AF267B: M1 Muscarinic Agonists for Treatment and as Disease-Modifying Agents in Alzheimer’s and Related Diseases

21 ABS-205: Effects on Cognition in Mature and Aged Rats
   Ciaran M. Regan

22 Calpain Inhibitors: A Treatment of Alzheimer’s Disease
   Ottavio Arancio

23 Femtomolar-Acting Neuroprotective Peptides: Application for Inhibition of Alzheimer’s Disease
   Illana Gozes, Sharon Furman, Ruth A. Steingart, Albert Pinhasov, Inna Vulih, Jacob Romano, Roy Zaltzman, Rachel Zamostiano, Eliezer Giladi, Sara Rubinraut, Mati Fridkin, Janet Hauser, and Douglas E. Brenneman

Part IV. Drug Development—Clinical

24 A Phase I Clinical Study of Ex Vivo Nerve Growth Factor Gene Therapy for Alzheimer’s Disease
   Mark H. Tuszynski

25 Lowering Homocysteine Levels in Patients With Alzheimer’s Disease
   Paul Aisen, Mary Sano, Ramon Diaz-Arrastia, and William Jagust

26 Therapeutic Potential of Positive AMPA Receptor Modulators in Mild Cognitive Impairment and Alzheimer’s Disease
   Steven A. Johnson, Gary Lynch, Gary A. Rogers, and Ursula V. Staubli
The Alzheimer's Disease Atorvastatin Treatment Trial: Scientific Basis and Position on the Use of HMG-CoA Reductase Inhibitors (Statins) That Do or Do Not Cross the Blood-Brain Barrier

D. Larry Sparks, Donald J. Connor, Patrick J. Browne, Dawn R. Wasser, Jean E. Lopez, and Marwan N. Sabbagh

A Double-Blind, Randomized Investigation of the Effects of Testosterone or Placebo in Male Patients With Mild-to-Moderate Alzheimer's Disease

Bruce Miller

Estrogen and Cognitive Functioning in Men With Mild Cognitive Impairment

Barbara B. Sherwin and Howard Chertkow

Index