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Topics in Medicinal Chemistry

Alzheimer's Disease

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In references *Topics in Medicinal Chemistry* is abbreviated *Top Med Chem* and is cited as a journal.

Springer WWW home page: springer.com
Visit the TIMC content at springerlink.com

Library of Congress Control Number: 2007935106

ISSN 1862-2461
ISBN 978-3-540-74228-9 Springer Berlin Heidelberg New York
DOI 10.1007/978-3-540-74229-6

Springer is a part of Springer Science+Business Media

springer.com

Cover design: WMXDesign GmbH, Heidelberg
Typesetting and Production: LE-TEX Jelonek, Schmidt & Vöckler GbR, Leipzig

Printed on acid-free paper 02/3180 YL – 5 4 3 2 1 0

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Preface to the Series

Medicinal chemistry is both science and art. The science of medicinal chemistry offers mankind one of its best hopes for improving the quality of life. The art of medicinal chemistry continues to challenge its practitioners with the need for both intuition and experience to discover new drugs. Hence sharing the experience of drug discovery is uniquely beneficial to the field of medicinal chemistry.

The series *Topics in Medicinal Chemistry* is designed to help both novice and experienced medicinal chemists share insights from the drug discovery process. For the novice, the introductory chapter to each volume provides background and valuable perspective on a field of medicinal chemistry not available elsewhere. Succeeding chapters then provide examples of successful drug discovery efforts that describe the most up-to-date work from this field.

The editors have chosen topics from both important therapeutic areas and from work that advances the discipline of medicinal chemistry. For example, cancer, metabolic syndrome and Alzheimer's disease are fields in which academia and industry are heavily invested to discover new drugs because of their considerable unmet medical need. The editors have therefore prioritized covering new developments in medicinal chemistry in these fields. In addition, important advances in the discipline, such as fragment-based drug design and other aspects of new lead-seeking approaches, are also planned for early volumes in this series. Each volume thus offers a unique opportunity to capture the most up-to-date perspective in an area of medicinal chemistry.

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Preface to Volume 2

It was one hundred and one years ago that Alois Alzheimer presented at a scientific meeting a case of progressive dementia in a 51-year-old patient Auguste D. Postmortem analysis revealed two pathologies, namely, senile plaques and neurofibrillary tangles. These findings were published the following year in 1907. In 1910 Emil Kraepelin, Alzheimer's mentor, named this disease after its discoverer. The two initial pathological findings remain the postmortem diagnostic features of Alzheimer's disease (AD) today. At the time, however, Kraepelin made the distinction between AD and senile dementia (> 65 years old) despite their similarities in pathologies and clinical symptoms [1, 2]. In 1976 Robert Katzman argued in an editorial in the April issue of *Archives of Neurology* that this distinction be removed. AD has thus morphed from a rare orphan disease to one with a much bigger socioeconomic threat. This nosological shift has brought AD into the lime light and exponentially—and thankfully—hastened the pace of research. Enormous strides have been made in understanding the root causes and risk factors of the disease. Analogous to the discovery of new cancer treatments over the past 20 years (see Volume 1), advances in understanding the underlying molecular biology are providing novel drug targets for future research. These efforts have resulted in greater than 500 ongoing clinical trials focused on novel mechanisms and intervention points in the disease. These trials will hopefully lead to the first approval of a disease-modifying agent for AD and pave the way for an arsenal of new medications.

October, 2007, Groton Connecticut, USA

Lit-Fui Lau and Michael A. Brodney

1. Ballenger JF (2006) J Alzheimers Dis 9:5
2. Lage JM (2006) J Alzheimers Dis 9:15

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