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Book Review

Opiate Receptors and Antagonists: From Bench to Clinic. Edited by Reginald Dean, Edward J. Blisky, and S. Stevens Negus. Humana Press, New York. 2009. xxxii + 757 pp. 16 × 23.5 cm. ISBN 978-1-58829-881-2. $149.00.

Much research over the past 35 years has provided great insight into the workings and intricacies of the opioid receptor endorphin system. One of the key chemical tools to understanding the pharmacology, biochemistry, and biology of the opioid receptor system has been the design and synthesis of opioid receptor antagonists. It is hoped that this book will serve as a useful reference while also stimulating continued research on the opioid receptor system and assisting in the development of treatments that may be responsive to opioid receptor antagonists.

The book is divided into six broad parts and an index. Part 1, "Opioid Receptors", discusses the effects of ultra-low-dose antagonists on opioid induced analgesia and tolerance, up-regulation of receptors, imaging opioid receptors, and antagonist mediated signaling in the immune system. Part 2, "Opioid Antagonists: Chemistry and Pharmacology", covers the medicinal chemistry of selective μ, ∂, and κ antagonists, mixed or dually selective antagonists, irreversible antagonists and a discussion of methylnaltrexone, a peripherally restricted antagonist. Part 3, "Substance Abuse", details the use of opioid antagonists in the treatment of opioid, CNS stimulant, nicotine, and marijuana abuse. This section provides a nice overview of the current state of this field and highlights the potential of opioid antagonists in treating these disorders. Part 4, "Alcohol and Ingestive Behaviors", discusses the preclinical and clinical utility of treating alcohol abuse with opioid antagonists. In addition, this part discusses the therapeutic potential of opioid antagonists in treating eating disorders such as anorexia and bulimia. Part 5, "Behavioral Disorders", discusses the opioid system as a means of treating mood disorders, gambling addiction, self-injurious behavior, and schizophrenia. Part 6, "Medical Indications", covers the many clinical situations where opioid antagonists are of utility. Among the topics covered in Part 6 are drug overdose, pruritus, traumatic shock, L-DOPA induced dyskinesia, and cancer therapy. Part 6 also contains a discussion of new drug-delivery approaches utilizing opioid antagonists. In general, the authors do an excellent job of providing insight into the background of the many factors related to opioid receptor antagonists.

Unfortunately, this book is not likely to be of much utility for the non-opioid medicinal chemist. The book lacks a general discussion of opioid receptor structure and the current understanding of the binding modes of opioid antagonists. With several notable exceptions, the book does not really discuss the structure−activity relationships of opioid antagonists. This detracts from the book's potential use as an opioid drug design tool. However, the chapters discussing the drug delivery strategies are likely to be of interest to pharmaceutical scientists with an interest in sustained release formulations, transdermal delivery systems, and/or implantable long-term delivery systems. Overall, this work is a well written and interesting text and would be a very useful addition to the personal libraries of those medicinal chemists with a research interest in the modulation of the opioid receptor system.

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