Book Reviews

The Dopamine Receptors. Edited by K. A. Neve and R. L. Neve. Humana Press, Totowa, NJ. 1997. xi + 533 pp. 16 × 23 cm. ISBN-0-89603. $119.50.

This book is another volume of the series, *The Receptors*; it comprehensively reviews the most active areas of dopamine research in a historical and up-to-date perspective. The book is divided into 3 parts and 16 chapters. Part I (Chapters 1−4) discusses the basic pharmacological properties of the D_1 and D_2 receptors as well as the biochemical characterization of the dopamine receptor proteins, with emphasis on the solubilization and purification of these receptors. Studies of the chemical modification and regulation of the dopamine receptors and consequences with respect to the binding of certain ligands are described. The molecular biology of the dopamine receptors, such as the cloning and protein sequence identity and structure−function analysis, is discussed in the context of site-directed mutagenesis and chimeric receptors. Also elaborated upon is the distribution patterns of the dopamine receptor in the brain and the various methods used to distinguish regional localization. Chapter 4 illustrates the various models which have been used to design novel dopaminergic ligands. The two general strategies, "ligand-based" and "structure-based" drug design approaches, are presented in the context of the dopamine receptor, with special attention given to D_1 agonists, in particular, dihydrexidine. The ligand-based approach briefly reviews several of the fundamental D_1 and D_2 pharmacophore models. The challenges of structure-based drug design are subsequently commented on in the context of automated de novo drug design, as well as the generation of realistic GPCR models utilizing template-based protein homology model-building processes.

Part II, consisting of Chapters 5−8, argues the current evidence directed at understanding the structure−function relationships of GPCRs, as well as studies directed toward the identification of dopamine receptor domains that interact with specific G proteins (i.e., receptor chimeras, receptor antibodies, site-directed mutagenesis). Also discussed is the manifestation of D_1/D_2 receptor interactions and the processes hypothesized to underlie them.

Part III (Chapters 8−16) reveals advances on the DA autoreceptors achieved in the past 5 years with interesting discussions on the D_2 and D_3 receptors. Signal transduction is discussed as well as various hypotheses for autoreceptor sensitivity and therapeutic potential for autoreceptor selective drugs. Several chapters attempt to clarify the electrophysiological effects of dopamine receptor stimulation and to address questions about the role and mechanisms of dopamine receptors in regulating hormone secretion and neurotransmitter gene expression. Studies of the recent dopamine receptor subtypes in the context of antisense knockout studies and clinical medicine are also discussed.

The book is extremely well-written and thoroughly referenced with very little overlap among the 16 chapters. All neuroscientists searching for an invaluable reference resource which provides a clearer understanding of the dopamine field and its future direction should have this book at their fingertips.

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Books of Interest

PDR Guide to Drug Interactions. Side Effects. Indications. Keyed to PDR 50th Edition 1996. Medical Consultant: Ronald Arky. Physicians Desk Reference, Des Moines, IA. 1997. 1553 pp. 23 × 28 cm. ISBN 1-56363-0689. $49.95.

PDR Medical Dictionary. First Edition. Edited by Marjory Spraycar. Williams & Wilkins, Baltimore, MD. 1995. xxxii + 2030 pp. 21.5 × 26 cm. ISBN 1-56363-117-2. $44.95.

Physicians' Desk Reference. 51st Edition 1997. Medical Consultant: Ronald Arky. Physicians' Desk Reference, Des Moines, IA. 1997. 2998 pp. 23 × 28.5 cm. ISBN 1-56363-201-2. $71.95.

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