Book Reviews

Drug−Membrane Interactions. Analysis, Drug Distribution, Modeling. Methods and Principles in Medicinal Chemistry, Volume 15. By J. K. Seydel and M. Wiese. Wiley-VCH, Weinheim, Germany. 2002. xix + 349 pp. 17.5 × 24.5 cm. ISBN 3 527 3042 7. $128.00.

Drugs interact with receptors on or in the cell membrane, interact with constituents of the cell membrane, or need to traverse the cell membrane in order to reach intracellular sites of action. Plasma membranes, including membranes of intracellular organelles, must therefore be of serious consideration to any discussion of drug design and drug action. What is critical to our understanding is that a cell membrane is not a homogeneous entity like octanol but rather is asymmetrically structured at both the macro- and microlevels. Furthermore, the behavior of functional proteins is often significantly modulated by the lipid environment.

Seydel and Weise have provided a valuable service in their book by collecting a significant amount of information on cell membranes that is of substantial interest to issues of drug action. The volume is divided into six large chapters: (1) Function, Composition, and Organization of Membranes; (2) Octanol−Water Partitioning versus Partitioning into Membranes; (3) Analytical Tools for the Analysis and Quantification of Drug−Membrane Interactions; (4) Drug−Membrane Interactions and the Pharmacokinetics of Drugs; (5) Drug−Membrane Interactions and- Pharmacodynamics; (6) Computer Simulation of Phospholipids and Drug−Phospholipid Interactions. Chapter 2 provides some useful discussion of octanol−water versus membrane partitioning and, together with Chapter 4, provides a useful background on the influence of membrane composition on the overall distribution and pharmacokinetics of drugs. Chapter 5 is of interest because it attempts to integrate discussion of membrane composition with drug efficacy and pharmacodynamics. This is an area often left out of discussions of drug−receptor interactions.

In summary, this is a useful book that has performed an overall useful task of bringing a discussion of membrane form and function into the arena of drug action. Medicinal chemists and pharmacokineticists should find the volume to be both stimulating and useful. There is an adequate index, and the documentation is comprehensive and up to date with. references to 2001.

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