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BOOK REVIEWS

Computer Aided Drug Design—Edited by T. J. Perun and C. L. Propst. 493 pp. 1989. Dekker, New York. $99.75 (U.S.A. and Canada); $119.50 (elsewhere); $49.75 (for class use if 5 or more copies ordered).

With a knowledge of the efficacy of a range of related chemical compounds it is possible to design new chemicals that can have increased efficacy and fewer side effects. In the past this was done using the knowledge, experience and hunches of skilled research workers. These are still required but they can be helped by computer aided drug design (CADD). This volume has chapters on: introduction to CADD; use of computer graphics; molecular mechanics and dynamics; X-ray crystallography; NMR; enzyme kinetics; CADD evaluation of the angiotensin converting enzyme inhibitors; CADD modeling of inhibitors of renin; inhibitors of dihydrofolate reductase; anti-viral drug design; conformationally constrained opioid peptides; inhibitors of cholate uptake. The pitfalls and successes of CADD are described and the book is a very useful introduction to the subject.

Molecular and Cellular Aspects of the Drug Addictions—Edited by A. Goldstein. 238 pp. 1989. Springer Verlag, New York. $59.

The development of the ligand binding techniques by Goldstein led to a great increase in our understanding of the drug–receptor complex and the changes in receptor properties, and also provided a valuable screening test for new drugs. The present volume has chapters on the nature of addiction; drug seeking behaviour; bradykinin and pain; neurochemical aspects of addiction; molecular and cellular actions of ethanol; presynaptic inhibition/facilitation and second messenger systems; molecular genetics of neuropsychiatric disorders.

Medical, Biochemical and Chemical aspects of Free Radicals—Edited by O. Hayashi, E. Niki, M. Kondo and T. Yoshikawa. 2 volumes. 1560 pp. 1989. Elsevier, Amsterdam. $514; D.Fl.975.

This is the published proceedings of the *4th Meeting of the Society for Free Radicals* held in Kyoto. There are two introductory reviews: (1) disturbances of free radical reactions—a cause or consequence of cell injury?; (2) the biological implications of oxygen radical mediated inactivation of enzymes. The remaining 300 papers are grouped into sections on iron complexes (58 pp.); active oxygen (132 pp.); vitamin E (111 pp.); antioxidants (276 pp.); superoxide dismutase (156 pp.); assay methods (160 pp.); lipid peroxidation (54 pp.); lipid peroxide (60 pp.); prostaglandins (54 pp.); ischaemia-reperfusion (76 pp.); pathology (268 pp.); cancer (86 pp.).

B lymphocytes; Function and Regulation—Edited by P. del Guercio and J. M. Cruse. 310 pp. 1989. Karger, Basel. S.Fr 278; DM 333; $185.50.

The bone marrow of a normal mouse produces enough B cells so that the whole peripheral content of B cells in the mouse body can be replenished in 2–4 days. In the healthy control mouse, 80% of these B cells disappear less than 7 days after they have been produced. B cell production is stimulated by circulating antibodies. The B cells can be activated by the six interleukins, Fc receptors, IgE, and Ig binding factors. B cells are also involved in the autoimmune responses and the rheumatoid reactions. These topics and the involvement of lymphocytes in AIDS are discussed in this book.

The Metabolism and Toxicity of Fluoride—G. M. Whitford. 160 pp. 1989. Karger, Basel. S.Fr 147; DM 176; $98.

Fresh mackerel, sardines, salmon and cod have a fluoride (F) content between 6 and 27 ppm. Brewed tea has 1–6 ppm depending on the amount of tea used. Most foods have a F content between 0.01 and 1.0 ppm. U.S.A. water ranges between 0.37 and 1.04 ppm. F is removed from the body via the kidneys. The lethal dose of F for a 70 kg man is 5–10 g of sodium fluoride; i.e. 32–64 mg/kg body weight. This is the LD_{100}. The probable toxic dose is 5 mg/kg body weight. Now that dental caries have been reduced in children, the general fluoridation of water is being criticised, since F can be more selectively administered in tooth paste.

Molecular Biology of Neuroreceptors and Ion Channels—Edited by A. Maelicke. NATO ASI Series H: Cell Biology Vol. 32. 675 pp. 1989. Springer Verlag, Berlin. DM 289.

Full length DNA codings for several excitatory and inhibitory receptors and ligand gated ion channels have been obtained, their amino acid sequence determined and they have been expressed in Xenopus oocytes. The main sections of this book are about: the nicotinic ACh receptors; the amino acid (GABA, Glycine, Glutamate, 5HT) receptors; voltage gated ion channels (Na, K, Ca); other receptors and ion channels (Dopamine-2, TRH, GTP); structure–function relationship of ion channel proteins; gene expression, gene regulation and development; and clinical aspects. The 60 reviews provide an excellent picture of the main types of receptors and ion channels together with their subclasses and variations.

Membrane Structure and Function—W. H. Evans and J. M. Graham. 86 pp. 1989. IRL/Oxford University Press, Oxford. $12.95 (paperback).

Although there are only 86 pp. in this book, it will tell you more than many 300 pp. books on the same subject. It is very concise but has excellent tables and diagrams. For example it has Table 3.1 telling which receptors are linked with ion channels; linked with protein kinase; activate adenylate cyclase; inhibit adenylate cyclase; activate phospholipase C; activate phospholipase A. It has an excellent diagram (Fig. 3.2) comparing the structure of the receptors for epidermal growth factor, insulin, transferrin, LDL, v-erb-oncogene. So, if you really want to know about membrane composition, structure, receptors, biogenesis, traffiking, transport and bioenergetics, in a nut-shell; then this is the book for you.