

The Endorphins

Advances in Biochemical Psychopharmacology, Volume 18

Edited by E. Costa and M. Trabucchi

Raven; New York, 1978

xvii + 379 pages. \$36.40

This book comprises the communications presented in a symposium on the endogenous morphine-like peptides, endorphins and enkephalins, held in August 1977. A total of 32 original contributions are reported, which include many different aspects of the then current research on these peptides.

A large part of the book deals with the localisation of the endorphinic and enkephalinergic systems in the central nervous system, and with their relationships with other hormones or neurotransmitters. Immuno-histochemical and radioimmunoassay techniques are widely used to show a tentative description of the endorphinic and enkephalinergic pathways, which interestingly are shown not to be related to each other.

On the other hand, a number of contributions in the book deal with the pharmacology of these opioid peptides. The various results concerning the relationships between enkephalins and substance P, the catecholamines, and GABA, will be very helpful to the reader interested in the rôle of these neurotransmitters in the central nervous system. Similarly, a rough picture is presented concerning the function of the pituitary and hypothalamic endorphins.

Interest is also focussed on the opiate receptors. The localisation of these receptors has been carefully

studied. Particularly, it is reported that some opiate receptors are located on dopaminergic nerve endings in the striatum, a result important with regard to the complexity of the morphine–dopamine interactions. From a more general point of view, a distribution of the different classes of opiate receptors (μ , K, σ) in the central nervous system is also proposed.

In the last part of the book, the possible functions of enkephalins and endorphins in the pain mechanism as well as in psychiatric disorders are discussed. The reader will be pleased to learn that the opioid peptides, which may be involved in the acupuncture analgesia, offer an elegant explanation to this very ancient and mysterious form of pain relief. Together with these reports, the various behavioural effects of endorphins which are described in the book, suggest that they might be involved in the well-being of mammals.

Due to the considerable amount of research being carried out in this field of great potential importance, some of the results presented are now out of date. Nevertheless, the biochemist or the pharmacologist will certainly appreciate this book, which offers a good grounding in both the enkephalins and the endorphins.

B. Malfroy

Conjugation Reactions in Drug Biotransformation

Proceedings of a Symposium held in Turku, Finland, July 23–26, 1978

Edited by A. Aitio

Elsevier/North-Holland; Amsterdam, New York, 1978

x + 530 pages. \$76.60, Dfl 157.00

This book contains 43 papers on conjugation reactions together with 36 poster abstracts. Each of the

latter is one page in length. The papers are grouped into eight sections, each including a condensed account

of the relevant discussions at the symposium. In general, some papers contain a considerable amount of experimental detail, whereas others are mini-reviews of a particular aspect of conjugation.

The first section considers arene oxide metabolism (4 papers), particularly the role of conjugation reactions in the metabolism of the environmental carcinogen benzo[a]pyrene. Glycoside conjugation reactions (3 papers) presents evidence suggesting that oestrogen glucosides may be involved in the intracellular transport of the steroids. Bilirubin glycosides are reviewed, and the relationship between the conjugation and excretion of bilirubin is discussed. The glucuronyl-transferase activity of human lymphocytes is reported. Four papers follow on conjugation reactions with amino acids and their derivatives: the role of ligandin (glutathione *S*-transferase B) in hepatocarcinogenesis, the enzymology of glutathione *S*-transferase A and taurine *N*-acyltransferase, and structure-metabolism relationships in amino acid conjugations. Genetic variability in drug metabolism (3 papers) includes work on the genetics of drug acetylation and bilirubin glucuronidation.

Current interest in the nature of UDP-glucuronyl-transferases is reflected by a long section (some 100 pages; 9 papers) on this topic. Perinatal development, heterogeneity of the enzyme, and the influence of microsomal membrane structure, heavy metal salts and UDP-*N*-acetylglucosamine on glucuronidation are critically evaluated with reference to the possible

regulatory mechanisms for this family of enzymes in vivo. Conjugation reactions in isolated cells (4 papers) deals mainly with glucuronidation and sulphation in hepatocytes.

The problems encountered in the biochemical characterisation of enzyme systems involved in drug biotransformation are discussed in a section (some 100 pages; 11 papers), which includes 3 papers on the properties of purified UDP-glucuronyltransferase and one on the control of intestinal glucuronide biosynthesis that are complementary to those above on the nature of this enzyme. Also in this section are papers on sulphation, the use of fluorescent probes and liposomes for the study of microsomal enzymes, the effect of carbon disulphide on liver microsomes, and the similarity of D-glucuronolactone dehydrogenase and aldehyde dehydrogenase. The final section discusses the pharmacological and toxicological implications of conjugation reactions (5 papers); the relationship of conjugation to the toxicity and metabolic activation of xenobiotics.

The wide coverage of the conjugation reactions and their biological implications found in this interesting and informative volume reflects the important role of conjugations in the metabolism of the wide variety of chemicals to which modern man is exposed. It will be a valuable reference book to all concerned with the metabolism of biologically active chemicals.

Peter Millburn

Enzymatic Reaction Mechanisms

by C. Walsh

W. H. Freeman; Reading, San Francisco, 1979

xv + 978 pages. £18.30

For a long time there has been a conspicuous gap in the texts available to teachers and students of biochemistry. The standard biochemistry texts make a greater (or lesser) attempt to indicate the precedents for enzyme-catalysed reactions in classical organic chemistry but seldom explore the subject in much depth. However the texts devoted specifically to consideration of the mechanisms of biological reac-

tions, such as for example that by Bruice and Benkovic, have been written by authors whose initial training was in the area of physical or organic chemistry and who have only latterly developed an interest in biological systems. Hence such texts tend to lack the insight of an author whose experience has been obtained primarily in a biological context and who has worked with the more complex and less tractable enzymes