

response to a drug may be overshadowed, if it is tested without considering subgroups of AD. This problem is only considered in the chapter by Svennerholm and Toffano, in which a study is presented where ganglioside GM1, a glycosphingolipid with neuroprotective and neurotrophic effects, is given by continuous intracerebroventricular infusion to patients with the classical, early onset, form of AD.

Anyhow, *Alzheimer Disease: Therapeutic Strategies* encapsulates the present knowledge in AD therapeutics, as well as the underlying

neurochemical pathology for compounds that today are clinically available (e.g. tacrine, citalopram) or under clinical trials (e.g. anti-inflammatory agents), and also reviews potential future therapeutic approaches (e.g. agents aiming at arresting amyloid deposition), a concept which must interest both scientists involved in AD research and clinicians.

K. Blennow

Dictionary of Gene Technology; Edited by G. Khal; VCH; Weinheim New York, 1995; xii + 550 pp. DM 184.00. ISBN 3-527-30005-8

The *Dictionary of Gene Technology* presents a large collection of terms and laboratory jargon used in the field of genetic engineering and related areas. In the preface the author states that gene technology is an extremely rapid growing science and anybody can agree with that. The book represents an immense piece of work and it is impressing that it has been possible to compile so many terms that are presented in a clear way and in general are explained and described in as much detail as is required to understand them. Each entry contains many cross references to other entries in the book and many of the descriptions are supported by good illustrations.

The areas covered go far beyond the broad field of gene technology, touching many related disciplines that include microbiology, genetics, chemistry and biochemistry. Although the dictionary comprises several thousand entries a certain selection seems to have taken place. For example, the book includes descriptions of several protein motifs like zinc fingers, leucine zippers, helix-turn-helix and helix-loop-helix motifs while other well known motifs, e.g. the RNA recognition motif and the EF-hand motif are left out. Perhaps this has to do with a predisposition to favour proteins that may interact with DNA. Furthermore, with such a huge dictionary it may be unavoidable that some terms are less adequately described. As stated in the preface the author is fully aware

of this. To mention a few, homology is defined as the extent of identity between two nucleotide or amino acid sequences. Although this interpretation is widely used in the literature the author misses the precise biological meaning, i.e. having a common evolutionary origin. Another entry, equilibrium dialysis, is rather clumsy defined as a method to determine protein-protein interaction with a description of a very special case, omitting the essence that it is a method to determine the binding strength of a low molecular mass ligand, that can pass through a dialysis membrane, to a high molecular mass macromolecule that cannot pass through the membrane. However, it would be out of proportion to highlight a few terms that clearly represent exceptions to the rule without emphasising that there are more than 4000 useful entries the great majority of which are adequately described.

The book is mainly addressed to students in the field of gene technology and scientists in related fields who are unfamiliar or only slightly familiar with recombinant DNA technology. Undoubtedly the dictionary will find a natural place in molecular biology laboratories that frequently host guests. The book provides information which is not easily perceived from other sources and it can be highly recommended.

Bent Honoré

Molecular and Cellular Enzymology. Progress in Molecular and Subcellular Biology; Edited by Ph. Jeanteur; Vol. 13; Springer-Verlag; Berlin, Heidelberg, 1994. x + 150 pp. DM 198.00. ISBN 0-387-57337-2

Enzymologists frequently suffer from the delusion that the enzyme properties that they observe *in vitro* are the same as those in the cell. This book will rapidly destroy such illusions but also suggests ways of studying the intracellular behaviour of enzymes. It is a collection of three very different articles on proteins within cells; the unifying theme is that proteins, particularly enzymes, will be affected by the microenvironment in the cell. All the articles are written by active workers in their fields but they differ in the commitment demanded of the reader.

The first chapter makes up more than half the book and is a detailed examination of the modelling of enzyme dynamics in cells. The approach is theoretical with many mathematical formulae which need to be grasped if the full thrust of the authors' argument is to be followed but the effort is very worthwhile. The foundation of the analysis is that the interior of a cell, particularly the membranes, can be regarded as a charged ionic matrix. The flow of charged particles through such a matrix is examined with particular reference to ATP-synthase. Examination of the effects of diffusion coupled to enzyme activity leads to the surprising finding that the activity of an enzyme under such conditions can vary, at the same concentration of substrate, according to whether substrate concentration is increasing or decreasing. The authors then discuss the effect on an enzyme of being inserted in a charged environment and conclude with a consideration of the

dynamics of feedback control and multi-enzyme systems. The theoretical ideas are illustrated by experimental examples.

The next chapter reviews microbial and genetic approaches to the study of proteins. Various approaches to point mutation of proteins are described, in particular the use of amber codons together with amber suppressor tRNAs to generate protein variants with up to 13 different amino acids at the same position. The authors' work on a cellulase is used as an illustration of the technique. Such multireplacement allows the sensitivity of protein function to the presence of particular residues to be determined. The use of inserted tryptophan residues to study conformational changes in calmodulin is also described.

The final chapter is an excellent review of fluorescence spectroscopy as applied to the study of single cells. The article ranges from details of fluorescence quenching, energy transfer, polarisation and anisotropy through to use of lifetimes and confocal microscopy. This is very much a quick tour around the experimental advantages and hazards of fluorescence techniques. It would form a suitable introduction for final year undergraduates.

Overall this book presents several perspectives on the effect of the cellular environment upon enzymes. It makes us stop and think what we are really trying to achieve when we study our enzymes outside the cell

Alan Thomson
