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## *Advances in Enzymology and Related Areas of Molecular Biology: Vol. 61*

Edited by Alton Meister

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vii + 557 pages. £52.50

This newest addition to the above series, the 3rd such successive volume to appear in 1988, comprises 8 reviews on widely differing topics, most of broad general interest.

The first, on A Unifying Model of the Thermodynamics of Formation of Dehydrogenase-Ligand Complexes (by H. Fisher) deals with the concept that ligand binding may induce specific energetically significant changes in a protein molecule, in which the protein chain 'folding problem' plays a key role. This is followed by a detailed survey of the structure, function and other properties of Sorbitol Dehydrogenase (by J. Jeffery), and its relationship to other enzymes, particularly alcohol dehydrogenases.

A chapter on Molecular Size Determination of Enzymes by Radiation Inactivation (by E.S. Kempner) is really an up-dated version of the so-called target theory with the use of ionizing radiations for determination of molecular size of a macromolecule with a measurable biological activity. This is the approach originally introduced as 'Die Treffenprinzip in der Biologie' in a well-known classical paper by Timoféeff, Zimmer and Delbruck in 1935. In addition to a comprehensive treatment of the theoretical and experimental aspects, there is an extremely useful and very extensive table on recent data. It is, however, rather surprising that, although there are numerous references to the literature for 1986, no mention is made of the elegant application of this technique by Gibson et al. ((1986) *Biochemistry* 25, 6264–6268) to determination of the different target sizes for fusion, leakage and neuraminidase activities of influenza virus.

A chapter on The Behaviour and Significance of Slow-Binding Enzyme Inhibitors (by J.F. Mor-

ison and C.T. Walsh) comprehensively reviews compounds which inhibit enzymes in a time-dependent manner, with  $K_i$  values in the nanomolar range, or even lower. Such inhibitors, which have recently come in for considerable attention, and have been commonly referred to as transition-state analogues, are now proposed to be more appropriately considered as reaction intermediate analogues. This review is almost a must for all enzymologists. An additional, related, chapter reviews the Kinetics of Substrate Reaction During Irreversible Modification of Enzyme Activity (by C.L. Tsou).

The remaining 3 chapters, of no less interest, deal with the properties of Calcineurin (by C.B. Klee, G.F. Draetta and M.J. Hubbard), the major soluble calmodulin-binding protein in brain extracts, with  $\text{Ca}^{2+}$ -calmodulin-regulated protein phosphatase activity; ADP-Ribosylation of Guanylate-Binding Regulatory Proteins by Bacterial Toxins (by J. Moss and M. Vaughan); and the Dynamics of DNA-Polymerase-Catalyzed Reactions (by V. Mizrahi and S.J. Benkovic).

Unlike several recent volumes dealing largely with highly specialized topics, the present one should appeal to all researchers in enzymology and related topics, as well as to graduate students. Each review is preceded by a detailed list of contents; but the utility of this is limited by the failure to include page numbers for individual sections and sub-sections. Furthermore, although the author index is complete, the subject index might profitably have been more extensive. Cumulative author and subject indexes provide useful complete references to the contents of all preceding volumes.

David Shugar