

## Book Reviews

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**Monoamine Oxidases—New Vistas.** Edited by E. Costa and M. Sandler. *Advances in Biochemical Psychopharmacology*. Vol. 5. Raven Press, New York, N. Y. 1972. xii + 454 pp. 16.5 × 24.3 cm. \$19.75.

Amine oxidases are important enzymes which, in the animal body, remove excess biogenic and other amines by oxidative deamination with the formation first of imines which are then hydrolyzed to carbonyl compounds. Ever since the discovery of tyramine oxidase by Mrs. HareBernheim in 1928 was it apparent that there are many amine oxidases, the monoamine oxidases (MAO's) from various sources differing from one another and overlapping, in substrate specificity and other properties, with diamine oxidases, histaminase, etc. The question whether this multiplicity of reaction with substrates is due to isozymes or molecular aggregates of "monomeric" forms has not yet been settled. Some MAO enzymes contain flavins as prosthetic groups, whereas diamine oxidases often contain pyridoxal phosphate and metal ions. It is therefore not surprising that substrate specificities diverge by considerable magnitudes, up to  $4 \times 10^5$  for different biogenic amines. These enzymes occur in many different cells and in mitochondrial membranes. The amino acid composition and the apparent molecular weight of a few of the MAO's have been determined but almost everything else is left to future researches.

MAO inhibitors are being used clinically to counteract depressive

and hypertensive states. Because of paradoxical hypertensive crises evoked by these drugs when the patient has ingested tyramine-rich foods, they have lost favor with general medical practitioners but are being used mostly in carefully supervised patients. Obviously, selective MAO inhibition in the CNS and reduction of action on peripheral MAO's will circumvent these side effects. A beginning has been made in a search for such inhibitors and this constitutes a challenge to structure-activity correlation coordinated with meticulous control of enzyme types. The understanding of structure, function, kinetics, and mutual interaction of amine oxidases is a prerequisite to progress in anti-MAO therapy. The present volume is devoted essentially to such fundamental enzymological questions. The book is a compilation of new and old papers presented as a *Festschrift* for Professor H. Blaschko, a long-time investigator in the field of MAO research. The symposium was held at the fashionable resort of Cagliari, Sardinia, in June 1971. American investigators attended in force in spite of restrictions on foreign travel imposed by U. S. granting agencies. The book will be of great value to enzymologists and protein chemists as well as to the few medicinal chemists and psychopharmacologists who will have the courage to resurrect a commercially unpopular line of research on MAO inhibitors.

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