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THE BIOLOGY OF TAURINE

Methods and Mechanisms

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Proceedings of a symposium on Sulfur Amino Acids, Peptides, and Related Compounds, held October 6-9, 1986, in Firenze-San Miniato, Italy

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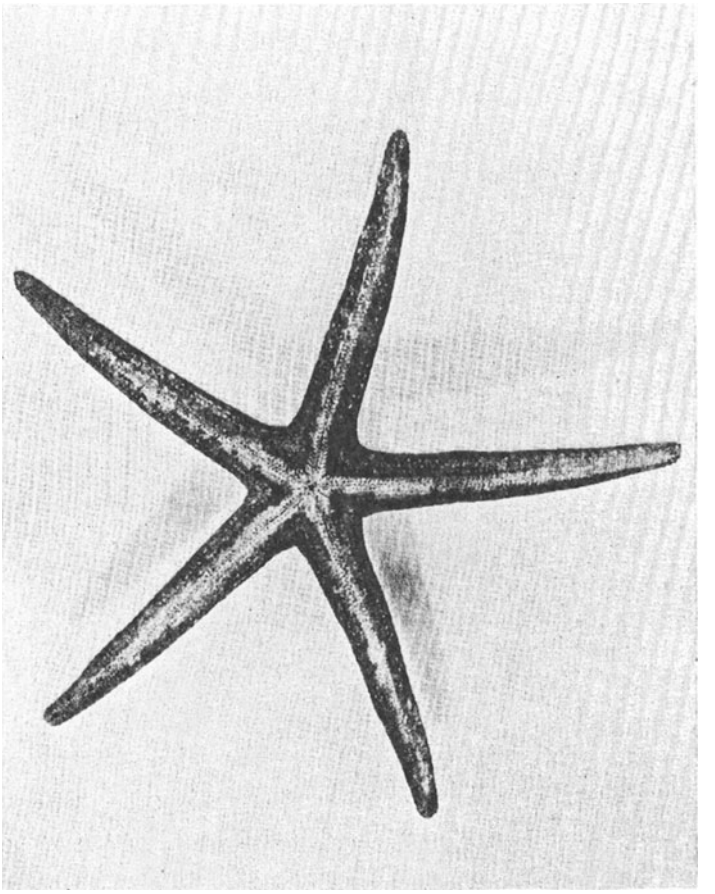

The starfish, rich in taurine, with its five arms, may indeed be a good symbol for this symposium.

A. Giotti (This volume).

(Photo courtesy of Lorenzo Giotti)

PREFACE

I was pleased and at the same time filled with some misgivings when Professors Alberto Giotti and Ryan Huxtable asked me to introduce this book. The book is the outcome of the Symposium held in Firenze-San Miniato (PI), October 6-9, 1986. The symposium was entitled "Sulfur Amino Acids, Peptides and Related Compounds" and was the 7th international symposium on taurine and associated substances.

It is always difficult to introduce, with the right brevity and emphasis, a topic which has been studied in depth by numerous experts. Nevertheless, I shall do my best to give a historical perspective of the subjects of the meeting which I consider to be very important for the frontiers of research on taurine. The following topics have also become coherent areas of study during the development of research on taurine: metabolism, nutrition, neurochemistry, cardiovascular regulation. Although taurine was isolated in 1827 by Tiedman and Gmelin, its only biochemical role known at the time was the synthesis of bile salts in mammalian tissue.

There has been an increasing interest in the biological action of taurine from metabolic aspects to other biological aspects (nutrition, development, etc.). In 1975 it was first demonstrated that taurine deprivation produced retinal degeneration in cats; more recent studies showed that a taurine-free diet or the administration of taurine transport inhibitors caused retinal degeneration in other mammlas. More recent studies have pointed out the role of taurine in development, and the first part of this book is dedicated to these topics.

From the pioneer work of Read and Welty, which showed the antiarrhythmic action of taurine, particular attention has been focussed on the effect of taurine on cardiovascular regulation. One important issue is inotropism and the cardioprotective effect of taurine. Although pharmacological studies are in progress on structur-action relationships, there are few electrophysiological studies, and thus the action of taurine on ion currents has yet to be clarified.

Neurochemistry, with neuropharmacology, is widely represented in this book. The data are interesting although the classical question "Is taurine a neurotransmitter?" is still without reply, at least for mammalian tissue.

I should like to point out the multidisciplinary approach of the symposium and consequently of the book, a fact also demonstrated by the different methodological approaches represented. In the symposium a taurine antagonist was introduced and in the interests of research, I hope that it will be very selective. Although much progress has been made in discovering the biological role of taurine no insight on its mechanisms is available, although the unifying hypothesis of Ryan Huxtable is a good point at which to start new research.

I hope that this book will be a good guide to the state of the art of research on taurine and related compounds.

Flavia Franconi

ACKNOWLEDGMENTS

The editors are grateful to all those who in ways big and small contributed to the success of the meeting and the production of this book. These include the members of the local Organizing Committee, Fabrizio Ledda, Silvana Romanelli, Paola Failli, Isabella Stendardi, Rosanna Matucci and Federico Bennardini. A suitably international flavor was supplied by the other members of the Scientific Committee, Simo Oja and Kenji Yamaguchi.

The symposium was sponsored by the Universita degli Studi di Firenze, with additional support provided by the Consiglio Nazionale delle Richerche, Fidia Farmaceutici, Sandoz Prodotti Farmaceutici, Sigma-Tau, A. Menarini, Istituto Gentili, Roussel Maestretti, Cassa di Risparmio di San Miniato, Banca Popolare dell'Etruria and Banca Toscana. We thank all these for their help and generosity.

Last, but not least, we thank Harriet Larkin who, with the help of Doni Garcia, retyped the majority of manuscripts in this volume. We are especially appreciative of the help they gave us in this painstaking task of editing.

Ryan J. Huxtable

Flavia Franconi

Alberto Giotti

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