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Handbook of Experimental Pharmacology

Heme and Hemoproteins

Contributors

K. W. Bock · F. De Matteis · G. H. Elder · L. G. Israels
G. S. Marks · J. D. Maxwell · U. A. Meyer · H. L. Rayner
H. Remmer · S. Sassa · B. A. Schacter · G. H. Tait
T. R. Tephly · D. P. Tschudy

Editors

Francesco De Matteis
W. Norman Aldridge

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Dr. Francesco De Matteis
Dr. W. Norman Aldridge

Medical Research Council Labs., MRC Toxicology Unit, Woodmansterne Road, Carshalton, Surrey SM5 4EF, Great Britain

With 60 Figures

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Preface

The study of the biological effects of foreign chemicals (whether therapeutic drugs or chemicals present at work or in the environment) interests the biologist from a number of different and complementary viewpoints. Apart from the more obvious pharmacological and toxicological interest, the experimentalist often uses foreign chemicals to produce in experimental animals disease states similar to naturally occurring diseases, so that their pathogenetic mechanisms and therapy can be studied under controlled conditions. In addition – as Claude Bernard pointed out over a century ago – foreign chemicals can be employed as instruments to analyze the most delicate vital processes; much can be learned about the physiological processes themselves by a careful study of the mechanisms by which these are altered by chemicals.

The field of heme and hemoproteins offers an example of the interplay of these different approaches. Their metabolism can be altered by therapeutic drugs and other foreign chemicals and this results in a variety of biological responses that transcend the boundaries of pharmacology into the confines of clinical medicine, genetics, toxicology, biochemistry and physiology.

In this book a multidisciplinary approach to the study of heme metabolism is presented including the effect of chemicals on heme metabolism in patients, the results of experimental work in the whole animal, as well as in vitro studies. The major emphasis throughout is intended to be on the mechanisms by which drugs and foreign chemicals disturb heme metabolism, considering whenever possible the molecular events which are involved in the light of the information obtained from different approaches. Our intention has been to provide a critical assessment of the present state of knowledge (rather than a complete coverage of the literature) according to the various authors' current work and experience; to indicate areas of uncertainty where further work is required and to put forward interpretation and hypothesis which will stimulate further experiments.

Carshalton, Surrey

F. De Matteis
W. N. Aldridge

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List of Contributors

K.W. Bock, Professor Dr., Abteilung Biochemische Pharmakologie, Institut für Pharmakologie und Toxikologie der Universität, Kreuzbergring 57, D-3400 Göttingen, Fed. Rep. of Germany

F. De Matteis, Dr., Biochemical Pharmacology Section, MRC Toxicology Unit, Medical Research Council Laboratories, Woodmansterne Road, Carshalton, Surrey SM5 4EF, Great Britain

G.H. Elder, Dr., Department of Medical Biochemistry, Welsh National School of Medicine, Heath Park, Cardiff CF4 4XN, Great Britain

L.G. Israels, Dr., Department of Medicine, University of Manitoba and the Manitoba Institute of Cell Biology, 700 Bannatyne Avenue, Winnipeg, Manitoba R3E OV9, Canada

G.S. Marks, Professor and Head, Department of Pharmacology, Queen's University, Kingston, Ontario K7L 3N6, Canada

J.D. Maxwell, Dr., Department of Medicine, St. George's Hospital Medical School, Cranmer Terrace, London SW17 ORE, Great Britain

Urs A. Meyer, Professor of Clinical Pharmacology, Division of Clinical Pharmacology, Department of Medicine, Kantonsspital CL-25, CH-8091 Zürich, Switzerland

H.L. Rayner, Dr., Department of Medicine, University of Manitoba, and The Manitoba Institute of Cell Biology, 700 Bannatyne Avenue, Winnipeg R3E OV9, Canada

H. Remmer, Professor Dr., Abteilung Biochemische Pharmakologie, Institut für Pharmakologie und Toxikologie der Universität, Kreuzbergring 57, D-3400 Göttingen, Fed. Rep. of Germany

S. Sassa, Dr., The Rockefeller University, 1230 York Avenue, New York, NY 10021, USA

B.A. Schacter, Dr., Manitoba Institute of Cell Biology and Department of Medicine, University of Manitoba, 700 Bannatyne Avenue, Winnipeg, Manitoba R3E OV9, Canada

G.H. Tait, Dr., Department of Chemical Pathology, St. Mary's Hospital Medical School, London W2 1PG, Great Britain

T.R. Tephly, Dr., The Toxicology Center, Department of Pharmacology, Basic Sciences Building, The University of Iowa, Iowa City, IA 52242, USA

D.P. Tschudy, Dr., Metabolism Branch, National Cancer Institute, National Institute of Health, Bethesda, MD 20014, USA