

Handbuch der experimentellen Pharmakologie

Vol. 44 Heffter-Heubner New Series

Handbook of Experimental Pharmacology

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Heme and Hemoproteins

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Springer-Verlag Berlin Heidelberg New York 1978

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ISBN-13: 978-3-642-66765-7

e-ISBN-13: 978-3-642-66763-3

DOI: 10.1007/978-3-642-66763-3

Library of Congress Cataloging in Publication Data. Main entry under title: Heme and hemoproteins. (Handbuch der experimentellen Pharmakologie: New series; v. 44). Bibliography: p. Includes index. 1. Porphyria—Etiology. 2. Heme. 3. Hemoproteins. 4. Drugs—Toxicology. I. Bock, Karl Walter. II. De Matteis, Francesco, 1932-. III. Aldridge, W. N. IV. Series. QP905.H3 vol. 44 [RC632.P6] 615'.1'08s 77-13134 [615'.39]

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Softcover reprint of the hardcover 1st edition 1978

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2122/3130-543210

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

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