Color Atlas of Pathophysiology

Stefan Silbernagl
Professor and Head
Institute of Physiology
University of Würzburg
Germany

Florian Lang
Professor
Institute of Physiology
1st Department of Physiology
University of Tübingen
Germany

Illustrations by
Rüdiger Gay and
Astried Rothenburger

2000
Thieme
Stuttgart · New York
Important Note: Medicine is an ever-changing science undergoing continual development. Research and clinical experience are continually expanding our knowledge, in particular our knowledge of proper treatment and drug therapy. Insofar as this book mentions any dosage or application, readers may rest assured that the authors, editors, and publishers have made every effort to ensure that such references are in accordance with the state of knowledge at the time of production of the book.

Nevertheless, this does not involve, imply, or express any guarantee or responsibility on the part of the publishers in respect of any dosage instructions and forms of applications stated in the book. Every user is requested to examine carefully the manufacturers' leaflets accompanying each drug and to check, if necessary in consultation with a physician or specialist, whether the dosage schedules mentioned therein or the contraindications stated by the manufacturers differ from the statements made in the present book. Such examination is particularly important with drugs that are either rarely used or have been newly released on the market. Every dosage schedule or every form of application used is entirely at the user's own risk and responsibility. The authors and publishers request every user to report to the publishers any discrepancies or inaccuracies noticed.

Some of the product names, patents, and registered designs referred to in this book are in fact registered trademarks or proprietary names even though specific reference to this fact is not always made in the text. Therefore, the appearance of a name without designation as proprietary is not to be construed as a representation by the publisher that it is in the public domain.

This book, including all parts thereof, is legally protected by copyright. Any use, exploitation or commercialization outside the narrow limits set by copyright legislation, without the publisher's consent, is illegal and liable to prosecution. This applies in particular to photostat reproduction, copying, mimeographing or duplication of any kind, translating, preparation of microfilms, and electronic data processing and storage.
Pathophysiology describes the mechanisms which lead from the primary cause via individual malfunctions to a clinical picture and its possible complications. Knowledge of these mechanisms serves patients when the task is to develop a suitable therapy, alleviate symptoms, and avert imminent resultant damage caused by the disease.

Our aim in writing this Atlas of Pathophysiology was to address students of medicine, both prior to and during their clinical training, and also qualified doctors as well as their co-workers in the caring and therapeutic professions and to provide them with a clear overview in words and pictures of the core knowledge of modern pathophysiology and aspects of pathobiochemistry. Readers must themselves be the judge of the extent to which we have achieved this; we would be happy to receive any critical comments and ideas.

The book begins with the fundamentals of the cell mechanism and abnormalities thereof as well as cell division, cell death, tumor growth, and aging. It then covers a wide range of topics, from abnormalities of the heat and energy balance, via the pathomechanisms of diseases of the blood, lungs, kidneys, gastrointestinal tract, heart and circulation, and of the metabolism, including endocrininal abnormalites, diseases of the musculature, the senses, and the peripheral and central nervous system. Following a short review of the fundamentals of physiology, the causes, course, symptoms, and arising complications of disease processes are described along with, if necessary, the possibilities of therapeutic intervention. The selective further reading list will assist the interested reader wishing to gain more indepth knowledge, and a detailed subject index, which is also a list of abbreviations, aims to assist rapid findings of topics and terminology.

This Atlas would have been inconceivable without the great commitment and outstanding expertise and professionalism of the graphic designers, Ms. Astrid Rothenburger and Mr. Rüdiger Gay. We would like to extend our warmest gratitude to them for their re-

Newed productive co-operation. Our thanks also go to our publishers, in particular Dr. Liane Platt-Rohloff, Dr. Clifford Bergman, and Mr. Gert Krüger for their friendly guidance, and Ms. Marianne Mauch for her exceptional skill and enthusiasm in editing the German edition of the Atlas. Ms. Annette Ziegler did a wonderful job with the setting, Ms. Koppenhöfer and Ms. Loch sorted and compiled the subject index with great care. Throughout all the years it took for this book to come into being, Dr. Heidi Silbernagl constantly stood by us and offered us her loyal and critical opinion of our pictures and manuscripts.

Several colleagues were likewise very helpful. First and foremost we would like to thank Prof. Niels Birbaumer for his valuable advice concerning the chapter ‘Nervous System, Musculature’, but we also thank Prof. Michael Gekle, Dr. Erich Gulbins, Dr. Albrecht Leppe-Wienhues, Dr. Carsten Wagner, and Dr. Siegfried Waldegger. Finally, we are grateful to Prof. Eva-Bettina Bröcker, Prof. Andreas Warnke, and Prof. Klaus Wilms for being so kind as to allow us to reproduce their photographs here.

We hope that readers will find in this Atlas what they are looking for, that what we have attempted to say in words and pictures is understandable, and that they enjoy using this book throughout their studies and their working life.

Würzburg and Tübingen, Germany
January 2000

Stefan Silbernagl and Florian Lang

silbernagl@mail.uni-wuerzburg.de
florian.lang@uni-tuebingen.de