

Buchbesprechungen

Die Verlage werden gebeten, von der unverlangten Zusendung von Besprechungsexemplaren abzusehen und zunächst eine Anfrage an die Redaktion zu richten, die gegebenenfalls dann ein Exemplar erbitten wird. Für die Rückgabe unverlangt eingesandter Besprechungsexemplare kann keinerlei Gewähr übernommen werden.

F. Kajiya, G.A. Klassen, J.A.E. Spaan, J.I.E. Hoffman (eds.) **Coronary Circulation. Basic Mechanisms and Clinical Relevance.** Springer, Berlin Heidelberg New York London Paris Tokyo Hong Kong 1990. XI, 336 pages, 141 figures, Hard cover DM 260,—.

This interesting book deals with important topics concerning the basic mechanisms of coronary circulation. In contributions of a number of established investigators the mechanisms of coronary flow regulation on different levels of the coronary vascular tree are discussed. The multidisciplinary approach to the heterogeneous and overlapping problem of coronary flow regulation is well done by a clear composition of the contributions into different chapters.

In Chapter 1 the anatomical and morphological basis of the coronary vasculature is elaborated, a prerequisite for understanding of the functions of coronary circulation. In the following chapters mechanical properties of the coronary circulation with pressure-flow relationships and evaluation of phasic coronary flow velocities are represented. Chapters 4 and 5 concern with the heterogeneity of coronary flow with special reference to transmural distribution of coronary flow and "vascular segmentation". Chapter 6 presents different control mechanisms of the coronary circulation including humoral control mechanisms with special reference to the role of the endothelium and the significance of sympathetic control of coronary circulation. Chapter 7 deals with an experimental approach to coronary circulation in pathologic conditions such as left ventricular hypertrophy due to aortic stenosis or hypertension and to the pathophysiology of coronary artery spasms. An important problem of clinical relevance is regarded in Chapter 8, concerning mechanisms for collateral growth and the consequences to coronary hemodynamics. Although experimental studies are prevailing in this book, the clinical relevance of coronary hemodynamics and coronary microcirculation in different pathophysiological conditions in humans are elaborated in Chapter 9.

The various contributions give insight into different, also newer methods for measuring coronary flow velocities and flow wave forms such as fiber-optic Laser Doppler velocimeter and ultrasonic flowmetry techniques. However, a point of criticism results from the fact that there is no chapter about critical evaluation of the methodological approach to study coronary microcirculation. A critical, comparative evaluation of different available methods for the measurement of coronary flow would be desirable.

The outfit and the quality of the reproduction of the present monograph are excellent.

The fact that 15–20% of patients, who underwent diagnostic coronary angiography under clinical suspicion of coronary heart disease have revealed a normal coronary angiogram underlines the clinical importance of the knowledge about distur-

bances in the region of coronary microcirculation and possibly involved mechanisms. Therefore this monograph is not only addressed to basic scientists (physiologists, pharmacologists, bioengineers) but also to physicians, especially to cardiologists, cardiac surgeons, specialists for internal diseases, anesthesiologists and others. B.E. Strauer, M. Vogt (Düsseldorf)

J.W. Pettegrew: **NMR-Principles and Applications to Biomedical Research.** Springer, Berlin Heidelberg New York London Paris Tokyo Hong Kong 1990. 198 Abb. XVI, 618 S., Hard cover DM 148,—.

This book, edited by Jay W. Pettegrew and comprising 20 sections written by various authors, deals with the theory and principles of nuclear magnetic resonance (NMR), its already established uses, and its potential applications in biomedical research.

In the introductory section the editor gives a short historical perspective on the subject. In the following 6 sections the fundamental theory and principles needed to understand NMR are reviewed and specific topics are elucidated, such as two-dimensional NMR (A.A. Bothner-By), high-resolution NMR of solids (J.S. Frye), protein-structure analysis in solution by NMR coupled with appropriate computational tools (B.S. Dunean et al.), and the application of solid state NMR as opposed to high resolution in studying membrane lipids (I.C.P. Smith).

The next 5 sections describe the use of NMR spectroscopy in ocular tissue metabolism analysis (T. Glonek et al.), studies on brain aging and Alzheimer's disease in vitro and in vivo (J.W. Pettegrew et al.), tumors (J.D. Glickson et al.), high resolution ^{31}P and ^{27}Al -NMR studies of membranes and mammalian brain (J.W. Pettegrew and K. Panchalingan), and the assessment of cation transport and cytoskeletal structure by ^{23}Na and ^7Li NMR studies (J.W. Pettegrew and D.E. Woessner). Another 4 sections deal with the technique of surface coils in both in vivo spectroscopy and spectroscopy of the brain. The final 5 sections focus on NMR imaging; the various imaging techniques and their present and future applications in research and for clinical purposes are discussed. Special emphasis is focused on NMR imaging in neurological diseases (R.E. Latchaw) and in psychiatry (N.C. Andreasen et al.), whereas other regions of clinical interest, such as abdominal organs, heart, lung, muscles, and skeleton, are not taken into consideration.

This volume is therefore confined to the more fundamental theoretical principles of the various aspects of NMR. It provides the reader with an overview of the various applications of this promising technique mainly in biomedical research. This book will be of interest primarily to researchers in biology, biomedicine, neurology, and psychiatry. The various contributions provide an enormous body of special information and useful literature for those researchers in the various fields who wish to apply NMR techniques in their study programs. It is, however, not recommended for clinicians without a firm grounding in basic biophysics and biochemistry.

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