Myelin Biology and Disorders, Two-Volume Set

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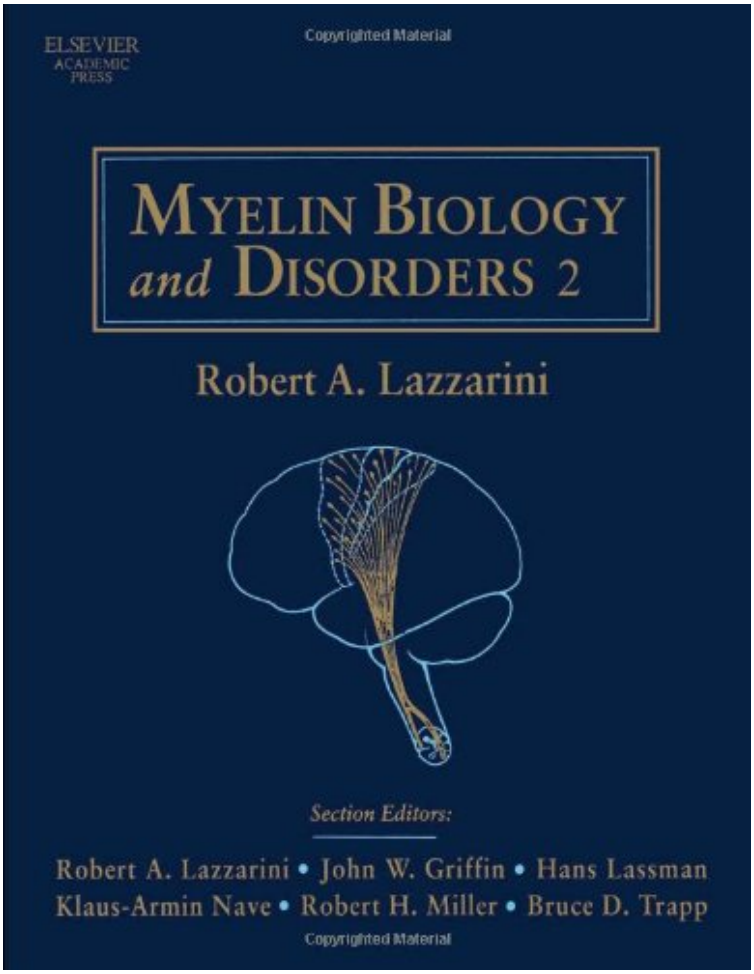

#5361220 in Books 2004-01-02Original language:EnglishPDF # 1 11.20 x 2.46 x 8.76l, 8.99 #File Name: 01243951041600 pages | File size: 73.Mb

From Academic Press : Myelin Biology and Disorders, Two-Volume Set before purchasing it in order to gage whether or not it would be worth my time, and all praised Myelin Biology and Disorders, Two-Volume Set:

With the completion of the "Human Genome Project" and the cloning and complete molecular description of the known myelin genes, the stage has been set for a detailed understanding of the biology of myelin, the disease processes affecting myelin and the potential for myelin repair and regeneration. Myelin Biology and Disorders brings together in one place, the recent advances in molecular and cellular biology along with visual data from MRI, confocal microscopy and high voltage EM techniques to provide new insights into disease mechanisms. This book represents a unique research reference on myelin biology and will serve as the definitive resource for both the professional clinical and basic scientist. * Critically reviews and evaluates all the important genetic and molecular and cellular biological

data on the individual myelin genes/proteins * Details the structural and functional biology of myelin, including a look at the relationship between neuronal damage and myelin damage as seen in multiple sclerosis* Includes forward-looking section on potential therapeutic interventions in myelin diseases

From The New England Journal of MedicineVirtually everything that has been learned about myelin biology has helped to resolve either a medical or a scientific mystery. Myelin Biology and Disorders, an extraordinary compilation of knowledge about myelin and myelin diseases, benefits from the intrinsic interest and importance of the topic no less than from the hard work of its contributing authors. The diseases of myelin, which are particularly well served by this two-volume book, include multiple sclerosis and acute inflammatory demyelinating polyneuropathy, as well as a host of hereditary disorders of central and peripheral myelin. The book is organized into sections that address the functional biology of myelin and glial cells, the development of glial cells, myelin genes and gene products, human diseases of myelin, and animal models of human disease. This structure seems counterintuitive at first but works brilliantly. It is remarkably easy to proceed, for example, from chapters on the development of glial cells to those concerning stem-cell -- or progenitor-cell -- transfer to promote remyelination and neural repair. As a consequence, Myelin Biology and Disorders can be useful both as a substantial reference work and as a selective "laminar" source that treats hereditary peripheral neuropathy as one complex subject. For example, 13 chapters on individual myelin proteins connect seamlessly, both backward to chapters on the functional biology of myelin and forward to those that address how the mutations in the genes that encode the proteins lead to hereditary neuropathies or dysmyelinating disorders of the central nervous system; from there, the chapters discuss animal models of the illnesses. This multiauthored, multieditor book comprises work by a dream team of researchers in the field of myelin, myelin-forming cells (oligodendrocytes and Schwann cells), and the medical problems associated with myelin damage. The roster of section editors (Bruce D. Trapp, Robert H. Miller, Hans Lassman, John W. Griffin, and Klaus-Armin Nave) conveys the quality of authorship, which is maintained throughout. The authors' commitment to this project is admirable; as one example, John Roder rewrote his chapter on myelin-associated glycoprotein to incorporate stunning and important new data showing that a molecule termed the Nogo receptor served also as an axonal receptor of myelin-associated glycoprotein. The book contains an implicit meditation on the scientific method, since myelin biology proceeded pari passu with methodologic advances. In myelin research, new techniques for tissue staining, microscopy, immunohistochemistry, cell and molecular biology, subcellular fractionation, cell-lineage studies and clonal analysis, genetic analysis, and the production of transgenic and knockout mice were all critical. Details about key techniques and their roles in the acquisition of new knowledge are nicely explained in relevant sections of the book and thereby provide a foundation for the nonspecialist reader. Given the particular importance of microscopy and immunohistochemistry in this area, it is gratifying to report that the illustrations are of near-uniform high quality. Of particular delight is that many illustrations map photomicrographs to adjacent drawings, which clarify the implications of the data. The book begins with a lively historical review of the works and lives of Santiago Ramon y Cajal and Pio del Rio Hortega, giants on whose shoulders the field of myelin biology stands. Most of the basic-science chapters begin with a citation of their seminal research, with each reference being pertinent despite the passage of decades. Chapters on diseases of myelin also present antecedent work in full. This approach is particularly appropriate for the poorly understood central and peripheral inflammatory demyelinating diseases multiple sclerosis and acute inflammatory demyelinating polyneuropathy, about which it is hazardous to speculate without a secure grounding in the relevant history. Each chapter concludes with a thoughtful perspective on unresolved issues and future directions. In appropriate locations, the flow of information halts, and one finds a generous analysis of an important theoretical topic. Exemplary are a recitation of the nosology of the leukodystrophies, by Jim Powers, and a provocative discussion, by Jim Goldman, of the relative merits of transferring differentiated versus undifferentiated cell preparations to achieve tissue repair. Throughout the two volumes, the recurrent consideration of several "big picture" questions forms a series of leitmotifs. These include the molecular nature and implications with regard to disease of the communication between axons and myelinating cells, the challenges and potential benefits of cell-transplantation therapies, and the nonstructural functions of myelin proteins in the biology of myelin-forming cells. Because the principal authors have addressed these topics numerous times over many years in spoken and written discourse, the discussion of these issues produces the agreeable effect of a spirited dialogue among scholars. As a result, the reader simultaneously gains a large amount of information and receives each distinct viewpoint, which is then placed in perspective in subsequent chapters. I have very few quibbles with the book's quality. Some chapters are inadequately illustrated; a glossary would have been helpful, given the number of different disciplines represented here; some important investigators are not represented, and their inclusion would augment future editions. Overall, Myelin Biology and Disorders represents a bravura achievement for all concerned and, now, a standard for the field. Richard M. Ransohoff, M.D. "Myelin Biology and Disorders, an extraordinary compilation of knowledge about myelin and myelin diseases, benefits from the intrinsic interest and importance of the topic no less than from the hard work of its contributing authors. ...Myelin Biology and Disorders represents a bravura achievement

for all concerned and, now, a standard for the field."--THE NEW ENGLAND JOURNAL OF MEDICINE(October 21, 2004)"...a splendid book, an important addition to any serious clinical neuroscience bookshelf, and of lasting value: it is an outstanding achievement on the part of the Editor and the publisher."--BRAIN, 2005"...no medical library or institution with a neuroscience research program can afford to be without a copy of this treatise. Lazzarini and his five section editors are to be applauded for overseeing the production of such a well-illustrated and thorough work on this set of major debilitating diseases. There is also an excellent historical preface that recounts the work of the remarkable set of early researchers whose splendid work in the late 19th and early 20th centuries founded this important field of research." --Lloyd Davidson, Life Sciences Librarian, Head, Access Services and Kaplan Humanities Fellow, Northwestern University Seeley G. Mudd Library for Science and Engineering, E-STREAMS Vol 7 No 11, November 2004)"Under the baton of Robert Lazzarini, five distinguished editors have assembled a comprehensive treatise covering the origin and neurobiology of myelin-forming cells, the assembly of the myelin sheath and its often unforgiving diseases."--Monique Dubois-Dalcq, MD, Department of Neuroscience, The Pasteur Institute, Paris, France"This book comprises comprehensive, thoughtfully edited, uniformly first-rate chapters on myelination. It is the definitive work in the field."--David R. Colman. Ph.D., Director, The Montreal Neurological Institute "The two volumes on Glial Cell and Myelin Functional Biology serve as an impressive platform to showcase the rich literature on oligodendrocytes and Schwann cells in development and disease...The current and comprehensive style will make this book a standard for the field."--Moses V. Chao, Molecular Neurobiology Program,Skirball Institute of Biomolecular Medicine,New York University School of Medicine, New York City, U.S.A.About the AuthorEdited by Robert Lazzarini