

Progress in Applied Microcirculation

Editor: K. Messmer

Vol. 25

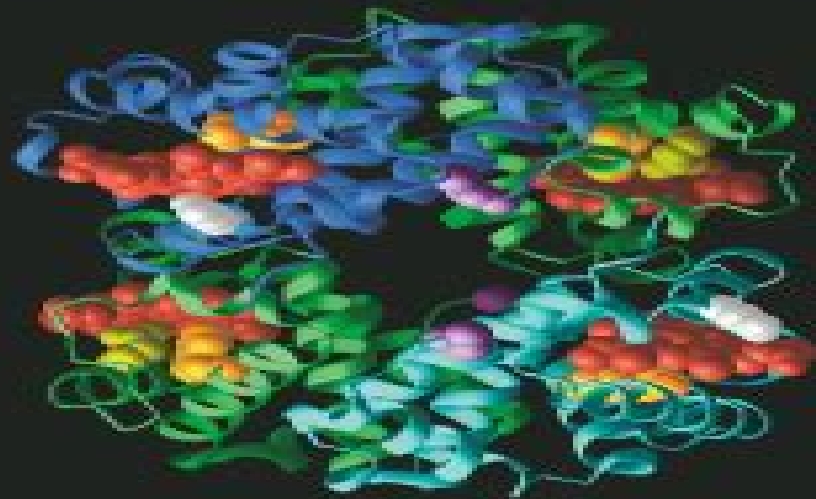
Microcirculatory Effects of Hemoglobin Solutions

Editors

K. Messmer

K.E. Burhop

J. Hutter



KARGER

Microcirculatory Effects Of Hemoglobin Solutions

N Colangelo



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Microcirculatory Effects of Hemoglobin Solutions K. Messmer, Konrad Messmer, K. E. Burhop, J. Hutter, 2004 Solutions of stroma free hemoglobin have been investigated for their potential as blood replacement fluids for more than 70 years Despite many attempts to overcome their unwanted side effects through chemical modification of the hemoglobin molecule none of the potential solutions has been approved for clinical use in Europe or the United States In recent years the vasoconstrictive activity of hemoglobin in the plasma was identified as the pivotal problem of hemoglobin based blood substitutes compromising nutritional perfusion and thus impeding oxygen unloading at the site of the microcirculation One of the prevailing assumptions is that the precapillary vasoconstriction and the ensuing tissue underperfusion is caused by the high affinity of free hemoglobin for nitric oxide To resolve this problem a number of recombinant techniques involving site directed mutagenesis as well as several chemical approaches involving polymerization and pegylation have been developed This volume summarizes the latest research on the effects of some of these new hemoglobin solutions on the microvasculature and tissue oxygenation It is recommended reading for all those interested in finding alternatives for donor blood in transfusion medicine including emergency specialists anesthesiologists surgeons trauma surgeons and other clinicians who are frequently confronted with blood loss and the need for blood replacement

Blood Substitutes and Oxygen Biotherapeutics Henry Liu, Alan D. Kaye, Jonathan S. Jahr, 2022-08-08 This book functions as a comprehensive and authoritative reference book in blood transfusion and blood substitutes It is a collection of the latest developments and the newest investigations and individual chapters are written by world experts in the arena The book begins with a historical

review on the practice of transfusions as well as the components and physiology of blood The following chapters cover various topics including platelet substitutes hemoglobin based oxygen carriers perfluorocarbon based oxygen carriers and safety issues related to artificial hemoglobin All chapters provide a bulleted highlights list to facilitate readers in mastering the main points of each individual chapter Blood Substitutes and Oxygen Biotherapeutics is an invaluable reference book for perioperative care providers hematologists anesthesiologists surgeons obstetricians and gynecologists *Red Blood Cell Substitutes* Alan Rudolph,1997-09-05 Presents an up to date treatment of research strategies clinical and commercial developments and regulatory and economic issues pertaining to the formulation of effective and safe red blood cell substitutes The text examines regulatory and socioeconomic aspects of blood substitute products and global transfusion practices from the perspective of blood banks and the US Food and Drug Administrations It also includes the mechanisms of action and consequences of blood substitute administration Advances in Blood Substitutes R. Winslow,2012-12-06 Each chapter of this volume is a contribution from an expert in the field chosen by the editors to contribute to the 1997 Current Issues in Blood Substitute Research and Development course given in San Diego March 17 19 The contributors were selected because of their expertise in areas which the editors believe to be critical to the advancement of the field and which reflect activity in hot areas of relevant research While there is a continuity in style for the annual course each year brings changes in emphasis and content In previous years we were often not able to provide time for participants to present their views and opinions Consequently this year we encouraged discussion after each presentation These sessions were recorded transcribed and are printed with the chapters herein We believe that the product is very close to the capturing this year s course in print and trust readers will enjoy reading the always candid and often provocative remarks from the audience The price paid for inclusion of the discussion transcriptions was a delay in publication Each author was allowed to edit his her discussion section as well as the final version of the chapters prior to publication The changes are mainly for grammar and we tried when possible not to alter the conversational style of these interchanges *Tissue Oxygenation in Acute Medicine* William J. Sibbald,Konrad Messmer,Mitchell P. Fink,2002-01-21 Researchers from many disciplines with both basic and clinical perspectives came together in this volume to review and debate issues pertaining to the investigation and control of tissue oxygenation in acute medicine as well as treatments to improve tissue oxygenation when abnormal In this latter context special emphasis is placed on understanding the effect of blood substitutes on the circulation and on the potential roles of this family of compounds in clinical medicine Alternatives to Blood Transfusion in Transfusion Medicine Alice Maniatis,Jean-François Hardy,Phillipe van der Linden,2011-07-05 Meeting the needs of patients while minimizing blood transfusions requires special expertise precise monitoring and innovative techniques This cutting edge resource covers all the important clinical aspects of transfusion medicine in diverse clinical settings with a special emphasis on alternatives to transfusion Edited by a multidisciplinary team consisting of a transfusion specialist an anesthesiologist and an intensive care

specialist this book is endorsed by the Network for Advancement of Transfusion Alternatives The contributors review the appropriate use of fluids and of blood products and describe the latest treatment options available to decrease the need for allogeneic blood products including Argon beam Cell saver Harmonic scalpel Normovolemic haemodilution Synthetic erythropoietin Antifibrinolytics Recombinant factor VIIa Advanced monitoring of hemostasis Intravenous iron The new edition is a key reference source for all those involved in the practice of blood management and conservation

Pathophysiology of Haemostasis and Thrombosis ,2003 **Albumin in Medicine** Masaki Otagiri,Victor Tuan Giam Chuang,2016-11-01 This book presents a comprehensive overview of medical and pharmaceutical applications of human serum albumin HSA with updates on structural aspects of albumin from the perspectives of X ray crystallography and NMR endogenous and exogenous ligand binding of albumin in various pathological conditions and genetic variants and their phenotypes Rapid progress and development of its applications have resulted in outstanding results for which albumin has clearly been proven to be a robust biomaterial Contributions from leading international experts in this field show how HSA is applied to diagnosis therapy drugs and treatment with a comprehensive introduction of HSA This volume will appeal to scientists in pharmaceutical and medical research including pharmaceutical chemists pharmacokineticists toxicologists and biochemists not only in academia but also in industry Readers can effectively acquire the most recent knowledge of applications of HSA and its impact on human health in a single volume Tissue Engineering and Artificial Organs Joseph D. Bronzino,Donald R. Peterson,2016-04-19 Over the last century medicine has come out of the black bag and emerged as one of the most dynamic and advanced fields of development in science and technology Today biomedical engineering plays a critical role in patient diagnosis care and rehabilitation As such the field encompasses a wide range of disciplines from biology and physiolo

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