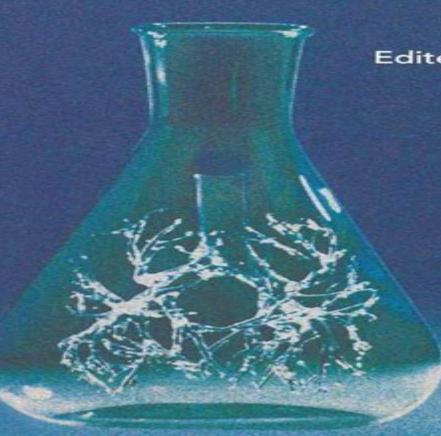
Methods in Pulmonary Research



Edited by S. Uhlig A. E. Taylor

Methods In Pulmonary Research

United States. Veterans Administration

Methods In Pulmonary Research:

Methods in Pulmonary Research Stefan Uhlig, Aubrey E. Taylor, 2012-12-06 Methods in Pulmonary Research presents a comprehensive review of methods used to study physiology and the cell biology of the lung The book covers the entire range of techniques from those that require cell cultures to those using in vivo experimental models Up to date techniques such as intravital microscopy are presented Yet standard methods such as classical short circuit techniques used to study tracheal transport are fully covered This book will be extremely useful for all who work in pulmonary research yet need a practical guide to incorporate other established methods into their research programs Thus the book will prove to be a valuable resource for cell biologists who wish to use organs in their research programs as well biological scientists who are moving their research programs into more cell related phenomena Methods in Pulmonary Research Stefan Uhlig, Aubrey E. Taylor, 1998 Airways 1 Measurement of lung function in rodents in vivo Spontaneous respiration Pulmonary manoeuvres Material and equipment Lung function laboratory Methods Preparation and calibration Pulmonary function testing Examples for applications Discussion Troubleshooting References 2 The isolated perfused lung Advantages and disadvantages of perfused lungs Theoretical background Vascular resistance Respiratory mechanics Material and equipment Artificial thorax chamber and ventilation Perfusion Weight measurement Gas exchange Methods Surgery and setting up the lung Criteria for viability Cleaning the apparatus An example application Discussion Interpretation of the results Constant flow CFP versus constant pressure perfusion CPP Negative or positive pressure ventilation Choice of perfusate Recirculating versus non recirculating perfusion Additional experimental options Troubleshooting Final comments References 3 Lung explants Material and equipment Preparation of culture media Preparation of agarose Preparation of animals Preparation of explants Image acquisition Variations on this technique Applications Effects of bronchoconstriction Measurements of mucociliary clearance Measurements of pulmonary vasculature Long term explant culture techniques Investigations of protein and gene expression Troubleshooting Discussion Acknowledgements References 4 Tracheal preparations Methods Guinea pig tracheal preparations Immersion techniques Tracheal chain Spirally cut trachea Zig zag tracheal strip Tracheal tube preparations Superfusion techniques Electrically stimulated trachea Epithelium denuded trachea Conclusion References Vessels 5 Intravital microscopy Airway circulation Materials and equipment Microscope Video equipment Peripheral equipment Ventilation Solutions Methods Surgery Experimental procedure Species differences Discussion References 6 The bronchial circulation Importance and role of the bronchial circulation Postobstructive pulmonary vasculopathy POPV and principles of the techniques Material and equipment Production of POPV in dogs rats and guinea pigs Ligation of the left main pulmonary artery In situ perfused LLL preparation Morphological assessment of the bronchial and pulmonary vasculature using light microscopy and morphometry Methods Surgical ligation of the left main pulmonary artery in dogs rats and guinea pigs Canine model Rat and guinea pig model In situ perfused LLL preparation to measure pulmonary and bronchial vascular flows

pressures and resistances using modified AO and VO and bronchial vascular micropuncture Procedure for the in situ perfused LLL preparation AO and VO measurements Modified in situ perfused LLL preparation for bronchial collateral vascular pressure measurements by micropuncture Morphological assessment of the bronchial and pulmonary vasculature using light microscopy and morphometry Measurement of pulmonary vascular medial thickness and muscularization in lungs injected with pigmented gelatin barium mixtures Fixation and preparation Morphometry Assessment of proliferation in the bronchial vasculature Bronchial vessel number per airway Assessment of bronchial vascular endothelial proliferation using bromodeoxyuridine BrdU labeling Discussion and troubleshooting Production of POPV In situ perfused left lower lobar preparation Morphological assessment of the bronchial and pulmonary vasculature Acknowledgements References 7 Segmental vascular resistance and compliance from vascular occlusion Methods The lumped parameter RCR model The continuous RC distribution More distributed lumped parameter models The 3C4R model The 3C2R model Arterial occlusion in vivo Acknowledgements References Edema 8 Experimental and clinical measurement of pulmonary **Biology of the Lung** Robert Stockley, 2013-12-01 **Analysis of Current Pulmonary Research Programs Supported** by the National Heart, Lung, and Blood Institute National Heart, Lung, and Blood Institute. Division of Lung Cytokines and Pain L.R. Watkins, S.F. Maier, 1999 The purpose of this book is to examine immune to Diseases, 1974 brain communication from the viewpoint of its effect on pain processing and to clarify the major role that substances released by immune cells play in pain modulation In these chapters contributed by major laboratories whose focus is understanding how cytokines modulate pain the perspectives examined range from evolutionary approaches across diverse species to the basics of the immune response to the effect of cytokines on peripheral and central nervous system sites to therapeutic potential in humans book cover **Research Grants Index** National Institutes of Health (U.S.). Division of Research Grants.1970 Research Awards Index ,1977 Analysis of Pulmonary Research Programs Supported by the National Heart, Lung, and Blood Institute in Fiscal ... National Heart, Lung, and Blood Institute, **Subject Index** of Current Research Grants and Contracts Administered by the National Heart, Lung and Blood Institute National Heart, Lung, and Blood Institute, 1976 Medical Research in the Veteran's Administration United States. Veterans Administration, 1960 Medical Research in the Veterans' Administration United States, Veterans Administration, 1961 Transactions of the 31st VA-Armed Forces Pulmonary Disease Research Conference ,1972 The Mouse in

Transactions of the 31st VA-Armed Forces Pulmonary Disease Research Conference ,1972 The Mouse in Biomedical Research ,2006-12-15 Normative Biology Husbandry and Models the third volume in the four volume set The Mouse in Biomedical Research encompasses 23 chapters whose contents provide a broad overview on the laboratory mouse s normative biology husbandry and its use as a model in biomedical research This consists of chapters on behavior physiology reproductive physiology anatomy endocrinology hematology and clinical chemistry Other chapters cover management as well as nutrition gnotobiotics and disease surveillance There are also individual chapters describing the mouse as a model for the

study of aging eye research neurodegenerative diseases convulsive disorders diabetes and cardiovascular and skin diseases Chapters on imaging techniques and the use of the mouse in assays of biological products are also included Heart Function Tests—Advances in Research and Application: 2013 Edition ,2013-06-21 Heart Function Tests Advances in Research and Application 2013 Edition is a ScholarlyEditions book that delivers timely authoritative and comprehensive information about Cardiac Output The editors have built Heart Function Tests Advances in Research and Application 2013 Edition on the vast information databases of ScholarlyNews You can expect the information about Cardiac Output in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant The content of Heart Function Tests Advances in Research and Application 2013 Edition has been produced by the world's leading scientists engineers analysts research institutions and companies All of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at ScholarlyEditions and available exclusively from us You now have a source you can cite with authority confidence and credibility More information is available at http www ScholarlyEditions com

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Methods in Medical Research Van Rensselaer Potter,1966 Energy Research Abstracts ,1977 Semiannual with semiannual and annual indexes References to all scientific and technical literature coming from DOE its laboratories energy centers and contractors Includes all works deriving from DOE other related government sponsored information and foreign nonnuclear information Arranged under 39 categories e g Biomedical sciences basic studies Biomedical sciences applied studies Health and safety and Fusion energy Entry gives bibliographical information and abstract Corporate author subject report number indexes

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