
Preface

Since the cloning of the cystic fibrosis transmembrane conductance regulator (CFTR) nearly a decade ago, cystic fibrosis (CF) research has witnessed a dramatic expansion into new scientific areas. Basic researchers, clinicians, and patients increasingly rely on fundamental techniques of genetics, molecular biology, electrophysiology, biochemistry, cell biology, microbiology, and immunology to understand the molecular basis of this complex disease. Research into the pathophysiology of CF has established numerous paradigms of ion channel dysfunction that extend from inflammation and infection in the airways of patients to basic mechanisms of protein processing and regulation in intracellular components.

With these rapid advances has come an increasing need for research scientists to understand and utilize a growing array of basic laboratory tools. This volume of *Methods in Molecular Medicine, Cystic Fibrosis Methods and Protocols* satisfies that need by providing detailed protocols for the laboratory techniques used throughout CF research. From electrophysiology and cell biology, to animal models and gene therapy, the comprehensive set of methods covered here provide step-by-step instructions needed for investigators to incorporate new approaches into their research programs. Contributions have been chosen to reflect the rich diversity of techniques and to provide a cohesive framework for understanding challenges that are currently at the forefront of CF research. It is hoped that this volume will serve as a valuable reference that will not only foster interdisciplinary investigations into current problems encountered in CF, but also facilitate the translation of new scientific discoveries into clinical solutions.

I would like to sincerely thank all of the contributing authors for their cooperation, patience, and invaluable contributions to this volume. I would also like to thank those investigators, physicians, caregivers, patients, and their families whose continuous dedication has contributed to the rapid advance in our understanding of this devastating disease. Particular thanks go to the Cystic Fibrosis Foundation and its many supporters for their encouragement and assistance to the CF research community. Finally, I would like to thank Nancy Clark and Linda Delacy in the OHSU Molecular Medicine Division and the production staff at Humana Press for their advice and assistance.

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