Advances in Experimental Medicine and Biology

Volume 933

More information about this series at http://www.springer.com/series/5584

Jong Hoon Park • Curie Ahn
Editors

Cystogenesis

Springer

Editors
Jong Hoon Park
Department of Life systems
Sookmyung Women's University
Seoul, South Korea

Curie Ahn
Department of Internal Medicine
Seoul National University College
of Medicine
Seoul, South Korea

ISSN 0065-2598 ISSN 2214-8019 (electronic)
Advances in Experimental Medicine and Biology
ISBN 978-981-10-2040-7 ISBN 978-981-10-2041-4 (eBook)
DOI 10.1007/978-981-10-2041-4

Library of Congress Control Number: 2016955171

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer Science+Business Media Singapore Pte Ltd.

Preface

Autosomal dominant polycystic kidney disease (ADPKD) is a highly prevalent hereditary renal disorder that affects at least 1 in every 1000 individuals worldwide. The development of numerous fluid-filled cysts is the evident pathology of ADPKD, and it is accompanied by hyperactivation of cell proliferation, interstitial inflammation, and fibrosis, finally reaching end-stage renal disease (ESRD). The age at which ESRD is reached is highly variable in patients with ADPKD, and a vast number of cases show the occurrence of ADPKD later than 50 years of life. In addition, more than 50 % of the patients with ADPKD require dialysis or renal transplantation in their 60s. In fact, ADPKD accounts for up to 10 % of all the renal transplant patients. Though causative genes and major aberrant signaling pathways involved in ADPKD have already been identified, no specific targeted strategies are available to cure ADPKD.

This book entitled "Cystogenesis" comprises a comprehensive review of clinical trials attempted until now and the basic cellular mechanisms of ADPKD. We provide an overview of the molecular mechanisms of ADPKD pathogenesis based on the latest thesis papers. It includes genetic mechanisms, intracellular signaling pathways, and epigenetic regulation. Moreover, other cystogenesis mechanisms stimulated by disrupted primary cilia have also been introduced. A better understanding of such basic mechanisms underlying the onset of ADPKD might provide an important insight to identify the potential therapeutic targets. Furthermore, therapeutic approaches or novel diagnostic biomarkers proposed until now have been reviewed with a mention of their limitations and perspective.

We are very pleased and honored to publish this special issue of Springer on ADPKD. We hope that this book provides a broad overview of ADPKD and deals with the key challenges currently faced by researchers in this field. Furthermore, we wish our review provides great evidence to find novel biomarkers for ADPKD, thereby contributing to the development of therapeutic strategies.

Seoul, South Korea

Jong Hoon Park
Curie Ahn

Contents

Contributors

Curie Ahn Department of Internal Medicine, Seoul National University College of Medicine, Seoul, South Korea

Young-Hwan Hwang Department of Internal Medicine, Eulji General Hospital, Seoul, South Korea

Hyunsuk Kim Department of Internal Medicine, Seoul National University Hospital, Seoul, South Korea

Do Yeon Kim Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Je Yeong Ko Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Eun Ji Lee Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Hyowon Mun Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Hayne Cho Park Division of Nephrology, Department of Internal Medicine, The Armed Forces Capital Hospital, Seongnam-si, Gyeonggi-do, South Korea

Jong Hoon Park Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Yu Bin Shin Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea

Yu Mi Woo Molecular Medicine Laboratory, Department of Life systems, Sookmyung Women's University, Seoul, South Korea