

# **Advances in Experimental Medicine and Biology**

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# Cystogenesis

 Springer

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# 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

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