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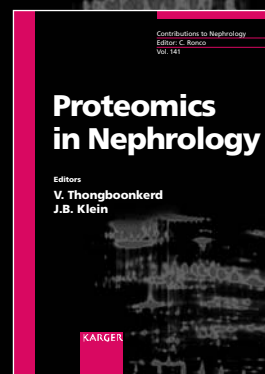
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An introduction to a coming field of science

Proteomics in Nephrology

Editors:

V. Thongboonkerd
J.B. Klein



The novel discipline of proteomics has experienced a rapid growth in the recent past and has a great potential for the future. Involving several fields, it offers various advantages: The study of proteins on a genomic scale allows to examine a large number of them simultaneously. Moreover, proteomic analysis provides information about post-translational modifications and functions of gene products or proteins that cannot be obtained by genomic analysis. The knowledge thus gained is also important for a better understanding of renal physiology and pathophysiology, to identify disease biomarkers, and to develop new target therapies.

This book is the first one that applies the science of proteomics to nephrology: It sets out to give an overview of the discipline, providing detailed background information and outlining scope, advantages, and limitations of proteomics.

The second section reviews principles of commonly used proteomic techniques, including sample preparation, two-dimensional gel electrophoresis, various types of mass spectrometry, expression proteomics, quantitative proteomics, practical bioinformatics, and clinical proteomics.

In the last section, examples and perspectives are provided of how proteomics can be applied to various fields in nephrology, including nephrotoxicity, sodium transport, diabetic nephropathy, renal Fanconi syndrome, IgA nephropathy, physiology of podocytes and mesangial cells, hypertension, urological malignancies, and dialysis. The publication ends with a discussion of biomarker discovery in glomerular diseases and drug discovery.

Written by acclaimed experts in both proteomics and nephrology, this truly remarkable book is essential reading for students, residents, fellows, scientists, and nephrologists who are interested in or devoted to research, as well as for general health professionals and clinicians.

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