Proteomics in Nephrology – Towards Clinical Applications
Contributions to Nephrology

Vol. 160

Series Editor

Claudio Ronco  Vicenza
Contents

VII Preface
Thongboonkerd, V. (Bangkok)

1 Proteomics for the Investigation of Acute Kidney Injury
Devarajan, P. (Cincinnati, Ohio)

17 Proteomics of Plasma and Urine in Primary Nephrotic Syndrome in Children
Candiano, G.; Musante, L.; Petretto, A.; Bruschi, M.; Santucci, L. (Genoa); Urbani, A. (Rome); Scolari, F. (Brescia); Gusmano, R. (Genoa); Carraro, M. (Trieste); Zennaro, C. (Genoa); Vincenti, F. (San Francisco, Calif.); Ghiggeri, G.M. (Genoa)

29 Urinary Proteome Profiling to Search for Biomarkers in Steroid-Resistant Nephrotic Syndrome
Traum, A.Z.; Schachter, A.D. (Boston, Mass.)

37 Searching for Novel Biomarkers and New Therapeutic Targets of Diabetic Nephropathy Using Proteomics Approaches
Thongboonkerd, V. (Bangkok)

53 Diagnostic and Prognostic Biomarkers in Acute Renal Failure
Arthur, J.M.; Janech, M.G.; Varghese, S.A.; Almeida, J.S.; Powell, T.B. (Houston, Tex.)

65 Proteomics and Renal Transplantation: Searching for Novel Biomarkers and Therapeutic Targets
Schaub, S. (Basel); Wilkins, J.A.; Nickerson, P. (Winnipeg, Man.)
76 Metabolomics: A Complementary Tool in Renal Transplantation
Wishart, D.S. (Edmonton, Alta.)

88 Understanding and Managing Renal Cell Carcinoma: Can Proteomic Studies Contribute to Clinical Practice?
Craven, R.A.; Banks, R.E. (Leeds)

107 Capillary Electrophoresis Coupled to Mass Spectrometry for Biomarker Discovery and Diagnosis of Kidney Diseases
Zürbig, P.; Mischak, H. (Hannover)

127 Identification of Urinary Biomarkers by Proteomics in Newborns: Use in Obstructive Nephropathy
Decramer, S. (Toulouse); Zürbig, P.; Wittke, S.; Mischak, H. (Hannover); Bascands, J.-L.; Schanstra, J.P. (Toulouse)

142 Proteomics and Kidney Stone Disease
Thongboonkerd, V. (Bangkok)

159 Exploring the Uremic Toxins Using Proteomic Technologies
Schiffer, E.; Mischak, H. (Hanover); Vanholder, R.C. (Gent)

172 Proteomic Approaches for the Study of Cell Signaling in the Renal Collecting Duct
Hoorn, E.J.; Pisitkun, T.; Yu, M.-J.; Knepper, M.A. (Bethesda, Md.)

186 Overview of Kidney and Urine Proteome Databases
Yoshida, Y. (Niigata); Miyamoto, M. (Niigata/Kawasaki); Bo, X.; Yaoita, E.; Yamamoto, T. (Niigata)

198 Author Index

199 Subject Index
An initial phase of proteomics applied to the nephrology field dealt mainly with technical development for analyses of proteomes in urine, kidney, glomeruli, tubules, intrarenal vessels, and various types of individual renal cells. Several years ago, renal and urinary proteomics had a slow progress because of the difficulty to find appropriate and efficient methods and protocols for the high-throughput analyses of kidney and urine proteomes. Recently, several methodologies and protocols for renal and urinary proteome analyses have been continuously developed and provided satisfactory results, allowing the field to move onwards to the next step with a big leap.

After the success of the first volume of ‘Proteomics in Nephrology’ (Contributions to Nephrology, vol. 141) published in 2004 to introduce this emerging subdiscipline of nephrology research, it is obvious that renal and urinary proteomics has been more extensively applied to the nephrology field with ultimate goals to: (i) better understand the renal physiology and pathogenic mechanisms of kidney diseases; (ii) search for novel biomarkers for diagnostics and prognostics, and (iii) define and develop new therapeutic targets and drugs for better therapeutic outcome. While the first volume focused mainly on an overview, technologies and methodologies, this volume of ‘Proteomics in Nephrology’ highlights successful applications of proteomics to several kidney diseases, including acute kidney injury, nephrotic syndrome, diabetic nephropathy, renal allograft rejection, renal cell carcinoma, obstructive nephropathy, kidney stone disease, uremia, and others.

With such important contents written by acclaimed experts in proteomics and nephrology, this book will be an excellent resource of references for
nephrologists, clinicians, pharmacists, other healthcare professionals, proteomists, physiologists, scientists, and trainees. As the Volume Editor, I wish to thank all the contributors who have made this book possible. Finally, I hope that the knowledge obtained from clinical applications of proteomics to the nephrology field will ultimately lead to an improvement of therapeutic outcome and successful prevention of kidney diseases.

*Visith Thongboonkerd*

Bangkok