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Proteomics in Nephrology – Towards Clinical Applications

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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.

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