Cellular Stress Responses in Renal Diseases
Contributions to Nephrology

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Cellular Stress Responses in Renal Diseases

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Studies on heat shock proteins (HSPs) and stress responses following an injury have made remarkable advances in recent years, benefiting mostly from scientific research and the greater availability of technology. Both HSPs and stress responses are involved in pathophysiology of various renal injuries, and the studies thereon offer prospects of new therapeutic options. The purpose of this book is to present an overview of contemporary thoughts on the clinical significance of stress responses following renal injury. Chapters are arranged and topics are selected to provide the readers integral and up to date information concerning the involvement of HSPs in acute and chronic progressive renal diseases. The effects of osmotic stress on renal medullary cells, the protective role of HSP27 during glomerular epithelial cell injury, the cytoprotective effects of HSP32 in acute renal failure, and the involvement of various stress proteins in renal ischemia and reperfusion injury are discussed by authors who are actively involved in the related fields of research. Consideration is also given to a number of selected articles dealing with the fibrogenic role of HSP47 in chronic renal diseases, the role of oxidative stress in various renal diseases, and the possible involvement of HSPs in renal cell carcinoma and their potential role during allograft rejection. The wide range of topics that are covered in this book will provide the reader with a fundamental understanding of stress responses during various renal diseases. This will be particularly helpful for scientists and clinicians who, in their research and practice, need a quick update on HSPs and stress responses following injury.

The clinical importance, and significance of stress responses in various renal diseases inspired us to edit this book. We are confident that it will help to promote awareness of the fact that stress response is a major determinant factor
following renal injury. Our utmost hope is that the reader will be inspired by the content of the book to take up the challenge of further research to enhance understanding of stress responses, a noble endeavor that will lead to the development of new therapeautic approaches to treat some of the fatal untreatable renal diseases.

This will be an important reference book for clinical and basic researchers devoted to define various stress responses following tissue injury. We extend our sincere thanks to the contributing authors for their expert contributions. Finally, we wish to acknowledge the help, support and encouragement provided by our families (Rafi, Yuki, Ai, Naoko and Kaneko). We hope that this book will help scientists and clinicians in the fields of cell biology, pathology and nephrology to appreciate the unique relationship between stress responses following an injury and the subsequent progression of the illness.

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