Preface

The Renal Research Institute's 15th International Conference on Dialysis, Advances in CKD 2013, in Rio Grande, Puerto Rico, emphasizes recent developments in operational areas, technology, the biology of uremia, and epidemiology.

In January 2012, Dr. Hans-Dietrich Polaschegg, a physicist, prolific inventor, and friend of the Renal Research Institute passed away. In honor and recognition of Hans's contribution to dialysis therapy, Claudio Ronco presents in this issue of *Blood Purification* work relating the fundamental thermodynamic concept of entropy to uremia and its therapy. Gerard London elaborates on the concept of accelerated aging in end-stage renal disease (ESRD) with a particular focus on vascular biology. George Kaysen reviews the impact of dietary protein restriction on renal outcomes and mortality. Nutritional and metabolic aspects in chronic kidney disease are further discussed by Nosratola Vaziri in his reflection on the lack of salutary effects of cholesterol-lowering interventions in ESRD patients. The highly controversial question of lipid management in chronic kidney disease is reviewed by Elaine Ku. We live in the age of 'big data', and Len Usvyat presents MONDO, a novel international collaborative effort to establish the world's largest database network of chronic hemodialysis patients with special emphasis on outcomes research. Sudden cardiac arrest is the single most frequent cause of death in ESRD patients; Rod Passman discusses in his review therapeutic approaches from drugs to defibrillators. Hemodiafiltration is an important dialysis modality outside the USA; Bernard Canaud concludes in his review that the volume of

convection is a major contributor to the beneficial effects of this therapy. While relative blood volume measurement is used routinely in many clinics, measurement of absolute blood volume on a routine basis is complicated. Stephan Thijssen describes the physiology and pathophysiology of absolute blood volume and novel means of measurement. Hemodialysis access is the Achilles heel and Frank Prosl presents a novel port-based vascular access system. Peritoneal dialysis is used in the pediatric world not only as a chronic therapy, and Melvin Bonilla-Felix reviews the current experience with peritoneal dialysis in the pediatric ICU setting. Diagnosis and novel therapies of glomerular diseases are presented by Gerald Appel. Hemolytic uremic syndrome (HUS) was an enigmatic malady for decades, but insights into its biology and therapy have improved substantially in recent years, with progress being reported by Carla Nester. Frank Gotch draws links between the early days of urea kinetic modeling and recent developments in quantitation of sodium, calcium, and phosphorus balances and points out the importance of quantitative approaches to dialysis therapy.

The Renal Research Institute is dedicated to advancing therapy options for dialysis patients to provide the highest caliber of care based on advanced clinical technology. The Renal Research Institute is committed to research and innovation that will lead to improved patient outcomes and quality of life. It has active national and international research programs with strong academic alliances with: the University of Michigan, Ann Arbor, Mich., USA; the University of North Carolina, Chapel

Hill, N.C., USA; the University of Rochester and Beth Israel Medical Center, New York, N.Y., USA; St. Raphael Hospital/Yale, New Haven, Conn., USA; the University of Massachusetts, Lowell, Mass., USA; the Pontifical Catholic University of Paraná, Curitiba, Brazil, and the University of Maastricht, The Netherlands, among others. The Renal Research Institute has a long history of generating over 20 peer-reviewed publications annually with dozens of abstracts accepted and presented at national and international scientific conferences.

We hope that you will enjoy the wide range of papers published in this issue of *Blood Purification* and that you will consider attending next year's 16th International Conference on Dialysis, Advances in CKD 2014, in January 2014 in Las Vegas, Nev., USA.

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