2010 Renal Section Awardees

2010 Robert W. Berliner Award for Excellence in Renal Physiology

Qais Al-Awqati is the recipient of the 2010 Berliner Award. Dr. Al-Awqati’s work on acid-base physiology, particularly in the collecting duct, has advanced our understanding of key transport processes in this important area of renal physiology.

Dr. Al-Awqati was born in Baghdad, Iraq, and graduated from the College of Medicine at the University of Baghdad. He completed his Medicine and Nephrology training at Johns Hopkins University and Massachusetts General Hospital from 1968 to 1971. Following brief academic appointments at Harvard and the University of Iowa, he established his career at Columbia University, starting in 1977. He has served as Chief of the Division of Nephrology and holds the Robert F. Loeb Professorship in Medicine. Dr. Al-Awqati has published extensively in high-impact journals and is currently Editor-in-Chief of Kidney International.

Dr. Al-Awqati’s earliest work made important observations regarding ion transporters in the intestinal mucosa and their regulation by enteric toxins. After establishing his laboratory, he began to concentrate on understanding epithelial H⁺ secretion and acidification processes, which became a lifelong pursuit. His work focused on the link between proton secretion and respiration, and on the regulation of proton secretion by aldosterone and glucose oxidation. Dr. Al-Awqati demonstrated that CO₂-stimulated H⁺ secretion is due to exocytosis of vesicles containing H⁺ pumps, with the insertion of H⁺ pumps into the luminal membrane.

In addition to his work on epithelial H⁺ secretion, Dr. Al-Awqati has made important contributions to other areas of renal physiology. One of his earliest publications in Nature was on the mechanism of vasopressin action. He has identified renal stem cells in metanephric mesenchyme and has identified a novel class of intracellular chloride channels, the CLIC family. While Dr. Al-Awqati has made major advances in understanding key transport processes, perhaps his greatest contributions are his studies demonstrating plasticity of intercalated cells and cellular mechanisms underlying this phenomenon. He observed that, in response to prolonged acid exposure, HCO³⁻-secreting α-intercalated cells in the collecting duct convert to H⁺-secreting β-intercalated cells. This theoretic work was demonstrated with in vivo models. Mechanistic studies that followed showed that this terminal differentiation of intercalated cells is regulated by the extracellular matrix protein hensin. It is the polymerized form of hensin that mediates this process, and Dr. Al-Awqati has identified key factors that facilitate hensin polymerization. These and many other aspects of Dr. Al-Awqati’s work have provided important contributions to our modern view of acid-base metabolism.

The Berliner Award selection committee was composed of Bill Welch (Renal Section Chair), Pablo Ortiz (Renal Section Awards Chair), and Tom Kleyman, (Editor-in-Chief, American Journal of Physiology-Renal Physiology).
Announcement

Carl W. Gottschalk Distinguished Lecture of the American Physiological Society Renal Section

The Carl W. Gottschalk Lecture for 2010 will be delivered by Phillip Darwin Bell, PhD, on April 26, 2010, at the Annual Meeting of the American Physiological Society (APS) in Anaheim, California. Dr. Bell will present his perspectives on his work into cell signaling in the nephron that regulates tubuloglomerular feedback.

Dr. Bell received his PhD in 1980 from the University of Alabama at Birmingham (UAB) in Physiology and Biophysics. He joined the faculty at UAB, rising through the ranks to become Professor of Medicine and Physiology in 1997. He was appointed to the Thomas E. Andreoli Professorship at UAB in 2003. In 2006, he joined the faculty at the Medical University of South Carolina, Charleston, South Carolina. He holds an endowed Chair in Medicine and is the Director of Renal Research for the Division of Nephrology.

Dr. Bell has made significant contributions to an understanding of the regulation of renal hemodynamics. His early work that demonstrated the intercellular calcium changes in the macula densa were linked to signal transduction for tubuloglomerular feedback (TGF) was published in *Science* in 1982. From this early success, his work has continued to provide insights into the cellular mechanisms and transport events that are involved in macula densa cell signaling to the afferent arteriole. His TGF studies have specifically shown that macula densa cells utilize a purinergic-ATP/adenosine receptor-signaling pathway to communicate with other elements within the juxtaglomerular apparatus. These observations have advanced our understanding of how signals are processed in this key regulator of glomerular filtration rate. He has made these discoveries with innovative technologies that utilized a combination of multiphoton confocal fluorescence microscopy, molecular biology, and patch clamp technology.

Recently, he has begun to define the role of epithelial cilia in renal physiology and pathologies. He has shown that cilia have a critical signaling role for calcium uptake in distal tubule cells, which may be lost in polycystic kidney disease. In addition, his work suggests that cilia may also play a critical role in the regulation of renal hypertrophy that occurs in response to a reduction in renal mass.

The Carl W. Gottschalk Lecture committee was composed of Bill Welch (Renal Section Chair), Tom Kleyman (Editor-in-Chief, *American Journal of Physiology-Renal Physiology*), Tom Pallone (JPC representative), and David Pollock (APS Council).
Pablo A. Ortiz, PhD, is the recipient of the 2010 Young Investigator Award for Excellence in Renal Physiology. He is an Associate Professor in the Hypertension and Vascular Research Division of the Henry Ford Hospital, Detroit, Michigan.

Dr. Ortiz received his PhD from the University of Buenos Aires after completing work for his dissertation under the supervision of Jeff Garvin in the Hypertension and Vascular Research Division at the Henry Ford Hospital. After additional postdoctoral training, he joined Henry Ford Hospital as an Assistant Professor in 2005. His research has focused on transport mechanisms in the thick ascending limb (TAL). He originally described the relationship between superoxide and nitric oxide synthase 3 in the regulation of TAL transport. More recently, he has worked on molecular mechanisms of the apical cotransporter NKCC2 and its role in salt-sensitive hypertension. Dr. Ortiz was one of the first to combine the isolated, perfused nephron segment technique with confocal microscopy to study protein trafficking in the nephron. He was also instrumental in the development of an in vivo gene transfer method to transduce renal medullary tubules and is currently using this method to express transgenes, such as dominant negative mutants and fluorescent proteins, and silence gene expression in TALs.

Dr. Ortiz’s work is supported by National Institutes of Health (NIH) grants, and he has published 27 studies in high-impact journals. His early work and potential have been recognized in numerous awards. He received the Young Investigator Awards from both the Inter-American Society of Hypertension and the Council of High Blood Pressure Research of the American Heart Association (AHA) and the New Investigator Awards from the AHA and the Renal Section of the American Physiological Society (APS). He received the 2006 Lazaro J. Mandel Young Investigator Award from the APS. He has assumed leadership roles in the APS as a member of the Editorial Board of the American Journal of Physiology-Renal Physiology and Awards Chair of the Renal Section. He participates in numerous study sections of the NIH and AHA. Dr. Ortiz is an outstanding young investigator and worthy recipient of the Renal Section Young Investigator Award.

The Young Investigator Award selection committee was composed of Lee Hamm (Renal Section Treasurer) and Tom Pallone and I. David Weiner (JPC representatives).