

**ISN Forefronts Symposium**  
**Intrinsic Regulation**  
**of Kidney Function**  
**March 6-9 2014**  
**Charleston SC USA**

forefronts  
IN NEPHROLOGY

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Calendar !**

Advancing Nephrology Around the World



# Program

*Thursday*

## *Welcome*

16:30 - 16:45      Welcome and Opening Remarks

16:45 - 18:00      **Opening Plenary Lecture:**  
Evolution of Intrinsic Intrarenal Regulation: From autoregulation to multiple interacting paracrines  
Gabriel Navar, USA

18:00 - 19:30      *Welcome & Networking Reception*

# Friday

## Session 1:

Moderator: Gabriel Navar (USA)

### The Intrarenal Renin Angiotensin System

- |               |  |
|---------------|--|
| 09:00 - 09:20 | Tubular ACE and blood pressure<br><i>Romer Gonzalez-Villalobos, USA</i>  |
| 09:20 - 09:40 | Tubular renin control of blood pressure<br><i>Nirupama Ramkumar, USA</i>   |
| 09:40 - 09:50 | <i>Oral Presentation from Abstract Submission:</i> Activation of the intrarenal renin angiotensin system in polycystic kidney disease<br><i>Takamitsu Saigusa, USA</i>                       |
| 09:50 - 10:00 | <i>Oral Presentation from Abstract Submission:</i> Fenofibrate therapy alleviates angiotensin II-dependent hypertension CYP1A1-REN-2 Transgenic rats<br><i>Sarka Jichova, Czech Republic</i> |
| 10:00 - 10:40 | <i>Coffee Break &amp; Poster Viewing</i>   |

## Session 2:

Moderators: Kimio Tomita (Japan) & Tom Kleyman (USA)

### Intratubular Crosstalk: Proteases and Channel Interaction

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|---------------|--|
| 10:40 - 11:00 | Regulation of ENaC by extracellular proteases<br><i>Christoph Korbmacher, Germany</i>  |
| 11:00 - 11:20 | Regulation of ENaC by plasmin<br><i>Boye Jensen, Denmark</i>   |
| 11:20 - 11:40 | Kallikrein, ENaC and K <sup>+</sup> handling<br><i>Nicolas Picard, France</i>  |
| 11:40 - 11:50 | <i>Oral Presentation from Abstract Submission :</i> Proteolytic activation of the human epithelial sodium channel (ENaC) by the serine protease Trypsin IV and the cysteine protease cathepsin-S<br><i>Silke Haerteis, Germany</i> |
| 11:50 - 12:00 | <i>Oral Presentation from Abstract Submission:</i> Regulation of epithelial sodium channel by epidermal growth factors and its complications in hypertension and polycystic kidney diseases<br><i>Tengis Pavlov, USA</i>           |
| 12:00 - 14:00 | <i>Networking Lunch &amp; Poster Viewing</i>   |

## Session 3:

Moderators: Jens Leipziger (Denmark) & Volker Vallon (USA)

### The Intrarenal Nucleotide/Nucleoside System

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|---------------|--|
| 14:00 - 14:30 | <b>Keynote Lecture: Nucleotides as Paracrine factors</b><br><i>Paul Insel, USA</i>   |
| 14:30 - 14:50 | Ectonucleotidases in the kidney<br><i>Bellamkonda Kishore, USA</i>   |
| 14:50 - 15:10 | Purinergic regulation of tubule ion transport<br><i>James Stockand, USA</i>  |
| 15:10 - 15:20 | <i>Oral Presentation from Abstract Submission:</i> Basolateral P2X receptors, luminal furosemide and a novel view on loop-diuretic-induced urinary acidification<br><i>Pauline de Bruijn, Denmark</i>  |
| 15:20 - 15:30 | <i>Oral Presentation from Abstract Submission:</i> Biosensors as a novel tool to assess ATP and H <sub>2</sub> O <sub>2</sub> levels and their acute release in the kidney<br><i>Oleg Palygin, USA</i> |
| 15:30 - 16:10 | <i>Coffee Break &amp; Poster Viewing</i>   |

## Session 4:

Moderators: Donald Kohan (USA) & David Pollock (USA)

### Intrarenal Nitric Oxide and Endothelin

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|---------------|--|
| 16:10 - 16:30 | NO/ET in the collecting duct<br><i>Jennifer Pollock, USA</i>   |
| 16:30 - 16:50 | NO/ET in the thick ascending limb<br><i>Jeff Garvin, USA</i>   |
| 16:50 - 17:10 | Nitric oxide, flow and the macula densa<br><i>Ruisheng Liu, USA</i>  |
| 17:10 - 17:20 | <i>Oral Presentation from Abstract Submission:</i> Role of polycystins, ATP and calcium signaling in flow-stimulated collecting duct endothelin-1 production<br><i>Donald Kohan, USA</i>       |
| 17:20 - 17:30 | <i>Oral Presentation from Abstract Submission:</i> Impaired pressure natriuresis and urinary ET-1 excretion in a rat model of type I diabetes mellitus<br><i>Geoff Culshaw, United Kingdom</i> |

# Saturday

## Session 5:

Moderators: Allen Cowley (USA) & William Welch (USA)

### Tubulovascular Crosstalk and Regulation of Blood Flow

- 09:00 - 09:20 Regulation of pericyte contraction  
*Clair Peppiatt-Wildman, United Kingdom*
- 09:20 - 09:40 Tubulovascular crosstalk in the medullary circulation in hypertension  
*Paul O'Connor, USA*
- 09:40 - 09:50 *Oral Presentation from Abstract Submission:* Acute activation of toll-like receptor 4 by lipopolysaccharide blunts afferent arteriolar autoregulatory behavior  
*Justin Van Beusecum, USA*
- 09:50 - 10:00 *Oral Presentation from Abstract Submission:* The influence of renal vascular geometry on oxygen delivery to renal tissue  
*Roger Evans, USA*
- 10:00 - 10:40 *Coffee Break & Poster Viewing*

## Session 6:

Moderators: Lisa Satlin (USA) & Darwin Bell (USA)

### Flow regulation of Tubule Function

- 10:40 - 11:00 Role of cilium in purinergic signaling  
*Helle Praetorius, Denmark*
- 11:00 - 11:20 Regulation of prostaglandins by tubule flow  
*Rajeev Rohatgi, USA*
- 11:20 - 11:30 *Oral Presentation from Abstract Submission:* Epithelial sodium channels signal in a negative feedback loop in the collecting duct and the mechanism involves nos1  
*Kelly Hyndman, USA*
- 11:30 - 11:40 *Oral Presentation from Abstract Submission:* The mechanosensitive BK alpha/beta1 channel localizes to cilia of principal cells (pcs) in rabbit ccd  
*Rolando Carrisoza, USA*
- 11:40 - 13:20 *Networking Lunch & Poster Viewing*

## Session 7:

Moderator: Susan Wall (USA)

### Intercalated Cells

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|---------------|---|
| 13:20 - 13:40 | OXGR1 in intercalated cells<br><i>Dimitri Firsov, Switzerland</i>   |
| 13:40 - 14:00 | Pendrin and intercalated cell ion transport<br><i>Dominique Eladari, France</i>   |
| 14:00 - 14:20 | The prorenin receptor in modulation of intercalated cell function<br><i>Minolfa Prieto-Carrasquero, USA</i>   |
| 14:20 - 14:20 | <i>Oral Presentation from Abstract Submission:</i> Regulation of the vacuolar proton-ATPase in intercalated cells by ampk and 14-3-3 proteins<br><i>Nuria Pastor-Soler, USA</i> |
| 14:20 - 14:30 | <i>Oral Presentation from Abstract Submission:</i> Mitochondrial barriers create calcium signaling domains in cortical collecting duct cells<br><i>Tiffany Thai, USA</i>        |
| 14:40 - 15:20 | <i>Coffee Break &amp; Poster Viewing</i>  |

## Session 8:

Moderators: Nuria Pastor Soler (USA) & Gerhard Giebisch (USA)

### Novel Metabolic Sensors and Control of Renal Tubule Transport

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|---------------|---|
| 15:20 - 15:50 | <b>Keynote Lecture: Molecular Clocks and Cardiometabolic Function; why the Kidney should care</b><br><b>Garret A. FitzGerald, USA</b>   |
| 15:50 - 16:10 | Olfactory receptors in the kidney<br><i>Jennifer Pluznick, USA</i>  |
| 16:10 - 16:30 | Circadian clock and regulation of tubule function<br><i>Michelle Gumz, USA</i>  |
| 16:30 - 16:50 | Calcium sensing receptor modulation of solute and fluid transport<br><i>John Geibel, USA</i>  |
| 16:50 - 17:00 | <i>Oral Presentation from Abstract Submission:</i> A novel role for gaba and glutamate in the regulation of the renal microcirculation<br><i>Kadeshia Dunn, United Kingdom</i>  |
| 17:00 - 17:10 | <i>Oral Presentation from Abstract Submission:</i> CGMP inhibits NKCC2 by enhancing its ubiquitination and decreasing its trafficking towards the apical membrane of thick ascending limbs<br><i>Pablo Ortiz, USA</i> |

# Sunday

## Session 9:

Moderators: Roger Evans (Australia) & Reiko Inagi (Japan)

### Renal Hypoxia, Oxygenation and Reactive Oxygen Species

- 09:00 - 09:30 **Keynote Lecture: Endoplasmic reticulum stress**  
*Hiderou Yoshida, Japan*
- 09:30 - 09:50 Reactive oxygen species and renal blood flow  
*Chris Wilcox, USA*
- 09:50 - 10:10 HSP-70, inflammation and salt-sensitive hypertension  
*Bernardo Rodriguez-Iturbe, Venezuela*
- 10:10 - 10:20 *Oral Presentation from Abstract Submission:* Contractile pericytes may contribute to calcineurin inhibitor-mediated nephrotoxicity  
*Mark Kelly, United Kingdom*
- 10:20 - 10:30 *Oral Presentation from Abstract Submission:* Apocynin improves autoregulation of renal blood flow and glomerular filtration rate in rats fed a high salt diet  
*Edward Inscho, USA*
- 10:30 - 11:00 *Coffee Break & Poster Viewing*

## Session 10:

Moderator: Jeremy Duffield (USA)

### Repair, Regeneration and Fibrosis

- 11:00 - 11:20 Klotho in the kidney disease  
*Orson Moe, USA*
- 11:20 - 11:40 Novel factors modulating renal hemodynamics and cell differentiation in fibrosis  
*Christos Chatziantoniou, France*
- 11:40 - 11:50 *Oral Presentation from Abstract Submission:* Chlorthalidone as adjunct therapy in a model of metabolic syndrome  
*David Pollock, USA*
- 11:50 - 12:00 *Oral Presentation from Abstract Submission:* Sirt1 maintains actin cytoskeleton by deacetylation of cortactin in podocytes  
*Shuta Motonishi, Japan*
- 12:00 - 12:40 *Closing Remarks*  
*(Moderators: David Pollock, Donald Kohan, Jens Leipziger)*



# Biographies

Phillip Darwin Bell



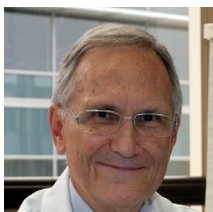
Phillip Darwin Bell, PhD, is an Endowed Professor of Medicine and Vice Chair for Research in the Department of Medicine at the Medical University of South Carolina in Charleston, SC. He is also affiliated with the Ralph H. Johnson Veterans Administration (VA) Medical Center in Charleston, SC. His research is focused on macula densa-tubuloglomerular feedback control of renal hemodynamics, the mechanisms of cystogenesis in polycystic kidney disease (PKD), and the renal toxicity of the marine biotoxin domoic acid. He assumed Editor-in-Chief duties of *AJP – Renal Physiology* in July 2013. Besides the American Physiological Society, he is a member of the American Heart Association (AHA) and the American and International Societies of Nephrology. Dr. Bell is a recent recipient of the Carl Gottschalk Award given by the Renal Section for outstanding research accomplishments.

Christos Chatziantoniou



Christos Chatziantoniou, PhD is currently team leader in the Inserm UMR 1155, at Tenon Hospital, Paris France. After his graduation from the School of Chemistry (University of Thessaloniki), he obtained a master degree in Organic Chemistry (University Paris VII) and then a PhD in Biochemistry (University Paris XI). After a two-year post-doctoral training under the mentorship of Drs Gottschalk and Arendshorst in the University of North Carolina, he joined the same university as Research Associate in 1990. In 1993 he obtained a Young Investigator fellowship from the EU and moved to Paris to join the Inserm U64 (Pr Ardaillou). In 1995 he obtained a tenured position in Inserm and he promoted to the rank of Research Director in 2000. He is Vice-Chair of the Inserm Study Section "Heart, Vessels, Kidney, Lung, Blood & Muscle" and member of the Direction Committee of "Physiology & Physiopathology" Doctoral School, University Paris VI. Other distinctions are: member "Faculty 1000 Biology" (since 2008), the "Europe and Medicine" Senior Award 2005, and the French Academy of Medicine Award 2004. He serves in several European or National evaluation committees. In the beginning of his career he was interested in the mechanisms controlling renal hemodynamics during the development of hypertension. Then, he switched gradually to the mechanisms involved in Chronic Kidney Diseases with particular emphasis to renal fibrogenesis. His current focus is to identify new biomarkers predicting the outcome of renal function and to find novel targets for therapy of CKD.

Allen W. Cowley



Allen W. Cowley, Jr. has been Professor and Chairman of the Department of Physiology at the Medical College of Wisconsin since 1980. He earned his doctorate in Physiology from Hahneman Medical College in Philadelphia, Pennsylvania working with Dr. John Scott before joining Dr. Arthur Guyton in the department of Physiology and Biophysics at the University of Mississippi Medical Center where he rose to the rank of Professor. Dr. Cowley has made seminal findings related to the role of the baroreceptor reflexes, the renin-angiotensin system and vasopressin in both the short and long-term regulation of arterial blood pressure. His research has revealed the importance of the renal medullary circulation in sodium homeostasis and the long-term control of arterial pressure. He proposed the novel hypothesis and then demonstrated that small reductions of blood flow to medulla of the kidney can produce chronic hypertension. More recent work has determined the impact of arterial pressure on the production of oxidative stress and renal injury in the renal medulla of hypertensive rats. During the past decade, he has pioneered efforts to attach systems level biology to the genome providing novel insights into the location of genes that underlie complex disease planting the seeds for the field now referred to as "physiological genomics". Dr. Cowley has served as President of the American Physiological Society (APS) as well as the President of the International Union of



Physiological Sciences and Chairman of the Council for High Blood Pressure Research of the American Heart Association (AHA). He has received the Walter Cannon, the Ernest Starling, the Carl Wiggers, and Ray Daggs Awards from the APS and the Novartis Award from the Council for High Blood Pressure Research and the Distinguished Scientist Award of the AHA. His research has been continuously funded by the National Institutes of Health since 1971 during which time he has mentored over fifty fellows and students in his laboratory resulting in over 325 publications in peer-reviewed journals. Currently he directs two program project grants; one focused on the kidney and the physiological mechanism of blood pressure control and the second exploring the genetic basis of salt-sensitive hypertension.

Jeremy S. Duffield



Jeremy is a Physician Scientist and Nephrologist. He recently joined Biogen Idec In Cambridge Massachusetts as Vice President and Senior Research Fellow in Discovery Research to help identify next generation therapeutics in fibrogenesis and tissue repair. After graduating from Oxford and Edinburgh Universities, UK, and practicing Nephrology in Edinburgh, he directed the laboratory of inflammation research as Assistant Professor at Harvard Medical School, then as Associate Professor of Medicine

& Pathology at the University of Washington in Seattle. His laboratory has been focused on the role of innate immune response cells, monocytes, in injury and repair and on the role of pericytes and fibroblasts in microvascular remodeling and fibrosis. Jeremy is a recipient of the Young Investigator Award from the British Renal Association (2001) and Medical Research Society (2002), NIDDK Young Investigator/Scholar Award (2010) and the American Society of Nephrology Young Investigator Award (2013). In 2011 he became an elected member of the American Society for Clinical Investigation. He also serves on scientific study sections at the NIDDK/NHLBI and the Scientific He is a cofounder of Muregen, and serves on advisory boards for Promedior Inc. and Regulus Therapeutics; companies dedicated to the development of anti-fibrotic therapies. In his 'spare' time he races bicycles, climbs mountains, skis, plays tennis, grows organic vegetables, looks after children (his own) and fixes things that are broken.

Dominique Eladari



Dominique Eladari, 47 years old, is a M.D.-Ph.D. Nephrologist, he did a training in renal physiology in 1997, when he joined the department of Physiology of Broussais-Hôtel Dieu School of Medicine directed by Pr Michel Paillard. He is now associate professor of Physiology at Paris Descartes School of Medicine. There, he teaches renal, endocrine and bone physiology. He is also physician at the new Hopital Européen Georges Pompidou in the department of Physiology and Nuclear Medicine, where he

is in charge of patients suffering chronic or acute renal failure, electrolyte disorders and inherited kidney diseases. His research is performed at the Paris Cardiovascular Research Center (PARCC) and focuses on the identification and characterization of renal ion transporters involved in acid-base homeostasis and blood pressure regulation.

He has recently described a novel sodium transporter in the kidney. He is also member of the editorial boards of several international journals like Kidney International, AJP renal Physiology, and J Nephrology.

Roger Evans



Roger Evans is an Associate Professor within the Department of Physiology at Monash University. He received his original training in pharmacology (PhD 1988, Monash University) but since then his research has focused on cardiovascular and renal physiology. He has a particular interest in renal circulatory physiology, including the regulation on blood flow in the renal medulla and kidney oxygenation. Although his primary expertise is in experimental physiology, he also collaborates with computational modelers, clinicians and epidemiologists to find ways to translate our ever-improving knowledge of renal physiology into new ways to manage patients with hypertension and/or renal disease. He has authored more than 180 journal articles and book chapters. He was Editor-in-Chief of Clinical and Experimental Pharmacology and Physiology from 2006-2013 and is currently an Associate Editor of American Journal of Physiology – Regulatory, Comparative and Integrative Physiology.

Dmitri Firsov



Dmitri Firsov received his PhD in 1992 from the Russian Academy of Sciences (research on vasopressin receptors signaling). From 1993 to 1995, first postdoctoral training; College de France, Paris, France, laboratory of François Morel (research on vasopressin and vasopressin receptors in the kidney), and, CEA, Saclay, France, laboratory of Jean-Marc Elalouf (characterization and analysis of first renal transcriptomes). From 1995 to 1997, second postdoctoral training in the Department of Pharmacology and Toxicology, University of Lausanne, Switzerland, laboratory of Bernard Rossier (structure and function of the epithelial sodium channel (ENaC)). From 1997 to present, group leader in the same Department. Today, Dmitri FIRSOV's scientific interests include: the role of the circadian clock system in the kidney, the regulation of sodium reabsorption in the distal nephron, renal mechanisms of hypertension and other aspects of renal physiology and pathophysiology.

Garret A. FitzGerald



Dr. Garret FitzGerald is the McNeil Professor in Translational Medicine and Therapeutics at the University of Pennsylvania in Philadelphia, where he chairs the Department of Pharmacology and directs the Institute for Translational Medicine and Therapeutics. Dr. FitzGerald's research has been characterized by an integrative approach to elucidating the mechanisms of drug action, drawing on work in cells, model organisms and humans. His work contributed substantially to the development of low-dose aspirin for cardioprotection. FitzGerald's group was the first to predict and then mechanistically explain the cardiovascular hazard from NSAIDs. He has also discovered many products of lipid peroxidation and established their utility as indices of oxidant stress in vivo. His laboratory was the first to discover a molecular clock in the cardiovascular system and has studied the importance of peripheral clocks in the regulation of cardiovascular and metabolic function. Dr. FitzGerald has received the Boyle, Coakley and Harvey medals, the Lucian, Scheele, and Hunter Awards and the Cameron, Taylor, Jacob Herz and Schottenstein Prizes and the Grand Prix of the Lefoulon-Delalande Foundation. He is a member of the Institute of Medicine and a Fellow of the Royal Society.

Jeffrey Garvin



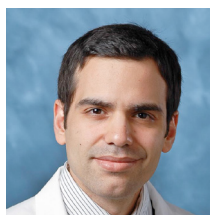
Jeffrey Garvin, Ph.D. is a Professor of Physiology and Biophysics at Case Western Reserve University. He received his B.S. from the University of Miami and his Ph.D. from Duke University. Dr. Garvin did his postdoctoral training in the NIH's Laboratory of Kidney and Electrolyte Metabolism where he was supported by the National Kidney Foundation and National Research Service Awards. His research deals with the regulation of the renal vasculature and nephron transport processes, and how dysregulation of these contributes to hypertension. Dr. Garvin has more than 130 original publications on renal physiology. He has served on numerous study sections and editorial boards including a stint as Associate Editor of The American Journal of Physiology: Renal Physiology. His work has received considerable recognition including the Lewis K. Dahl Award and the Carl W. Gottschalk Award. Dr. Garvin is now Chair of the NIH's Kidney Molecular Biology and Development study section.

John Geibel



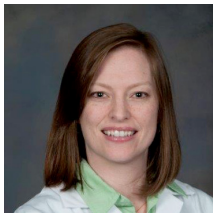
John Geibel is Vice Chairman of the Department of Surgery at Yale University School of Medicine and Director of Surgical Research and Professor of Cellular and Molecular Physiology. His early research training was in Innsbruck Austria where he worked in the Physiology Department and investigated renal physiology on the isolated perfused tubule model. He holds a Bachelors of Science Degree in Physiology, an MD and DSc degree as well as a Master's of Science, and a Master's of Arts Degree. He has also obtained his Dozent in Medicine from the University of Innsbruck. Academically, Professor Geibel's active research interests are on the role of the Calcium Sensing Receptor (CaSR) in renal and gastrointestinal physiology and pathophysiology. Professor Geibel is the author of over 180 publications and presents his findings both nationally and internationally. He is the holder of 7 patents on the role of the calcium sensing receptor.

Romer Gonzales-Villalobos



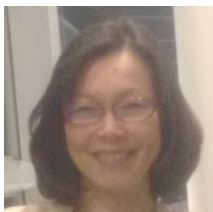
I was born and raised in Venezuela where I first received my MD degree. In 2002, I moved to the US to pursue a career in basic science. My research career began in 2006 after getting my PhD in Physiology from Tulane University, New Orleans, LA. This was followed by three years of post-doctoral work in renal physiology and hypertension. In 2010, I moved to Los Angeles to join the faculty at Cedars-Sinai Medical Center as an assistant professor. My research concerns the specific effects of renal ACE on kidney function and by extension, blood pressure control. I have published more than 30 peer-review publications on the subject describing original findings. In one of our most recent reports, we described indispensable effects of the renal ACE/Ang II pathway to cause hypertension.

Michelle Gumz



Dr. Michelle Gumz has a long-time interest in the molecular control of renal function. The Gumz Laboratory is currently investigating the role of the circadian clock in the kidney with a focus on the regulation of renal sodium reabsorption and blood pressure. As a graduate student at the University of Florida, Dr. Gumz was the first to identify the circadian clock gene *Per1* as an aldosterone target. As a postdoctoral fellow at the Mayo Clinic, Dr. Gumz identified a novel tumor suppressor in renal cell carcinoma. During her later postdoctoral studies, she showed that *Per1* regulates transcription of  $\alpha$  ENaC, the aldosterone-regulated and rate-limiting subunit of the epithelial sodium channel. The Gumz Laboratory has recently demonstrated that *Per1* knockout mice have significantly lower blood pressure than controls and that *Per1* coordinately regulates a set of genes in the kidney that all contribute to the regulation of renal sodium reabsorption.

Reiko Inagi



Dr. Reiko Inagi is an associate professor at The University of Tokyo Graduate School of Medicine and a lecturer at Chubu University Department of Biomedical Science, Japan. She earned her PhD from Nagoya University Graduate School of Medicine (1990), and was assigned to Osaka University School of Medicine (Assist/Prof - Lecturer, 1991-1998) and Tokai University School of Medicine (Lecturer - A/Prof, 1998-2008). She got the "Kimoto Award" of the Japanese Society for Dialysis Therapy (2003), and the awards of the Japanese Society for Renal Pathology (2003, 2007). Her recent professional interests are pathophysiology of endoplasmic reticulum (ER) stress in kidney disease. She is also a councilor of the Japanese Society of Nephrology (International liaison committee), International Maillard Reaction Society (IMARS, chief editor of IMARS Highlights), and Japanese Maillard Reaction Society (JMARS, International liaison committee) and an Associate Editor of "Clinical and Experimental Pharmacology and Physiology".

Paul Insel



Dr. Insel received his M.D. from University of Michigan and clinical training in internal medicine and pharmacology at Harvard and UCSF. He has been on the faculty at UCSF and UCSD, where he is currently Acting Chair and Distinguished Professor of Pharmacology and Medicine. Dr. Insel is also Director of the UCSD Medical Scientist (MD/PhD) Training Program. Dr. Insel's current research efforts emphasize cellular expression and localization of GPCRs and cAMP signaling components and their regulation of cellular responses. A major focus in recent years has been on purinergic receptors and their role in renal and cardiovascular function. The latter efforts have recently emphasized studies of ATP release and P2Y2 receptor action in adult cardiac fibroblasts.



Boye L Jensen



Boye L Jensen is 48 years and received the M.D. degree from the University of Copenhagen, Denmark, 1992, and continued with the PhD education working with Prof. Ole Skøtt. He was granted the PhD degree in 1995 and received a Post Doc fellowship in the lab of Prof. Armin Kurtz in Regensburg Germany 1995-98. Since 1998, Boye L Jensen has been employed at the University of Southern Denmark in Odense, Denmark, as an associate professor and since 2007 as Professor in Physiology. Boye L Jensen was awarded the Doctor of Medical Science degree at the University of Southern Denmark in 2001. The main research area of Boye L Jensen is the significance of the kidneys in blood pressure regulation with special emphasis on mechanisms of renin release; significance of the COX-prostaglandin system, and, in recent years, the role of proteases for ENaC activation in proteinuric disease. Boye L Jensen is a co-author of ~100 original papers and 20 reviews and book chapters in these areas and has received the Astra-Zeneca Award for Hypertension Research in 1999. Boye L Jensen is a member of the American Physiological Society and serves on the Editorial Boards of Am. J. Physiology-Renal Physiology and Regulatory, Integrative and Comparative Physiology and on Pflügers Archiv-European Journal of Physiology. Boye L Jensen is Chairman of the Danish Society of Hypertension and teaches physiology to medical students at The University of Southern Denmark. He has supervised more than 15 PhD students and PostDocs and is Head of Research at The Department of Cardiovascular and Renal Research at University of Southern Denmark. Boye L Jensen serves as reviewer for international scientific journals and has served as a reviewer for Norwegian, Dutch and UK funding bodies.

Bellamkonda K. Kishore



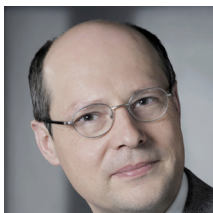
Bellamkonda K. Kishore, M.D., Ph.D., MBA, FASN is a Research Professor of Medicine at the University of Utah Health Sciences Center, and Principal Investigator (Nephrology) at the George E. Wahlen Department of Veterans Affairs Medical Center, Salt Lake City, Utah. During the past three decades Dr. Kishore has been pursuing research in renal physiology, pathophysiology, and experimental therapeutics in India, Japan, Belgium and the USA. His current research focuses on the role of purinergic signaling in the genesis of clinically relevant water and sodium balance disorders and diet-induced obesity. Specifically, he investigates acquired nephrogenic diabetes insipidus (NDI) induced by chronic lithium. Dr. Kishore and his collaborators identified and filed patents for novel drug targets for the treatment of acquired NDI and diet-induced obesity. In addition, Dr. Kishore and his collaborators developed and patented a novel method to induce proliferation of erythropoietin (EPO)-producing cells in the kidney.

Tom Kleyman



Thomas R. Kleyman, MD, is the Sheldon Adler Professor of Medicine and Chief of the Renal-Electrolyte Division at the University of Pittsburgh. He is also a Professor of Cell Biology, and of Pharmacology and Chemical Biology at the University of Pittsburgh, and is the Director of the Pittsburgh Center for Kidney Research. Dr. Kleyman recently served as the editor-in-chief of the American Journal of Physiology: Renal Physiology, and is currently the deputy editor-in-chief of Physiological Reports. He has served on numerous editorial boards and study sections. Dr. Kleyman is a member of the American Society for Clinical Investigation and the Association of American Physicians. His work is currently supported by grants from the NIH, and he is the principal investigator of NIH T32 and T35 training grants and a George M. O'Brien Kidney Research Center. Dr. Kleyman's current research interests are epithelial ion channels, with an emphasis on studies of the structure, biosynthetic processing, and regulation of epithelial Na<sup>+</sup> channels.

Christoph Korbmacher



Christoph Korbmacher studied Medicine in Berlin, Paris and Heidelberg. In 1986 he received his doctoral degree from the Free University (FU) of Berlin where he started his training in nephrology and physiology in 1984. From 1989 to 1991 he was postdoc at Yale School of Medicine (USA) and subsequently moved to the University of Frankfurt where he completed his Habilitation in Physiology in 1995. From 1997 to 2002 he held a post as University Lecturer at the University of Oxford (UK). In 2002 he became Chairman of the Department of Cellular and Molecular Physiology at Friedrich-Alexander University Erlangen-Nürnberg (FAU). He was deputy coordinator of the collaborative research center (SFB 423) 'Kidney injury: pathogenesis and regenerative mechanisms' until 2010. From 2008 to 2010 he served as Vice Dean of the Medical Faculty. In 2010 he was elected as Vice President of FAU and was re-elected in 2013 for a second term until March 2016.

Jens Leipziger



Jens Leipziger is a Professor of Renal Physiology at the Department of Biomedicine, Aarhus University, Denmark. He received his MD from the University of Freiburg, Germany in 1988. After one year of clinical work in the Department of Nephrology/University of Freiburg he moved to Rainer Greger's laboratory at the Dept. of Physiology/Freiburg. This has triggered a long lasting fascination to study epithelial and renal tubular ion transport. In 1997/8 he spent a year in the laboratory of Gerhard Giebisch, Yale, USA. His major research areas address the molecular physiology of ion transport along the nephron and the intestine. A special interest is directed to local purinergic signals in epithelial biology, the regulation of epithelial K<sup>+</sup> secretion and the kidneys role in acid-base handling. He serves in several editorial boards, is the long standing organizer of the Meeting of Membrane Transport in Sandbjerg, Denmark, serves as board member of the Scandinavian Physiological Society and is the leader of the Graduate School Research Program on membrane transport at Aarhus University.

Ruisheng Liu



Ruisheng Liu obtained his M.D. training from Jining Medical College and Shandong University in China and a Ph.D. degree from Uppsala University in Sweden. He completed his post-doctoral and early stage of faculty training in Henry Ford Hospital, Detroit MI. He is an associate professor at Department of Physiology and Department of Medicine/Division of Nephrology at the University of Mississippi Medical Center. The research of Dr. Liu's laboratory has been involved in the renal mechanism, especially tubuloglomerular feedback response in control of salt-water balance, hemodynamics and renal functions. The major focus of his research is to determine the significance of tubuloglomerular feedback responsiveness in physiological and pathological situations, such as in volume homeostasis, salt-sensitive hypertension, acute kidney injury, chronic kidney diseases and diabetic nephropathy.



Orson Moe



Orson Moe is Professor of Internal Medicine and Physiology at the University of Texas Southwestern Medical Center and Director of the Charles and Jane Pak Center of Mineral Metabolism and Clinical Research. He is a nephrologist and renal physiologist. Moe conducts both basic and clinical research in physiology and pathophysiology of acid-base, electrolytes, and mineral metabolism. One recent focus of this laboratory is on the pathogenic mechanisms of how mineral disturbances contribute to uremic vasculopathy and cardiomyopathy.

Luis Gabriel Navar



Luis Gabriel Navar received his Ph.D. in 1966 at the University of Mississippi under the direction of Dr. Arthur Guyton. He served on the faculty of the University of Mississippi, University of Alabama at Birmingham and as Chair of the Department of Physiology at Tulane University in New Orleans, LA. Dr. Navar investigates hormonal and paracrine mechanisms regulating renal hemodynamics, glomerular filtration rate, and sodium excretion and how these are altered in angiotensin II dependent hypertension. Dr. Navar is an active member of many societies including the American Physiological Society, ASN, AHA, and ASH. He has served on study sections (NIH, VA, AHA) and on Editorial Boards for various journals including American Journal of Physiology and Hypertension. Dr. Navar has received numerous awards including the Gottschalk Award and the Walter B. Cannon Award from APS, the Richard Bright Award from ASH, and the Excellence in Hypertension Research award from the Council for High Blood Pressure Research.

Paul O'Connor



Dr Paul O'Connor (PhD) is an Assistant Professor at Georgia Regents University in Augusta Georgia and a fellow of the American Heart Association. His Laboratory is interested in the development of hypertension and renal injury with a focus on the involvement of the renal medullary region. Dr O'Connor has published over 30 manuscripts, reviews and book chapters on the topics of renal hemodynamics, renal oxygenation and tubular function. Dr O'Connor's current work focuses on the role of renal hypoxia in the development of chronic kidney disease and a novel renal transporter Hv1. Dr O'Connor received his PhD from Monash University in Australia. He then completed post-doctoral studies at the Medical College of Wisconsin in the laboratory of Prof Allen Cowley Jr before moving to Georgia Regents University

Claire Peppiatt-Wildman



Claire graduated with a BSc (Hons) in Medical Biochemistry from Royal Holloway University of London in 1999 and was awarded a PhD in Cellular Physiology in 2002 from The University of Cambridge.

Claire was awarded a 5-year Medical Research Council funded Career Development Award to conduct independent research in the Department of Physiology, UCL (Centre for Nephrology at The Royal Free Hospital) and then at The Royal Veterinary College (Department of Veterinary Basic Sciences).

Subsequently Claire joined Medway School of Pharmacy (MSoP) and was appointed as a Lecturer in Biological Sciences. Claire also holds an Honorary Lectureship in the UCL Division of Medicine, Centre for Nephrology, UCL (awarded 2010). Claire Heads the Urinary System Physiology Unit and is The Director for Enterprise at MSoP.

Claire's has notably been rewarded with a number of high impact-factor peer-reviewed research publications (Nature), invitations to lecture internationally, review articles requests, and a Renal Research Recognition award by The American Physiological Society (2009). Current research projects are funded by Pfizer USA, Biogen Idec USA and The Kidney Research UK.

Nicolas Picard



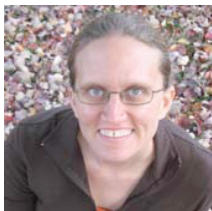
**2013 - present** Full-time researcher at "Centre de recherche des Cordeliers" UMRS 1138 & CNRS, ERL 8228, Paris, France.

**2010 - 2013** Postdoctoral fellow with Dominique Eladari, "Centre de recherche des Cordeliers" & "Paris Centre de Recherche Cardiovasculaire" INSERM, Paris, France.

**2006 - 2010** Postdoctoral fellow with Brigitte Kaissling and Johannes Loffing, Anatomy Institute, Zürich, Switzerland.

**2002 - 2006** Doctoral fellow in F. Alhenc-Gelas group, INSERM, Paris, France  
PhD in physiology and physiopathology, Université Paris VI, Paris, France

Jennifer Pluznick



Jen Pluznick received her Ph.D. in Renal Physiology from the University of Nebraska Medical Center (Omaha, NE) in 2005. She then spent five years training as a postdoctoral fellow in the laboratory of Michael Caplan at Yale University (New Haven, CT), where she studied both renal physiology and sensory biology systems (in particular, olfaction). Jen's research interests are focused on how the renal and cardiovascular systems employ G-protein coupled receptor «sensory» signaling pathways in order to monitor various substances in the plasma and forming urine, and thus aid in the maintenance of homeostasis.

Jennifer Pollock



Dr. Jennifer S. Pollock is an Endowed Scholar and Professor at the University of Alabama at Birmingham (UAB). She earned her Ph.D. in Biological Chemistry from The University of North Carolina at Chapel Hill and received post-doctoral training under the tutelage of Dr. Ferid Murad, 1998 Nobel Laureate in Physiology and Medicine. Subsequent to her post-doctoral training, she worked as a Drug Discovery Scientist at Abbott Laboratories for over 7 years then moving to the Medical College of Georgia at Georgia Regents University in Augusta where she built her academic career for 18 years and was the Weiss Professor and Director of the MD/PhD program. Dr. Pollock relocated to UAB in 2014. Dr. Pollock's research is on the vascular and renal mechanisms of hypertension, diabetes, and recently sickle cell anemia focusing on the role of nitric oxide and vasoactive factors in the relationship of acute and chronic stress on the vasculature, renal function, and immune responses. Dr. Pollock's research group is currently supported by two Program Project Grants and a U01 collaborative grant from the National Institutes of Health. Dr. Pollock serves as a member of two AHA study sections and as an ad-hoc reviewer for NIH Program Project Grants. Dr. Pollock has mentored and trained over 60 undergraduate students, medical students, graduate students, post-doctoral fellows, clinical fellows, and junior faculty members in her academic career.

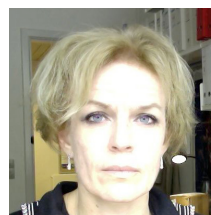
Minolfa Prieto-Carrasquero



Dr. Prieto is a geneticist and renal physiologist who received her initial education and earned her MD in the University of Zulia, Venezuela and then her PhD in Renal Physiology from the Tulane University, New Orleans-LA, USA. Following completion of her PhD she joined the laboratory of Dr. L. Gabriel Navar at Tulane, School of Medicine to study the mechanisms governing the regulation of renin in the distal nephron. In 2005, she was appointed as an Assistant Professor at Ponce School of Medicine, Puerto Rico. Dr. Prieto was recruited back to the Department of Physiology at Tulane University in 2007, where she is currently assistant professor.

Dr. Prieto's major research focuses on renal mechanisms of control of blood pressure in health, hypertension, and diabetes mellitus. Specifically, she investigates the functional role and regulation of the intrarenal renin-angiotensin system (RAS) genes in the pathogenesis of hypertension and related renal morphological changes. Efforts of her research program concentrate on the determination of the mechanisms that regulates renin and the prorenin receptor in the distal nephron segments and the consequences of their local interaction on the development and progression of high blood pressure and kidney injury during hypertension and diabetes mellitus. Recent research in her lab is conducted to elucidate the functional contribution of the collecting duct-derived prorenin and prorenin receptor interaction on the development of tubulointerstitial fibrosis in diabetes and the influences of hyperglycemia on trafficking alteration of the prorenin receptor. To address this issue, Dr. Prieto team has generated a novel and unique Cre-loxP mouse model with cell type specific deletion of the prorenin receptor in the collecting duct cells, as well as performs in vitro experiments using a collecting duct cell line transfected with the prorenin receptor.

Helle Praetorius



Helle Praetorius is professor in physiology at Aarhus University, Denmark and vicechair for the research center MEMBRANES at Aarhus University. She holds an MD-PhD, with the medical degree from Odense University, Denmark and PhD from University of Southern Denmark and post doc. at the Heart, Lung and Blood Institute, NIH, Bethesda, MD.

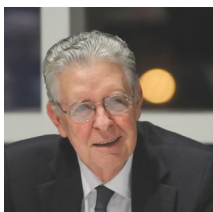
The research interest is primarily membrane transport and its regulation by local purinergic signalling in renal epithelia and blood cells. Regarding methods the main focus have been live cell/tissue imaging and electrophysiology.

Nirupama Ramkumar



Dr. Nirupama Ramkumar is junior faculty in the Division of Nephrology and Hypertension at the University of Utah. She received her medical degree from Bangalore University, India and completed her residency training at UCSF-Fresno and Nephrology fellowship at the University of Utah. Her current research focuses on the role of intra-renal renin angiotensin system in blood pressure regulation. She is a recipient of the American Society of Nephrology Research Fellowship Award and American Physiological Society's Amgen post-doctoral excellence in research award.

Bernardo Rodriguez-Iturbe



Bernardo Rodriguez-Iturbe is Professor of Medicine and Director of the Renal Service in the University Hospital and Medical School Maracaibo, Venezuela. He received his medical and Doctorate degrees from the Universidad de Zulia and had postgraduate studies in the Graduate School of the University of Pennsylvania, Philadelphia. His residency in Internal Medicine and Nephrology Fellowship were done in the Graduate Hospital of the University of Pennsylvania. He has received several career national and international awards. He is Past-President of the Latin American Society of Nephrology and Hypertension and the International Society of Nephrology. His research interests are poststreptococcal glomerulonephritis and the role of autoimmunity and inflammation in the pathogenesis of salt-sensitive hypertension and chronic renal disease.

Rajeev Rohatgi



Rajeev Rohatgi graduated from the University of Chicago with a B.A. in chemistry and completed his M.D at the New York University School of Medicine. Next, he trained in Internal Medicine and completed a 3-year Renal Research Fellowship at the Mount Sinai School of Medicine. Lisa Satlin MD, a world renowned expert on K transport, mentored Rajeev during his renal fellowship and as a junior faculty member. The focus of his research is on the physiologic and pathophysiologic effects of intra-tubular hydrodynamic forces on renal epithelial signaling and renal cation transport. The lab utilizes cell culture and animal models to study the effects of fluid shear stress and stretch on distal tubular function. Rajeev has received grant support from several sponsors including NIH, VA and several foundations.



Lisa Satlin



Lisa Satlin is Professor and Chair of the Department of Pediatrics at the Ichan School of Medicine at Mount Sinai (ISMMS), where she is also Associate Director of the MD/PhD Training Program. She received her MD degree from Columbia University College of Physicians and Surgeons, and completed a residency in Pediatrics at the Babies Hospital of Columbia University and a Pediatric Nephrology Fellowship at the Albert Einstein College of Medicine. At the ISMMS, as Chief of the Division of Pediatric Nephrology (1997-2010), Dr. Satlin built an internationally respected academic division, which has attracted both physician and research trainees interested in clinical nephrology and basic/translational research related to developmental nephrology. She continues to run an active NIH-supported laboratory, supported in part to serve as a national "Single Tubule Physiology Core" as part of the U. Pittsburgh O'Brien Renal Research Center, focused on defining the mechanisms leading to the acquisition, maintenance and regulation of transepithelial transport in the renal collecting duct, a nephron segment critical in the final regulation of salt and water homeostasis. Her research accomplishments have been recognized by her election to membership in the Society for Pediatric Research, the American Pediatric Society, and the Association of American Physicians. Dr. Satlin has served as President of the American Society of Pediatric Nephrology and Councilor of the International Pediatric Nephrology Association. She just completed her second term as Associate Editor of the American Journal of Physiology: Renal Physiology, and has participated in many study sections and grant-review groups for the NIH and the American Heart Association.

James D. Stockand



James D. Stockand earned a B.S. in Biochemistry and Genetics from Texas A&M University, College Station, Texas in 1991. He completed graduate training, earning a Ph.D. in Biomedical Sciences with a focus in physiology, at the University of Texas Health Science Center at Houston in 1996. Dr. Steven Sansom served as his thesis advisor. Dr. Stockand completed postdoctoral training under the mentorship of Dr. Douglas Eaton at Emory University Medical School in 2000. His postdoctoral work focused on biophysics and physiology. Dr. Stockand joined the faculty of the Department of Physiology at the University of Texas Health Science Center at San Antonio as an Assistant Professor in 2000. He was promoted to Associate Professor in 2005 and Professor in 2009. Dr. Stockand is an expert in the areas of renal ion channels, epithelial transport, tubule function, and control of Na<sup>+</sup> and water balance and regulation of blood pressure.

Kimio Tomita



My research interest is focused on the Na regulation in the kidney. I have started my research activity about localization of kallikrein along the nephron segments at Tokyo university. I moved to NIH to study the function of kallikrein-kinin system. After 3 years, I returned to Japan. My research interest moved to several natriuretic peptides, such as localization of receptors and production in the nephron segments and function of endothelin in the kidney, role of endothelin in acute renal failure, regulation of endothelin converting enzyme, localization of NO synthetase in the nephron segments, localization of ANP receptors and functional role of ANP in the nephron segments, localization of AVP receptors and functional role of AVP in the nephron segments, role of V1a receptor using by knock out mice. Concerning to the research on Na channel, I have cloned rat prostasin and have reported that prostasin clearly activates Na channel, stimulates aldosterone synthesis in cultured human adrenocortical cell line, is high in human primary aldosteronism and decreased after adrenalectomy, and is regulated by TGF- $\beta$  and protease Nexin-1. I have also reported that roles of serine protease in renal injury in Dahl salt-hypertensive rat model and the progression of chronic kidney disease.

Volker Vallon



Dr. Vallon received his M.D. from the University of Tübingen, Germany, in 1992, and research training at the Department of Pharmacology - University of Tübingen, the Department of Medicine - University of California San Diego (UCSD), and the National Institute of Diabetes and Digestive and Kidney Disease - NIH, Bethesda. Following his habilitation and board certification in Pharmacology and Toxicology, he joined the faculty at the University of Tübingen as a Lecturer in 1998, and in 2003 he was recruited to UCSD where he currently is a Professor of Medicine & Pharmacology and a Research Scientist at the San Diego Veterans Medical Research Foundation.

Dr. Vallon's research characterizes the roles played by a variety of ion channels, transporters, receptors and intracellular signaling pathways in the biology of the kidney, and offers new insights into the metabolic control of kidney function, the early diabetic kidney, and the role of the kidney in the regulation of blood pressure. He aims to integrate aspects of vascular and tubular function to gain a more complete understanding of the physiology, pathophysiology, and pharmacology of the kidney. His work is a blend of physiology, molecular biology, and pharmacology, and uses mouse models to dissect contributions of specific genes (including assessment of blood pressure and GFR in awake mice). His group is one of few that performs *in vivo* renal micropuncture at the single nephron level of the rat and mouse (including analysis of various ions and organic compounds in nanoliter volume of tubular fluid).

Dr. Vallon is a PI on a NIH R01 grant and on multiple investigator-initiated projects with pharmaceutical companies related to new antidiabetic drugs, and a co-investigator on a NIH R01 grant and the just recently renewed UAB-UCSD NIH O'Brien Core Center for Acute Kidney Injury Research Grant.

Dr. Vallon is a member of the editorial board of *Kidney & Blood Pressure Research*, *Nephron Physiology*, *Frontiers in Renal and Epithelial Physiology*, and *American Journal of Physiology Renal Physiology*. He is the recipient of the New Investigator Award in Regulatory and Integrative Physiology (2004) and the Young Investigator Award for Excellence in Renal Physiology (2007) of the American Physiological Society. He is a current member of the AHA Cardiorenal Study Section and a member of the Steering Committee and the Awards Chair of the Renal Section of the American Physiological Society. Dr. Vallon teaches at the Department of Medicine, Department of Pharmacology, and the Skaggs School of Pharmacy and Pharmaceutical Sciences at UCSD.

Susan M. Wall



The focus of the Wall laboratory has been the role of Cl<sup>-</sup> transporters in the cortical collecting duct in the renal regulation of blood pressure. They observed that the Cl<sup>-</sup>/HCO<sub>3</sub><sup>-</sup> exchanger, pendrin, is greatly upregulated by aldosterone, which stimulates Cl<sup>-</sup> absorption and HCO<sub>3</sub><sup>-</sup> secretion in the cortical collecting duct. Moreover, pendrin plays a critical role in the hypertension observed following the administration of aldosterone. Whereas blood pressure is similar in pendrin null and wild type mice, under conditions following a NaCl-rich diet, where renin, angiotensin II and aldosterone concentrations are low, they observed that blood pressure is much lower in pendrin null than in wild type mice following the administration of aldosterone, presumably due to the absence of pendrin-mediated Cl<sup>-</sup> absorption.



William Welsch



Dr. Welch is a Professor in the Department of Medicine, Division of Nephrology and Hypertension at Georgetown University in Washington, DC. He earned his Ph.D. from the Department of Physiology at the University of Kentucky. His research has focused on the role of the kidney in the development and maintenance of systemic hypertension, using animal models of human disease. He utilizes specialized in vivo micropuncture and microperfusion techniques to characterize function in individual nephrons and their relationship with the microvasculature. His work includes over 100 publications on the roles of various hormones on the renal-cardiovascular control of systemic blood pressure and proximal tubule function. He is on multiple editorial boards and is an active member of the Council on High Blood Pressure Research (AHA), the American Physiological Society (APS) and the American Society of Nephrology (ASN). He is past-president of the International Society of Oxygen Transport to Tissues.

Chris Wilcox



He was born in the UK and was educated at Oxford University for his medical degree and a BM; BCh from London University for his Ph.D. He was appointed senior lecturer (professor equivalent) and Deputy Director of the Department of Medicine at St. Mary's hospital, London University, he took a sabbatical year at Yale University with Professor Gerhard Giebisch, MD and thereafter was appointed to the faculty of the Brigham and Women's Hospital at Harvard University to develop a new program in Clinical Pharmacology. After 5 years he was recruited to the University of Florida as the director of Nephrology and Hypertension at the VA and Director of a new Hypertension Center. He spent a sabbatical year at Cambridge University, UK as a visiting faculty in the Department of Molecular Biology. In 1994, he was appointed as the George E. Schreiner Professor of Nephrology and Chief of the Division of Nephrology and Hypertension at Georgetown University in Washington, DC. He directs the Georgetown University Hypertension, Kidney, and Vascular Research Center.

His laboratory studies have investigated how hypertension is related to the kidney. His research has been centered on the role of oxidative stress as it affects the tubuloglomerular feedback mechanism, myogenic responses and hypertension. His work currently is supported by two individual R01-grants, a program project P01 grant. He is the author of 165 peer-reviewed articles and 2 books on nephrology and hypertension.

Hiderou Yoshida



Dr. Yoshida completed his doctorate in molecular cell biology at Kyoto University in 1994. He then started the analysis of the ER stress response with Dr. Kazutoshi Mori (a recipient of the Gairdner Prize) at HSP research institute and Kyoto University, and with Dr. Mary Jane Gething at University of Melbourne. In 2004, he opened his own laboratory at the Kyoto University and started the analysis of the Golgi stress response. In 2010, he became a professor in the University of Hyogo, and awarded with Top Author Award in the FEBS Journal, Young Investigator Award from the Japanese Biochemical Society and Best Paper Award in Japan Society of Cell Biology.