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Editorials

1624 **Opening Pandora's Box in the Tight Junction**

Daniel F. Balkovetz

→ See related article by Feldman et al. on pages 1662–1671.

1626 **Developmental Hypertension, Nephrogenesis, and Mother's Milk: Programming the Neonate**

Susan P. Bagby

→ See related article by Wlodek et al. on pages 1688–1696.

1630 **More on Renal Disease Progression: Is Interstitial Inflammation Truly Protective?**

Norberto Perico, Mauro Abbate, and Giuseppe Remuzzi

1633 **Is Proteinuria Reduction by Angiotensin-Converting Enzyme Inhibition Enough to Prove Its Role in Renal Protection in IgA Nephropathy?**

Daniel C. Cattran

→ See related article by Coppo et al. on pages 1880–1888.

1635 **Renal Replacement Therapy in the Developing World: Are We on the Right Track, or Should There Be a New Paradigm?**

Ricardo Correa-Rotter

→ See related article by Garcia-Garcia et al. on pages 1922–1927.

Review

1637 **How Fibroblast Growth Factor 23 Works**

Shiguang Liu and L. Darryl Quarles

Special Feature

1648 **JASN Moves On**

William G. Couser, Carol Hill, and Allison A. Eddy

Basic Science Articles

1652 **Cell and Transport Physiology**
Acute Regulation of the Epithelial Na⁺ Channel by Phosphatidylinositide 3-OH Kinase Signaling in Native Collecting Duct Principal Cells

Alexander Staruschenko, Oleh Pochynyuk, Alain Vandewalle, Vladislav Bugaj, and James D. Stockand

- 1662 ★ **Role for TGF- β in Cyclosporine-Induced Modulation of Renal Epithelial Barrier Function**
Gemma Feldman, Breda Kiely, Natalia Martin, Gavin Ryan, Tara McMorro, and Michael P. Ryan
→ See related editorial by Balkovetz on pages 1624–1625.
- 1672 **Increased Renal Responsiveness to Vasopressin and Enhanced V2 Receptor Signaling in RGS2^{-/-} Mice**
Annie Mercier Zuber, Dustin Singer, Josef M. Penninger, Bernard C. Rossier, and Dmitri Firsov
- 1679 **Impairment of Sodium Balance in Mice Deficient in Renal Principal Cell Mineralocorticoid Receptor**
Caroline Ronzaud, Johannes Loffing, Markus Bleich, Norbert Gretz, Hermann-Josef Gröne, Günther Schütz, and Stefan Berger
- Genetics and Development**
- 1688 ★ **Normal Lactational Environment Restores Nephron Endowment and Prevents Hypertension after Placental Restriction in the Rat**
Mary E. Wlodek, Amy Mibus, Adeline Tan, Andrew L. Siebel, Julie A. Owens, and Karen M. Moritz
→ See related editorial by Bagby on pages 1626–1629.
- 1697 **Crim1^{KST264/KST264} Mice Implicate Crim1 in the Regulation of Vascular Endothelial Growth Factor-A Activity during Glomerular Vascular Development**
Lorine Wilkinson, Thierry Gilbert, Genevieve Kinna, Leah-Anne Ruta, David Pennisi, Michelle Kett, and Melissa H. Little
- 1709 **Mouse Embryonic Stem Cell-Derived Embryoid Bodies Generate Progenitors That Integrate Long Term into Renal Proximal Tubules *In Vivo***
Cécile Vigneau, Katalin Polgar, Gary Striker, Justine Elliott, Deborah Hyink, Odile Weber, Hans-Joerg Fehling, Gordon Keller, Christopher Burrow, and Patricia Wilson
- Basic Immunology and Pathology**
- 1721 **Inhibition of Toll-Like Receptor-7 (TLR-7) or TLR-7 plus TLR-9 Attenuates Glomerulonephritis and Lung Injury in Experimental Lupus**
Rahul D. Pawar, Allam Ramanjaneyulu, Onkar P. Kulkarni, Maciej Lech, Stephan Segerer, and Hans-Joachim Anders
- 1732 **Toll-Like Receptor 4 Ligation on Intrinsic Renal Cells Contributes to the Induction of Antibody-Mediated Glomerulonephritis *via* CXCL1 and CXCL2**
Heather J. Brown, Helen R. Lock, Tim G.A.M. Wolfs, Wim A. Buurman, Steven H. Sacks, and Michael G. Robson
- Pathophysiology of Renal Disease and Progression**
- 1740 **PKD1 Haploinsufficiency Causes a Syndrome of Inappropriate Antidiuresis in Mice**
Ali K. Ahrabi, Sara Terryn, Giovanna Valenti, Nathalie Caron, Claudine Serradeil-Le Gal, Danielle Raufaste, Soren Nielsen, Shigeo Horie, Jean-Marc Verbavatz, and Olivier Devuyst
- 1754 **Mesenchymal Stem Cells Prevent Progressive Experimental Renal Failure but Maldifferentiate into Glomerular Adipocytes**
Uta Kunter, Song Rong, Peter Boor, Frank Eitner, Gerhard Müller-Newen, Zivka Djuric, Claudia R. van Roeyen, Andrzej Konieczny, Tammo Ostendorf, Luigi Villa, Maja Milovanceva-Popovska, Donscho Kerjaschki, and Jürgen Floege
- 1765 **Interstitial Vascular Rarefaction and Reduced VEGF-A Expression in Human Diabetic Nephropathy**
Maja T. Lindenmeyer, Matthias Kretzler, Anissa Boucherot, Silvia Berra, Yoshinari Yasuda, Anna Henger, Felix Eichinger, Stefanie Gaiser, Holger Schmid, Maria P. Rastaldi, Robert W. Schrier, Detlef Schlöndorff, and Clemens D. Cohen
- 1777 **Smad7 Gene Therapy Ameliorates an Autoimmune Crescentic Glomerulonephritis in Mice**
Shuk-Man Ka, Xiao-Ru Huang, Hui-Yao Lan, Pei-Yi Tsai, Shun-Min Yang, Hao-Ai Shui, and Ann Chen
- 1789 **Slowly Progressive, Angiotensin II-Independent Glomerulosclerosis in Human (Pro)renin Receptor-Transgenic Rats**
Yuki Kaneshiro, Atsuhiko Ichihara, Mariyo Sakoda, Tomoko Takemitsu, A.H.M. Nurun Nabi, M. Nasir Uddin, Tsutomu Nakagawa, Akira Nishiyama, Fumiaki Suzuki, Tadashi Inagami, and Hiroshi Itoh

- 1796 ★ **Combination Therapy with an Angiotensin-Converting Enzyme Inhibitor and a Vitamin D Analog Suppresses the Progression of Renal Insufficiency in Uremic Rats**
Masahide Mizobuchi, Jeremiah Morrissey, Jane L. Finch, Daniel R. Martin, Helen Liapis, Tadao Akizawa, and Eduardo Slatopolsky
- 1807 **Evidence for the Role of Reactive Nitrogen Species in Polymicrobial Sepsis-Induced Renal Peritubular Capillary Dysfunction and Tubular Injury**
Liping Wu, Neriman Gokden, and Philip R. Mayeux
- 1816 **Genes Expressed by Both Mesangial Cells and Bone Marrow-Derived Cells Underlie Genetic Susceptibility to Crescentic Glomerulonephritis in the Rat**
Jennifer Smith, Ping-Chin Lai, Jacques Behmoaras, Candice Roufosse, Gurjeet Bhargal, John P McDaid, Timothy Aitman, Frederick WK Tam, Charles D. Pusey, and H. Terence Cook

Chronic Kidney Disease

- 1824 **Abrogation of Protein Uptake through Megalin-Deficient Proximal Tubules Does Not Safeguard against Tubulointerstitial Injury**
Franziska Theilig, Wilhelm Kriz, Timo Jerichow, Petra Schrade, Brunhilde Hähnel, Thomas Willnow, Michel Le Hir, and Sebastian Bachmann

Basic Transplantation

- 1835 ★ **Selective Binding and Presentation of CCL5 by Discrete Tissue Microenvironments during Renal Inflammation**
Stephan Segerer, Roghieh Djafarzadeh, Hermann-Josef Gröne, Christian Weingart, Donscho Kerjaschki, Christian Weber, Andreas J. Kungl, Heinz Regele, Amanda E.I. Proudfoot, and Peter J. Nelson

Disease of the Month

- 1845 **Exercise in the End-Stage Renal Disease Population**
Kirsten L. Johansen
- 1855 **Nephronophthisis-Associated Ciliopathies**
Friedhelm Hildebrandt and Weibin Zhou

Clinical Science Articles

Clinical Nephrology

- 1872 **Lower Progression Rate of End-Stage Renal Disease in Patients with Peripheral Arterial Disease Using Statins or Angiotensin-Converting Enzyme Inhibitors**
Harm H.H. Feringa, Stefanos E. Karagiannis, Michel Chonchol, Radosav Vidakovic, Peter G. Noordzij, Abdou Elhendy, Ron T. van Domburg, Gijs Welten, Olaf Schouten, Jeroen J. Bax, Tomas Berl, and Don Poldermans
- 1880 ★ **IgACE: A Placebo-Controlled, Randomized Trial of Angiotensin-Converting Enzyme Inhibitors in Children and Young People with IgA Nephropathy and Moderate Proteinuria**
Rosanna Coppo, Licia Peruzzi, Alessandro Amore, Antonio Piccoli, Pierre Cochat, Rosario Stone, Martin Kirschstein, and Tommy Linné; on behalf of the EC Biomed Concerted Action Project BMH4-97-2487(DG 12-SSMI) and IgACE European Collaborative Group
→ See related editorial by Cattran on pages 1633–1634.
- 1889 **Renoprotection of Optimal Antiproteinuric Doses (ROAD) Study: A Randomized Controlled Study of Benazepril and Losartan in Chronic Renal Insufficiency**
Fan Fan Hou, Di Xie, Xun Zhang, Ping Yan Chen, Wei Ru Zhang, Min Liang, Zhi Jian Guo, and Jian Ping Jiang
- 1899 **A Randomized, Controlled Trial of Steroids and Cyclophosphamide in Adults with Nephrotic Syndrome Caused by Idiopathic Membranous Nephropathy**
Vivekanand Jha, Anirban Ganguli, Tarun K. Saha, Harbir S. Kohli, Kamal Sud, Krishan L. Gupta, Kusum Joshi, and Vinay Sakhuja
- ### Human Genetics
- 1905 ★ **Comprehensive Mutation Screening in 55 Proband with Type 1 Primary Hyperoxaluria Shows Feasibility of a Gene-Based Diagnosis**
Carla G. Monico, Sandro Rossetti, Heidi A. Schwanz, Julie B. Olson, Patrick A. Lundquist, D. Brian Dawson, Peter C. Harris, and Dawn S. Milliner

- 1915 **A Common Variant of the *PAX2* Gene Is Associated with Reduced Newborn Kidney Size**
Jacklyn Quinlan, Mathieu Lemire, Thomas Hudson, Huiqi Qu, Alice Benjamin, Anne Roy, Elena Pascuet, Meigan Goodyer, Chandhana Raju, Zhao Zhang, Fiona Houghton, and Paul Goodyer

Epidemiology and Outcomes

- 1922 **Survival among Patients with Kidney Failure in Jalisco, Mexico**
Guillermo Garcia-Garcia, Gregorio Briseño-Rentería, Victor H. Luquín-Arellano, Zhiwei Gao, John Gill, and Marcello Tonelli
→ See related editorial by Correa-Rotter on pages 1635–1636.

- 1928 **A Population-Based, Prospective Study of Blood Pressure and Risk for End-Stage Renal Disease in China**
Kristi Reynolds, Dongfeng Gu, Paul Muntner, John W. Kusek, Jing Chen, Xigui Wu, Xiufang Duan, Chung-Shiuan Chen, Michael J. Klag, Paul K. Whelton, and Jiang He

Clinical Dialysis

- 1936 **Comparison of Survival of Upper Arm Arteriovenous Fistulas and Grafts after Failed Forearm Fistula**
Timmy Lee, Jill Barker, and Michael Allon

Chronic Kidney Disease

- 1942 **Estimated Glomerular Filtration Rate and Urinary Albumin Excretion Are Independently Associated with Greater Arterial Stiffness: The Hoorn Study**
Marc M.H. Hermans, Ronald Henry, Jacqueline M. Dekker, Jeroen P. Kooman, Piet J. Kostense, Giel Nijpels, Robert J. Heine, and Coen D.A. Stehouwer

- 1953 **Myocardial Ultrasound Tissue Characterization in Patients with Chronic Renal Failure**
Massimo Salvetti, Maria Lorenza Muiesan, Anna Paini, Cristina Monteduro, Bianca Bonzi, Gloria Galbassini, Eugenia Belotti, Ezio Movilli, Giovanni Cancarini, and Enrico Agabiti-Rosei

- 1959 ★ **Progression Risk, Urinary Protein Excretion, and Treatment Effects of Angiotensin-Converting Enzyme Inhibitors in Nondiabetic Kidney Disease**
David M. Kent, Tazeen H. Jafar, Rodney A. Hayward, Hocine Tighiouart, Marcia Landa, Paul de Jong, Dick de Zeeuw, Giuseppe Remuzzi, Anne-Lise Kamper, and Andrew S. Levey; for the AIRPD Study Group

- 1966 **Carotid Intima Media Thickness Predicts Cardiovascular Diseases in Chinese Predialysis Patients with Chronic Kidney Disease**
Cheuk-Chun Szeto, Kai-Ming Chow, Kam-Sang Woo, Ping Chook, Bonnie Ching-Ha Kwan, Chi-Bon Leung, and Philip Kam-Tao Li

Clinical Transplantation

- 1973 ★ **Mycophenolate Mofetil versus Azathioprine for Prevention of Chronic Allograft Dysfunction in Renal Transplantation: The MYSS Follow-Up Randomized, Controlled Clinical Trial**
Giuseppe Remuzzi, Paolo Cravedi, Marco Costantini, Mariadomenica Lesti, Maria Ganeva, Giulia Gherardi, Bogdan Ene-Iordache, Eliana Gotti, Donato Donati, Maurizio Salvadori, Silvio Sandrini, Giuseppe Segoloni, Stefano Federico, Paolo Rigotti, Vito Sparacino, and Piero Ruggenti; for the MYSS Follow-Up Study Group

Announcements

1986 Announcements

On the cover: The cover decorates the last issue of *JASN* developed by the current editorial team. The montage of illustrations depicts some of the most exciting opportunities in renal research, both basic and clinical, at this time of transition—all but two illustrated by articles selected from the current issue of the journal. Clockwise from top left: The paper by Kunter *et al.* (pages 1754–1764) illustrates intraglomerular localization of stem cells that reduced the severity of glomerulonephritis early (left) but differentiated into adipocytes later (right) associated with increased scarring, illustrating both the potential and the pitfalls of stem cells as therapeutic agents. The graph from the paper by Hou *et al.* (pages 1889–1898) shows a significant reduction in primary end point of doubling of serum creatinine in Chinese patients with CKD treated with ACE/ARBs using maximal antiproteinuric compared with conventional doses, emphasizing the importance of early detection and treatment programs for CKD focused on proteinuria. The myocardium of a rat with mild CKD (from Amann *et al.*, *JASN* 17: 2112–2119, 2006) shows glomerular arteriole thickening, increased scarring, and reduced capillary density that contribute to the increased cardiovascular disease in CKD, an association still not fully explained. The middle two photomicrographs from the paper by Kaneshiro *et al.* (pages 1789–1795) show reduction in glomerular pERK signaling and progressive sclerosis achieved by blocking (pro)renin receptors in aging rats transgenic for human (pro)renin receptor, illustrating new, non-angiotensin II–dependent, targeted approaches to treating progressive renal disease. The bottom right photomicrograph from the review by Colvin on antibody-mediated graft rejection (*JASN* 18: 1046–1056, 2007) illustrates peritubular capillary endothelial complement activation and C4d deposits, one of the major barriers to be overcome in moving renal xenografts closer to clinical reality. The bottom middle photomicrographs from the paper by Ka *et al.* (pages 1777–1788) show the dramatic effect of reducing autoimmune glomerular injury by gene therapy with Smad7, illustrating one of many new approaches to treating autoimmunity and glomerulonephritis as well as the potential of gene therapy in selected situations. At the bottom left, a kidney with nephronophthisis, an inherited ciliopathy, is from the review by Hildebrandt and Zhou (pages 1855–1871), which focuses on the need for better ways to characterize the phenotypic consequences of disease-causing genes and the potential for gene-targeted therapies.