

CURRICULUM VITAE

Name: Jeff Michael Sands, M.D. August 19, 2016

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Date of Birth: 1/23/55

Place of Birth: Boston, MA

Marital Status: Married with 2 children

Education: 1973-1977 - B.A. *summa cum laude*, Applied Mathematics, Harvard College
1977-1981 - M.D., Boston University School of Medicine

Postdoctoral Training:

1981-1983 - Resident in Internal Medicine (PGY1-2), University of Chicago, Chicago, IL
1983-1986 - Medical Staff Fellow (PGY3-5), NHLBI, NIH, Bethesda, MD
1986-1988 - Senior Staff Fellow (PGY6-7), LKEM, NHLBI, NIH, Bethesda, MD
1988-1989 - Fellow in Nephrology (PGY8), Emory University Hospitals, Atlanta, GA

Faculty Appointments:

1989-1993 - Assistant Professor of Medicine, Renal Division, Emory Univ, Atlanta, GA
1991-2002 - Director, Renal Fellowship Program, Emory University, Atlanta, GA
1993-1998 - Associate Professor of Medicine (tenured), Renal Div, Emory, Atlanta, GA
1998-2002 - Professor of Medicine (tenured), Renal Div., Emory University, Atlanta, GA
1999-present - Associate Dir, Center for Cell & Molecular Signaling, Emory, Atlanta, GA
2000-present - Professor of Physiology, Dept. of Physiology, Emory Univ, Atlanta, GA
2002-present - Director, Renal Division, Emory University, Atlanta, GA
2002-present - Juha P. Kokko Professor of Medicine, Renal Division, Emory, Atlanta, GA
2006-2010 - Associate Dean for Clinical and Translational Research, Emory, Atlanta, GA
2009-2015 - Executive Vice-Chair, Department of Medicine, Emory Univ, Atlanta, GA

Licensure and Certification: 1982 DEA Certificate #AS1812658
1984 American Board of Internal Medicine Certificate #095295
1992-2022 ABIM Nephrology Certificate/Recertified #095295
1989 Georgia Medical License #031116

Professional Societies: 1985 American Society of Nephrology
1986 American Federation for Medical Research
1986 International Society of Nephrology
1987 American Physiological Society
1987 Southern Salt, Water, and Kidney Club
1990 American Heart Association
1990 National Kidney Foundation
1991 Southern Society for Clinical Investigation

Honorary Societies: 1994 American Society for Clinical Investigation
 2001 Association of American Physicians
 2009 American Clinical and Climatological Association

Editorial Board Memberships:

1992-1993 Guest Editor, Seminars in Nephrology, March 1993 Issue
1992-1994 & 1996-2001 Editorial Board, American Journal of Physiology-Renal Physiol
1994-1998 Assistant Editor, American Journal of the Medical Sciences
1996-2001 & 2007-2015 Editorial Board, Journal of the American Society of Nephrology
1997-1998 Guest Editor, American Journal of the Medical Sciences, Dec. 1998 Issue
1998-2002 Editorial Board, American Journal of the Medical Sciences
2000-2001 Guest Editor, Cardiovascular Research, Diuretic & Antidiuretic Hormones
2001-2007 Editor-in-Chief, American Journal of Physiology - Renal Physiology
2007-2016 Editorial Reviews Board, American Journal of Physiology - Renal Physiol
2007-2015 Editorial Board, Clinical and Translational Science
2008-2012 Consulting Editor, Hypertension
2011-2019 Editorial Board, World Journal of Nephrology
2011- Academic Editor, PLoS ONE
2013-2018 Editorial Board, Physiological Reviews
2015- Editorial Board, Journal of Nephrology Research

Awards and Honors:

1987, 1990, & 1993 ASN Travel Grant Awards to attend ISN Meetings
1989-1994 FIRST Award, NIDDK, NIH
1990-1995 Established Investigator Award, American Heart Association
2002 Emory University Attending Physician Teaching Award
2006 Distinguished Alumnus Award, Boston University School of Medicine
2008 Otago Community Trust Professorship, New Zealand
2011 C. Craig Tisher Visiting Professorship, University of Florida
2011 Named to Atlanta Magazine's "Top Doctors in Atlanta" list for Nephrology
2012 Excellence in Basic Research Award, Department of Medicine, Emory
2013 Carl Gottschalk Distinguished Lectureship, Am Physiol Soc Renal Section
2014 Distinguished Achievement Award, American Heart Association
2015 Barry M. Brenner Endowed Lectureship, American Society of Nephrology

Committees:

1991-2001 Outside Reviewer, Nephrology Merit Review Board, VA
1992 External Study Section, National Kidney Foundation of Michigan
1992-1994 Young Investigator Grants, National Kidney Foundation
1992-1994 Chairman, Renal Section Student Awards Committee, APS
1992 & 1995-1997 Temporary Member, Physiology Study Section, NIH
1993 Site Visit Review Group, NINDS, NIH
1993-1996 & 1998-2001 Faculty Committee on Appointments & Promotions, Emory
1994 & 1997-1998 Temporary Member, General Medicine B Study Section, NIH
1994-1997 Renal Section Program Advisory Committee Representative, APS
1995-1997 PhD Advisory Committee for Charles Ester, Emory University
1996-1998 Director of Research Conference, Emory University M.D./Ph.D. Program
1997,1999,2010, & 2013 Chair, ASN Water, Urea, & Vasopressin Abstract Review
 Comm
1997-1999 Treasurer, Renal Section, American Physiological Society
1997-2000 Cardiorenal National Study Committee, American Heart Association

1997-2006 Program Committee, Council on the Kidney, American Heart Association
 1998-2002 Regular Member, General Medicine B Study Section, NIH
 1998-1999 Electronic Research Proposal Routing Submission Work Group, Emory
 1999 Renal Fellowship Grant Review Committee, National Kidney Foundation
 1999- Faculty Advisory Committee on Postdoctoral Education, Emory University
 1999-2002 Chairman, Renal Section, American Physiological Society
 1999- Co-Executive Secretary, Southern Salt, Water, and Kidney Club
 1999-2004 PhD Advisory Committee for Michael Janech, Med. Univ. of South Carolina
 2000 Member, Medicine Strategic Planning Steering Committee, Emory Univ
 2000 Co-Chair, Research Subcommittee, Medicine Strategic Planning, Emory
 2000-2001 Member, Pulmonary Division Director Search Committee, Emory Univ
 2000 Nominating Committee, American Society of Nephrology
 2000-2001 Chairman, National Kidney Foundation of Georgia Research Committee
 2000-2003 Chair, Program Committee, Council on the Kidney, American Heart Assoc.
 2000-2001 Member, American Physiological Soc Translational Research Task Force
 2001-2003 Member, Joint Program Committee, American Physiological Society
 2001 Member, American Physiological Society Task Force on Sections/Groups
 2002-2005 Emory Representative, American Society for Clinical Investigation
 2002-2003 Member, Program Committee, American Society of Nephrology
 2002 Chair, Nephrology/Urology SBIR (SSS-M 15) Study Section, NIH
 2003 Member, Research Strategic Planning Committee, Emory University
 2003 Chair, Nephrology/Urol Special Emphasis Panel ZRG1 [SSS-M (05)], NIH
 2003-2004 Chairman, American Society of Nephrology Program Committee
 2003-2006 Councillor, American Physiological Society
 2004 Ad Hoc Reviewer, NIDDK Board of Scientific Counselors, NIH
 2005 Member, Pediatric Nephrology Division Director Search Comm, Emory
 2005 Chair, Renal Transport/PKD SEP [ZRG1 RUS-D(02)], NIH
 2005-2006 Member, Medicine Faculty Development Committee, Emory University
 2005-2006 Member, Medicine Promotions and Tenure Committee, Emory University
 2005-2006 Chair, Foundations of Medicine Curriculum Subcommittee, Emory Univ.
 2005-2007 PhD Advisory Committee for Adam Higgins, Georgia Tech
 2006-2015 Judge, SSCI Nephrology Young Investigators Forum
 2006-2008 Vice-Chair, Kidney Council, American Heart Association
 2006-2009 PhD Advisory Committee for Anja Jensen, University of Aarhus (Denmark)
 2006-2010 Member, Publications Committee, American Society of Nephrology
 2007-2008 American Physiol. Soc. Rep. to AAMC Council of Academic Societies
 2007-2013 Member, Book Committee, American Physiological Society
 2008 Member, USMLE Task Force, American Physiological Society
 2008-2009 Member, Executive Committee, Department of Medicine, Emory
 2008 Member, Publications Committee, American Physiological Society
 2008 External Advisory Committee, Med Univ South Carolina Nephrology T32
 2008-2010 Chair, Kidney Council, American Heart Association
 2008-2010 Member, Faculty Research Administration Advisory Board, Emory Univ
 2008-2013 Member, NIDDK Board of Scientific Counselors, NIH
 2009-2014 Chair, Finance Committee, American Physiological Society
 2009-2011 Chair, SSCI Nephrology Young Investigators Forum
 2009-2014 Scientific Advisory Board, Coplan/Satellite Healthcare Extramural Grants
 2009-2015 External Advisory Comm, UT-Southwestern NIH O'Brien Kidney Center
 2009 External Advisory Committee, University of Arizona Physiology T32
 2010-2012 Past-Chair, Kidney Council, American Heart Association
 2010-2014 Member, Communications Committee, American Society of Nephrology

2010-2014 Basic Physiol/Development, Kidney Research National Dialogue, NIDDK
2011 Member, DP3 stage 2 Editorial Board, SEP [ZRG1 GRB-J(01)], NIDDK
2011-2015 Federal Demonstration Partnership, Emory Univ Faculty Representative
2011-2012 Member, Chair of Urology Search Committee, Emory
2012 Member, SEP/Scientific Review Group 2012/05 ZRG1 DKUS-E(03) M, NIH
2012 Member, SEP/Scientific Review Group 2012/05 ZAG1 ZIJ-9 (M1), NIH
2012 Member, SEP/Scientific Review Group 2012/05 ZDK1 GRB-J (M3), NIH
2012-2015 Member, University Senate and University Faculty Council, Emory
2012-2014 Member, Faculty Relations Committee, Emory
2013-2016 External Advisory Committee, University of Colorado Renal T32
2013 Reviewer, Fifth National Competition for Research Centers, Chile
2014 External Reviewer, Department of Physiology, University of Arizona
2014 Member, Strategically Focused Prevention Research Network Grants, AHA
2014 Member, SEP/Scientific Review Group 2014/10 ZDK1 GRB-G (04), NIH
2014-2016 Member, TEC Physician Executive Committee, Emory
2014-2017 Member, School of Medicine Scientific Integrity Committee, Emory
2015 Member, SEP/Scientific Review Group 2015/05 ZAG1 ZIJ-3 (M1), NIA
2015-2017 Member, Bridge and Catalyst Funding Program Review Committee, Emory
2015-2017 Member, Nominating Committee, Kidney Council, American Heart Assoc
2015-2016 PhD Assessor Committee for Line Nilsson, University of Aarhus (Denmark)
2016 Member, SEP/Scientific Review Group 2016, NIA
2017-2018 Chair, ASN Ethics and Professional Standards Committee, ASN

Grants/Active:

1989-2019 P.I.: **Sands**, NIDDK, NIH, R01-DK41707, Regulation of Renal Inner Medullary Function.
1990-2021 P.I.: **Sands**, NIDDK, NIH, T32-DK07656, Nephrology T32 Training Grant.
2007-2017 P.I.: Stephens, overall co-PI and director of the ACTSI Pilot Grant program, NCATS, NIH, UL1-TR00454 (formerly UL1-RR25008), Atlanta Clinical and Translational Science Institute.
2014-2019 P.I.: **Sands**, NIDDK, NIH, R25-DK101390, Summer Undergraduate Program in Emory Renal Research (SUPERR).

Grants and Contracts/Prior:

1990-1995 P.I.: **Sands**, AHA, Established Investigator Award 900244, Urea Transport and Osmolytes in Rat Renal Inner Medulla.
1992-1996 P.I.: **Sands**, NIDDK, NIH, R01-DK45688, Regulation of Urine Concentrating Ability in Rat.
1993-1995 P.I.: **Sands**, Scios-Nova, Anaritide in Acute Tubular Necrosis.
1996-2000 P.I.: **Sands**, AHA, Grant-in-Aid 96006090, Cloning and Characterization of a Renal Sodium-Urea Cotransporter.
1997-2000 P.I.: Ouslander, Collaborator, NIA, NIH, R37-AG08678, Treatment of Incontinence in Nursing Home.
1997-2003 P.I.: Eaton, Co-PI Project 2, NIDDK, NIH, P01-DK50268, Cellular and Molecular Biology of Renal Transport Processes. Project 2: The Structure and Functions of Urea Transporters.
1998-2000 P.I.: **Sands**, Hoechst Marion Roussel, Safety and Efficacy of Intravenous HMR4396 and Epogen® for the Management of Anemia in Subjects with Chronic Renal Failure Requiring Hemodialysis.

- 1999-2000 P.I.: Bailey, Co-PI, Hoechst Marion Roussel, Dose Response Study with Intravenous HMR4396 in Anemic Subjects with Chronic Renal Failure Requiring Hemodialysis.
- 1999-2001 P.I.: **Sands**, R&D Labs, Multicenter Clinical Evaluation of Ferrlecit® in Hemodialysis Patients.
- 2000-2004 P.I.: Bagnasco, Co-investigator, NIDDK, NIH, R01-DK53917, Regulation of the Rat Kidney Urea Transporter Gene UT-A.
- 2000-2004 P.I.: Bernstein, Co-PI, NIDDK, NIH, R01-DK51445, The Analysis of ACE Knockout Mice.
- 2001-2005 P.I.: Bernstein, Co-PI, NIDDK, NIH, R01-DK55503, The Renal-Specific Expression of ACE.
- 2002-2006 P.I.: **Sands**, NIDDK, NIH, R01-DK63657, Regulation of Urea Transport by Adrenal Steroids.
- 2003-2006 P.I.: Harrison, Co-investigator, NHLBI, NIH, P01-HL58000, Molecular Control of Vascular Function by Oxidant Stress.
- 2004-2010 P.I.: Klein, Co-PI, NIDDK, NIH, R01-DK62081, Regulation of Urea Transport in Diabetic Rat Kidney.
- 2004-2010 P.I.: Eaton, Overall Co-PI and PI of Project 4, NIDDK, NIH, P01-DK61521, Cellular Signaling and Kidney Function. Project 4: Regulation of Renal Urea Transporters Expressed in MDCK Cells.
- 2006-2007 P.I.: Stephens, Co-PI, NCRR, NIH, P20-RR23508, Center for Clinical and Translational Science Advancement at Emory.
- 2006-2008 P.I.: Klein, Co-PI, AHA, Grant-in-Aid 0655280B, Regulation of UT-A1 Urea Transporter Accumulation in the Renal IMCD Apical Plasma Membrane.
- 2009-2010 P.I.: **Sands**, NIDDK, NIH, R01-DK41707-S1, ARRA supplement to Regulation of Rat Renal Inner Medullary Function.
- 2009-2011 P.I.: Archer, co-investigator, NHLBI, NIH, R01-DK81699, The Pathogenesis of Sickle Cell Nephropathy.
- 2011-2014 P.I.: **Sands**, NIDDK, NIH, R21-DK91147, Novel Mouse Models for the Study of Urea Transporters.
- 2011-2016 P.I.: **Sands**, NIDDK, NIH, R01-DK89828, Regulation of Urea Transport by PKC-alpha.
- 2013-2015 P.I.: **Sands**, NIDDK, NIH, minority supplement to R01-DK89828, Regulation of Urea Transport by PKC-alpha.
- 2013-2016 P.I.: **Sands**, NIDDK, NIH, minority supplement to T32-DK07656, Nephrology T32 Training Grant.
- 2014-2015 P.I.: **Sands**, NIDDK, NIH, medical student supplement to T32-DK07656, Nephrology T32 Training Grant.
- 2014-2015 P.I.: **Sands**, Otsuka Investigator Sponsored Study, #20135297, Improving urine concentrating ability through non-vasopressin mediated pathways.

Patent: CMCC-484p. Harris HW, Baum M, Brown, E, Hebert S, **Sands JM**. Kidney polycation-sensing receptor and methods of use thereof. Filed: September 13, 1995.

Provisional patent: Treating or preventing nephrogenic diabetes insipidus. **Sands JM**, Blount MA, Klein JD. Filed June, 2013. PCT filed June, 2014.

Bibliography:

a) Peer-reviewed Manuscripts

1. **Sands JM**, Ivy EJ, Beeuwkes III R. Transmembrane potential difference of renal papillary epithelial cells: effect of urea and DDAVP. *Am. J. Physiol. Renal Physiol.* 248: F762-F766, 1985.
2. **Sands JM**, Macher AM, Ley TJ, Nienhuis AW. Disseminated infection caused by *Cunninghamella bertholletiae* in a β -thalassemia patient. *Ann. Intern. Med.* 102: 59-63, 1985.
3. **Sands JM**, Knepper MA, Spring KR. Na-K-Cl cotransport in apical membrane of rabbit renal papillary surface epithelium. *Am. J. Physiol. Renal Physiol.* 251: F475-F484, 1986.
4. **Sands JM**, Knepper MA. Urea permeability of mammalian inner medullary collecting duct system and papillary surface epithelium. *J. Clin. Invest.* 79: 138-147, 1987.
5. **Sands JM**, Nonoguchi H, Knepper MA. Vasopressin effects on urea and H₂O transport in inner medullary collecting duct subsegments. *Am. J. Physiol. Renal Physiol.* 253: F823-F832, 1987.
6. Nonoguchi H, **Sands JM**, Knepper MA. Atrial natriuretic factor inhibits vasopressin-stimulated osmotic water permeability in rat inner medullary collecting duct. *J. Clin. Invest.* 82: 1383-1390, 1988.
7. **Sands JM**, Nonoguchi H, Knepper MA. Hormone effects on NaCl permeability of rat inner medullary collecting duct subsegments. *Am. J. Physiol. Renal Physiol.* 255: F421-F428, 1988.
8. Nonoguchi H, **Sands JM**, Knepper MA. Atrial natriuretic factor inhibits NaCl and fluid absorption in cortical collecting duct of rat kidney. *Am. J. Physiol. Renal Physiol.* 256: F179-F186, 1989.
9. **Sands JM**, Terada Y, Bernard LM, Knepper MA. Aldose reductase activities in microdissected rat renal tubule segments. *Am. J. Physiol. Renal Physiol.* 256: F563-F569, 1989.
10. Knepper MA, **Sands JM**, Chou C-L. Independence of urea and water transport in rat inner medullary collecting duct. *Am. J. Physiol. Renal Physiol.* 256: F610-F621, 1989.
11. Packer RK, **Sands JM**, Knepper MA. Chloride and osmotic water permeabilities of isolated rabbit renal papillary surface epithelium. *Am. J. Physiol. Renal Physiol.* 257: F218-F224, 1989.
12. Mejia R, **Sands JM**, Stephenson JL, Knepper MA. Renal actions of atrial natriuretic factor: a mathematical modelling study. *Am. J. Physiol. Renal Physiol.* 257: F1146-F1157, 1989.
13. Wall SM, **Sands JM**, Flessner MF, Nonoguchi N, Spring KR, Knepper MA. Net acid transport by isolated perfused inner medullary collecting ducts. *Am. J. Physiol. Renal Physiol.* 258: F75-F84, 1990.
14. Chou C-L, **Sands JM**, Nonoguchi H, Knepper MA. Concentration dependence of urea and thiourea transport pathway in rat inner medullary collecting duct. *Am. J. Physiol. Renal Physiol.* 258: F486-F494, 1990.

15. Chou C-L, **Sands JM**, Nonoguchi H, Knepper MA. Urea-gradient associated fluid absorption with $\sigma_{\text{urea}}=1$ in rat terminal collecting duct. *Am. J. Physiol. Renal Physiol.* 258: F1173-F1180, 1990.
16. Tumlin JA, **Sands JM**, Someren A. Hemolytic-uremic syndrome following "crack" cocaine inhalation. *Am. J. Med. Sci.* 299: 366-371, 1990.
17. **Sands JM**, Schrader DC. Coordinated response of renal medullary enzymes regulating net sorbitol production in diuresis and antidiuresis. *J. Am. Soc. Nephrol.* 1: 58-65, 1990.
18. **Sands JM**, Schrader DC. An independent effect of osmolality on urea transport in rat terminal IMCDs. *J. Clin. Invest.* 88: 137-142, 1991.
19. **Sands JM**, Schrader DC. Acute changes in intracellular ions or pH and regulation of aldose reductase activity. *J. Am. Soc. Nephrol.* 2: 212-218, 1991.
20. **Sands JM**, Neylan JF, Olson RA, O'Brien DP, Whelchel JD, Mitch WE. Atrial natriuretic factor does not improve the outcome of cadaveric renal transplantation. *J. Am. Soc. Nephrol.* 1: 1081-1086, 1991.
21. Gillin AG, **Sands JM**. Characteristics of osmolarity-stimulated urea transport in rat IMCD. *Am. J. Physiol. Renal Physiol.* 262: F1061-F1067, 1992.
22. Schwartz GJ, Zavilowitz BJ, Radice A, Garcia-Perez A, **Sands JM**. Maturation of aldose reductase expression in the neonatal rat inner medulla. *J. Clin. Invest.* 90: 1275-1283, 1992.
23. **Sands JM**, Gargus JJ, Fröhlich O, Gunn RB, Kokko JP. Urinary concentrating ability in patients with Jk(a-b-) blood type who lack carrier-mediated urea transport. *J. Am. Soc. Nephrol.* 2: 1689-1696, 1992.
24. Tumlin JA, **Sands JM**. Nephron segment-specific inhibition of Na^+/K^+ -ATPase activity by cyclosporin A. *Kidney Int.* 43: 246-251, 1993.
25. Parker KP, **Sands JM**. Weekly subcutaneous erythropoietin maintains hematocrit in chronic hemodialysis patients. *J. Am. Soc. Nephrol.* 3: 1717-1718, 1993.
26. Gillin AG, Star RA, **Sands JM**. Osmolarity-stimulated urea transport in rat terminal IMCD: role of intracellular calcium. *Am. J. Physiol. Renal Physiol.* 265: F272-F277, 1993.
27. Star RA, Gillin AG, Parikh VJ, **Sands JM**. The urease inhibitor acetohydroxamic acid is transported by the urea pathway in the rat terminal IMCD. *Am. J. Physiol. Renal Physiol.* 265: F385-F390, 1993.
28. Isozaki T, Verlander JW, **Sands JM**. Low protein diet alters urea transport and cell structure in rat initial inner medullary collecting duct. *J. Clin. Invest.* 92: 2448-2457, 1993.
29. Tumlin JA, Hoban CA, Medford RM, **Sands JM**. Expression of Na/K-ATPase and subunit mRNA and protein isoforms in the rat nephron. *Am. J. Physiol. Renal Physiol.* 266: F240-F245, 1994.

30. Isozaki T, Gillin AG, Swanson CE, **Sands JM**. Protein restriction sequentially induces new urea transport processes in rat initial IMCDs. *Am. J. Physiol. Renal Physiol.* 266: F756-F761, 1994.
31. Lea JP, **Sands JM**, McMahon SJ, Tumlin JA. Evidence that the inhibition of Na⁺/K⁺-ATPase by FK506 involves calcineurin. *Kidney Int.* 46: 647-652, 1994.
32. Isozaki T, Lea JP, Tumlin JA, **Sands JM**. Sodium-dependent net urea transport in rat initial IMCDs. *J. Clin. Invest.* 94: 1513-1517, 1994.
33. Martial S, Price SR, **Sands JM**. Regulation of aldose reductase, sorbitol dehydrogenase, and taurine cotransporter mRNA in rat inner medulla. *J. Am. Soc. Nephrol.* 5: 1971-1978, 1995.
34. Smith CP, Lee W-L, Martial S, Knepper MA, You G, **Sands JM**, Hediger MA. Cloning and regulation of the rat kidney urea transporter (rUT2). *J. Clin. Invest.* 96: 1556-1563, 1995.
35. Ashkar ZM, Martial S, Isozaki T, Price SR, **Sands JM**. Urea transport in initial IMCD of rats fed a low-protein diet: functional properties and mRNA abundance (Rapid Communication). *Am. J. Physiol. Renal Physiol.* 268: F1218-F1223, 1995.
36. **Sands JM**, Martial S, Isozaki T. Active urea transport in the rat inner medullary collecting duct: functional characterization and initial expression cloning. *Kidney Int.* 49: 1611-1614, 1996.
37. **Sands JM**, Naruse M, Jacobs JD, Wilcox JN, Klein JD. Changes in aquaporin-2 protein contribute to the urine concentrating defect in rats fed a low-protein diet. *J. Clin. Invest.* 97: 2807-2814, 1996.
38. Parker KP, Mitch WE, Stivelman JC, Macon EJ, Bailey JL, **Sands JM**. Safety and efficacy of low-dose subcutaneous erythropoietin in hemodialysis patients. *J. Am. Soc. Nephrol.* 8: 288-293, 1997.
39. Rodriguez DF, Kokko JP, **Sands JM**. Bartter's syndrome, supraventricular tachycardia, mitral valve prolapse, and asthma: a therapeutic challenge. *Am. J. Med. Sci.* 313: 114-116, 1997.
40. **Sands JM**, Naruse M, Baum MA, Jo I, Hebert SC, Brown EM, Harris HW. An apical extracellular calcium/polyvalent cation-sensing receptor regulates vasopressin-elicited water permeability in rat kidney inner medullary collecting duct. *J. Clin. Invest.* 99: 1399-1405, 1997.
41. Swenson KL, **Sands JM**, Jacobs JD, Sladek CD. Effect of aging on the vasopressin and aquaporin responses to dehydration in Fischer 344/Brown-Norway F1 rats. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 273: R35-R40, 1997.
42. Naruse M, Klein JD, Ashkar ZM, Jacobs JD, **Sands JM**. Glucocorticoids down-regulate the vasopressin-regulated urea transporter in rat terminal IMCDs. *J. Am. Soc. Nephrol.* 8: 517-523, 1997.
43. Klein JD, Price SR, Bailey JL, Jacobs JD, **Sands JM**. Glucocorticoids mediate a decrease in the AVP-regulated urea transporter in diabetic rat inner medulla. *Am. J. Physiol. Renal Physiol.* 273: F949-F953, 1997.

44. Kato A, **Sands JM**. Evidence for sodium-dependent active urea secretion in the deepest subsegment of the rat inner medullary collecting duct. *J. Clin. Invest.* 101: 423-428, 1998.
45. Terris J, Ecelbarger CA, **Sands JM**, Knepper MA. Long-term regulation of renal urea transporter protein expression in rat. *J. Am. Soc. Nephrol.* 9: 729-736, 1998.
46. Kato A, Naruse M, Knepper MA, **Sands JM**. Long-term regulation of inner medullary collecting duct urea transport in rat. *J. Am. Soc. Nephrol.* 9: 737-745, 1998.
47. **Sands JM**, Flores FX, Kato A, Baum MA, Brown EM, Ward DT, Hebert SC, Harris HW. Vasopressin-elicited water and urea permeabilities are altered in the inner medullary collecting duct in hypercalcemic rats. *Am. J. Physiol. Renal Physiol.* 274: F978-F985, 1998.
48. Kato A, **Sands JM**. Active sodium-urea counter-transport is inducible in the basolateral membrane of rat renal initial inner medullary collecting ducts. *J. Clin. Invest.* 102: 1008-1015, 1998.
49. Lea JP, Ertoy D, Hollis JL, Marrero MB, **Sands JM**. Immunolocalization of phospholipase C isoforms in rat kidney. *Kidney Int.* 54: 1484-1490, 1998.
50. Kato A, **Sands JM**. Urea transport processes are induced in rat IMCD subsegments when urine concentrating ability is reduced. *Am. J. Physiol. Renal Physiol.* 276: F62-F71, 1999.
51. Karakashian A, Timmer RT, Klein JD, Gunn RB, **Sands JM**, Bagnasco SM. Cloning and characterization of two new isoforms of the rat renal urea transporter: UT-A3 and UT-A4. *J. Am. Soc. Nephrol.* 10: 230-237, 1999.
52. Doran JJ, **Sands JM**, Timmer RT. Accurate mRNA size determination in northern analysis using individual lane size markers. *BioTechniques* 27: 280-282, 1999.
53. Klein JD, Timmer RT, Rouillard P, Bailey JL, **Sands JM**. UT-A urea transporter protein expressed in liver: up-regulation by uremia. *J. Am. Soc. Nephrol.* 10: 2076-2083, 1999.
54. Catudioc-Vallero J, **Sands JM**, Klein JD, Sidorowicz HE, Sladek CD. Effect of age and testosterone on the vasopressin and aquaporin responses to dehydration in Fischer 344/Brown-Norway F1 rats. *J. Gerontology: Biol. Sci.* 55A: B26-B34, 2000.
55. Kato A, Klein JD, Zhang C, **Sands JM**. Angiotensin II increases vasopressin-stimulated facilitated urea permeability in rat terminal IMCDs. *Am. J. Physiol. Renal Physiol.* 279: F835-F840, 2000.
56. Bagnasco SM, Peng T, Nakayama Y, **Sands JM**. Differential expression of individual UT-A urea transporter isoforms in rat kidney. *J. Am. Soc. Nephrol.* 11: 1980-1986, 2000.
57. Nakayama Y, Peng T, **Sands JM**, Bagnasco SM. The TonE/TonEBP pathway mediates tonicity-responsive regulation of UT-A urea transporter expression. *J. Biol. Chem.* 275: 38275-38280, 2000.
58. Nakayama Y, Naruse M, Karakashian A, Peng T, **Sands JM**, Bagnasco SM. Cloning of the rat *Slc14a2* gene and genomic organization of the UT-A urea transporter. *Biochim. Biophys. Acta Gene Struct. Expression* 1518: 19-26, 2001.

59. Bradford AD, Terris JM, Ecelbarger CA, Klein JD, **Sands JM**, Chou C-L, Knepper MA. 97 and 117 kDa forms of the collecting duct urea transporter UT-A1 are due to different states of glycosylation. *Am. J. Physiol. Renal Physiol.* 281: F133-F143, 2001.
60. Ecelbarger CA, **Sands JM**, Doran JJ, Cacini W, Kishore BK. Expression of salt and urea transporters in rat kidney during cisplatin-induced polyuria. *Kidney Int.* 60: 2274-2282, 2001.
61. Duchesne R, Klein JD, Velotta JB, Doran JJ, Rouillard P, Roberts BR, McDonough AA, **Sands JM**. UT-A urea transporter protein in heart: increased abundance during uremia, hypertension, and heart failure. *Circ. Res.* 89: 139-145, 2001.
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95. Berl T, **Sands JM**. Disorders of water metabolism.; in Johnson RJ (ed): Comprehensive Clinical Nephrology; 6th edition. San Diego, Elsevier, 2016, in preparation.

c) Book: Yang B, **Sands JM** (ed): Urea Transporters. New York, Springer, 2014.

d) Recent abstracts for papers not yet in press.

1. Bokenkamp A, **Sands JM**, Wigman L, van Zwieten R, Verhoeven AJ, Klein JD, Thai TL, Knegt LAC, Groothoff JW, Linthorst GE. Familial azotemia is caused by a duplication of urea transporter-B gene. *J. Am. Soc. Nephrol.* 22: 750A, 2011.
2. Thai T, Galarza-Paez L, Yu L, Bao HF, Klein JD, **Sands JM**, Eaton DC. ENaC regulation by $[Ca^{2+}]_i$ is determined by mitochondrial Ca^{2+} uptake. *FASEB J.* 29: 844.3, 2015

e) Invited Lectures at National/International Meetings.

1. Cell Biology of Nephron Heterogeneity (Satellite Symposium of the XIth International Congress of Nephrology, Shizuoka, Japan, July, 1990. "Coordinated response of aldose reductase and sorbitol dehydrogenase regulates net sorbitol production in the rat renal inner medulla".

2. 23rd Annual Meeting of the American Society of Nephrology, Symposium entitled: Structure, Biochemistry, and Function of the Collecting Duct, Washington, DC, December, 1990. "Regulation of carrier mediated urea transport in the inner medullary collecting duct".
3. 76th Annual Meeting of the Federation of American Societies for Experimental Biology, Symposium entitled: Adaptations to Osmotic Stress in Kidney: from DNA to Osmolytes, Anaheim, CA, April, 1992. "Regulation of aldose reductase in rat kidney tubules".
4. Experimental Biology '95, Symposium entitled: Urea Transporters: Genetic and Physiologic Regulation in Kidney, Erythrocytes, and Vasculature, Atlanta, GA, April, 1995. "Regulation of transepithelial urea transport across the collecting duct".
5. 1st Joint World Congress of Neurohypophysis and Vasopressin, Tochigi, Japan, July, 1995. "Regulation of kidney urea transporters by AVP and dietary protein".
6. Symposium Honoring Homer W. Smith on the 100th anniversary of his birth, entitled: The Kidney: Structure and Function in Health and Disease, Mount Desert Island, ME, August, 1995. "Active transport of urea in the rat initial inner medullary collecting duct".
7. 30th Annual Meeting of the American Society of Nephrology, San Antonio, TX, November, 1997. "Regulation of urea transport in the kidney inner medulla".
8. Symposium Celebrating the 50th Anniversary of the National Heart Institute, entitled: The Shannon Legacy of Renal Research at NHLBI, Bethesda, MD, May, 1998. "Regulation of kidney urea transporters".
9. 31st Annual Meeting of the American Society of Nephrology, Symposium entitled: Vasopressin Regulated Transporters in the Urinary Concentrating Mechanism (dedicated to Carl W. Gottschalk), Philadelphia, PA, October, 1998. "Urea transporters".
10. Mathematics in Biology, Workshop entitled: Membrane Transport and Renal Physiology, Minneapolis, MN, February, 1999. "Urea transport in the urine concentrating mechanism".
11. Experimental Biology '99, Symposium entitled: Molecular Physiology of Urea Transporters, Washington, DC, April, 1999. "Regulation of rat urea transporters *in vivo*".
12. 15th International Congress of Nephrology, Symposium entitled: Nutrition: Effects on Renal Development and Function and Blood Pressure Regulation, Buenos Aires, Argentina, May, 1999. "Dietary protein and regulation of urea transport".
13. Experimental Biology 2001, Featured topic entitled: Physiology of Urea Transporters, Orlando, FL, April, 2001. "Regulation of urea transporters".
14. European Society of Pediatric Urology, Satellite Symposium entitled: Development of Renal Functions, Aarhus, Denmark, April, 2001. "Renal urea transporters and kidney development".
15. American Society of Nephrology/International Society of Nephrology World Congress of Nephrology, Symposium entitled: Urine Concentrating Ability: Integration of Molecular Data, San Francisco, CA, October, 2001. "Urea transporters".

16. National Institute of Aging Workshop entitled: Biology of Aging Kidney, Lansdowne, VA, January, 2003. "Changes in urine concentrating ability in the aging kidney".
17. Symposium on the Occasion of the 75 Year Anniversary of the University of Aarhus, Aarhus, Denmark, October, 2003. "Regulation of renal urea transporters".
18. American Physiological Society Conference entitled: Understanding Renal and Cardiovascular Function through Physiological Genomics, Augusta, GA, October, 2003. "Urea transporters: potential role in uremia".
19. Nephrogenic Diabetes Insipidus Foundation 2004 Global Conference, Phoenix, AZ, April, 2004. "Regulation of UT-A1 abundance by vasopressin and glucocorticoids".
20. XXXVth Congress of the International Union of Physiological Sciences/Experimental Biology 2005, San Diego, CA, April, 2005. "Hormonal regulation of urea transporters".
21. American Physiological Society Conference entitled: Neurohypophyseal Hormones: From Genomics and Physiology to Disease, Denver, CO, July, 2005. "Urea transporters".
22. National Kidney Foundation 2006 Spring Clinical Meetings, Symposium entitled: Current concepts in the pathogenesis and treatment of water balance disorders, Chicago, IL, April, 2006. "The renal concentrating and diluting mechanism: role of vasopressin and water channels".
23. Mathematical Biosciences Institute Workshop entitled: The Kidney: Cellular, Tubular, and Vascular Physiology, Columbus, OH, February, 2007. "Vasopressin regulation of the UT-A1 urea transporter".
24. Queenstown Molecular Biology Conference entitled: Molecular Mechanisms of Renal Disease, Queenstown, New Zealand, September, 2008. "Regulation of renal urea transport by vasopressin".
25. Nephrogenic Diabetes Insipidus Foundation 2008 Global Conference, Amelia Island, FL, September, 2008. "Hypertonicity stimulates urea permeability and the accumulation of the urea transporters UT-A1 and UT-A3 in the IMCD plasma membrane".
26. American Society of Nephrology Post-Graduate Education Course entitled: Geriatric Nephrology: An Epidemiologic and Clinical Challenge, Philadelphia, PA, November, 2008. "Urinary concentration and dilution in the aging kidney".
27. Arizona Physiological Society annual meeting, Tucson, AZ, November, 2009. Keynote lecture: "Regulation of Renal Urea Transport by Vasopressin".
28. France-Atlanta 2011 educational symposium entitled: Geriatric Nephrology in the 21st Century: Challenges and Opportunities, Atlanta, November, 2011. "Renal Concentrating Defects in Elderly Patients".
29. Experimental Biology 2013, Boston, April, 2013. Carl W. Gottschalk Distinguished Lecture entitled: "Regulation of Renal Urea Transport by Vasopressin".
30. American Society of Nephrology Kidney Week 2015, San Diego, CA, November, 2015. Barry M. Brenner Endowed Lectureship entitled: "Novel Therapy for Diabetes Insipidus".

31. Honorary Symposium for Bodil Schmidt-Nielsen, Copenhagen, September, 2016. "Urea transporters: implications for therapy of NDI".

e) Invited Lectures at other Universities:

1. Biology Research Seminar, Georgia State University, May, 1990.
2. Physiology Research Seminar, University of Arizona, November, 1996.
3. Renal Research Seminar, Harvard University, Children's Hospital, January, 1997.
4. Renal Research Seminar, Tulane University, January, 1997.
5. Renal Research Seminar & Medical Grand Rounds, Univ of Texas Medical Branch, Jan, 1997.
6. Renal Research Seminar, University of Colorado, February, 1997.
7. Research Seminar, National Institutes of Health, NHLBI, LKEM, June, 1997.
8. Renal Grand Rounds, University of Virginia, October, 1997.
9. Renal Research Seminar, University of Florida, March, 1998.
10. Renal Research Seminar, Medical University of South Carolina, March, 1998.
11. Renal Research Seminar, University of Cincinnati, September, 1998.
12. Biology Research Seminar, Georgia State University, April, 1999.
13. Renal Research Seminar, University of Pittsburgh, April, 1999.
14. Renal Research Seminar, University of Rochester, May, 1999.
15. Renal Research Seminar, Mount Sinai School of Medicine, October, 1999.
16. Medical Grand Rounds, Rush University, November, 1999.
17. Renal Research Seminar, Harbor - Univ. of California at Los Angeles, January, 2000.
18. Renal Research Seminar, University of Utah, January, 2000.
19. Renal Research Seminar, University of California at San Francisco, April, 2000.
20. Renal Research Seminar, University of Kansas, September, 2000.
21. Renal Research Seminar & Medical Grand Rounds, Med. Univ. South Carolina, Nov., 2000.
22. Physiology Research Seminar, University of Texas at Galveston, May, 2001.
23. Research Seminar, Medical College of Georgia, Dept of Physiology, September, 2001.

24. Renal Grand Rounds & Medical Grand Rounds, Univ. of California at Irvine, January, 2002.
25. Medical Grand Rounds, Medical College of Wisconsin, February, 2002.
26. Renal Grand Rounds, Indiana University School of Medicine, May, 2002.
27. Renal Grand Rounds, Boston University School of Medicine, May, 2002.
28. Renal Grand Rounds, Johns Hopkins Bayview, September, 2002.
29. Renal Grand Rounds and Renal Research Seminar, Vanderbilt University, October, 2002.
30. Renal Grand Rounds and Renal Research Seminar, University of Florida, October, 2002.
31. Renal Research Seminar, State University of New York at Stonybrook, November, 2002.
32. Renal Grand Rounds, Albert Einstein School of Medicine, February, 2003.
33. Renal Research Seminar, Duke University, March, 2003.
34. Renal Grand Rounds, George Washington University, May, 2003.
35. Renal Grand Rounds, Medical University of South Carolina, May, 2003.
36. Renal Research Seminar & Renal Grand Rounds, Univ of Alabama-Birmingham, July, 2003.
37. Medicine Grand Rounds & Physiology Research Seminar, Univ. of Illinois, September, 2003.
38. Renal Grand Rounds, University of Texas at San Antonio, January, 2004.
39. Physiology Seminar and Renal Grand Rounds, Yale University, February, 2004.
40. Renal Grand Rounds and Renal Research Seminar, Henry Ford Hospital, August, 2004.
41. Physiology Seminar, University of Bari, Italy, September, 2004.
42. Renal Research Seminar, Tulane University, October, 2004.
43. Renal Grand Rounds & Medical Grand Rounds, Univ. of California - Irvine, November, 2004.
44. Renal Research Seminar, University of Texas Southwestern, November, 2004.
45. Renal Grand Rounds, University of Washington, February, 2005.
46. Physiology Seminar, University of Arizona, May, 2005.
47. Renal Grand Rounds, University of California at Irvine, December, 2005.
48. Physiology Seminar, University of Nebraska, March, 2006.
49. Research Seminar, National Institute of Environmental Health Sciences, NIH, May, 2006.

50. Renal Grand Rounds, Baylor College of Medicine, May, 2006.
51. Renal Grand Rounds, University of Alabama at Birmingham, June, 2006.
52. Renal Grand Rounds, University of California at San Francisco, September, 2006.
53. Renal Research Seminar and Physiology Seminar, University of Colorado, September, 2006.
54. Renal Grand Rounds and Renal Research Seminar, University of Florida, February, 2007.
55. Renal Grand Rounds, Medical University of South Carolina, March, 2007.
56. Renal Research Seminar, University of Virginia, March, 2007.
57. Renal Grand Rounds, University of Chicago, March, 2007.
58. Renal Grand Rounds, Indiana University, April, 2007.
59. Renal Grand Rounds, University of Pittsburgh, May, 2007.
60. Renal Grand Rounds & Medicine Grand Rounds, Univ. of California at Irvine, August, 2007.
61. Hypertension and Renal Center Conference, Tulane University, February, 2008.
62. Renal Research Seminar, Boston University, May, 2008.
63. Medicine Grand Rounds, University of Otago at Christchurch (New Zealand), August, 2008.
64. Renal Grand Rounds & Research Seminars, University of Otago at Dunedin (NZ), Aug, 2008.
65. Renal Grand Rounds, Wayne State University, February, 2009.
66. Renal Grand Rounds, University of Michigan, March, 2009.
67. Renal Research Seminar, University of Aarhus (Denmark), September, 2009.
68. Renal Grand Rounds, Washington University, October, 2009.
69. Medicine Grand Rounds, University of Tennessee at Chattanooga, December, 2010.
70. Renal Grand Rounds, Medical University of South Carolina, February, 2011.
71. O'Brien Center 4th Annual Symposium, Univ. of Texas - Southwestern, May, 2011.
72. Renal Grand Rounds and Medicine Grand Rounds, University of Florida, May, 2011.
73. Research Seminar, Georgia Health Sciences University, June, 2011.
74. Hypertension and Renal Center Conference, Tulane University, February, 2012.
75. Research Seminar, University of Alabama at Birmingham, February, 2012.

76. Physiology Seminar, Morehouse School of Medicine, September, 2012.
77. Renal Grand Rounds, Drexel University, October, 2012.
78. MRI Research Seminar and Renal Grand Rounds, Univ. CA San Francisco, February, 2013.
79. Physiology Seminar, Louisiana State University New Orleans, February, 2013.
80. Renal Research Seminar, Boston University School of Medicine, April, 2013.
81. Research Seminar, University of New England, August, 2013.
82. Physiology Seminar and Renal Grand Rounds, Yale University, December, 2013.
83. Renal Research Seminar, Vanderbilt University, July, 2014.
84. Medicine Research Seminar, University of Iowa, January, 2015.
85. Renal Research Seminar, Peking University (China), October, 2015.
86. Renal Research Seminar, Xi'an Jiaotaong University (China), October, 2015.
87. Renal Grand Rounds, Zhejiang Provincial People's Hospital (China), October, 2015.
88. Renal Research Seminar, Hua Shan Hospital, Fudan University (China), October, 2015.
89. Renal Research Seminar, Xin Hua Hospital, Jiaotaong University (China), October, 2015.
90. Renal Research Seminar, University of Aarhus (Denmark), January, 2016
91. Renal Research Seminar, University of Colorado, March, 2016.
92. Renal Research Seminar, NIDDK, NIH, May, 2016.
93. Renal Research Seminar, Charles University (Prague, Czech Republic), August, 2016.
94. Renal Grand Rounds and Medicine Grand Rounds, University of Utah, October, 2016.
95. Renal Grand Rounds and Medicine Grand Rounds, University of Louisville, February, 2017.