

BIOGRAPHICAL SKETCH

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NAME Carolyn A. Ecelbarger, PhD		POSITION TITLE Assistant Professor (Associate Professor pending)	
eRA COMMONS USER NAME cecelbarger			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Iowa State University, Ames, IA	B.S.	1982-1986	Agricultural Biochemistry
University of Wisconsin, Madison, WI	Ph.D.	1986-1992	Nutritional Sciences
NIH, NHLBI, Bethesda, MD	Post-doc	1992-1998	Renal Physiology

A. Positions and Honors.

- 1986-1992 **Research Assistant-** Graduate Student, Department of Nutritional Sciences, University of Wisconsin-Madison, Madison, WI; Supervisor/Mentor- Janet L. Greger
- 1992-1996 **Post-Doctoral Fellow-** National Research Service Award Fellowship, Laboratory of Kidney and Electrolyte Metabolism, National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, MD; Supervisor/Mentor- Mark A. Knepper
- 1996-1998 **Staff Fellow-** Laboratory of Kidney and Electrolyte Metabolism, National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, MD; Supervisor/Mentor- Mark A. Knepper
- 1998-1999 **Research Instructor-** Department of Medicine, Georgetown University, Washington, DC
- 1999-2002 **Research Assistant Professor-** Department of Medicine, Georgetown University, Washington, DC
- 2002-present **Assistant Professor-** Tenure-track, Department of Medicine, Georgetown University, Washington, DC

Honors and Memberships:

- Phi Kappa Phi Honor Society- Iowa State University- 1986.
- American Society of Nephrology- 1997-present
- American Physiological Society- 1998-present
- National Kidney Foundation- 1998-present
- Young Investigator Award in Regulatory and Integrative Physiology- Water and Electrolyte Homeostasis Section of the American Society of Physiology- 2000-present
- American Diabetes Association- 2000-present
- American Heart Association Council for High Blood Pressure Research - 2001-present
- Editorial Board- American Journal of Physiology-Renal- 2003-present
- Center for Sex Differences- Georgetown University- 2003-present

B. Selected Publications**Original articles in refereed journals (selected from 46 total)**

12. **C. A. Ecelbarger**, J. Terris, J. R. Hoyer, S. Nielsen, J. B. Wade and M. A. Knepper. Localization and regulation of the rat renal Na⁺-K⁺-2Cl⁻ cotransporter, BSC-1. *Am. J. Physiol.* 271: F619-F628, 1996.
13. S. Nielsen, J. Terris, D. Andersen, **C. A. Ecelbarger**, J. Frokiaer, D. Marples. M. A. Knepper and J. S. Peterssen. Congestive heart failure in rats is associated with increased expression and targeting of aquaporin-2 water collecting duct. *Proc. Natl. Acad. Sci.*, 94: 5450-5459, 1997.
17. **C. A. Ecelbarger**, S. Nielsen, B. Olson, T. Murase, E. A. Baker, M. A. Knepper and J. G. Verbalis. Role of renal aquaporins in escape from vasopressin-induced antidiuresis in rat. *J. Clin. Invest.* 99 (8): 1852-1863, 1997.
18. **C. A. Ecelbarger**, C.-L. Chou, A. J. Lee, S. R. DiGiovanni, J. G. Verbalis and M. A. Knepper. Escape from vasopressin-induced anti-diuresis is due to vasopressin resistance in the rat. *Am. J. Physiol.* 274: F1161-F1166, 1998.

20. G. H. Kim, **C. A. Ecelbarger**, C. W. Mitchell and M. A. Knepper. Vasopressin increases Na-K-2Cl cotransporter expression in thick ascending limb of Henle's loop. Am. J. Physiol. 276: F96-F103, 1999.
21. S. C. Thomson, S. Bachmann, M. Bostanjoglo, **C. A. Ecelbarger**, O. W. Peterson, D. Schwartz, D. Bao, R. C. Blantz. Temporal adjustment of the juxtaglomerular apparatus during sustained inhibition of proximal reabsorption. J. Clin. Invest. 104: 1149-1158, 1999.
22. **C. A. Ecelbarger**, S. Yu, A. J. Lee, L. S. Weinstein and M. A. Knepper. Decreased Na-K-2Cl cotransporter expression in mice with heterozygous disruption of the gene for heterotrimeric G-protein G α . Am. J. Physiol. 277: F235-244, 1999.
31. **C. A. Ecelbarger**, G.-H. Kim, J. Terris, S. Masilamani, C. Mitchell, I. Reyes, J. G. Verbalis, and M. A. Knepper. Vasopressin-mediated regulation of epithelial sodium channel (ENaC) abundance in rat kidney. Am. J. Physiol. 278: F46-F53, 2000.
32. J. Yun, T. Shoneberg, J. Liu, A. Schulz, **C. A. Ecelbarger**, D. Promeneur, S. Nielsen, H. Sheng, A. Grinberg, C.-X. Deng, and Jurgen Wess. Generation and phenotype of mouse strains harboring a nonsense mutation within the V2 vasopressin receptor coding sequence. J. Clin. Invest. 106(11): 1361-1371, 2000.
33. **C. A. Ecelbarger**, M. A. Knepper, and J. G. Verbalis. Increased abundance of distal sodium transporters in rat kidney during vasopressin escape. J. Am. Soc. Nephrol. 12(2): 207-217, 2001.
34. C. A. Bickel, J. G. Verbalis, M. A. Knepper, and **C. A. Ecelbarger**. Increased renal Na-K-ATPase, NCC, and β -ENaC abundance in obese Zucker rats. Am. J. Physiol. 281(4): F639-648, 2001.
35. **C. A. Ecelbarger**, J. M. Sands, J. J. Doran, W. Cacini, and B. K. Kishore. Expression of salt and urea transporters in rat kidney during cisplatin-induced polyuria. Kidney Int. 60:2274-2282, 2001.
39. C. A. Bickel, M. A. Knepper, J. G. Verbalis, and **C. A. Ecelbarger**. Dysregulation of renal sodium and water transport proteins in diabetic, obese Zucker rats. Kidney Int. 61:2099-2110, 2002.
40. J. Song, M. A. Knepper, J. G. Verbalis, and **C. A. Ecelbarger**. Increased renal ENaC subunit and sodium transporter abundances in streptozotocin-induced type I diabetes. Am. J. Physiol. Renal Physiol. 285(6):F1125-37. 2003.
41. J. Song, M. A. Knepper, X. Hu, J. G. Verbalis, and **C. A. Ecelbarger**. Rosiglitazone activates renal sodium- and water-reabsorptive pathways and lowers blood pressure in normal rats. J. Pharmacol. Exp. Ther. 308(2):426-33, 2004.
42. J. Song, X. Hu, O. Khan, J.G. Verbalis, and **C. A. Ecelbarger**. Increased blood pressure, aldosterone activity, and regional differences in renal ENaC protein during vasopressin-escape. Am J Physiol Renal Physiol. 287(5):F1076-F1083, 2004.
43. J. Song, X. Hu, M. Shi, M. A. Knepper, and **C. A. Ecelbarger**. Effects of dietary fat, NaCl, and fructose on renal sodium and water transporter abundances and systemic blood pressure. Am. J. Physiol. Renal Physiol. 287(6):F1204-F1212, 2004.
44. O. Khan, S. Riazi, X. Hu, J. Song, J. B. Wade, and **C. A. Ecelbarger**. Regulation of the renal thiazide-sensitive Na-Cl cotransporter, blood pressure, and natriuresis in obese Zucker rats treated with rosiglitazone. Am. J. Physiol. Renal Physiol. 289(2): F442-F450, 2005.
45. C. C. Wells, S. Riazi, R. W. Mankhey, F. Bhatti, **C. A. Ecelbarger**, and C. Maric. Diabetic nephropathy is associated with decreased circulating estradiol levels and imbalance in the expression of renal estrogen receptors, J. Gender Medicine (in press).
46. Y. Tian, S. Riazi, O. Khan, J. D. Klein, Y. Sugimura, J. G. Verbalis, and **C. A. Ecelbarger**. Renal ENaC subunit, Na-K-2Cl and Na-Cl cotransporter abundances in aged, water-restricted F344 x Brown Norway rats. Kidney Int. (in press).

Published Reviews (out of 6 total)

4. L. S. Weinstein, S. Yu and **C. A. Ecelbarger**. Variable imprinting of the heterotrimeric G protein G α subunit within different segments of the nephron. Am. J. Physiol. 278: F507-F514, 2000.
5. **C. A. Ecelbarger**, G.-H. Kim, J. B. Wade, and M. A. Knepper. Regulation of the abundance of renal sodium transporters and channels by vasopressin. Exp. Neurol. 171(2): 227-234, 2001.
6. **C. A. Ecelbarger**. Targeted proteomics using immunoblotting technique for studying dysregulation of ion transporters in renal disorders. Expert Rev. Proteomics. 1(2), 219-227, 2004.

Published Book Chapters (out of 4 total)

3. **C. A. Ecelbarger**, T. Murase, S. Nielsen, Y. Tian, C-L Chou, B. Olson, M. A. Knepper, and J. G. Verbalis. Regulation of renal aquaporins and sodium transporters during vasopressin-escape in the rat. Molecular Biology and Physiology of Water and Solute Transport, S. Hohmann and S. Nielsen, eds., pp. 77-83, 2001.
4. **C. A. Ecelbarger**. Proteomics and sodium transport. Proteomics in Nephrology- Contributions to Nephrology, Vol 141, C. Ronco ed., Karger, pp.124-141, 2004.

c. Research SupportONGOING**R01- HL073193**

Ecelbarger, PI

6/1/03-5/31/08

Renal Sodium Transport in the Obese Zucker Rat

The primary aims of this grant are to investigate regulation of NaCl balance and blood pressure in the obese Zucker rat, a model of insulin resistance and type II diabetes with regard to the relationships between hyperinsulinemia, the renin-angiotensin-aldosterone system and changes in activity and abundance of renal sodium transport proteins.

R01- HL74142

Ecelbarger, PI

8/1/03-7/31/07

Insulin, Renal Sodium Transport and Blood Pressure

The major aims of this grant are to determine the impact of hyperinsulinemia on the regulation of protein abundance and activity of the renal epithelial sodium channel (ENaC) and its relation to changes in blood pressure in the insulin-infused Sprague-Dawley rat.

R21- DK064872

Ecelbarger, PI

7/1/03-6/30/06

NaCl Balance and Targeted Insulin Receptor Knockout Mice

The primary aims of this grant were to develop two mouse models of tissue-targeted insulin receptor deletion, i.e. selective deletion in the renal collecting duct or thick ascending limb. In these models, sodium balance and blood pressure would be measured as well as regulation of the epithelial sodium channel (ENaC) a protein shown to be increased in activity by insulin.

Pfizer Pharmaceutical

Ecelbarger, PI

10/1/04-9/30/05

Evaluating the Role of Renal Sodium Retention in PPAR- γ Agonist-Related Edema

The primary goal of this grant is to determine the temporal relationship between regulation of renal sodium and water transporters and fluid retention and edema in normal rats treated with high dose PPAR- γ agonists.

COMPLETED**Research Award, American Diabetes Association**

Ecelbarger, PI

1/1/01 – 12/30/03

Regulation of Renal Sodium Transporters and Blood Pressure by Insulin in Diabetic and Normal Rats

In this grant we investigated the effects of insulin on renal sodium transporter expression throughout the whole tubule length in normal rats and in insulin resistant models, such as the obese Zucker rat.

K01-DK02672

Ecelbarger, PI

4/1/99-3/31/02

National Institutes of Health (NIDDK)

Regulation of the Renal Salt and Water Transporters.

The major goals of this project were to assess the role of regulation of renal sodium transporters during escape from the antidiuresis of vasopressin and to further characterize the vasopressin-V2 mediated receptor regulation of aquaporin-2 abundance by vasopressin.

George E. Schreiner, M.D. Young Investigator Grant

Ecelbarger, PI

7/1/99-6/30/01

National Kidney Foundation

Regulation of renal aquaporins and salt transporters during vasopressin escape.

The major goals of this project were to analyze regulation of renal salt and water transporters during escape from the antidiuresis of vasopressin.