

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Wingo, Charles S., M.D.		POSITION TITLE Principal Investigator	
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Stanford University, Stanford, CA	BS	1971	Physical Chemistry
Louisiana State University School of Medicine,	MD	1975	Medicine
University of Texas at Houston	Intern/Resid	1975-1978	Medicine
University of Texas Southwestern Medical	Fellow	1978-1981	Nephrology

**1) Positions and Honors****Research and Teaching Experience**

1981 Assistant Professor of Medicine, University of Florida College of Medicine  
 1985 Assistant Professor of Medicine and Physiology, University of Florida College of Medicine  
 1986 Associate Professor of Medicine and Physiology, University of Florida College of Medicine  
 1992 Professor of Medicine and Physiology, University of Florida College of Medicine  
 2003 Associate Chief of Staff-Research, North Florida-South Georgia Veteran's Health System

**Honors, Awards and Societies**

Departmental Honors in Chemistry, 1971  
 National Kidney Foundation Research Fellowship, 1979-1981  
 Career Development Award, 1985-1987  
 Member, The Graduate Faculty, University of Florida, 1987-Present  
 Member, Southern Society for Clinical Investigation, 1990-Present  
 President, Southern Society for Clinical Investigation, 1996 - 1997  
 Member, American Society for Clinical Investigation, 1990-Present  
 Permanent Member, General Medicine B Study Section, 2000-2003

**B. Selected peer-reviewed publications (in chronological order), 28 of 72:**

- 1) Wingo C.S. and F.E. Armitage. Rubidium absorption and proton secretion by rabbit outer medullary collecting duct via H-K-ATPase. *Am. J. Physiol.* 263:F849-F857, 1992.
- 2) Weiner I.D., C.S. Wingo, and L.L. Hamm. Regulation of intracellular pH in two cell populations of inner stripe of rabbit outer medullary collecting duct. *Am. J. Physiol.* 265:F406-F415, 1993.
- 3) Wingo C.S. Potassium depletion: An etiologic factor for certain forms of low renin hypertension? *J. Nephrol.* 7:16-17, 1994.
- 4) Zhou, X. and C.S. Wingo. Stimulation of total CO<sub>2</sub> flux by 10% CO<sub>2</sub> in the rabbit cortical collecting duct: Role of an apical SCH28080- and Ba-sensitive mechanism. *Am. J. Physiol.* 267:F114-F120, 1994.
- 5) Armitage, F.E. and C.S. Wingo. Luminal acidification in the K-replete OMCDi: Contributions of H-K-ATPase and bafilomycin-A1-sensitive H-ATPase. *Am. J. Physiol.* 267:F450-F458, 1994.
- 6) Callaghan, J.M., S.-S. Tan, M.A. Khan, K.A. Curran, W.G. Campbell, A.J. Smolka, B.H. Toh, P.A. Gleeson, C.S. Wingo, B.D. Cain, and I.R. van Driel. Renal expression of the gene encoding the gastric H<sup>+</sup>/K<sup>+</sup>-ATPase  $\beta$  subunit. *Am. J. Physiol.* 268:F363-F374, 1995.
- 7) Armitage, F.E. and C.S. Wingo. Luminal acidification in the potassium replete OMCDi: Inhibition of bicarbonate absorption by potassium removal and luminal barium. *Am. J. Physiol.* 269:F116-F124, 1995.

- 8) Wingo, C.S. and A. J. Smolka. Function and structure of H-K-ATPase in the kidney. *Am. J. Physiol.* 269:F1-F16, 1995.
- 9) Campbell-Thompson, M.L., J.W. Verlander, K.A. Curran, B.D. Cain, C.S. Wingo, and J.E. McGuigan. *In situ* hybridization of H,K-ATPase in rat and rabbit kidney. *Am. J. Physiol.* 269:F345-F354, 1995.
- 10) Barri, Y.M., Wingo, C.S.: The Effects of Potassium Depletion and Supplementation on Blood Pressure: A Clinical Review. *Am. J. Med. Sci.* 314(1):37-40, 1997.
- 11) Weiner, I.D., Wingo, C.S.: Hyperkalemia: A Potential Silent Killer. *J. Am. Soc. Nephrol.* 9:1535-1543, 1998.
- 12) Zhou, X., Xia, S-L., Wingo, C.S.: Chloride Transport by the Rabbit Cortical Collecting Duct: Dependence on H,K-ATPase. *J. Am. Soc. Nephrol.* 9:2194-2202, 1998
- 13) Campbell, W.G., Weiner, I.D., Wingo, C.S., Cain, B.D.: H,K-ATPase in the RCCT-28A Cortical Collecting Duct Cell Line. *Am. J. Physiol.* 276 (Renal Physiol:45): F237-F245, 1999.
- 14) Caviston, T. L., Campbell, W.G., Wingo, C.S., and Cain, B.D. Molecular identification of the renal H<sup>+</sup>,K<sup>+</sup>-ATPases. *Seminars in Nephrology* 19[5], 431-437. Sept.,1999.
- 15) Frank, A.E., Wingo, C.S., and Weiner, I.D. Effects of ammonia on bicarbonate transport in the cortical collecting duct. *Am J Physiol* 278[2], F219-F226. Feb, 2000.
- 16) Zhou, X., Lynch, I.J., Xia, S.L., and Wingo, C.S. Activation of H<sup>+</sup>-K<sup>+</sup>-ATPase by CO<sub>2</sub> requires a basolateral Ba<sup>2+</sup>-sensitive pathway during K restriction. *Am J Physiol* 279[1], F153-F160. July,2000.
- 17) Xia, S. L., Noh, S. H., Verlander, J. W., Gelband, C. H., and Wingo, C. S. Apical membrane of native OMCDi cells has nonselective cation channels. *Am J Physiol Renal Physiol* 281[1], F48-F55. July, 2001.
- 18) Verlander, J. W., Moudy, R. M., Campbell, W. G., Cain, B. D., and Wingo, C. S. Immunohistochemical localization of H-K-ATPase  $\alpha_2$ -subunit in rabbit kidney. *Am J Physiol Renal Physiol* 281[2], F357-F365. Aug., 2001.
- 19) Zhou, X., Nakamura, S., Xia, S. L., and Wingo, C. S. Increased CO<sub>2</sub> stimulates K/Rb reabsorption mediated by H-K-ATPase in CCD of potassium-restricted rabbit. *Am J Physiol Renal Physiol* 281[2], F366-F373. Aug 2001.
- 20) Zies, D.L., **Wingo, C.S.**, and Cain, B.D.: Molecular regulation of the HK $\alpha_2$  subunit of the H<sup>+</sup>,K<sup>+</sup>-ATPases. *J Nephrol.* 15(Suppl 5):S54-60, 2002.
- 21) Frank, A.E., **Wingo, C.S.**, Andrews, P.M., Ageloff, S., Knepper, M.A., and Weiner, I.D.: Mechanisms through which ammonia regulates cortical collecting duct net proton secretion. *Am. J. Physiol.* 282:F1120-F1128, 2002.
- 22) Schwalbe, R.A., Rudin, A., Xia, S-L., and **Wingo, C.S.**: Site-directed glycosylation tagging of functional Kir2.1 reveals that the putative pore-forming segment is extracellular. *J. Biol. Chem.*;277(27):24382-9; Jul 5, 2002
- 23) Schwalbe, R.A., Rudin, A., **Wingo, C.S.**, and Xia, S-L: Mutations in the Putative Pore-Forming Segment Favor Short Lived WT Kir2.1 Pore Conformations. *Biochemistry.* 41(41):12457-66; Oct 15, 2002.
- 24) Gumz, M., Popp, M., **Wingo, C.S.**, and Cain, B.: Early transcriptional effects of aldosterone in a mouse inner medullary collecting duct cell line. *AM J Physiol Renal Physiol* 285:F664-F673, 2003
- 25) Gumz M.L., Duda, D., McKenna, R., **Wingo, C.S.**, Cain, B.D. Molecular modeling of the rabbit colonic (HK $\alpha_2$ ) H(+), K(+) ATPase. *J Mol Model* (online) 2003; 9(5):283-9, Epub 2003 Jul 22
- 26) **Wingo, C.S.**, Weiner, I.D., Xia, S.L.: Renal Microperfusion techniques. *Methods Mol Med*, 2003 86:457-73
- 27) Choe, K.P., Verlander, J.W., **Wingo, C.S.**, Evans, D.H.: A putative H<sup>+</sup>,K<sup>+</sup>-ATPase in the Atlantic stingray, *Dasyatis sabina*: primary sequence and expression in gills. *Am J. Physiol Regul Integr Comp Physiol.* 2004 Oct;287(4):R981-91. Epub 2004 June 24.
- 28) Xia, S-L, Wang, L., Cash, M., Teng, X., Schwalbe, R.A., and Wingo C. S.. Extracellular ATP induced calcium signaling in mIMCD-3 cells requires both P2X and P2Y purinoceptors. *Am. J. Physiol Renal Physiol.* 287(2):F204-14, 2004.

## C. Research Support

### Ongoing Research Support

NIH R01-DK49750, PI, H,K-ATPase Function in Potassium Homeostasis

The major goals of this project are to identify the role of each H,K-ATPase isoform in Potassium homeostasis using both functional and morphological characteristics in knockout mice.

VA 0001, PI, Ion Transport in the Collecting Duct

Specifically, the goals of this project are to 1) examine the role of MR and GR by the use of specific antagonists; 2) establish whether aldosterone affects ET-1 mRNA stability; 3) determine if the response to aldosterone depends on MR by siRNA experiments; 4) identify the cis acting elements in the ET-1 gene that mediate steroid responsiveness by Chromatin Immunoprecipitation (ChIP) experiments and by 5) electrophoretic mobility shift assays (EMSA); and 6) examine the effect of aldosterone on promoter constructs with deletion of cis elements identified previously.

VA 0001, Co- PI, Neural Regulation of Renal Collecting Duct Ion Transport

The long-term goal of this research is to examine the neural control and regulation of ion transport in the renal epithelial tissue. The overall objective of this study is to determine how the action of dopamine affects the cell membrane conductances of native medullary collecting duct.

### Previous Research Support

NIH RO1 DK54721, Co-PI, Molecular Regulation of Renal  $\alpha_2$  H,K-ATPase,

The major goal of this study is to define the functional role of the H,K-ATPase and to identify the transcriptional regulation of the alpha subunit of the renal H,K-ATPase.

NIH R01-DK49750, PI, Luminal Acidification by the Medullary Collecting Duct

The major goals of this project were to identify and characterize the specific roles of H,K-ATPase isoforms in specific epithelial cells in the rabbit and mouse collecting duct.

NIH NIDDK DK-45788, Collaborator, H/HCO<sub>3</sub> Transport by the Collecting Duct

The major goals of this project was to characterize fully the H<sup>+</sup> and HCO<sub>3</sub><sup>-</sup> exchange, to determine the role that the intercalated cell with both apical and basolateral Cl<sup>-</sup>/ HCO<sub>3</sub><sup>-</sup> exchange played in the physiologic regulation of CCD HCO<sub>3</sub><sup>-</sup> transport.

NIH, Co-PI, Biochemically-Determined Topology of a Renal K<sup>+</sup> Channel

The major goal of this study is to topologically map both kir1.1 and 2.1 renal potassium channels.