

BIOGRAPHICAL SKETCH

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NAME Edward W. Inscho	POSITION TITLE Professor		
eRA COMMONS USER NAME einscho			
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
Mercyhurst College	B.S.	1972-1976	Biology
University of Cincinnati School of Medicine	Ph.D.	1980-1987	Physiology
University of Alabama at Birmingham	Postdoctoral	1987-1988	Physiology
Tulane University School of Medicine	Postdoctoral	1988-1989	Physiology

A. PERSONAL STATEMENT

Dr. Edward Inscho is a Professor in the Department of Physiology. He is an internationally recognized expert in the role of P1 and P2 receptors in the regulation of renal microvascular function in healthy and disease kidney settings. His laboratory has led pioneering studies into the direct effects of P1 and P2 receptor activation afferent arteriolar function and, more importantly, on the physiological mechanisms responsible for autoregulatory function. His work has shown that P2X₁ receptors mediate pressure dependent autoregulatory behavior in healthy kidneys and that this mechanism is impaired in hypertension, potentially contributing to hypertensive renal injury. More recently, he has made an important linkage between high dietary salt, endothelin and renal microvascular dysfunction. This is important because high dietary salt and the complications of salt sensitive hypertension in kidney injury are critical problems in western societies and represents a major health care crisis in the United States. Dr. Inscho's efforts have been recognized by peer organizations by being named an Established Investigator of the American Heart Association, and receipt of the Harry Goldblatt Award in Cardiovascular Research from the American Heart Association, American Society of Hypertension/Hoechst Marion Rousell Young Scholars Award from the American Society of Hypertension, Lewis K. Dahl Memorial Lecture; American Heart Association Council for High Blood Pressure Research. Dr. Inscho's career has been spent understanding the function of the renal microcirculation in health and disease.

B. POSITIONS AND HONORS**PROFESSIONAL EXPERIENCE:**

1978-1980 Res. Asst., Institute for Dev. Research, Children's Hospital Medical Center, Cincinnati, OH
 1980-1987 Graduate Assistant, Dept. of Physiology, University of Cincinnati, Cincinnati, OH
 1987-1988 Postdoc. Fellow, Cardiovas. Res. & Training Center, Univ. of Alabama at Birmingham, B'ham AL
 1988-1989 Postdoc. Fellow, Dept. of Physiology, Tulane University School of Medicine, New Orleans, LA
 1989-1991 Research Instructor, Dept. of Physiology, Tulane University School of Medicine, New Orleans, LA
 1991-1992 Res. Assist. Prof., Dept. of Physiology, Tulane University School of Medicine, New Orleans, LA
 1992-1997 Assistant Professor, Dept. of Physiology, Tulane University School of Medicine, New Orleans, LA
 1997-2000 Associate Professor, Dept. of Physiology, Tulane University School of Medicine, New Orleans, LA
 2001-present Professor, Dept. of Physiology, Medical College of Georgia, Augusta, GA
 2001-2010 Vice Chairman, Dept. of Physiology, Medical College of Georgia, Augusta, GA
 2005-2010 Director of the MD/PhD Program for the Medical College of Georgia, Augusta, Georgia.
 2010-2012 Interim Dean, School of Graduate Studies for Georgia Health Sciences University

AWARDS & HONORS:

- 1984-1987 Predoctoral Fellowship (NIH Training Grant), University of Cincinnati.
 1987, 1988 Postdoctoral Fellowship, NIH Training Grant, Univ. of Ala. at Birmingham, Birmingham, AL.
 1992, 1993 Amgen Young Investigator Award.
 1994-1999 NIH FIRST Award.
 1995-2000 Established Investigator of the American Heart Association.
 1996 Fellow of the Council for High Blood Pressure Research of the American Heart Association.
 1997 Distinguished Alumnus Award for Mercyhurst College.
 1998 Harry Goldblatt Award in Cardiovascular Research; Council for High Blood Pressure Research
 2000 American Society of Hypertension/ Monarch Pharmaceuticals Young Scholars Award.
 2007 Medical College of Georgia Distinguished Service Award.
 2008 Lewis K. Dahl Award by the Council for High Blood Pressure Research; American Heart Assoc.
 2010 Medical College of Georgia Faculty Senate Distinguished Faculty Award for Basic Science Research
 2010 Medical College of Georgia Research Institute Distinguished Basic Research Award
 2011 Georgia Health Sciences University Exemplary Teachers Award
 2012 Charter member, Georgia Health Sciences University Chapter; Phi Kappa Phi Honor Society.
 2014 Mayerson-Di Luzio Award, Department of Physiology, Hypertension and Renal Center of Excellence, Tulane University Health Sciences Center, New Orleans, Louisiana. 4/7/2014.
 2014 Invited speaker for a NIH-sponsored (NINDS and NHLBI) workshop entitled: "Small Blood Vessels: Big Health Problems?" held in Bethesda, MD September 18-19, 2014. Will discuss the role of the renal microcirculation in controlling renal hemodynamics and in renal injury.
 2014 Selected by the American Journal of Physiology-Renal Physiology to be featured in a AJP-Renal podcast based on our paper entitled "High Salt Diet Blunts Renal Autoregulation by a Reactive Oxygen Species-dependent Mechanism" by Fellner, Robert C., Anthony K. Cook, Paul M. O'Connor, Shali Zhang, David M. Pollock and Edward W. Inscho.
 2014 Selected for APSselect for distinction in scholarship in the American Journal of Physiology - Renal Physiology. For our paper entitled "High Salt Diet Blunts Renal Autoregulation by a Reactive Oxygen Species-dependent Mechanism" by Fellner, Robert C., Anthony K. Cook, Paul M. O'Connor, Shali Zhang, David M. Pollock and Edward W. Inscho.

PROFESSIONAL MEMBERSHIPS EDITORIAL BOARDS AND REVIEW COMMITTEES:

- 1987-present American Heart Association, Council on Kidney and Cardiovascular Disease
 1990-present American Physiological Society
 1996-present American Heart Association, Council on High Blood Pressure Research
 1995-present American Society of Nephrology
 1997-present Microcirculatory Society
 2000-2009 American Society of Hypertension

EDITORIAL BOARDS

- 2001-present American Journal of Physiology: Renal Physiology
 2001-present Clinical Science
 2003-present Hypertension
 2004-present Current Hypertension Reviews
 2007-present The Open Cardiovascular Medicine Journal

GRANT REVIEW COMMITTEES

- 1995-2000 Veterans Administration.
 1998 National Institutes of Health; Natl. Inst. Gen. Med. Sci.; MBRS Physiology Review Panel.
 1997-2006 American Heart Association, Southeast Affiliate; Research Peer Review Committee.
 2000-2008 National Institutes of Health; CVB / Hypertension & Microcirculation Study Section

2006-2008 National Institutes of Health; Chairman of the Hypertension & Microcirculation Study Section
 2004-2010 Arizona Biomedical Research Commission Peer Review Committee
 2007-2012 American Heart Association, Southeast Affiliate; Research Committee
 2010-2012 American Heart Association, Chairman of the Southeast Affiliate; Research Committee
 2012-present NIH Grant review: Special Emphasis Panels
 2013 National Institutes of Health; Hypertension & Microcirculation Study Section

PUBLICATIONS: (Selected from more than 109 published papers, chapters and reviews)

1. **Inscho, E. W.**, A. K. Cook, J. D. Imig, C. Vial and R. J. Evans. Physiological Role for P2X₁ Receptors in Renal Microvascular Autoregulatory Behavior. *J. Clin. Invest.* 112: 1895-1905, 2003. PMID:296993.
2. **Inscho, E. W.**, J. D. Imig, A. K. Cook and D. M. Pollock. ET_A and ET_B receptors differentially modulate afferent and efferent arteriolar responses to endothelin. *Brit. J. Pharmacol.*, 146: 1019-1026, 2005. PMID:1751231.
3. **Inscho, E. W.**, Mysteries of Autoregulation. *Hypertension*, 53: 299-306, 2009.
4. **Inscho, E. W.**, A. K. Cook, L-M. Jin and R. C. Webb. Rho-kinase inhibition reduces pressure-mediated autoregulatory adjustments in afferent arteriolar diameter. *American Journal of Physiology: Renal Physiology* 296: F590-597, 2009.
5. Osmond, D. A. and **E. W. Inscho** P2X₁ receptor blockade inhibits whole kidney autoregulatory behavior in vivo. *Am. J. Physiol.-Renal* 298: F1360-F1368, 2010. PMID: PMC2886815.
6. **Inscho, E.W.**, A. K. Cook, A. Clarke, S. Zhang and Z. Guan. P2X₁receptor-mediated vasoconstriction of afferent arterioles in Ang II-infused hypertensive rats fed a high salt diet. *Hypertension* 57: 780-787, 2011. PMID: PMC3060280.
7. Kohan, D., Noreen Rossi., **Edward Inscho**, and David Pollock. Regulation of Blood Pressure and Salt Homeostasis by Endothelin. *Physiological Reviews* 91: 1-77, 2011. PMID: PMC3236687.
8. Guan, Zhengrong and **Edward W. Inscho**. Endothelin and the Renal Vasculature. *Contributions to Nephrology* 172:35-49, 2011. PMID: PMC3236641.
9. Guan, Zhengrong and **Edward W. Inscho**. The Role of ATP in Regulating Renal Microvascular Function and in Hypertension. *Hypertension* 58(3): 333-40, 2011. PMID:PMC3730531.
10. Guan, Zhengrong, Matthew I. Giddens, David. A. Osmond, Anthony K. Cook, Janet L. Hobbs, Shali Zhang, Tatsuo Yamamoto, Jennifer S. Pollock, David M Pollock, Edward W. Inscho. Immunosuppression Preserves Renal Autoregulatory Function and Microvascular P2X₁ Receptor Reactivity in Ang II Hypertensive Rats. *American Journal of Physiology: Renal Physiology*, 304: F801-F807, 2013. PMID: PMC3602698.
11. Guan, Zhengrong, Robert C. Fellner, Justin Van Beusecum, Edward W. Inscho. P2 Receptors in Renal Autoregulation. *Current Vascular Pharmacology* In Press April 30, 2013. PMID:PMC3965657.
12. Osmond, David A., Shali Zhang, Jennifer S. Pollock, Tatsuo Yamamoto, Carmen De Miguel and Edward W. Inscho. Clopidogrel preserves whole kidney autoregulatory behavior in Ang II-induced hypertension. *American Journal of Physiology: Renal Physiology*: 306: F319-F328, 2014. PMID:PMC3949043.
13. Giachini Fernanda R., Romulo Leite, David A. Osmond, Victor V. Lima, Edward W. Inscho, R. Clinton Webb and Rita C. Tostes. Anti-platelet therapy with clopidogrel prevents endothelial dysfunction and vascular remodeling in aortas from hypertensive rats. *Plos One*, DOI: 10.1371/journal.pone.0091890, 2014. PMID:PMC3956760.
14. Guan, Zhengrong, Sean T. Singletary, Anthony K. Cook, Jennifer S. Pollock and **Edward W. Inscho**. Sphingosine-1-phosphate Evokes Unique Segment Specific Vasoconstriction of the Renal Microvasculature. *Journal of the American Society of Nephrology*, In Press, December 15, 2013. PMID: Pending.
15. Fellner, Robert C., Anthony K. Cook, Paul M. O'Connor, Shali Zhang, David M. Pollock and Edward W. Inscho. High Salt Diet Blunts Renal Autoregulation by a Reactive Oxygen Species-dependent Mechanism. Submitted to the *American Journal of Physiology: Renal Physiology* In Press: May 20, 2014. May 28, 2014. [Epub ahead of print May 28, 2014. pii: ajprenal.00040.2014.]. PMID: PMC4080153. Selected for an Editorial Focus commentary. Also selected for APSselect for distinction in scholarship in the *American Journal of Physiology - Renal Physiology*.

C. RESEARCH SUPPORT: CURRENTLY ACTIVE RESEARCH SUPPORT

RO1 DK44628 (Inscho) 8/01/1994-03/31/2013 No cost extension

NIH/NIDDK

Title: Purinergic regulation of the renal microvasculature

Major Goals: This project examines the role of P2 receptors in regulating renal microvascular function and autoregulatory behavior. Experiments focus on microvascular reactivity to P2 antagonists, alterations in microvascular autoregulatory responses to changes in perfusion pressure and the calcium signaling pathways involved in those responses.

RO1 HL098135-01. (Inscho) 1/04/10 to 12/31/14

NIH NHLBI

Title: The Inflammatory Cytokines, MCP-1 and TGF- β , Mediate Renal Autoregulatory Impairment in Angiotensin II infused Hypertension.

Major Goals: This project examines the roles of the inflammatory cytokines, MCP-1 and TGF- β on afferent arteriolar reactivity in Ang II-infused hypertension. The central hypothesis is that hypertension increases renal expression of the cytokines, which in turn blunts afferent arteriolar autoregulatory reactivity and contributes to hypertensive renal injury.

PO1HL095499-01 (Pollock) 8/6/2010 to 4/30/2015

NIH NHLBI

Title: Endothelin Control of Renal Hemodynamic and Excretory Function. Principal Investigator, David M. Pollock. Project Two Leader, Edward W. Inscho, 25% effort. Receptor Specific Mechanisms of Endothelin Control of the Renal Microcirculation.

Major Goals: This project focuses on determining the role of endothelin in regulating renal microvascular and tubular function. In addition, strong emphasis is placed on the role of the endothelin system in the renal response to high dietary salt and what changes in function are induced by the high salt condition.

AHA (P.I. Van Beusecum, Sponsor Inscho) 07/01/14 to 06/30/16

Predoctoral Fellowship application.

Title: The Functional Role of TLR4 in the Renal Microvasculature

Major Goals. This project will focus on the impact of TLR4 receptors and receptor activation on renal microvascular function in hypertension.

AHA (Inscho) 2/1/2013 to 1/31/ 2015

Health Sciences Fellowship

Title: Advances in Cardiovascular, Diabetes and Obesity Research. Principal Investigator, Edward W. Inscho (5% effort).

Major Goals: This project focuses on providing health sciences students and medical students a rich summer research experience in the cardiovascular sciences. Students are paired with productive scientists/mentors based on the student's scientific interests. The participating faculty are well funded NIH investigators representing the broad base of research at GHSU directed at cardiovascular, diabetes, obesity and neuroscience research. The mentor guides the student as they engage in the scientific process of discovery, problem solving and critical thinking.