

Curriculum Vitae

Date: July 2022

Personal Information:

Name: Joshua S. Speed



Citizenship: U.S.A.

Rank/Title:

Department: Department of Physiology and Biophysics

Title: Assistant Professor

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Jackson, MS 39216 USA

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Education:

2001-2005 B. S., Belhaven College, Jackson, MS, Major: Chemistry
Minor: Mathematics

2006-2011 Ph.D., University of Mississippi Medical Center, Jackson, MS.
Physiology and Biophysics

Postdoctoral Training:

2011-2013 Postdoctoral Fellow, Section of Experimental Medicine,
Georgia Regents University, Augusta, GA

2014-2015 Postdoctoral Fellow, Cardio-Renal Physiology and Medicine,
University of Alabama at Birmingham, Birmingham, AL

Faculty Appointments

2018-present Assistant Professor, Department of Physiology and Biophysics,
University of Mississippi Medical Center

2015-2017: Instructor, Department of Medicine, Division of Nephrology,
Section of Cardio-Renal Physiology and Medicine, University of
Alabama at Birmingham

2015-2017 Nephrology and Research Training Center, University of Alabama
at Birmingham

2015-2017	Nutrition and Obesity Research Center, University of Alabama at Birmingham
2016-2017	UAB Comprehensive Diabetes Center, University of Alabama at Birmingham

RESEARCH

Major Research Interests:

Throughout my predoctoral and postdoctoral career, my research revolved around the mechanisms by which renal and extrarenal endothelin-1 (ET-1) influences blood pressure. I was fortunate enough during my postdoctoral fellowship to have several animal models at my disposal including ET_B receptor deficient rats and mouse models that allowed us to knockout out ET_A receptors, ET_B receptors and ET-1 in various tissues. Phenotyping these models led me to my current niche of studying the role of ET-1 in obesity and insulin resistance. They also provided me with the necessary research tools to start and lead an independent research program that began in January 2018 at the University of Mississippi Medical Center (UMMC).

Grant Support

Active Awards:

NIH/NIDDK- R01DK124327 Speed (PI) 4/1/2021-3/31/2026
 \$263,000/year
 Endothelin-1 in Obesity and Insulin Resistance
 This award aims to determine mechanisms by which increased ET-1 production in the adipose tissue of obese animals causes insulin resistance.

NIH/NHLBI-R25-HL121042 Speed (PI) 4/01/20-3/30/3025
 82,800/year
 Mississippi Diversity in Hypertension and Cardiorenal Research Program

Previous Awards:

NIH/NHLBI-R00-HL127178 Speed (PI) 01/15/18-12/31/20
 \$249,000/year
Endothelin: Mechanisms in Hypertension and Obesity
 The R00 phase will address the mechanisms by which ET-1 affects lipid metabolism by adipocytes and whether ET_A/ET_B receptor imbalance may contribute to the development of obesity.

NIH/NIDDK- F3112917833 Rivera-Gonzalez (PI)
 Endothelin in Obesity Induced Insulin Resistance
 This pre-doctoral fellowship aims to determine mechanisms by which ET-1 promotes insulin resistance in obese animals.
 Role: Mentor

CMDRC Pilot Speed (PI) 12/31/18-11/30/19
 \$40,000

Endothelin and Insulin Resistance in Adipose

The overall goal of this grant to determine if overexpression of ET_B in adipose tissue causes insulin resistance and metabolic dysfunction by adipocytes.

Nutrition and Obesity Research Center Pilot and Feasibility Grant 7/1/17-5/31/18
\$25,000

This award provides seed funding to test the hypothesis that Endothelin-1 promotes adiposity and insulin resistance via activation of the ET_B receptor.

Anderson Award for Nephrology Research 03/1/16-2/28/18
\$50,000/year for 2 years

This award will focus on the mechanisms by which high salt intake affects lipid metabolism

NIH/NHLBI-K99 HL127178 Speed (PI) 01/15/16-12/31/17
\$155,000/year

Endothelin: Mechanisms in Hypertension and Obesity

For the K99 portion of this grant, the major goal is to determine the mechanisms by which extrarenal vascular endothelin-1 regulates skin Na⁺ storage during high salt intake. It will also address the mechanisms by which vascular ET-1 is upregulated in response to high salt intake.

AHA 15SDG25090194 Speed (PI) 07/01/15-06/30/18
\$77,000/year; Resigned 1/14/2016

Extrarenal Control of Na⁺ Homeostasis and Blood Pressure by Endothelin-1

The major goal of this grant is to determine the mechanisms by which extrarenal vascular endothelin-1 regulates skin Na⁺ storage during high salt intake. It will also address the mechanisms by which vascular ET-1 is upregulated in response to high salt intake.

NIH/NIDDK-5T32DK007545-27 Agarwal (PI) 07/01/14-06/30/15
Interdisciplinary Training in Kidney-Related Research

The major goals of this training grant are to provide funding for postdoctoral fellows for 1-2 years with protected research training in kidney related research.

AHA 12POST11800038 Speed (PI) 07/01/12-06/30/14
Endothelin in Na⁺ Homeostasis and Hypertension

The major goal of this grant was to determine if extrarenal vascular ET-1 regulates Na⁺ handling by the skin.

AHA 09PRE2250470 Speed (PI) 07/01/09-06/30/14
The Kidney, Endothelin, and Hypertension

The major goal of this grant was to determine the interaction between renal endothelin-1 and 20-HETE in regulating sodium excretion and blood pressure. Further, it was determined if reduced renal ET-1 mediates elevated blood pressure in a model of salt sensitive hypertension.

Peer Reviewed Manuscripts:

1. Granger JP, Abram S, Stec D, Chandler D, **Speed JS**, LaMarca B. Endothelin, the kidney, and hypertension. *Curr Hypertens Rep.* 2006 Aug;8(4):298-303. Review. PubMed PMID: 16884660.
2. Jernigan NL, LaMarca B, **Speed JS**, Galmiche L, Granger JP, Drummond HA. Dietary salt enhances benzamil-sensitive component of myogenic constriction in mesenteric arteries. *Am J Physiol Heart Circ Physiol.* 2008 Jan;294(1):H409-20. PubMed PMID: 18024548.
3. LaMarca B, **Speed JS**, Fournier L, Babcock SA, Berry H, Cockrell K, Granger JP. Hypertension in response to chronic reductions in uterine perfusion in pregnant rats: effect of tumor necrosis factor-alpha blockade. *Hypertension.* 2008 Dec;52(6):1161-7. doi: 10.1161/HYPERTENSIONAHA.108.120881. PMC2788766.
4. Jernigan NL, **Speed JS**, LaMarca B, Granger JP, Drummond HA. Angiotensin II regulation of renal vascular ENaC proteins. *Am J Hypertens.* 2009 Jun;22(6):593-7. doi: 10.1038/ajh.2009.59. PMC2787100.
5. Chandler DL, Llinas MT, Reckelhoff JF, LaMarca B, **Speed JS**, Granger JP. Effects of hyperhomocysteinemia on arterial pressure and nitric oxide production in pregnant rats. *Am J Hypertens.* 2009 Oct;22(10):1115-9. doi: 10.1038/ajh.2009.130. PMC2824241.
6. Young SC, Storm MV, **Speed JS**, Kelsen S, Tiller CV, Vera T, Drummond HA, Stec DE. Inhibition of biliverdin reductase increases ANG II-dependent superoxide levels in cultured renal tubular epithelial cells. *Am J Physiol Regul Integr Comp Physiol.* 2009 Nov;297(5):R1546-53. doi: 10.1152/ajpregu.90933.2008. PMC2777783.
7. **Speed JS**, George EM, Arany M, Cockrell K, Granger JP. Role of 20-hydroxyeicosatetraenoic acid in mediating hypertension in response to chronic renal medullary endothelin type B receptor blockade. *PLoS One.* 2011;6(10):e26063. doi: 10.1371/journal.pone.0026063. PMC3189228.
8. Tam KB, George E, Cockrell K, Arany M, **Speed JS**, Martin JN Jr, LaMarca B, Granger JP. Endothelin type A receptor antagonist attenuates placental ischemia-induced hypertension and uterine vascular resistance. *Am J Obstet Gynecol.* 2011 Apr;204(4):330.e1-4. doi: 10.1016/j.ajog.2011.01.049. PMC3072697.
9. **Speed JS**, LaMarca B, Berry H, Cockrell K, George EM, Granger JP. Renal medullary endothelin-1 is decreased in Dahl salt-sensitive rats. *Am J Physiol Regul Integr Comp Physiol.* 2011 Aug;301(2):R519-23. doi: 10.1152/ajpregu.00207.2011. PMC3154719.
10. LaMarca B, **Speed JS**, Ray LF, Cockrell K, Wallukat G, Dechend R, Granger J. Hypertension in response to IL-6 during pregnancy: role of AT1-receptor activation. *Int J Interferon Cytokine Mediat Res.* 2011 Nov;2011(3):65-70. PMC3446210.
11. Hall JE, Granger JP, do Carmo JM, da Silva AA, Dubin J, George E, Hamza S, **Speed JS**, Hall ME. Hypertension: physiology and pathophysiology. *Compr Physiol.* 2012 Oct;2(4):2393-442. doi: 10.1002/cphy.c110058. Review. PubMed PMID: 23720252.
12. Hyndman KA, Xue J, MacDonell A, **Speed JS**, Jin C, Pollock JS. Distinct regulation of inner medullary collecting duct nitric oxide production from mice and rats. *Clin Exp Pharmacol Physiol.* 2013 Mar;40(3):233-9. doi: 10.1111/1440-1681.12057. PMC3826779.
13. **Speed JS**, Pollock DM. Endothelin, kidney disease, and hypertension.

Hypertension.2013Jun;61(6):1142-5.doi: .1161/HYPERTENSIONAHA.113.00595. Review. PMC3804114.

14. Jin C*, **Speed JS***, Hyndman KA, O'Connor PM, Pollock DM. Sex differences in ET-1 receptor expression and Ca²⁺ signaling in the IMCD. *Am J Physiol Renal Physiol.* 2013 Oct 15;305(8):F1099-104. doi: 10.1152/ajprenal.00400.2013. PMID: PMC3798723.
15. **Speed JS**, Fox BM, Johnston JG, Pollock DM. Endothelin and renal ion and water transport. *Semin Nephrol.* 2015 Mar;35(2):137-44. doi: 10.1016/j.semnephrol.2015.02.003. Review. PMC4499165.
16. **Speed JS**, D'Angelo G, Wach PA, Sullivan JC, Pollock JS, Pollock DM. High salt diet increases the pressor response to stress in female, but not male ETB-receptor-deficient rats. *Physiol Rep.* 2015 Mar;3(3). pii: e12326. doi: 10.14814/phy2.12326. PMC4393160.
17. Heimlich JB, **Speed JS**, Bloom CJ, O'Connor PM, Pollock JS, Pollock DM. ET-1 increases reactive oxygen species following hypoxia and high-salt diet in the mouse glomerulus. *Acta Physiol (Oxf).* 2015 Mar;213(3):722-30. doi: 10.1111/apha.12397. PMC4308436.
18. **Speed JS**, Pollock DM. New clues towards solving the mystery of endothelin and blood pressure regulation. *Hypertension.* 2015 Aug;66(2):275-7. doi: 10.1161/HYPERTENSIONAHA.115.05277. PMC4498997.
19. **Speed JS**, Heimlich JB, Hyndman KA, Fox BM, Patel V, Yanagisawa M, Pollock JS, Titze JM, Pollock DM. Endothelin-1 as a master regulator of whole-body Na⁺ homeostasis. *FASEB J.* 2015 Dec;29(12):4937-44. doi: 10.1096/fj.15-276584. PMC4653060.
20. Heimlich JB, **Speed JS**, O'Connor PM, Pollock JS, Townes TM, Meiler SE, Kutlar A, Pollock DM. Endothelin-1 contributes to the progression of renal injury in sickle cell disease via reactive oxygen species. *Br J Pharmacol.* 2016 Jan;173(2):386-95. doi: 10.1111/bph.13380. PMC4940621.
21. De Miguel C, **Speed JS**, Kasztan M, Gohar EY, Pollock DM. Endothelin-1 and the kidney: new perspectives and recent findings. *Curr Opin Nephrol Hypertens.* 2016 Jan;25(1):35-41. doi: 10.1097/MNH.000000000000185. Review. PMC4698004.
22. **Speed JS**, Hyndman KA. In vivo organ specific drug delivery with implantable peristaltic pumps. *Sci Rep.* 2016 May 17;6:26251. doi: 10.1038/srep26251. PMC4869096.
23. Gohar EY, **Speed JS**, Kasztan M, Jin C, Pollock DM. Activation of purinergic receptors (P2) in the renal medulla promotes endothelin-dependent natriuresis in male rats. *Am J Physiol Renal Physiol.* 2016 Aug 1;311(2):F260-7. doi: 10.1152/ajprenal.00090.2016. PMC5008671.
24. Jin C, **Speed JS**, Pollock DM. High salt intake increases endothelin B receptor function in the renal medulla of rats. *Life Sci.* 2016 Aug 15;159:144-7. doi: 10.1016/j.lfs.2015.12.038. PMC5384466
25. Johnston JG, **Speed JS**, Jin C, Pollock DM. Loss of endothelin B receptor function impairs sodium excretion in a time- and sex-dependent manner. *Am J Physiol Renal Physiol.* 2016 Nov 1;311(5):F991-F998. doi: 10.1152/ajprenal.00103.2016. PMC5130462.
26. Becker BK, **Speed JS**, Powell M, Pollock DM. Activation of neuronal endothelin B receptors mediates pressor response through alpha-1 adrenergic receptors. *Physiol Rep.* 2017 Feb;5(4). pii: e13077. doi: 10.14814/phy2.13077. PMC5328762.
27. Kasztan M, Fox BM, **Speed JS**, Townes TM, Kutlar A, Pollock JS, Pollock DM. Long-term ETA receptor antagonism provides robust renal protection in

- humanized sickle cell disease mice. *J Am Soc Nephrol*. 2017 Aug;28(8):2443-2458. PMC5533228
28. Gohar E, Kasztan M, Becker BK, **Speed JS**, and Pollock DM. Ovariectomy uncovers purinergic receptor activation of endothelin-dependent natriuresis. *Am J Physiol Renal Physiol*. 2017 May 3; PMC5582906
 29. Becker BK, Feagan A, Chen D, Kasztan M, Jin C, Speed JS, Pollock JS, Pollock DM. Renal Denervation Attenuates Hypertension but not Salt-Sensitivity in ETB Receptor Deficient Rats. *Am J Physiol Regul Integr Comp Physiol*. 2017 Oct 1;313(4):R425-R437; PMC5668611
 30. **Speed JS**, Hyndman KA, Roth KJ, Heimlich JB, Kasztan M, Fox BM, Johnston JG, Becker BK, Jin C, Gamble KL, Young ME, Pollock JS, Pollock DM. High dietary sodium causes dyssynchrony of the renal molecular clock in rats. *Am J Physiol Renal Physiol*. 2018 Jan 1;314(1):F89-F98: PMC5866350
 31. **Speed, JS**, Hyndman KA, Kasztan M, Johnston JG, Roth KJ, Titze JM, Pollock DM. Diurnal pattern in skin Na⁺ and water content is associated with salt-sensitive hypertension in ET_B receptor deficient rats. *Am J Physiol Regul Integr Comp Physiol*. 2018 Apr 1;314(4):R544-R551. PMC5966816
 32. Loria AS, Spradley FT, Obi IE, Becker BK, De Miguel C, **Speed JS**, Pollock DM, Pollock JS. Maternal Separation Enhances Anti-contractile Perivascular Adipose Tissue Function in Male Rats on a High Fat Diet. *Am J Physiol Regul Integr Comp Physiol*. 2018 Sep 26. PMC6425636
 33. Kasztan M, Fox BM, Lebensburger JD, **Speed JS**, Pollock JS, Pollock DM. Hyperfiltration predicts long-term renal outcomes in humanized sickle cell mice. *Blood Adv*. 2019 May 14;3(9):1460-1475. doi: 10.1182/bloodadvances.2018028878; PMC6517665
 34. Jenkins H, Williams L, Dungey A, Vick KD, Grayson BE, **Speed JS**. Elevated Plasma Endothelin-1 is Associated with reduced weight loss post-vertical sleeve gastrectomy. *Surg Obes Relat Dis*. 2019 Jul;15(7):1044-1050. doi: 10.1016/j.soard.2019.03.047. Epub 2019 Apr 9. PMC in Progress
 35. Zhang D, Jin C, Obi IE, Rhoads MK, Soliman RH, Sedaka RS, Allan JM, Tao B, **Speed JS**, Pollock JS, Pollock DM. Loss of circadian gene Bmal1 in the collecting duct lowers blood pressure in male, but not female, mice. *Am J Physiol Renal Physiol*. 2020 Mar 1;318(3):F710-F719
 36. Rivera-Gonzalez O, Kasztan M, Johnston JG, Hyndman KA, **Speed JS**. Loss of endothelin type B receptor function improves insulin sensitivity in rats. *Can J Physiol Pharmacol*. 2020 Feb 21. doi: 10.1139/cjpp-2019-0666
 37. Johnston JG, Speed JS, Becker BK, Kasztan M, Soliman RH, Rhoads MK, Tao B, Jin C, Geurts AM, Hyndman KA, Pollock JS, and Pollock DM. Diurnal control of blood pressure is uncoupled from sodium excretion. *Hypertension*. 2020 Jun;75(6):1624-1634. doi: 10.1161/HYPERTENSIONAHA.119.13908. Epub 2020 Apr 20.
 38. Jenkins HN, Rivera-Gonzalez O, Gibert Y, **Speed JS**. Endothelin-1 in the Pathophysiology of Obesity and Insulin Resistance. *Obes Rev*. 2020 Jul 6.
 39. Hyndman KA, **Speed JS**, Mendoza LD, Allan JM, Colson J, Sedaka R, Jin C, Jung HJ, El-Dahr S, Pollock DM, Pollock JS. Fluid-electrolyte homeostasis requires histone deacetylase function. *JCI Insight*. 2020 Aug 20;5(16):e137792
 40. **Speed JS**, Pruett WA, Lirette ST, Cook JJ, Phillips CL, Grayson, BE. Cardiovascular Risk Factors Following Vertical Sleeve Gastrectomy in Black Americans Compared to White Americans. *Obes Surg*. 2020 Aug 22.
 41. Monroe JD, Moolani SA, Irihamye EN, **Speed JS**, Gibert Y, Smith ME. RNA-Seq

- Analysis of Cisplatin and the Monofunctional Platinum(II) Complex, Phenanthriplatin, in A549 Non-Small Cell Lung Cancer and IMR90 Lung Fibroblast Cell Lines. *Cells*. 2020 Dec 8; 9(12):2637.
42. Rivera-Gonzalez O, Wilson NA, Coats LE, Taylor EB, **Speed JS**. Endothelin receptor antagonism improves glucose handling, dyslipidemia, and adipose tissue inflammation in obese mice Clin Sci (Lond). 2021 Jul 19:CS20210549.
 43. Rhoads MK, **Speed JS**, Roth KJ, Zhang D, Jin C, Gamble KL, Pollock DM. Short-term daytime restricted feeding in rats with high salt impairs diurnal variation of Na⁺ excretion. *Am J Physiol Renal Physiol*. 2022 Mar 1;322(3):F335-F343
 44. Gohar EY, De Miguel C, Obi IE, Daugherty EM, Hyndman KA, Becker BK, Jin C, Sedaka R, Johnston JG, Liu P, **Speed JS**, Mitchell T, Kriegel AJ, Pollock JS, Pollock DM. Acclimation to a High-Salt Diet Is Sex Dependent J Am Heart Assoc. 2022 Mar;11(5):e020450.
 45. Stapel JR, **Speed JS**, Clemmer JS. Endothelin antagonism reduces hemoglobin A1c in patients with pulmonary hypertension. *Can J Physiol Pharmacol*. 2022 Jun 3. doi: 10.1139/cjpp-2022-0132

Published Abstracts:

1. Murphy SR, LaMarca BB, **Speed JS**, Keiser S, Cockrell K, and Granger JP, Soluble fms-like tyrosine-1 (sFlt-1) is enhanced in response to chronic tumor necrosis factor- α excess during pregnancy. *FASEB J* April 22, 2009 23:805.4
2. LaMarca BBD, Roberts L, Dukes MP, Murphy SR, Fournier L, **Speed JS**, and Cockrell K. Endothelial cell activation in response to placental ischemia in pregnant rats is mediated by agonistic autoantibodies to the angiotensin type I receptor. *FASEB J*. 2008.
3. LaMarca BBD, **Speed JS**, Fournier L, Babcock S, Berry H, Cockrell K, Granger JP. Hypertension in response to chronic reductions in uterine perfusion in pregnant rats: Effect of TNF α blockade. Council for High Blood Pressure Research, Tucson AZ, 2007
4. LaMarca BBD, Speed JS, Fournier L, Cockrell K, Chandler D Granger JP. The Role Angiotensin II Type I receptor activation in mediating TNF α -induced hypertension in the pregnant rat. *FASEB J*. April 18, 2007 21:A592
5. LaMarca BBD, Speed JS, Fournier L, Cockrell K, Granger JP. Hypertension in response to chronic reductions in uterine perfusion in pregnant rats: Effect of IL-6 blockade. *FASEB J*. October 28, 2006 20:A331
6. **Speed JS**, Lamarca BBD, Fournier L, Cockrell K, Granger JP, Renal Endothelin Production is Blunted in the Dahl Salt Sensitive Rat. *FASEB J*. April 5, 2008 22:969.21
7. **Speed JS**, Fournier L, Cockrell K, Dechend R, Granger JP, LaMarca BBD. IL-6 induced hypertension in pregnant rats is associated with agonistic autoantibodies to the angiotensin II type I receptor. *FASEB J*. April 22, 2009 23:805.3
8. **Speed JS**, Berry H, Cockrell K, Granger JP. The Natriuretic Response to Exogenous ET-1 is enhanced in the Dahl Salt Sensitive Rat. FASEB Summer Research Conference. "Renal Hemodynamics." June 2010.
9. **Speed JS**, Arany M, Cockrell K, Purser C, Baker R, Roman R, Granger JP. Chronic inhibition of medullary ET-B receptors attenuates increases in 20-HETE associated with high sodium intake. *FASEB J*. March 17, 2011 25:1079.10
10. **Speed JS**, Arany M, Cockrell K, Granger JP. Chronic intramedullary infusion of endothelin-1 blunts Dahl salt sensitive hypertension. *FASEB J*. March 17, 2011 25:822.9

11. **Speed JS**, Saleh M, Pollock DM. Renal Medullary Circadian Clock Genes are Altered in Endothelin B Deficient Rats. *Experimental Biology FASEB J*. 2012.
12. **Speed JS**, Pollock JS, Pollock DM. Endothelial Cell ET-1 Production is Enhanced with Increasing NaCl Concentration. American Heart Association Council for High Blood Pressure 2012. Washington, D.C.
13. **Speed JS**, Titze JM, Pollock DM. Sodium storage during high salt intake is not dependent upon endothelin B receptors. *FASEB J*. 2013.
14. **Speed JS**, Hyndman KA, Pollock JS, Titze JM, Pollock DM. Evidence for Extrarenal Vascular Endothelin-1 in the Maintenance of Sodium Homeostasis. International Conference on Endothelin-1. Tokyo, Japan.
15. Johnston JG, **Speed JS**, and Pollock DM. Evidence for ETB receptor regulation of circadian control of sodium excretion. *FASEB J*. April 2014 28:860.1
16. Jin C, MacDonell R, **Speed JS**, and Pollock DM. Synergy of high salt and high fat diet on kidney injury and adiposity (1086.1) *FASEB J*. April 2014 28:1086.1
17. Heimlich JB, **Speed JS**, O'Connor PM, and Pollock DM. High salt diet increases glomerular ROS formation through an ET-1/ETA dependent mechanism. *FASEB J*. April 2014 28:1134.9
18. **Speed JS**, Pollock JS, Titze JM, Pollock DM. Vascular endothelin (ET-1) mediates skin Na⁺ storage in response to chronic increases in salt intake. *FASEB J*. April 2014 28:860.13
19. Kasztan M, **Speed JS**, Pollock DM. Sex differences in renal ET-1 mRNA expression after the treatment with hydroxyurea in a mouse model of sickle cell disease *FASEB J* 2015
20. Johnston JG, Mason JA, Jin C, **Speed JS**, Pollock DM. Sex differences in the diurnal natriuretic response to a salt load in rats lacking a functional ET_B receptor. *FASEB J* 2015
21. Powell M, **Speed JS**, Pollock DM. Evidence for ETB receptor mediated pressor effects mediated by alpha-adrenergic receptors. *FASEB J* 2015
22. Gohar E, **Speed JS**, Pollock DM. Sex differences in renal inner medullary ET-1 gene expression levels with increasing medullary osmolality. *FASEB J* 2015
23. **Speed JS**, Hamrick W, Burch M, Siddiqui M, Hyndman KA, Pollock DM, Calhoun DA, Young ME, and Pollock JS. Circadian clock gene expression in human buccal cells: potential use as a biomarker for circadian rhythm disorders. *FASEB J* 2015
24. **Speed JS** and Pollock DM. Endothelial cell-derived endothelin-1 regulates skin Na⁺ storage: Evidence for sex differences. *FASEB J* 2015
25. **Speed JS**, Hyndman KA, Kazstan M, Johnston JG, Young ME, Pollock JS, Pollock DM. Pollock DM, Pollock JS, Endothelin B receptor activation regulates renal inner medullary circadian clock gene expression in response to high salt intake. AHA Council on Hypertension 2015.
26. Pollock DM, Pollock JS, **Speed JS**. Endothelial-derived ET-1 contributes to salt-dependent changes in glomerular filtration rate. Gordon Research Conference on Angiotensin.
27. **Speed JS**, Hyndman KA, Kazstan M, Johnston JG, Roth K, Young ME, Pollock JS, Pollock DM. High salt intake alters renal medullary clock genes via ETB receptors. *FASEB J* 2016.
28. **Speed JS**, Hyndman KA, Roth KJ, Kazstan M, Johnston JG, Young ME, Pollock JS, Pollock DM. High salt Intake desynchronizes the molecular clock in rats. Council on Hypertension Scientific Sessions. September 2016.

29. **Speed JS**, Roth KJ, Zhang D, Jin C, Gamble KL, Pollock DM. Reverse feeding with high salt impairs diurnal variation of Na⁺ excretion. American Society of Nephrology Kidney Week. November 2016.
30. **Speed JS**. High salt intake modulates adiposity and insulin sensitivity via endothelin-1. FASEB J 2017.
31. **Speed JS**, Molzov HE, Johnson RL, Becker BK, Pollock DM, Gamble KL. Nighttime sodium intake is associated with cardiometabolic risk and insulin resistance in night shift nurses. FASEB J 2018.
32. Kasztan M, Fox BM, **Speed JS**, Townes TM, Pollock DM. Kim-1 as a new biomarker for glomerular hypertrophy and chronic kidney disease in humanized sickle cell disease mice. FASEB J 2018.
33. Becker BK, **Speed JS**, Pollock DM. Salt diet influences endothelin-1 signaling in renal sensory nerves. FASEB J 2018.
34. Johnston JG, **Speed JS**, Jin C, Zhang D, Pollock DM. Timing of food intake differentially impact urinary electrolyte and aldosterone excretion. FASEB J 2018.
35. Zhang D, **Speed JS**, Colson JC, Bailey SM, Young ME, Gamble KL, Pollock JS, Pollock DM. Chronic high fat diet disrupts renal molecular clock. FASEB J 2018.
36. Jenkins H, Williams L, Dungey A, Vick KD, Grayson BE, **Speed JS**. Elevated plasma endothelin-1 is associated with reduced weight loss post-vertical sleeve gastrectomy. FASEB J 2019
37. Williams L, Jenkins H, **Speed JS**. ET_B receptor inhibition improves insulin tolerance in rats. FASEB J 2019.
38. Rivera-Gonzalez OJ, Stapel JR, Speed JS. "Adipocyte Hypoxia increased endothelin-1 production via Hif1α." *The FASEB journal, Experimental Biology* (2020)
39. Rivera-Gonzalez OJ, Speed JS. "Adipocyte specific Endothelin A Receptor Knockout Increases Adiposity in mice". *Journal of the endocrine society, ENDOCRINE* (2020)
40. Osvaldo Rivera-Gonzalez, Erin R. Taylor, Joshua S. Speed. "Endothelin-1 Receptor A Blockade Attenuates Metabolic and Proinflammatory Profile in Mice Fed a High Fat Diet". *Journal of the endocrine society, ENDOCRINE* (2021) (Oral presentation) (Outstanding Abstract Award)
41. Osvaldo Rivera-Gonzalez, Natalie Wilson, Joshua S. Speed. "Knockout of the Endothelin B receptor in adipocytes improves insulin sensitivity and the metabolic profile of male mice fed a high fat diet". *The FASEB journal, Experimental Biology, Virtual* (2021) (Oral presentation) (Endocrinology & Metabolism Section Steven B Horvath Professional Opportunity Award)
42. Stapel JR, Clemmer JS, **Speed JS**. Endothelin-1 receptor antagonists reduce HbA1c in obese patients with pulmonary hypertension. *The FASEB Journal*. Volume 36, Issue S1.

Awards and Honors:

- | | |
|------|---|
| 2011 | Caroline tum Suden Professional Opportunity Award.
American Physiological Society. |
| 2012 | Juan Carlos Romero and Water & Electrolyte Homeostasis
Section <i>Postdoctoral</i> Research Recognition Award Finalist |

2012	Caroline tum Suden Professional Opportunity Award. American Physiological Society.
2012	Council for High Blood Pressure 2012 Onsite poster presentation award
2013	International Conference on Endothelin-1 2013 travel award
2014	Caroline tum Suden Professional Opportunity Award. American Physiological Society
2015	"Creativity is a Decision" Award from the Nutrition and Obesity Research Center at University of Alabama at Birmingham
2016	AHA Council on Hypertension Poster presentation award
2019	UMMC Excellence in Research Silver Award
2019	Enothelin-16 Young Investigator Award, Kobe, Japan
2021	UMMC Excellence in Research Gold Award

SERVICE

Professional Society Memberships and Committees:

12/1/18-Present	AHA Council on Hypertension- Nominating Committee
2010-Present	American Physiological Society member
2010-Present	American Heart Association member
2016-Present	American Society of Nephrology member
2019-Present	Society of Endocrinology member

Study Sections:

2018-2021	AHA Fellowship; CardioRenal Bsc Peer Review Committee
2019-2020	AHA Transformational Project Award; Vascular Basic Sciences Peer Review Committee
2019-2020	AHA Innovative Project Award; Basic Sciences Peer Review Committee
2021-present	ZDK1 GRB-2 (M2); Fellowship in Diabetes Endocrinology and Metabolic Diseases

June 2022 NIDDK Diabetes Research Center P30 Review Panel

University Activities:

2022-present	Associate Director, Cardiovascular-Renal Research Center, University of Mississippi Medical Center
2021-present	Associate Director, Hypertension and Cardiorenal Diseases Research Training Program, University of Mississippi Medical Center
2021-present	Associate Director, Department of Physiology and Biophysics Graduate Program, University of Mississippi Medical Center
2019	UMMC IRSP Review Committee
2018-2022	Physiology and Biophysics Seminar Director
2018-2021	UMMC School of Graduate Studies Alumni Board
2016-2017	Organizer for Cardio Renal Physiology and Medicine Grant Peer Review for Trainees

Ad Hoc Reviewer:

2019	Plos ONE
2018-present	<i>Scientific Reports</i>
2016-2018	<i>Hypertension</i>
2015-2018	<i>American Journal of Physiology: Renal Physiology</i>
2014-2018	<i>American Journal of Physiology: Regulatory, Integrative and Comparative Physiology</i>
2016	American Heart Association Council on Hypertension Scientific Sessions abstract reviewer
2016-2017	<i>Journal of the American Heart Association</i>
2015	<i>Canadian Journal of Physiology and Pharmacology</i>
2015	<i>Peptides</i>
2014	<i>European Journal of Pharmacology</i>

Teaching Experience:

2022	Physio 625/725, Dental/Fundamental Physiology d(6 hours, Cardiovascular Physiology)
2022	Physio 731, Renal and Body Fluid Physiology (2 hours)
2019-present	ID 714, Professional Skills (2 hours, Budgeting and Startup)
2019-present	ID 709, Responsible Conduct of Research (2 hours, Conflicts of Interest)
2018-2019	Physio 715, Advanced Endocrine Instructor (2 hours, Obesity and Bariatric Surgery)
2018-2019	Physio 727, Physiology Application of Molecular Biology (2 hours, PCR and quantifying mRNA)
2018-present	Physio 701, Medical Physiology Cardiovascular problem based learning (4 hours)
2018-present	Physio 701, Medical Physiology Renal Problem Based Learning (4 hours)
2017	Fundamentals of Renal Physiology, UAB School of Graduate Studies
2016-2017	Cardio Renal Physiology and Medicine Journal Club Course Master, School of Graduate Studies, UAB
2016-2017	Advance Renal Physiology Instructor (Long term control of blood pressure by the kidney), School of Graduate Studies, UAB
2016	Supplemental Instructor, Renal Physiology for School of Public Health, UAB
2015-2017	Preceptor for TRIM research program introducing medical residents to basic science research, UAB
2016 May 23	Core Concepts in Kidney Research Series, "Circadian Rhythms in Blood Pressure: Potential Mechanisms and Clinical Implications."

Ph.D. Thesis Committees:

2016- 2018	Dingguo Zhang (Medicine/Nephrology, UAB)
2018-Present	Corbin A. Shields (Pharmacology and Toxicology, UMMC)
2018-2021	Laura Coats (Physiology and Biophysics, UMMC)
2018-2020	Redin Spann (Neurobiology and Anatomical Sciences, UMMC)

2019-2021	Osvaldo Rivera-Gonzales (Mentor, Physiology and Biophysics)
2019-2021	John Daseke (Physiology and Biophysics)
2020-Present	Bridget Konadu (Cell and Molecular Biology)
2021-Present	Madison Newberry (Mentor, Physiology and Biophysics)

Research Trainees:

Maria Johannsen, Aarhus University, Aarhus, Denmark, 2012

Mackenzie Powell, Undergraduate, University of Evansville, 2013-2014

Jovanna Navarro, Undergraduate, University of California at Merced, 2014

Marcos Lucero, Undergraduate University of California at Merced, 2015

Vivek Patel, Gap Year Intern, 2014-2015

Kaehler Roth, Gap Year Intern, 2015-2016

Issac Campos, Undergraduate, University of California at Merced, 2016

Anamarija Sogorovic, Gap Year Intern, 2016-2017

Christian Gutierrez Huerta, Undergraduate, University of California at Merced, 2017

Jordan Love, Summer Undergraduate, University of Louisiana Monroe, 2018-2019

London Williams, Masters Student, UMMC, 2018-2021

Haley Jenkins, Medical Student, UMMC, 2018-2020

Jennifer Stapel, Medical Student, UMMC, 2019-present

Joseph Cook, MSRP Medical Student, UMMC, 2019

Chandler Winstead, MSRP Medical Student, UMMC, 2021

Kaleb Newton, Summer Undergraduate, Millsaps College, 2021

Tatyana Stanford, Summer Undergraduate, MS University for Women, 2022

Aditya Remata, Summer Undergraduate, MS State Unverisity, 2022

Daniel Moore, MSRP Medical Student, UMMC, 2022

Oral Presentations:

- 2015 Dec 16 "Pretzels, Pressures, and Clocks: How Salt Regulates Diurnal Blood Pressure Rhythms."; Epidemiology Cardiovascular Research Group, University of Alabama at Birmingham
- 2017 Mar 27 "High Salt Intake as a Novel Risk Factor for Obesity." Nephrology Research and Training Center Conference, University of Alabama at Birmingham
- 2017 Apr 5 "High Salt Intake as a Novel Risk Factor for Obesity." Department of Physiology and Biophysics Seminar Series. University of Mississippi Medical Center.
- 2010 "Interaction Between Endothelin and 20-HETE in the Control of Na⁺ excretion and Arterial Pressure." University of Mississippi Medical Center, Department of Physiology and Biophysics Seminar
- 2010` "Interaction Between Endothelin and 20-HETE in the Control of Na⁺ excretion and Arterial Pressure." Medical College of Georgia, Department of Vascular Biology Seminar.
- 2011 Chronic intramedullary infusion of endothelin-1 blunts Dahl salt sensitive hypertension. Experimental Biology, Washington, D.C.
- 2012 Renal Medullary Circadian Clock Genes are Altered in Endothelin B Deficient Rats. Experimental Biology, San Diego, CA.
- 2013 Endothelin in the Extrarenal Control of Sodium Homeostasis. FASEB Renal Hemodynamics. Saxtons Rivers, VT.
- 2014 "Endothelin in the Extrarenal control of Na⁺ Balance." Southern Salt, Water, and Kidney Meeting. Sarasota, FL.
- 2015 "ET-1 modulates renal molecular clock," Endothelin-14 conference. Savannah, GA.
- 2015 "Regulation of Circadian Blood Rhythm by Endothelin-1," Southern Salt, Water, and Kidney Meeting. Sarasota, FL.
- 2016 "High salt intake alters renal medullary clock genes via ET_B receptors." Experimental Biology, San Diego, CA.
- 2018 "Night-time sodium intake is associated with cardiometabolic risk and insulin resistance in night shift nurses." Experimental Biology, San Diego, CA

- 2018 "Salt intake, Endothelin-1, and Insulin Sensitivity. Southern, Salt, Water, and Kidney Meeting. Sarasota, FL.
- 2019 "Endothelin B Receptor Blockade Lowers Fasting Blood Glucose and Improves Insulin Tolerance in Rats." 16th International Conference on Endothelin; Kobe, Japan.
- 2020 "Endothelin in Adipose: a driver of obesity related insulin resistance and inflammation." Department of Physiology, Augusta University
- 2021 "Knockout of the endothelin B receptor in adipocytes improves insulin sensitivity and the metabolic profile of male mice fed a high fat diet." Invited Speaker, 17th International Conference on Endothelin; Virtual.

Chaired Sessions:

- 2015 Hot Topics Happy Hour, The Fourteenth International Conference on Endothelin, Savannah, GA.