Curriculum Vitae

Personal Information

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EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
State University of Paraiba, Brazil	Bachelor	1993	Physical Therapy
Federal University of Pernambuco, Brazil	M.S.	1999	Physiology
University of Sao Paulo	Ph.D.	2006	Physiology
Univ. Mississippi Medical Center, Jackson, MS		2006-08	Postdoctoral Fellow
Univ. Mississippi Medical Center, Jackson, MS		2009-11	Instructor
Univ. Mississippi Medical Center, Jackson, MS		2011-present	Assistant Professor

PERSONAL STATEMENT

The focus of my research has been to understand the central nervous system (CNS) signaling mechanisms and brain regions by which the leptin-melanocortin system axis differentially regulates metabolic and cardiovascular functions. Observations from my laboratory suggest that leptin, released from adipocytes and acting on its receptors located in various regions of the CNS, contributes to sympathetic nervous system (SNS) activation and increased blood pressure (BP) in obesity by stimulating CNS pro-opiomelanocortin (POMC) neurons and ultimately by activation of melanocortin 4 receptors (MC4R). Our studies also indicate that the CNS POMC-MC4R pathway is a key means by which leptin regulates glucose homeostasis and that POMC neuron activation can regulate BP and glucose independent of changes in food intake. The complex CNS circuits and signaling pathways that mediate this differential control of food intake, blood glucose, SNS activity and BP are still poorly understood. We have obtained compelling data showing selective leptin resistance when ambient temperature is reduced from thermoneutral zone (30^{o}C) to 15^{o}C. Our data also suggest that leptin receptor signaling in specific neuronal populations may contribute to the divergent

actions of leptin on appetite, metabolic and cardiovascular functions. We have generated novel genetic mouse models that allow us to unravel the role of the leptin-melanocortin pathway in specific brain nuclei which accompanied by our expertise in conducting acute and chronic sophisticated and integrative physiological studies in mice provide an unique and powerful approach to determine the complex circuits and signaling pathways of the CNS control of appetite, BP regulation, and metabolic function with broad implication for clinical treatment of cardiovascular and metabolic diseases.

MAJOR RESEARCH INTERESTS

Cardiovascular and Neuroendocrine Physiology: Control of hemodynamics; mechanisms of hypertension and target organ injury; baroreflexes; obesity, leptin resistance.

PROFESSIONAL EXPERIENCE/POST GRADUATE TRAINING

1993-1996 Assistant Professor, State University of Paraiba, Campina Grande, State of Paraiba, Brazil

1996-2002 Assistant Professor, University of Tiradentes, Aracaju, State of Sergipe, Brazil

1996-1999 Graduate Student, Master in Physiology, Federal University of Pernambuco, State of Pernambuco, Brazil

2002-2006 Graduate Student – Doctorate in Physiology, University of Sao Paulo, State of Sao Paulo, Brazil

2006-2008 Postdoctoral Fellowship, University of Mississippi Medical Center, Dept. Physiology, Jackson, Mississippi, USA

2009-2010 Instructor, University of Mississippi Medical Center, Dept. Physiology, Jackson, Mississippi, USA

2011-present Assistant Professor, University of Mississippi Medical Center, Dept. Physiology, Jackson, Mississippi

PROFESSIONAL MEMBERSHIPS

2006-present Member, American Physiological Society

2006-present Member, American Heart Association

1995-present Brazilian Physiological and Therapeutics Society

FELLOWSHIPS, AWARDS, HONORS

1993-1996 Scholarship recipient, Pre-Doc, Coordination of the Improvement of Higher Education Personnel (CAPES), Research Foundation, Brazil

2002-2006 Doctoral fellowship grant from Coordination of the Improvement of Higher Education Personnel (CAPES), Research Foundation, Brazil

2003	Travel Award from Foundation of Support to Teaching and Research (FAEPA), University of Sao Paulo,
2004	Travel Award from Office of Dean for Doctoral Program (Pro-Reitoria), University of Sao Paulo
2007	Young Investigator Travel Award, Council for High Blood Pressure Research, Tucson, AZ
2011	American Physiological Society (APS)/NIDDK Minority Travel Fellowship Award, Experimental Biology 2011, Washington, DC.
2011-2014	Scientist Development Grant – American Heart Association (AHA)
2011	Finalist, Harry Goldblatt Award for New Investigators, American Heart Association, Council for High Blood Pressure Research
2012	Recipient, Harry Goldblatt Award for New Investigators American Heart Association, Council for High Blood Pressure Research
2013	Young Investigator Award, American Heart Association - Council for High Blood Pressure Research in Australia. Melbourne, Australia
2013	Excellence in Research Award – University of Mississippi Medical Center – Silver Medallion
2014	NISBRE Highlighted Poster, Mississippi IDeA Network of Biomedical Research Excellence (INBRE) Conference, Biloxi, MS – Cardiovascular Section
2016	Excellence in Research Award – University of Mississippi Medical Center – Gold Medallion
2017	Distinction in Scholarship; Selection for APS Select, *The American Journal of Physiology – Endocrinology and Metabolism,* article title: "Role of autonomic nervous system in chronic CNS-mediated antidiabetic action of leptin" APS Select.

RESEARCH

RESEARCH FUNDING

Current Research Support

1P20 GM 104357-01-NIH/NIGM – do Carmo (PI of Project II) 09/01/2013–08/31/2018

"Hypertension and Cardiorenal Diseases Research Center"

The major long-term goal of this project is to investigate the effects of ambient temperature in modulating the actions of leptin on appetite, metabolic and cardiovascular function.

Role: PI of Project II

PO1 HL51971-20 NIH/NHLBI - Hall JE, PI 07/07/2014-06/31/2019

"Neurohumoral and renal mechanisms of hypertension"

The major long-term goal of this project is to develop a quantitative analysis of circulatory dynamics and related control systems, including the kidneys, sympathetic nervous system and endocrine system.

Role: Co-investigator on Project I

RO11HL066072-08 – Jane F. Reckelhoff (PI) 01/01/2012 – 12/31/2017

"Humoral Factors in Gender Differences in BP Control"

The major long-term goal of this project is to investigate the gender differences in blood pressure control.

Role: Co-investigator

Past Research Support

SDG – AHA 11SDG5680016 Jussara M. do Carmo (PI) 1/1/11-12/31/14

"Differential control of metabolic and cardiovascular functions by leptin at thermoneutral and cold ambient temperature"

These studies focus on the role of leptin receptors in contributing to divergent control of cardiovascular and metabolic function by leptin at different ambient temperature.

Role: Principal Investigator

Pending Research Support

American Diabetes Association – submitted on 4/17/2017

Submitted Grants (not funded)

NIH – RO1 HL124761-01 02/24/2014 - Divergent control of metabolic and cardiovascular functions by leptin

NIH – RO1 HL124761-01A1 10/14/2014 - Divergent control of metabolic and cardiovascular functions by leptin

NIH – RO1 DK115522-01 06/29/2017 – CNS mechanism of glucose regulation

PEER-REVIEWED PUBLICATIONS (*denotes corresponding author)

1. da Silva AA, Freeman JN, Hall JE, **do Carmo JM**. Control of Appetite, Blood Glucose ad Blood Pressure During Melanocortin-4 Activation in Normoglycemic

and Diabetic NPY Deficient Mice. *Am J Physiol Integr Comp Physiol*, 2017.doi 10.1152. [Epub ahead of print]. PMID: 29351428

2. Aberdein N, Dambrino RJ, **do Carmo JM,** Wang Z, Mitchell LE, Drummond HA, Hall JE. ROLE OF PTPB1B IN POMC NEURONS DURING CHRONIC HIGH FAT DIET: SEX DIFFERENCES IN REGULATION OF LIVER LIPIDS AND GLUCOSE TOLERANCE. *Am J Physiol Integr Comp Physiol*, 2017.doi 10.1371. [Epub ahead of print]. PMID: 29351427
3. da Silva AA, Hall JE, **do Carmo JM**. Leptin reverses hyperglycemia and hyperphagia in insulin deficient diabetic rats by pituitary-independent central nervous system actions. *PLoS One*, 2017.doi 10.1371. [Epub ahead of print]. PMID: 29190687
4. Towsend EA, Naylor JE, Negus SS, Edwards SR, Qureshi HN, McLendon HW, McCurdy CR, Kapanda CN, **do Carmo JM**, da Silva FS, Hall JE, Sufka KF, Freeman KB. Effects of nalfurafine on the reinforcing, thermal antinociceptive, and respiratory-depressant effects of oxycodone: modeling an abuse-deterrent opiod analgesic in rats. *Psychopharmacology* (Berl), 2017.doi 10.1007/s00213-017-4652-3. [Epub ahead of print]. PMID: 28567699
5. Wang Z, **do Carmo JM**, Aberdein N, Zhou X, Williams JM, da Silva AA, Hall JE. Synergistic interaction of hypertension and diabetes in promoting kidney injury and the role of endoplasmic reticulum stress. *Hypertension*. 2017; 69: 879-891. PMID: 28348018
6. **do Carmo JM***, da Silva AA, Wang Z, Fang F, Aberdein N, Perez de Lara CE, Hall JE. Role of the brain melanocortins in blood pressure regulation. *Biochim Biophys Acta*. 2017; Mar 5. pii: S0925-4439(17)30079-0. doi: 10.1016/j.bbadis.2017.03.003. [Epub ahead of print]. PMID: 28274841
7. **do Carmo JM***, da Silva AA, Romero DG, Hall JE. Changes in ambient temperature elicit divergent control of metabolic and cardiovascular actions of leptin. *FASEB J*. 2017; 31: 2418-2427. PMID: 28228474
8. da Silva AA, Hall JE, Moak SP, Browning J, Houghton HJ, Micheloni GC, **do Carmo JM***. Role of autonomic nervous system in chronic CNS-mediated antidiabetic action of leptin. *Am J Physiol Endocrinol Metab*. 2017; 312: E420-E428. PMID: 27923809
9. **do Carmo JM***, da Silva, AA, Wang Z, Fang T, Aberdein N, de Lara Rodriguez CE, Hall JE. Obesity-Induced Hypertension: Brain Signaling Pathways. *Curr Hypertens* 18: 58. Review, 2016. PMID: 27262997
10. **do Carmo JM***, da Silva, AA, Wang Z, Freeman NJ, Alsheik AJ, Adi A, Hall JE. Regulation of blood pressure, appetite, and glucose by leptin after inactivation of insulin receptor substrate 2 in the entire brain or in proopiomelanocortin neurons. *Hypertension* 67: 378-86, 2016. PMID: 26628674
11. **do Carmo JM***, da Silva, AA, Moak SP, Houghton HJ, Smith A, Hall JE. Regulation of blood pressure, appetite, and glucose by CNS melanocortin system in hyperandrogenemic female SHR. *Am J Hypertens* 2016; 29: 378-386. PMID: 26584577

12. **do Carmo JM***, da Silva, AA, Hall JE. Role of hindbrain melanocortin-4 receptor activity in controlling cardiovascular and metabolic functions in spontaneously hypertensive rats. *J Hypertens* 33: 1201-06, 2015. PMID: 25668357.
13. Munusamy S**, do Carmo JM**, Hosler JP, Hall JE. Obesity-induced changes in kidney mitochondria and endoplasmic reticulum in the presence or absence of leptin. *Am J Physiol Renal Physiol* 209: F731-43, 2015. PMID: 26290368.
14. Hall JE, **do Carmo JM**, da Silva AA, Wang Z, Hall ME. Obesity-induced hypertension: interaction of neurohumoral and renal mechanisms. *Cir Res* 116: 991-106, 2015. PMID: 25767285.
15. Maranon R, Lima R, Spradley FT, **do Carmo JM**, Zhang H, Smith AD, Bui E, Thomas RL, Moulana M, Hall JE, Granger JP, Reckelhoff JF. Roles of the sympathetic nervous system, renal nerves, and CNS melanocortin-4 receptor in the elevated blood pressure in hyperandrogenemic female rats. *Am J Physiol Regul Integr Com Physiol* 308: R708-13, 2015. PMID: 25695289
16. da Silva AA, **do Carmo JM**, Dubinion JH, Bassi M, Mokhtarpouriani K, Hamza SM, Hall JE. Chronic central nervous system MC3/4R blockade attenuates hypertension induced by nitric oxide synthase inhibition but not by angiotensin II infusion. *Hypertension* 65: 171-7, 2015. PMID: 25287400.
17. da Silva AA, Spradley FT, Granger JP Z, Hall JE, **do Carmo JM***. Brain-mediated antidiabetic, anorexic, and cardiovascular actions of leptin require melanocortin-4 receptor signaling. *J Neurophysiol* 113: 2783-91, 2015. PMID: 25717164.
18. Bassi M, Furuya WI, Zoccal DB, Menani JV, Colombari E, Hall JE, da Silva AA, **do Carmo JM,** Colombari DS. Control of respiratory and cardiovascular functions by leptin. *Life Sci* 125: 25-31, 2015.
19. Bassi M, Nakamura NB, Furuya WI, Columbari DSA, Menani JV, **do Carmo JM**, da Silva AA, Hall JE, Columbari E. Activation of the brain melanocortin system is required for leptin-induced modulation of chemorespiratory function. Acta Physiologica (Oxford) 2015; 213: 893-901. PMID: 25207799.
20. Correa WG, Durand MT, Becari C, Tezini GC, **do Carmo JM**, de Oliveira M, Prado CM, Fazan R Jr, Salgado HC. Pyridostigmine prevents haemodynamics alterations but does not affect their nycthemeral oscilllations in infarcted mice. *Auton Neurosci* 187: 50-5, 2015. PMID: 25434306.
21. **do Carmo JM***, da Silva AA, Ebaady SE, Sessums PO, Abraham RS, Elmquist JK, Lowell BB, Hall JE. Shp2 signaling in POMC neurons is important for leptin's actions on blood pressure, energy balance, and glucose regulation. *Am J Physiol Regul Integr Com Physiol* 307: R1438-47, 2014. PMID: 25339680
22. Hall ME, **do Carmo JM**, da Silva AA, Juncos L, Wang Z, Hall JE. Obesity, hypertension, and chronic kidney disease. *Int J Nephrol Renovasc Dis* 7:75-88, 2014. PMID: 24600241.
23. da Silva AA, **do Carmo JM**, Wang Z, Hall JE. The brain melanocortin system, sympathetic control, and obesity hypertension. *Physiology* 29: 196-202, 2014. PMID: 24789984.
24. Bassi M, Furuya WI, Menani JV, Colombari DSA, **do Carmo JM**, da Silva AA, Hall JE, Moreira TS, Wenker IC, Mulkey DK, Colombari E. Leptin into the ventrolateral

medulla facilitates chemorespiratory responses in leptin-deficient (ob/ob) mice. Acta Physiologica (Oxf). 2014; 211: 240-248. PMID: 24521430.

25. Maranon RO, Lima R, Mathbout M, **do Carmo JM**, Hall JE, Roman RJ, Reckelhoff JF. Postmenopausal hypertension: role of sympathetic nervous system in an animal model*. Am J Physiol Regul Integr Comp Physiol* 306:R248-56, 2014. PMID: 24381180.
26. Durand MT, Becari C, de Oliveira M, **do Carmo JM**, Silva CA, Prado CM, Fazan R Jr, Salgado HC. Pyridostigmine restores cardiac autonomic balance after small myocardial infarction in mice. *PLoS One* 9: e104476, 2014. PMID: 25133392.
27. **do Carmo JM***, da Silva AA, Sessums PO, Ebaady SH, Pace B, Rushing JS, Davis MT, Hall JE. Role of Shp2 in forebrain neurons in regulating metabolic and cardiovascular functions and responses to leptin. *Int J Obes (Lond)* 2013 (Epub ahead of print). PMID: 23720252
28. **do Carmo JM***, da Silva AA, Dubinion J, Sessums PO, Ebaady SH, Wang Z, Hall JE. Control of metabolic and cardiovascular function by the leptin-brain melanocortin pathway. *IUBMB Life* 65(8):692-8, 2013. PMID: 23847053
29. **do Carmo JM***, da Silva AA, Rushing JS, Pace B, Hall JE. Differential control of appetite and cardiovascular function in mice with selective rescue of melanocortin-4 receptor in proopiomelanocortin neurons. *Am J Physiol Regul Integr Comp Physiol* 305(4):R359-68, 2013. PIMD:23842677
30. Ying Z, **do Carmo JM**, Xiang L, da Silva AA, Chen M, Ryan MJ, Ostrowski MC, Rajagopalan S, Hall JE, Inhibitor κB kinase 2 is a myosin light chain kinase in vascular smooth muscle. *Circ Res* 113(5):562-70, 2013. PMID: 23817200
31. Freeman JN, **do Carmo JM**, Adi AH, da Silva AA. Chronic central ghrelin infusion reduces blood pressure and heart rate despite increasing appetite in normotensive and hypertensive rats. *Peptides* 42:35-42, 2013. PMID: 23416021
32. da Silva AA, **do Carmo JM**, Hall JE. Role of leptin and central nervous system melanocortins in obesity hypertension. *Curr Opin Nephrol Hypertens* 22:135-40, 2013. PMID:23299052
33. Dubinion JH, **do Carmo JM**, Adi A, Hamza S, da Silva AA, Hall JE. Role of proopiomelanocortin neuron Stat3 in regulating arterial pressure and mediating the chronic effects of leptin. *Hypertension* 61(5):1066-74, 2013. PMID: 23529161
34. Bassi M, **do Carmo JM**, Hall JE, da Silva AA. Chronic central nervous system actions of adiponectin on appetite, metabolism and blood pressure regulation. *Peptides* 37:1-5, 2012. PMID: 22749987
35. Hall JE, Granger JP, **do Carmo JM**, da Silva AA, Dubinion J, George E, Hamza S, Speed J, Hall ME. Hypertension: Physiology and Pathophysiology. *Compr Physiol* 2(4):2393-442, 2012. PMID: 23720252
36. Bassi M, Giust H, Leite CM, **do Carmo JM**, da Silva AA, Hall JE, Colombari E, Glass ML. Central leptin replacement enhances chemo-respiratory responses in leptin-deficient mice independent of changes in body weight. *Pflügers Arch* 464:145-53, 2012. PMID: 22585210

37. **do Carmo JM***, da Silva AA**,** Morgan J, Yi-Xin (Jim) Wang, Hall JE. Inhibition of soluble epoxide hydrolase reduces food intake and increases metabolic rate in obese mice. *Nutr Metab Cardiovasc Dis* 22:598-604, 2012. PMID: 21190818

38. **do Carmo JM***, da Silva AA, Rushing JS, Hall JE. Activation of the central melanocortin system contributes to the increased arterial pressure in obese Zucker rats. *Am J Physiol Regul Integr Comp Physiol* 302(5):R561-R567, 2012. PMID: 22204957

39. Csongradi, **do Carmo, JM**, Dubinion JH, Vera T, Stec DE. Chronic HO-1 induction with cobalt protoporphyrin (CoPP) treatment increases oxygen consumption, activity, heat production and lowes body weight in obese melanocortin-4 receptor deficient mice. Int J Obese (Lond) 36: 244-253,2012. PMID: 21467998

40. **do Carmo JM***, da Silva AA, Cai Z, Lin S, Dubinion JH, Hall JE. Control of blood pressure, appetite, and glucose by leptin in mice lacking leptin receptors in proopiomelanocortin neurons. *Hypertension*. 57: 918-926, 2011. PMID: 21422382

41. **do Carmo JM***, Bassi M, da Silva AA, Hall JE. Systemic but not central nervous system nitric oxide synthase inhibition exacerbates the hypertensive effects of chronic melanocortin-3/4 receptor activation. *Hypertension*. 57: 428-34, 2011. PMID: 21263126

42. Hall JE, da Silva AA, **do Carmo JM**, Dubinion J, Hamza S, Munusamy S, Smith G, Stec, DE. Obesity-induced hypertension: role of sympathetic nervous system, leptin and melanocortins. *J Biol Chem*. 285: 17271-9, 2010. PMID: 20348094

43. **do Carmo JM***, Tallam SM, Roberts JV, Brandon EL, Biglane J, Silva AA Hall JE. Impact of obesity on renal structure and function in the presence and absence of hypertension: evidence from melanocortin-4 receptor deficient mice. *Am J Physiol Regul Integr Comp Physiol.* 297: R803:R812, 2009. PMID: 19605765

44. da Silva AA, **do Carmo JM**, Freeman JN, Tallam LS, Hall JE. A functional melanocortin system is required for CNS-mediated antidiabetic and cardiovascular actions of leptin. *Diabetes*. 58: 1749-1756, 2009. PMID: 19491210

45. da Silva AA, **do Carmo JM,** Dubinion J, Hall JE. Role of the sympathetic nervous system in obesity-related hypertension. *Curr Hypertens Rep*. 11: 206-277, 2009. PMID: 19442330

46. **do Carmo JM***, Hall JE, da Silva AA. Chronic central leptin infusion restores cardiac sympathetic-vagal balance and baroreflex sensitivity in diabetic rats. *Am J Physiol Heart Circ Physiol*. 295:H1974-H1981, 2008. PMID: 18790839

47. da Silva AA, **do Carmo JM**, Kanycska B, Brandon, Hall JE. Endogenous melanocortin system activity contributes to the elevated arterial pressure in spontaneously hypertensive rats. *Hypertension*. 51:884-890, 2008. PMID: 18285617

48. da Silva GD, Gusti H, Sanchez AP, **do Carmo JM**, Glass ML. Aestivation in the South American lungfish, Lepidosiren paradoxa: Effects on cardiovascular function, blood gases, osmolality and leptin levels. *Respir Physiol Neurobiol*. 164:380-385, 2008. PMID: 18822393

49. Huber DA, **do Carmo JM**, Castania JA, Fazan VP, Fazan R Jr, Salgado HC. Does Hyperglycemia Alter Aortic Depressor Nerve Sensitivity of Rats? *Braz J Med Biol Res*. 40:1567-762, 2007. PMID: 17934653

50. **do Carmo JM***, Huber DA, Castania JA, Fazan VP, Fazan R Jr, Salgado HC. Aortic depressor nerve function examined in diabetic rats by means of two different approaches. *J Neurosc Methods*. 30:17-22, 2007.PMID: 17084904

51. Sato KL, **do Carmo JM**, Fazan VP. Ultrastructural anatomy of renal nerve in rats. *Brain Res*13:94-100, 2006. PMID: 16962078

52. **do Carmo JM***, Brasileiro OS. Hemodynamic parameters in neurological patients. *Fisioterapia em Movimento***. 16:41-47, 2003.**

53. **do Carmo JM*,** Physical Therapy in Neurological Patient. *Fisiobrasil*. 67:16-24, 2002.

54. **do Carmo JM***, Brasileiro OS, Coutinho EL et al. Physical Therapist: Clinical and Therapeutically Analysis: Diagnostic and Clinical Treatment. In Tagiba M. Mazzer N, Aguiar PH. *Peripheral Nerves: Diagnostic and Treatment*. Rio de Janeiro. Ed. Revinter, 2003.

BOOK CHAPTERS

1. da Silva AA, **do Carmo JM**, Wang Z, Hall JE. Leptin, the autonomic nervous systen, and hypertension. In: Leptin: Regulation and Clinical Implications. Ed. Sam Dagogo-Jack. Spring Cham Heidelberg New York Dordrecht London, 2015. Pp 175-188. Doi:10.1007/978-3-319-09915-6

2. Hall JE, **do Carmo JM,** da Silva AA, Wang Z, Hall ME. Role of the kidney in hypertension. In: Hypertension. Eds. EL Schifrin and RM Touyz. Future Science Group, 2013. Pp 2-19. Doi:10.2217/EBO.12.475

PUBLISHED ABSTRACTS

1. **do Carmo JM**, Nathan Freeman, da Silva AA, Moak SP, Hall JE. Role of suppressor of cytokine signaling 3 (SOCS3) in the entire central nervous system in regulating metabolic and cardiovascular function in mice fed a high fat diet. *Hypertension* 2017; 60:P021.

2. Gava FN, Hall JE, **do Carmo JM**. Leptin deficiency reduces cardiac reserve independently of increased body weight. *Hypertension* 2017; 60:P294 (Onsite Trainee Poster Award).

3. Gava FN, da Silva AA, **do Carmo JM**. Chronic central melanocortin 4 receptor blockade does not prevent cardiac dysfunction after myocardial infarction in rats. *Hypertension* 2017; 60:P182.

4. **do Carmo JM**, da Silva AA, Moak SP, Wang Z, Hall JE. Chronic inhibition of melanocortin 4 receptor (MC4R) attenuates hypertension-induced by intermittent hypoxia. *FASEB J* 2017; 31 (1 Supplement), 1024.7-1024.7

5. da Silva AA, Gava FN, Lataro RM, Silva CA, Rodrigues DP, Guida T, **do Carmo JM**, Salgado HC. Chronic central leptin infusion improves cardiac function in diabetic rats with heart failure. *FASEB J* 2017; 31:853.10
6. Wang Z, **do Carmo JM**, Aberdein N, Fang T, Hall JE. The role of TRPC6 channels in glomerular capillary endothelial cell injury induced by mechanic stretch and high glucose. *FASEB J* 2017; 31 (1 Supplement), 1031.4-1031.4
7. Moak SP, Browning JR, Dai X, Hall JE, **do Carmo JM**. Reduced energy expenditure and increased sleep time contribute to development of ovariectomy-induced obesity in mice fed a high fat diet. *FASEB J* 2017; 31 (1 Supplement), 1037.1-1037.1
8. Aberdein N, Wang Z, **do Carmo JM**, Fang F, Hall JE. Protein tyrosine phosphatase 1b (PTB1B) deficiency in proopiomelanocortin (POMC) neurons attenuates body weight, fat mass and liver lipid accumulation in mice fed a high fat diet. *FASEB J* 2017; 31 (1 Supplement), 1038.6-1038.6
9. **do Carmo JM**, Taolin Fan, Sydney P. Moak, Jackson R. Browning, Hall JE. Melanocortin-4 receptors in cholinergic preganglionic neurons of the hindbrain and spinal cord are important in mediating cardiovascular responses to acute stress. *Hypertension* 2016; 62:P249.
10. **do Carmo JM**, da Silva AA, Hall JE. A novel selective melanocortin-4 receptor agonist attenuates bradycardia and hyperglycemia in diabetic rats. *Hypertension* 2016; 62:P312.
11. Aberdein N, **do Carmo JM**, Wang Z, Fang T, de Lara CP, Hall JE. Role of pro-opiomelanocortin (POMC) specific PTP1B in differential regulation of blood pressure, liver lipid accumulation and glucose tolerance in response to a high fat diet. *Hypertension* 2016; 62:P037.
12. Wang Z, **do Carmo JM**, da Silva AA, Aberdein N, Hall JE. Role of suppressor of cytokines signaling 3 (SOCS3) in POMC neurons in regulating metabolic and cardiovascular functions in dietary-induced obesity. *Hypertension* 2016; 62: P077.
13. **do Carmo JM**, da Silva AA, Yoo J, Moak SP, Spradley F, Hall JE. Does chronic inhibition of brain endoplasmic reticulum stress alter metabolic and cardiovascular function in obese melanocortin-4 deficient rat? *FASEB J* 2016; 30:964.1-964.1.
14. **do Carmo JM**, da Silva AA, Wang Z, Hall JE. Chronic inhibition of endoplasmic reticulum stress attenuate cardiovascular but not appetite responses to MC3/4R antagonist in SHR. *FASEB J* 2016; 30:959.3-959.3.
15. Wang Z, **do Carmo JM**, Hall JE. ER stress and mitochondria ROS contribute to the development of hypertensive-diabetic nephropathy. *FASEB J* 2016; 30:740.17-740.17.
16. Aberdein N, **do Carmo JM**, Hall JE. Protein tyrosine phosphatase 1B deficiency in pro-opiomelanocortin neurons does not enhance leptin's anorexic effect, but improves glucose tolerance and increases energy expenditure in mice fed a high fat diet. *FASEB J* 2016; 30:961.2-961.2.
17. Fang T, **do Carmo JM**, Wang Z, Aberdein N, Rodrigues, CPL, Hall JE. Role of brainstem melanocortin-4 receptor in regulating glucose, energy balance and body fat in female mice. *FASEB J* 2016; 30:750.2-750.2.

18. **do Carmo JM**, Freeman JN, Wang Z, da Silva AA, Hall JE. Role of suppressor of cytokines signaling 3 (SOCS3) in modulating chronic metabolic and cardiovascular effects of leptin. *Hypertension* 2015; 66 : A085.
19. **do Carmo JM**, da Silva AA, Yoo J, Moak SP, Spradly F, Hall JE. Brain endoplasmic reticulum (ER) stress reduces appetite and increases blood pressure in melanocortin-4 deficient rats. *Hypertension* 2015; 66 : A012.
20. Wang Z, **do Carmo JM**, Hall JE. Suppressor of cytokine signaling 3 (SOCS3) in POMC neurons and its role in regulating blood pressure, body weight and glucose in obesity. *Hypertension* 2015; 66 :AP076.
21. **do Carmo JM**, da Silva AA, Hall JE. Effects of hyperandrogenemia on cardiovascular and metabolic responses to chronic melanocortin-4 receptor blockade in female SHR. *FASEB J* 2015; 29:1647.2-1647.2.
22. Wang Z, **do Carmo** JM, Williams J, da Silva AA, Hall JE. Interaction of hypertension and diabetes in progressive nephropathy: Role of ER stress. *FASEB J* 2015; 29:959.9-959.9.
23. da Silva AA, Pinkerton M, Spradley F, Palei A, **do Carmo**, JM. Lack of sex difference in leptin-mediated regulation of appetite, cardiovascular function and glucose homeostasis. *FASEB J* 2014; 28:1083.5-1083.5.
24. da Silva AA, Pinkerton M, **do Carmo JM**. Mice with MC4R rescued in forebrain neurons exhibit increased peripheral glucose uptake after acute central leptin infusion. *FASEB J* 2014; 28:854.3-854.3.
25. **do Carmo JM**, Sessums P, Ebaady S, Freeman JN, Hall JE, da Silva AA. Melanocortin-4 receptors in the PVN and RVLM are important in mediating cardiovascular responses to acute stress. *FASEB J* 2014; 28:686.7-686.7.
26. Wang Z, **do Carmo JM**, da Silva AA, Hall JE. Inhibition of endoplasmatic reticulum stress attenuates aorta coarctation induced hypertension and kidney injury in diabetic Goto-Kakizaki rats. *FASEB J* 2014; 28:LB724.
27. **do Carmo JM**, da Silva AA, Wang Z, Hall JE. Role of hindbrain endogenous melanocortin receptor activity in contributing to hypertension in SHR. *Hypertension* 2013; 62:A439.
28. da Silva AA, Wang Z, Hall JE, **do Carmo JM**. Hypophysectomy attenuates leptin-induced tachycardia without affecting leptin's action on appetite and body weight. *FASEB J*. 2013; 27:1123.12-1123.12.
29. **do Carmo JM**, da Silva AA, Pace BR, Davis MT, Hall JE. Cardiovascular and metabolic regulation in mice with neuron specific deletion of the leptin receptor. *FASEB J*. 2013; 27:1153.6-1153.6.
30. **do Carmo** JM, da Silva AA, Sessums PO, Ebaady SH, Hall JE. Shp2 signaling in Pomc neurons is important for leptin's actions on blood pressure, energy balance and glucose homeostasis. *FASEB J*. 2013; 27:1120.3-1120.3.
31. Bassi B, Furuya WI, Menani JV, Colombari DSA, **do Carmo JM**, da Silva AA, Hall JE, Wenker IC, Mulkey D, Colombari E. Effects of leptin in the retrotrapezoid nucleus (RTN) on CO2-sensitivity and respiration. *FASEB J*. 2013; 27:1120.3-1120.3.

32. **do Carmo JM**, da Silva AA, Hall JE. Leptin Reduces Food Intake but Fails to Raise Blood Pressure In Mice With Deficiency of Insulin Receptor Substrate (IRS2) In the Entire Brain or Specifically in Pomc neurons. *Hypertension* 2012; 60:A27.
33. da Silva AA, **do Carmo JM**, Dubinion JH, Hall JE. Ganglionic blockade does not impair the chronic CNS-mediated antidiabetic action of leptin in streptozotocin-induced diabetic rats. *FASEB J*. 2012; 26:1128.3-1128.3.
34. **do Carmo JM**, da Silva AA, Hall JE. Metabolic and appetite responses to fasting and refeeding in mice with SHP2 deletion in forebrain neurons. *FASEB J*. 2012; 26:877.2-877.2.
35. **do Carmo JM**, da Silva AA, Hall JE. AT1 receptor antagonism but not mineralocorticoid receptor blockade lowers blood pressure in obese Zucker rats. *FASEB J*. 2012; 26:1093.6-1093.6.
36. Dubinion J, **do Carmo M**, Munusamy S, Hamza S, da Silva AA, Hall JE. Stat3 inactivation in POMC neurons attenuates leptin-induced elevation in arterial pressure. *Hypertension* 2011; 12:242.
37. **do Carmo JM,** da Silva AA, Rushing JS, Munusamy S, Dubinion J, Hamza S, Hall M, Hall JE. Differential control of appetite and cardiovascular function after rescue of melanocortin-4 receptors in proopiomelanocortin neurons. *Hypertension* 2011; 12:380.
38. **do Carmo JM**, Bassi M, Hamza SM, da Silva AA, Hall JE. Cardiovascular and metabolic responses to thermoneutrality and cold ambient temperature in lean and obese leptin deficient mice. *FASEB J*. 2011; 25:1028.4-1028.4.
39. **do Carmo JM**, da Silva AA, Rushing JS, Hall JE. Cardiovascular and metabolic responses to chronic central MC3/4R antagonism in obese Zucker rats. *FASEB J*. 2011, 25:823.6-823.6.
40. Freeman JN, **do Carmo JM**, Adi A, Hall Je, da Silva AA. Role of CNS IRS2 signaling in mediating the chronic effects of leptin on glucose regulation. Global Obesity Summit 2010; Jackson, MS.
41. da Silva AA, Dubinion JD, **do Carmo JM**, Hall JE. Chronic Central Nervous System MC3/4R Blockade Attenuates the Hypertension Induced by Peripheral Nitric Oxide Synthase Inhibition but not by Angiotensin II Infusion. *Hypertension* 2010; 56(5):E105-E105.
42. **do Carmo JM**, da Silva AA, Hall JE. Divergent Chronic Metabolic and Cardiovascular Responses to Leptin: Effects of Ambient Temperature. *Hypertension* 2010; 56(5):E103-E104.
43. Freeman JN, **do Carmo JM**, Hall JE, da Silva AA. Central NPY deficiency does not enhance the chronic actions of melanocortin 3 and 4 receptors (MC3/4R) activation on glucose homeostasis, appetite and cardiovascular function in diabetic mice. *FASEB J.* 2010; 24:597.6-597.6.
44. **do Carmo JM**, da Silva AA, Morgan J, Hall JE. Inhibition of soluble epoxide hydrolase reduces food intake and increases metabolic rate in mice fed high fat-high fructose diet. *FASEB J.* 2010; 24:996.2

45. **do Carmo JM**, Bassi M, da Silva AA, Hall JE. Chronic central nervous system MC3/4R activation exacerbates the cardiovascular responses to peripheral nitric oxide synthase inhibition. *FASEB J.* 2010; 24:1051.1-1051.1.
46. Bassi M, **do Carmo JM**, da Silva AA, Hall JE. Chronic CNS actions of adiponectin on appetite, metabolism and cardiovascular function. *FASEB J.* 2010; 24:780.1-780.1
47. Freeman JN, **do Carmo JM**, Hall JE, da Silva AA. Central neuropeptide Y (NPY) deficiency does not enhance the dietary or cardiovascular responses to chronic activation of melanocortin 3 and 4 receptors (MC3/4R). *Hypertension* 2009; 54:e103.
48. **do Carmo JM**, da Silva AA, Hall JE. Divergent control of appetite, cardiovascular and metabolic functions by leptin in mice lacking leptin receptor in POMC neurons. *Hypertension* 2009; 54:e102.
49. **do Carmo JM**, Bassi M, da Silva AA, Hall JE. Consequences of prolonged obesity on cardiovascular, metabolic and respiratory functions in leptin-deficient and diet-induced obese mice. Hypertension 2009; 54:e104.
50. **do Carmo JM**, da Silva AA, Hall JE. Cardiovascular function and metabolism in mice with Shp2 deletion in forebrain neurons. *FASEB J.* 2009; 23:785.5.
51. Dubinion J, da Silva AA, **do Carmo JM**, Hall JE. Cardiovascular and metabolic responses to chronic PYY infusion. *FASEB J.* 2009; 23:983.4-983.4.
52. Dubinion J, da Silva AA, **do Carmo JM**, Hall JE. Cardiovascular and metabolic responses to chronic central infusion of leptin in rats fed a high fat diet. *FASEB J.* 2009; 23:1015.5-1015.5.
53. **do Carmo JM**, da Silva AA, Freeman JN, Evans S, Hall JE. Protection against obesity and hypertension induced renal injury in melanocortin 4-deficient (MC4R-/-) mice treated with L-NAME. Jackson Cardiovascular-Renal Meeting, Jackson, MS, 2008.
54. da Silva AA, **do Carmo JM**. Chronic CNS Actions of Ghrelin on Appetite, Body Weight and Cardiovascular Function. *Hypertension* 2008; 52:116
55. **do Carmo JM**, da Silva AA, Hall JE. Impaired spontaneous baroreflex sensitivity and absence of hypertension in old leptin deficient obese mice. *Hypertension* 2008; 52:104
56. da Silva AA, **do Carmo JM**, Freeman JN, Hall JE. Chronic MC3/4R activation does not mimic the actions of leptin on baroreceptor sensitivity and heart rate regulation in diabetic rats. *FASEB J*. 2008; 22:947.5-947.5.
57. **do Carmo JM**, da Silva AA, Brandon E, Hall JE. Cardiovascular function and metabolism in old melanocortin-4 receptor deficient obese mouse. *FASEB J*. 2008; 22:947.2-947.2.
58. Brandon E, **do Carmo JM**, da Silva AA, Hosler JP, Hall JE. Renal lipid accumulation and mitochondrial function in leptin deficient and melanocortin-4 deficient obese mice. *FASEB J*. 2008; 22:947.3-947.3.
59. **do Carmo JM**, Hall JE, da Silva AA. Chronic central leptin infusion restores sympatho-vagal balance, cardiovascular variability and baroreflex sensitivity in diabetic rats. *Hypertension* 2007; 50:92.

60. da Silva AA, **do Carmo JM,** Kanyickska B, Dubinion J, Hall JE. Endogenous activity of the CNS melanocortin system contributes to the elevated arterial pressure in spontaneously hypertensive rats. Inter-American Society of Hypertension and the Consortium for Southeastern Hypertension Control, Miami, FL, 2007.

61. do Carmo JM, Fazan VPS, Fazan Jr, R, Salgado HC. Morphofunctional aspects of the aortic depressor nerve in diabetic rats. *FASEB J.* 2007; 21:582-582.

62. Rubens Fazan Jr, R, Silva CAA, **do Carmo JM,** V da Silva VJD, Salgado HC.Sympathetic activation by sildenafil into central nervous system in conscious rats. *FASEB J*. 2006; 20:1424-1424.

ORAL PRESENTATIONS AND PARTICIPATION AT NATIONAL AND INTERNATIONAL MEETINGS

1. Invited Speaker**,** Session: Obesity, sleep disorder and arterial hypertension, is that your choice? Novel mechanisms for cardiovascular control and programming of obesity."Regulation of metabolic and cardiovascular function by the brain leptin-melanocortin pathway: What is new? Rhythms of Life. Obesity, sleep disorder and atrial hypertension, is that your choice? Novel mechanisms for cardiovascular control and programming of obesity. IUPS, Rio de Janeiro, Brazil, August 1-5, 2017.
2. Invited Speaker Chronic inhibition of melanocortin 4 receptor (MC4R) attenuates hypertension-induced by intermittent hypoxia. Hypertension Research Exchange Program, School of Dentistry – Araraquara, UNESP, Sao Paulo, Brazil, August 7-9 2017.
3. Invited Speaker, CNS and glucose regulation – Department of Physiology, Ribeirao Preto, USP, Sao Paulo, Brazil, August 10, 2017.
4. Oral Presentation, Role of suppressor of cytokine signaling 3 (SOCS3) in the entire central nervous system in regulating metabolic and cardiovascular function in mice fed a high fat diet. Council on High Blood Pressure Meeting, San Francisco, CA. September 14-17, 2017.
5. Speaker, CNS control of glucose regulation by the leptin-melanocortin axis. Department of Physiology and Biophysics, UMMC - Jackson, MS, August, 2016.
6. Oral Presentation, Role of suppressor of cytokines signaling 3 (SOCS3) in modulating chronic metabolic and cardiovascular effects of leptin. Council on High Blood Pressure Meeting, Washington, DC. September 16-19, 2015.
7. Oral presentation, Brain endoplasmic reticulum (ER) stress reduces appetite and increases blood pressure independent of the melanocortin-4 receptor in rats. Washington, DC. September 16-19, 2015.
8. Invited Speaker, Role of suppressor of cytokines signaling 3 (SOCS3) in regulating chronic metabolic and cardiovascular effects of leptin - IDeA Networks of Biomedical Research Excellence (INBRE). Biloxi, MS. November 11-13, 2015.
9. Speaker, Role of the brain melanocortin system in regulating appetite, blood pressure and peripheral glucose utilization. Department of Physiology and Biophysics, UMMC - Jackson, MS, July, 2015.
10. Speaker, Control of metabolic and cardiovascular function by the brain melanocortin system. Department of Physiology and Biophysics, UMMC - Jackson, MS, July 2014.

11. Invited Speaker**,** Leptin reduces food intake but fails to raise blood pressure in mice with deficiency of insulin receptor substrate (IRS2) in the entire brain or specifically in POMC neurons. Council for High Blood Pressure Research in Australia. Melbourne, Australia, December 5-7, 2013.
12. Speaker, Metabolic and cardiovascular regulation by the brain leptin-melanocortin pathway. Department of Physiology and Biophysics, UMMC - Jackson, MS, January, 2013.
13. Speaker, Metabolic and cardiovascular regulation by the CNS leptin-melanocortin pathway. Department of Physiology and Biophysics, UMMC - Jackson, MS, February, 2012. Oral presentation.
14. Oral Presentation**,** Differential Control of Appetite and Cardiovascular Function After Selective Rescue of Melanocortin-4 receptor in Proopiomelanocortin Neurons. Finalist of the Harry Goldblatt New Investigator Award. 65th Annual High Blood Pressure Research Conference. Sponsored by the American Heart Association. Orlando, FL. September 22, 2011.
15. Speaker, Divergent control of cardiovascular and metabolic function by leptin. Department of Physiology and Biophysics, UMMC - Jackson, MS, January, 2010. Oral presentation
16. Speaker, Divergent control of cardiovascular and metabolic function by the CNS leptin-melanocortin pathway. Department of Physiology and Biophysics, UMMC - Jackson, MS, August, 2009.
17. Speaker, Cardiovascular and metabolic function in mice lacking leptin, MC4R or Shp2 in the CNS. Department of Physiology and Biophysics, UMMC - Jackson, MS, November, 2008.
18. Speaker, Chronic central leptin infusion restores sympatho-vagal balance, cardiovascular variability and baroreflex sensitivity in diabetic rats. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Tucson, AZ, 2007.
19. Invited Speaker, Aortic depressor nerve: Function and Morphology. Department of Physiology, University of Sao Paulo Medical College, Ribeirao Preto, SP, Brazil, March, 2006.
20. Invited Speaker**,** Physical Activity and Free Radicals. Congresso Brasileiro de Fisioterapia. Salvador - State of Bahia – Brazil, 1997.

Scientific Sessions Chaired

Featured Topic Chair– Sex differences in Obesity and Cardiovascular Diseases, Experimental Biology, Chicago, IL, 2017

Scientific Session Co-chair, Session: The Harry Goldblatt New Investigator Award, Council for High Blood Pressure, New Orleans, September 11-14, 2013

Scientific Session Co-chair, Session: The Harry Goldblatt New Investigator Award, Council for High Blood Pressure, San Diego, September 9-12, 2014

SERVICE

Institutional Service

Reviewer for Institutional Research Project Grants (IRSP) – 2014
Judge Poster Presentation for School of Medicine Research day, April 2014, 2015
Trained multiple faculty, fellows and students in surgical techniques and laboratory methods
Judge Poster Presentation – Onsite Trainee Poster Award, Council for High Blood Pressure Meeting, AHA, San Francisco, CA, 2017

Service on Professional Society Committees

High Blood Pressure Council, Education Committee Member, 2013-2015
Council on Hypertension, American Heart Association, Awards Committee – 2014-present

Editorial Service/Reviewer for Journals

American Journal of Physiology, Regulatory, Integrative and Comparative Physiology
American Journal of Physiology – Heart and Circulatory Physiology
European Journal of Physiology
European Journal of Physiology, Pflugers Archives
The FASEB Journal
Hypertension
Journal of Diabetes
Journal of Neurophysiology
Life Science
PLOSone
Hypertension Research
Molecular and Cellular Endocrinology

Grant Review Study Sections

American Heart Association, National, Peer Review, 2013-2014.
American Heart Association, Innovative Research Grant Review Committee, 2014, 2015
American Heart Association – National, Peer Review Committee, Cardiovascular (CVD1), 2013-present
Auckland Medical Research Foundation – AMRF Project Grant, New Zealand, 2013-present

Community Service

American Heart Association - participated as team captain for Heart Walk, Jackson, Nov, 2012.

Mississippi Phun Week, participated in respiratory function, Children's Museum, Nov, 2014.
Mississippi Phun Week, participated in gastrointestinal function, Children's Museum, Nov, 2015.
American Heart Association participated as volunteer, Jackson, Nov, 2016.

Mississippi Phun Week, participated in Renal function, Children's Museum, Nov, 2016.

My institutional and national services include training of multiple faculty, fellows and students in surgical techniques, experimental methods and equipment usage (including, but not limited to: implantation of DSI telemetry probes and software data analyses, uses of EchoMRI in physiological studies, acute and chronic metabolic studies in small rodents). I have also served as Ad-Hoc reviewer for multiple scientific Journals in the field of physiology and metabolism, and for grant applications from the America Heart Association and Auckland Medical Research Foundation.

TEACHING

Lecturer

State University of Paraiba/Brazil - Cardiopulmonary Physiology, Physical Therapy Continuing Education Courses- 25 hours/week, 1993-1996
University of Tiradentes, Sergipe/Brazil - Cardiopulmonary Physiology, Physical Therapy Continuing Education Courses - 30 hours/week, 1996-2002
University of Sao Paulo/Brazil - Summer Classes in Physiology- 15 hours/semester, 2004-2006
University of Mississippi Medical Center, Physical Therapy – Acid/Base Regulation – 1 hour, 2016 – Teaching Evaluations – Score: 3.82
University of Mississippi Medical Center, Physical Therapy – Acid/Base Regulation - 1 hour, 2017

MENTORING

Post-doctoral fellows
Fabio Gava, Ph.D. 2016-present

Medical Student Research Trainees

Summer Research Program

Mark Pinkerton, Medical Student, Summer, 2014
Abdulla Alrayes, Medical Student, Summer, 2015 – Sponsored by Alfaisal University
Haley Houghton, Medical Student, Summer, 2013-2014, 2015-present, MSRP
David Duff, Medical Student, Summer, 2017

Winter Research Program

Giovanna Campos Micheloni, Medical Student, Winter, 2015-2016 - Sponsored by Barao de Maua University
Fernanda Stabile, Medical Student, Winter, 2016-2017 - Sponsored by Barao de Maua University)

Undergraduate Research Trainees

Nathan Freeman (Northwest Rankin High School; University Southern Mississippi, 2006-2011)
Jarrett Morgan (Belhaven College, 2009)

My education/teaching services for the past several years have been focused on mentoring and teaching postdoctoral fellows as well as spring/summer students. My teaching services include a combination of research training, laboratory meetings, and extensive teaching of basic principles of the scientific method, experimental design, data analysis, and presentation of data in abstracts, papers, and oral communications. The overall goal was to expose the students to a stimulating research environment and to provide them with necessary basic foundation should they decide to pursue a career on basic/clinical research in the future. I am also lecturing Physiology classes to students of the Heath Related Professions. Also, I have been heavily involved in teaching postdoctoral fellows, students, technical staff and faculty members various surgical techniques and laboratory methods.