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## Curriculum Vitae

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NAME: Alexandre Alves da Silva

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E-MAIL: asilva@umc.edu

POSITION TITLE: Scientist IV

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### EDUCATION/TRAINING

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INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Sao Paulo, Sao Paulo, Brazil	BS	1992-1996	Biological Sciences
University of Sao Paulo, Sao Paulo, Brazil	Ph.D.	1997-2001	Physiology
University of Mississippi Medical Center	Postdoc	2001-2002	Physiology

### A. Personal Statement

My major research interest and contributions have been to understand the mechanisms of central nervous system control of glucose homeostasis and cardiovascular function. My recent research focus has been on the leptin-brain melanocortin system axis and its powerful beneficial effects on the heart's ability to maintain good contractile properties after myocardial infarction induced by left descending coronary artery ligation, and on the body's ability to utilize glucose, allowing the body to maintaining euglycemia even in the absence of normal beta-cell function. I have also been interested in fetal programming and developmental origins of cardiometabolic diseases. We have observed, for example, that parental obesity (maternal + paternal obesity) leads to greater susceptibility of their offspring for developing cardiac dysfunction, which initiates as mild diastolic dysfunction that evolves to both diastolic and systolic dysfunction with symptoms of heart failure as the offspring reach older age. Other current studies include examination of the mechanisms by which activation of the leptin-brain melanocortin system also improves glucose homeostasis even in the absence of normal insulin secretion by the pancreas; and how parental obesity affects the metabolic and cardiovascular systems of their offspring leading to increased susceptibility for developing cardiac dysfunction and neurological diseases. Our studies are conducted using state-of-the-art techniques to assess cardiac function as well as complex, long-term monitoring of metabolic function, including glucose homeostasis, in mice and rats.

### B. Positions and Honors

#### Positions and Employment

2001-2006      Instructor, Physiology Department, University of Mississippi Medical Center, Jackson, MS.  
2006-2014      Assistant Professor, Physiology Department, Univ. of Mississippi Medical Center  
2015-2017      Professor, Physiology Dept., Centro Universitario Barao de Maua, Ribeirao Preto – Brazil  
2016-2017      Assistant Professor, Physiology Dept., Univ. Estadual de Minas Gerais, Passos – Brazil  
2018-Present      Scientist IV, Physiology Department, University of Mississippi Medical Center, Jackson, MS.

#### Honors, Other Experience and Professional Memberships

2020-present      Featured Topic Editor – Frontiers in Molecular Endocrinology  
2019-present      Grant reviewer, UMMC-Mississippi Center for Clinical and Translational Research (MTCCR)  
Pilot Grants  
2019-2020      Feature Topic Editor – Frontiers in Physiology

2019 Ad-hoc grant reviewer, Czech Science Foundation

2019 APS Select Award – for manuscript in *Am J Physiol Regul Integr Comp Physiol* 317(4):R552-R562.

2018 Vevo Travel Award – Cardiovascular Imaging Track – Fujifilm/VisualSonics

2017 Marcos Augusto Award, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2017 APS Select Award – for manuscript in *Am J Physiol Endocrinol Metab* 312(5):E420-E428.

2016-2017 Member, International Committee Board, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2016-2017 Medical Physiology Course Coordinator, Universidade Estadual de Minas Gerais, Passos, MG – Brazil.

2015-2017 Vice-Chair, Undergraduate Research Nucleus, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2015-2017 Medical Physiology Course Coordinator, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2015-2017 Member, Medical School Faculty Board, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2015-2017 Member, Faculty Search Committee, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2015-2017 Abstract reviewer, Medical School Research Day, Centro Universitario Barao de Maua, Ribeirao Preto, SP – Brazil

2014 Abstract reviewer, International Society of Hypertension (ISH)

2013-2014 Grant reviewer, UMMC-IRSP

2012-present Fellow of the American Heart Association

2012-Present Member and Associate Editor, BMC-Physiology

2011-2017 Member, Editorial Board of Hypertension

2009-2014 Study Section Grant Reviewer for the American Heart Association

2007 Excellence in Research Award Bronze Level – University of Mississippi Medical Center

2007-present Member, Inter-American Society of Hypertension

2005 New Investigator Award from CV Therapeutics. American Heart Association - Council for High Blood Pressure Research

2005 Research Recognition Award / Cardiovascular Section of American Physiological Society, APS

2005-Present Member, American Heart Association. Council for High Blood Pressure/Kidney Research

2003 American Heart Association Postdoctoral Fellowship (0325353B)

2003-Present Member, American Physiological Society

2002 Young investigator Travel Award of International Society of Hypertension, ISH

2002-Present Ad-Hoc Reviewer: Hypertension; Diabetes; Circulation Research; American journal of Physiology – RICP; Peptides; American Journal of Hypertension; Brazilian Journal of Medical and Biological Research; Journal of Molecular Endocrinology; Brain Research Bulletin; European Journal of Internal Medicine; Gender Medicine; Journal of Pharmacological and Toxicological Methods; Experimental Biology and Medicine; Future Medicine

1999 MERCK Young Investigator Award/Latin America – Council for High Blood Pressure. Research, American Heart Association

1998 Young investigator Travel Award of International Society of Hypertension, ISH

1997- 2001 Predoctoral Fellowship (FAPESP), Nephrology Division, University of Sao Paulo, Sao Paulo, Brazil.

1995-1996 Undergraduate (Scientific Initiation - CNPq) Fellowship, Dept. of Microbiology, University of Sao Paulo, Sao Paulo, Brazil.

1993-1995 Undergraduate (Scientific Initiation - CNPq) Fellowship, Dept. of Pharmacology, University of Sao Paulo, Sao Paulo, Brazil.

**Scientific review service:**

Ad hoc reviewer for over 45 peer-reviewed scientific journals: Hypertension; Diabetes; Circulation Research; American journal of Physiology – RICP; PLOS One; JAHA; Peptides; American Journal of Hypertension; Brazilian Journal of Medical and Biological Research; Journal of Molecular Endocrinology; Brain Research Bulletin; European Journal of Internal Medicine; Gender Medicine; Journal of Pharmacological and Toxicological Methods; Experimental Biology and Medicine; Future Medicine; Diabetes & Metabolic Syndrome: Clinical Research & Reviews; Acta Diabetologica; several Frontiers journals, and many others.

### C. Contributions to Science

<https://www.ncbi.nlm.nih.gov/sites/myncbi/alexandre.silva.1/bibliography/57651667/public/?sort=date&direction=ascending>

#### Peer-Reviewed Journal Articles (in chronological order)

1. **da Silva AA**, Hall JE, Dai X, Wang Z, Salgado MC, do Carmo JM. Chronic antidiabetic actions of leptin: Evidence from parabiosis studies for a CNS-derived circulating antidiabetic factor. *Diabetes* (in press)
2. do Carmo JM, Omoto AC, Dai X, Moak SP, Li X, Wang Z, Mouton A, Hall JE, **da Silva AA**. Sex differences in the impact of parental obesity on offspring cardiac SIRT3 expression, mitochondrial efficiency and diastolic function early in life. *Am J Physiol Heart Circ Physiol* (in press)
3. Hall JE, Mouton A, **da Silva AA**, Omoto ACM, Wnag Z, Li X, do Carmo JM. Obesity, kidney dysfunction, and inflammation: interactions in hypertension. *Cardiovasc Res* (117(8):1859-76, 2021.
4. do Carmo JM, **da Silva AA**, Hall JE. Impact of mineralocorticoid receptor and AT1 receptor antagonism on blood pressure regulation in obese Zucker rats: role of sex differences. *Am J Hypertens* (online ahead of print, in press).
5. Mouton AJ, Flynn ER, Moak SP, Aitken NM, Omoto ACM, Li X, **da Silva AA**, Wang Z, do Carmo JM, Hall JE. Dimethyl fumarate preserves left ventricular infarct integrity following myocardial infarction via modulation of cardiac macrophage and fibroblast oxidative metabolism. *J Mol Cell Cardiol* 158:38-48, 2021.
6. **da Silva AA**, Pinkerton MA, Spradley FT, Palei AC, Hall JE, do Carmo JM. Chronic CNS-mediated cardiometabolic actions of leptin: potential role of sex differences. *Am J Physiol Regul Integ Comp Physiol* 320(2):R173-81, 2021.
7. Gava FN, **da Silva AA**, Dai X, Harmancey R, Ashraf S, Omoto ACM, Salgado MC, Moak SP, Hall JE, do Carmo JM. Restoration of cardiac function after myocardial infarction by chronic activation of the CNS leptin-melanocortin system. *JACC Basic Transl Sci* 6(1):55-70, 2021.
8. Li X, Lu Q, Qiu Y, do Carmo JM, Wang Z, **da Silva AA**, Mouton AJ, Omoto ACM, Hall ME, Hall JE. Direct cardiac actions of the sodium glucose co-transporter 2 inhibitor empagliflozin improve myocardial oxidative phosphorylation and attenuate pressure-overload heart failure. *JAHA* 10(6):e018298, 2021.
9. Mouton AJ, Flynn ER, Moak SP, Li X, **da Silva AA**, Wang Z, do Carmo JM, Hall ME, Hall JE. Interaction of obesity and hypertension on cardiac metabolic remodeling and survival following myocardial infarction. *JAHA* 10(6):e018212, 2021.
10. **da Silva AA**, do Carmo JM, Hall JE. CNS regulation of glucose homeostasis: role of the leptin-melanocortin system. *Curr Diab Rep* 20(7):29, 2020.
11. **da Silva AA**, do Carmo JM, Li X, Wang Z, Mouton AJ, Hall JE. Role of hyperinsulinemia and insulin resistance in hypertension: metabolic syndrome revisited. *Can J Cardiol* 36(5):671-82, 2020.
12. Wang Z, do Carmo JM, **da Silva AA**, Fu Y, Hall JE. Mechanisms of synergistic interactions of diabetes and hypertension in chronic kidney disease: role of mitochondrial dysfunction and ER stress. *Curr Hypertens Rep* 22(2):15, 2020.
13. Yalamanchili C, Chittiboyina AG, Haider S, Vasquez Y, Khan S, do Carmo JM, **da Silva AA**, Pinkerton M, Hall JE, Walker LA, Khan IA. In search for potential antidiabetic compounds from natural sources: docking, synthesis and biological screening of small molecules from *Lycium spp. (Goji)*. *Heliyon* 6(1):e02782, 2019.
14. **da Silva AA**, do Carmo JM, Wang Z, Hall JE. Melanocortin-4 receptors and sympathetic nervous system activation in hypertension. *Curr Hypertens Rep* 21(6):46, 2019.

15. do Carmo JM, **da Silva AA**, Gava FN, Moak SP, Dai X, Hall JE. Impact of leptin deficiency compared with neuronal-specific leptin receptor deletion on cardiometabolic regulation. *Am J Physiol Regul Integr Comp Physiol* 317(4):R552-R562, 2019.
16. Hall JE, do Carmo JM, **da Silva AA**, Wang Z, Hall ME. Obesity, kidney dysfunction and hypertension: mechanistic links. *Nature Rev Nephrol* 15(6):367-385, 2019.
17. Wang Z, do Carmo JM, **da Silva AA**, Bailey KC, Aberdein N, Moak SP, Hall JE. Role of SOCS3 in POMC neurons in metabolic and cardiovascular regulation. *Am J Physiol Regul Integr Comp Physiol* 316(4):R338-R351, 2019.
18. do Carmo JM, **da Silva AA**, Moak SP, da Silva FS, Spradley FT, Hall JE. Role of melanocortin 4 receptor in hypertension induced by chronic intermittent hypoxia. *Acta Physiol (Oxf)* 225(4):e13222, 2019.
19. do Carmo JM, **da Silva AA**, Moak SP, Browning JR, Dai X, Hall JE. Increased sleep time and reduced energy expenditure contribute to obesity after ovariectomy and a high fat diet. *Life Sci* 212:119-128, 2018.
20. do Carmo JM, **da Silva AA**, Freeman JN, Wang Z, Moak SP, Hankins MW, Drummond HA, Hall JE. Neuronal Suppressor of Cytokine Signaling 3: Role in Modulating Chronic Metabolic and Cardiovascular Effects of Leptin. *Hypertension* 71:1248-1257, 2018.
21. **da Silva AA**, Freeman JN, Hall JE, do Carmo JM. Control of appetite, blood glucose and blood pressure during melanocortin-4 activation in normoglycemic and diabetic NPY deficient mice. *Am J Physiol Integr Comp Physiol* 314: R533-R539, 2017.
22. **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* 30:12:e0184805, 2017.
23. do Carmo JM, **da Silva AA**, Romero DG, Hall JE. Changes in ambient temperature elicit divergent control of metabolic and cardiovascular actions by leptin. *FASEB J* 31(6):2418-2428, 2017.
24. 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* 69(5):879-891, 2017.
25. do Carmo JM, **da Silva AA**, Wang Z, Fang T, Aberdein N, Perez de Lara CE, Hall JE. Role of the brain melanocortin in blood pressure regulation. *Biochim Biophys Acta* 1863(10 Pt A):2508-2514, 2017.
26. **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* 312(5):E420-E428, 2017.
27. do Carmo JM, **da Silva AA**, Wang Z, Fang T, Aberdein N, de Lara Rodriguez CEP, Hall JE. Obesity-induced hypertension: brain signaling pathways. *Curr Hypertens Rep* 18(7):58, 2016.
28. 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* 29(7):832-40, 2016.
29. do Carmo JM, **da Silva AA**, Wang Z, Freeman JN, Alsheik AJ, Adi A, Hall JE. Regulation of blood pressure, appetite, and glucose by leptin after inactivation of insulin receptor substrate 2 signaling in the entire brain or in proopiomelanocortin neurons. *Hypertension* 67(2):378-86, 2016.
30. **da Silva AA**, Spradley FT, Granger JP, Hall JE, do Carmo JM. Brain-mediated antidiabetic, anorexic, and cardiovascular actions of leptin require melanocortin-4 receptor signaling. *J Neurophysiol* 113(7):2786-91, 2015.
31. **da Silva AA**, do Carmo JM, Dubinion JH, Bassi M, Mokhtarpouriani K, Hamza SM, 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* 65(1):171-7, 2015.
32. Hall JE, do Carmo JM, **da Silva AA**, Wang Z, Hall ME. Obesity-hypertension: interaction of neurohumoral and renal mechanisms. *Circ Res* 116(6):991-1006, 2015.
33. 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(6):1201-6, 2015.
34. Bassi M, Nakamura NB, Furuya WI, Colombari DS, Menani JV, do Carmo JM, da Silva AA, **Hall JE**, Colombari E. Activation of the brain melanocortin system is required for leptin-induced modulation of chemorespiratory function. *Acta Physiologica (Oxf)* 213(4):893-901, 2015.

35. 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.
36. **da Silva AA**, do Carmo JM, Wang Z, Hall JE. The brain melanocortin system, sympathetic control and obesity hypertension. *Physiology (Bethesda)* 29:196-202, 2014.
37. 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 Comp Physiol* 307(12):R1438-47, 2014.
38. 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.
39. 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 administration into the retrotrapezoid nucleus/parafacial respiratory group (RTN/pFRG) facilitates chemorespiratory response in leptin deficient (ob/ob) mice. *Acta Physiologica (Oxf)* 211(1):240-8, 2014.
40. 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)* 38(6):775-83, 2014.
41. 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.
42. 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.
43. Ying Z, do Carmo JM, Xiang L, **da Silva AA**, Chen M, Ryan MJ, Ostrowski MC, Rajagopalan S, Hall JE. Inhibitor  $\kappa$ B kinase 2 is a myosin light chain kinase in vascular smooth muscle. *Circulation Research* 113(5):562-70, 2013.
44. 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.
45. **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.
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.
51. Ramos DR, Costa NL, Jang KLL, Oliveira IB, **da Silva AA**, Heimann JC, Furukawa LNS. Maternal high-sodium intake alters the responsiveness of the renin-angiotensin system in the adult offspring. *Life Sci* 90:785-92, 2012.
52. 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):R561-7, 2012.
53. Dubinion JH, **da Silva AA**, Hall JE. Chronic blood pressure and appetite responses to central leptin infusion in rats fed a high fat diet. *J Hypertension* 29(4):758-62, 2011.
54. do Carmo JM, **da Silva AA**, Dubinion J, Cai Z, Hall JE. Control of blood pressure, appetite and glucose by leptin in mice lacking leptin receptors in POMC neurons. *Hypertension* 57(5):918-26, 2011.

55. 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(3):428-34, 2011.
56. 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(23):17271-6, 2010.
57. Dubinion JH, **da Silva AA**, Hall JE. Enhanced blood pressure and appetite responses to chronic central melanocortin-3/4 receptor blockade in dietary-induced obesity. *J Hypertension* 28(7):466-70, 2010.
58. **da Silva AA**, do Carmo JM, Freeman JN, Tallam LS, Hall JE. A functional melanocortin system is required for the antidiabetic and cardiovascular actions of leptin in diabetic rats. *Diabetes* 58(8):1749-56, 2009.
59. do Carmo JM, Tallam LS, Roberts JV, Brandon EL, Biglane J, **da 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(3):R803-12, 2009.
60. **da Silva AA**, do Carmo JM, Dubinion JH, Hall JE. Role of sympathetic nervous system in obesity related hypertension. *Curr Hypertens Rep* 11(3):206-11, 2009.
61. do Carmo JM, Hall JE, **da Silva AA**. Chronic central leptin infusion restores cardiac sympathetic-vagal balance and baroreflex sensitivity in STZ-diabetic rats. *Am J Physiol Heart Circ Physiol* 295(5):H1974-81, 2008.
62. **da Silva AA**, do Carmo JM, Kanyicska B, Dubinion J, Brandon E, Hall JE. Endogenous melanocortin system activity contributes to the elevated arterial pressure in spontaneously hypertensive rats. *Hypertension* 51(4):884-90, 2008.
63. **da Silva AA**, Tallam LS, Liu J, Hall JE. Chronic Antidiabetic and Cardiovascular Actions of Leptin: Role of CNS and Increased Adrenergic Activity. *Am J Physiol Regul Integr Comp Physiol* 291(5):R1275-82, 2006.
64. Liu J, **da Silva AA**, Tallam LS, Hall JE. Chronic CNS hyperinsulinemia and regulation of arterial pressure and food intake. *J Hypertension* 24(7):1391-5, 2006.
65. Tallam LS, **da Silva AA** and Hall JE. Melanocortin-4 receptor mediates chronic cardiovascular and metabolic actions of leptin. *Hypertension* 48:58-64, 2006.
66. Matos HR, Marques SA, Gomes OR, **da Silva AA**, Heimann JC, Di Mascio P, Medeiros MHG. Lycopene and beta-carotene protect in vivo DNA damage in rat lymphocytes. *Braz J Med Biol Res* 39(2):203-10, 2006.
67. **da Silva AA**, Tallam LS, Liu J, Hall JE. Does obesity induce resistance to the long-term cardiovascular and metabolic actions of melanocortin 3/4-receptor activation? *Hypertension* 47(2):259-64, 2006.
68. **da Silva AA**. Mechanisms of obesity-induced hypertension: pathophysiological aspects. *Rev Bras Hipertens* 12(4):265-8, 2005.
69. Tallam LS, Stec DE, **da Silva AA**, Kuo JJ and Hall JE. Melanocortin-4 receptor deficient mice are neither hypertensive nor salt-sensitive despite obesity. *Hypertension* 46:326-32, 2005.
70. Tallam LS, Kuo JJ, **da Silva AA**, Hall JE. Cardiovascular, renal, and metabolic responses to chronic central administration of agouti-related peptide. *Hypertension* 44:853-8, 2004.
71. **da Silva AA**, Kuo JJ, Hall JE. Role of hypothalamic melanocortin 3/4-receptors in mediating chronic cardiovascular, renal, and metabolic actions of leptin. *Hypertension* 43:1312-7, 2004.
72. Vidonho Jr AF, **da Silva AA**, Furukawa LNS, Campos RR, Bergamaschi CMT, Catanozi S, Rocha JC, Carpinelli AR, Quintão ECR, Dolnikoff MS, Heimann JC. Perinatal Salt Restriction: A New Pathway to Programming Insulin Resistance and Dyslipidemia in Adult Wistar Rats. *Pediatr Res* 56(6):842-8, 2004.
73. **da Silva AA**, Kuo JJ, Tallam LS, Hall JE. Role of endothelin-1 in blood pressure regulation in a rat model of visceral obesity and hypertension. *Hypertension* 43:383-7, 2004.
74. Kuo JJ, **da Silva AA**, Tallam LS, Hall JE. Role of adrenergic activity in pressor responses to chronic melanocortin receptor activation. *Hypertension* 43:370-5, 2004.
75. Hall JE, Henegar JR, Dwyer TM, Liu J, **da Silva AA**, Kuo JJ, Tallam L. Is obesity a major cause of chronic kidney disease? *Adv Ren Replace Ther* 11(1):41-54, 2004.

76. de paula RB, **Silva AA**, Hall JE. Role of aldosterone in obesity-induced hypertension. *Hypertension* 43:41-47, 2004.
77. **da Silva AA**, Noronha IL, Oliveira IB, Malheiros DMC, Heimann JC. Renin-angiotensin system function and blood pressure in adult rats after perinatal salt overload. *Nutr Metabol Cardiovasc Dis* 13:133-9, 2003.
78. Hall JE, Jones DW, Kuo JJ, **da Silva AA**, Tallam L, Liu J. Impact of the obesity epidemic on hypertension and renal disease. *Curr Hypertens Rep* 5:386-92, 2003.
79. Kuo JJ, **da Silva AA**, Hall JE. Hypothalamic melanocortin receptors and chronic regulation of arterial pressure and renal function. *Hypertension* 41:768-74, 2003.
80. Hall JE, Kuo JJ, **da Silva AA**, De Paula RB, Liu J, Tallam L. Obesity-associated hypertension and kidney disease. *Curr Opin Nephrol Hypertens* 12:195-200, 2003.
81. Catanozi S, Rocha JC, Nakandakare ER, Passarelli M, Mesquita CH, **da Silva AA**, Dolnikoff MS, Harada LM, Quintão ECR, Heimann JC. The rise of the plasma lipid concentration elicited by dietary sodium chloride restriction in Wistar rats is due to an impairment of the plasma triacylglycerol removal rate. *Atherosclerosis* 158(1):81-6, 2001.

### **Book Chapters**

1. **da Silva AA**, do Carmo JM, Wang Z, Hall JE. Leptin, the autonomic nervous system, and hypertension. In: Leptin. Ed. Samuel Dagogo-Jack. Springer New York, 2014. Doi:10.1007/978-3-319-09915-6-14
2. Hall JE, do Carmo JM, **da Silva AA**, Wang Z, Hall ME. Role of the kidney in hypertension. In: Hypertension. Eds. EL Schiffrin and RM Touyz. Future Science Group, 2013. Pp 2-19. Doi:10.2217/EBO.12.475
3. Hall JE, **da Silva AA**, Brandon E, Stec DE, Ying Z, Jones DW. Pathophysiology of obesity-induced hypertension and target organ damage. In "Comprehensive Hypertension", Elsevier, New York, NY, 447-468, 2007.
4. Hall JE, Jones DW, Kuo JJ, **da Silva AA**, Liu J, Tallam LS. Obesity and Hypertension: impact on cardiovascular and renal systems. In "Hypertension: A Companion to Brenner and Rector's The Kidney, 2nd Edition, 2004.
5. JC Heimann, **AA da Silva**, MS Coelho, PO Prada. Restrição do consumo de sal para o tratamento da hipertensão arterial: mitos e fatos. In "Atualidades em Nefrologia" – 6. Editors: J Cruz, RT Barros, HMM Cruz. – Sarvier Editora de Livros Médicos Ltda, São Paulo, SP – Brazil, 2000. (Portuguese)
6. **AA Silva**, JC Heimann. O ambiente perinatal: repercussão sobre a prole. In "Atualidades em Nefrologia" - 5. Editors: J Cruz, RT Barros, HMM Cruz. - Sarvier Editora de Livros Médicos Ltda, São Paulo, SP – Brazil, 1998. (Portuguese)

### **INVITED AND ORAL PRESENTATIONS**

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|-----------------------------|--|
| <b>2020 Seminar</b>         | "CNS mechanisms of cardiac protection in heart failure". Multi-COBRE Virtual Seminar Series. December 08.  |
| <b>2020 Invited Speaker</b> | "Leptin, cardiac function, and glucose homeostasis". State University of Londrina, Parana, Brazil. December 02.  |
| <b>2020 Invited Speaker</b> | "Cardiac protection by the leptin-brain melanocortin system in heart failure". VisualSonics-FujiFilm Webinar Series. November 19.  |
| <b>2020 Seminar</b>         | "Metabolic and cardiac beneficial effects of activating the brain leptin-melanocortin system pathway". University of Mississippi Department of Physiology and Biophysics Seminar Series, Jackson, MS, August 12.                         |
| <b>2019 Invited Speaker</b> | "New CNS mechanisms for glycemic control and cardiac function". International Symposium in Medical Physiology, Ribeirao Preto, Brazil, August 6.   |
| <b>2018 Invited Speaker</b> | "Control of glucose homeostasis and cardiac function by the leptin-melanocortin system". Nephrology Division, University of Mississippi Medical Center, Jackson, MS, December 15.  |
| <b>2017 Invited Speaker</b> | "Control of blood glucose and cardiovascular function by leptin and melanocortin 4 receptors". Symposium Hypertension Research Exchange Program School of Dentistry, Sao Paulo State University/UNESP, Araraquara, SP, Brazil, August 7. |

- 2016 Invited Speaker** “Papel do eixo leptina-sistema melanocortin cerebral na homeostase glicêmica e no controle da função cardiovascular”. UNIARA School of Medicine Annual Symposium, Araraquara, SP, Brazil, April 17.
- 2015 Invited Seminar** “Controle central da glicemia e da função cardiovascular pelo eixo leptina-sistema melanocortina”. Departamento de Fisiologia da Faculdade de Medicina de Ribeirão Preto - USP, Ribeirão Preto, SP, Brazil, October 29.
- 2014 Invited Seminar** “CNS regulation of glucose homeostasis and cardiovascular function by leptin”. Department of Physiology, Tulane University, New Orleans, LA, July 14.
- 2014 Invited Seminar** “Neurohumoral control of glucose homeostasis and cardiovascular function by the leptin-melanocortin-4 receptor axis”. Department of Integrative Biology and Pharmacology, University of Texas Health Science Center Medical School, Houston, TX, February 11.
- 2012 Invited Speaker** Safety Pharmacology Society (SPS) Annual Meeting ASH Annual Meeting, on “Cardiovascular Biology of the Leptin System: Safety Implications”. Phoenix, AZ, October 1-4.
- 2012 Invited Speaker** ASH Annual Scientific Meeting on “Obesity and Hypertension”. New York, NY, May 19-22.
- 2012 Oral Presentation** “Ganglionic blockade does not impair the chronic CNS-mediated antidiabetic action of leptin in streptozotocin-induced diabetic rats”. Experimental Biology Meeting, San Diego, CA.
- 2010 Invited Speaker** AHA Scientific Sessions “Role for Leptin in Cardiovascular and Renal Disease”. Chicago, IL, November 13-17.
- 2010 Invited Speaker** FASEB Summer Conference on “Neural Mechanisms in Cardiovascular Regulation”. Saxtons River, Vermont, July 18 – 23.
- 2010 Invited Speaker** Symposium on “Energy and Metabolism”, Sao Paulo, Brazil, October 13 – 15.
- 2010 Seminar** Department of Biochemistry Seminar Series, University of Mississippi Medical Center, Jackson, MS, November 22.
- 2009 Seminar** “Central mechanisms regulating glucose homeostasis”. Department of Pharmacology and Toxicology Seminar Series, University of Mississippi Medical Center, Jackson, MS, November 8.
- 2009 Seminar** “CNS control of glucose homeostasis”. Department of Physiology and Biophysics Seminar Series, University of Mississippi Medical Center, Jackson, MS, July 22.
- 2008 Invited Seminar** “Neurohumoral mechanisms of CNS control of glucose homeostasis”. Dept. Physiology of the Medical College of Georgia, Augusta, GA, November 11.
- 2007 Oral Presentation** “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.
- 2006 Oral Presentation** “A functional melanocortin system is required for the CNS actions of leptin on peripheral glucose regulation and cardiovascular function”. Experimental Biology Meeting, San Francisco, CA.
- 2005 Oral Presentation** “CNS actions of leptin play a major role in peripheral glucose regulation independent of adrenergic activation”. 59<sup>th</sup> Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, D.C.
- 2004 Seminar** “Obesity Hypertension: Role of Leptin, Melanocortin and Endothelin-1”. Department of Physiology and Biophysics Seminar Series, University of Mississippi Medical Center, Jackson, MS, April 17.
- 2003 Oral Presentation** “Role of endothelin-1 in blood pressure regulation in a rat model of visceral obesity and hypertension”. 57<sup>th</sup> Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, D.C.



**1999 Oral Presentation** “Sobrecarga salina durante a gestação e lactação aumenta a pressão arterial, diminui a sensibilidade ao sal, a modulação do sistema renina-angiotensina e o desenvolvimento ponderal da prole em ratos wistar”. VIII Congresso da Sociedade Brasileira de Hipertensão, Belo Horizonte, Brazil.

## CHAired SESSIONS

- 2011** “Obesity and Metabolic Syndrome” – 65<sup>th</sup> Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease and the Inter-American Society of hypertension, Orlando, FL.
- 2010** “Central nervous system control of metabolic and cardiovascular function” – Global Obesity Summit Meeting, Jackson, MS.
- 2009** “Vessels and Volume in Diabetes and Obesity” – 63<sup>rd</sup> Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL.
- 2008** “Obesity and Cardiovascular Disease” – Jackson Cardiovascular-Renal Meeting, Jackson, MS.

## PRESENTATIONS AT SCIENTIFIC MEETINGS

- da Silva AA**, Gava FN, Omoto ACM, Moak SP, Dai X, Hall JE, do Carmo JM. Parental obesity leads to diastolic dysfunction, but not hypertension, in female offspring. *AHA-Scientific Sessions 2020*.
- Omoto ACM, do Carmo JM, Flynn E, Moak SP, Li X, Mouton AJ, Wang Z, Hall JE, **da Silva AA**. Chronic central nervous system actions of leptin protect against myocardial ischemia/reperfusion injury. *AHA-Scientific Sessions 2020*.
- Li X, do Carmo JM, Wang, Z, **da Silva AA**, Mouton A, Omoto ACM, Hall ME, Hall JE. Empagliflozin attenuates pressure-overload heart failure via direct actions in the heart that reduce glycolysis and improve mitochondrial oxidative phosphorylation. *AHA-Scientific Sessions 2020*.
- da Silva AA**, Gava FN, Omoto ACM, Moak SP, Dai X, Hall JE, do Carmo JM. Intergenerational inheritance of obesity-induced diastolic dysfunction with preserved ejection fraction. *Hypertension 74*(suppl 1):A090, 2019 (oral presentation by da Silva AA).
- do Carmo JM, **da Silva AA**, Gava FN, Moak SP, Dai X, Hall JE. Impact of leptin deficiency compared to neuronal specific leptin receptor deletion on cardiometabolic regulation. *Hypertension 74*(suppl 1):A137, 2019.
- da Silva AA**, Harmancey R, Dai Xuemei, Moak SP, Roy CN, Wang Z, Hall JE, do Carmo JM. Differential Regulation of Cardiac Substrate Utilization in Response to Chronic Central Nervous System Administration of Leptin and Melanotan II in Rats with Myocardial infarction. *FASEB J 33*(suppl 1):532.10, 2019.
- Gava FN, **da Silva AA**, Ashraf S, Omoto ACM, Dai X, Pullman M, Harmancey R, Hall JE, do Carmo JM. *FASEB J 33*(Suppl. 1):830.6, 2019.
- Omoto ACM, do Carmo JM, **da Silva AA**, Salgado MC, Salgado HC, Fazan R, Hall JE. Cardiac function and exercise capability in female Goto-Kakizaki type-2 diabetic rats after myocardial ischemia/reperfusion. *FASEB J 33*(Suppl. 1):690.4, 2019.
- Moak SP, Dai X, Hall JE, **da Silva AA**, do Carmo JM. Impact of maternal obesity on body weight regulation and sleep time in offspring. *FASEB J 33*(Suppl. 1):753.4, 2019.
- Bailey KC, Wang Z, Moak SP, Dai X, Fu Y, do Carmo JM, **da Silva AA**, Hall JE. TRPC6 deficiency causes obesity and metabolic dysfunction. *FASEB J 33*(Suppl. 1):753.1, 2019.
- Gava FN, **da Silva AA**, Hall JE, do Carmo JM. Chronic central melanocortin 4 receptor activation attenuates cardiac dysfunction after myocardial infarction in rats. *Hypertension 72* (suppl. 1):P192, 2018 (Oral presentation by da Silva AA).
- Gava FN, Hall JE, **da Silva AA**, do Carmo JM. Intergenerational obesity: impact on cardiac function and reserve in mice fed a high fat diet. *Hypertension 72*(suppl. 1):P294, 2018.
- Wang Z, do Carmo JM, **da Silva AA**, Moak SP, Bailey KC, Hall JE. Trpc6 deficiency causes obesity, impaired glucose tolerance and leptin resistance. *Hypertension 72*(suppl. 1):A008, 2018.
- do Carmo JM, **da Silva AA**, Hall JE. Evidence for a circulating factor released by the brain that contributes to chronic antidiabetic actions of leptin. *FASEB J 32*(Suppl. 1):603.3, 2018.

15. Moak SP, **da Silva AA**, Hal JE, do Carmo JM. Role of melanocortin-4 receptor activation in hypertension induced by chronic intermittent hypoxia. *FASEB J* 32(Suppl. 1):727.6, 2018.
16. do Carmo JM, **da Silva AA**, Moak SP, Wang Z, Hall JE. Metabolic and cardiovascular responses to chronic intermittent hypoxia and hypercapnia. *FASEB J* 32(Suppl. 1):533.4, 2018.
17. **da Silva AA**, Gava FN, Lataro, RM, Silva CMA, Salgado HC. Chronic central leptin infusion improves cardiac function in STZ-diabetic rats with heart failure. *FASEB J* 31:853, 2017.
18. 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. (Poster – Onsite Trainee Poster Award).
19. do Carmo JM, Freeman JN, **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. (Oral presentation).
20. **da Silva AA**, Gava FN, Lataro R, da Silva CAA, Rodrigues DP, Guida TV, do Carmo JM, Salgado HC. Infusao intracerebroventricular cronica de leptina melhora a funcao cardiaca de ratos diabeticos com insuficiencia cardiaca. 1º COMA, Barao de Maua University Center, Ribeirao Preto, SP – Brazil, 2017. (Poster Award - 1<sup>st</sup> place).
21. **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.
22. 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; 31:1024.7-1024.7.
23. **da Silva AA**, Hall JE, do Carmo JM. Hypophysectomy does not abolish the anorexic or antidiabetic effects of leptin in STZ-induced diabetic rats. VI<sup>th</sup> Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE). 2016.
24. 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.
25. 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.
26. 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.
27. do Carmo JM, **da Silva AA**, Wang Z, Hall JE. Chronic inhibition of endoplasmic reticulum stress attenuates cardiovascular but not appetite responses to MC3/4R antagonist in SHR. *FASEB J* 2016; 30:959.3.
28. do Carmo JM, Freeman JN, **da Silva AA**, Wang Z, Hall JE. Role of Suppressor of Cytokines Signaling 3 (Socs3) in Modulating Chronic Metabolic and Cardiovascular Effects of Leptin. *Hypertension* 66 (suppl 1):A085, 2015.
29. Wang Z, do Carmo JM, **da Silva AA**, 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* 66 (suppl 1):AP076, 2015.
30. do Carmo JM, **da Silva AA**, Yoo J, Moak SP, Spradley FT, Hall JE. Brain Endoplasmic Reticulum (ER) Stress Reduces Appetite and Increases Blood Pressure Independent of the Melanocortin-4 Receptor in Rats. *Hypertension* 66 (suppl 1):A012, 2015.
31. 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* 29:959.9, 2015.
32. 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* 29:647.2, 2015.
33. **da Silva AA**, do Carmo JM, Hall JE. Melanocortin-4 receptor signaling is required for the anorexic, cardiovascular and antidiabetic actions of leptin in diabetic rats. *Hypertension* 64 (suppl 1):A561, 2014.
34. do Carmo JM, **da Silva AA**, Houghton HJ, Moak SP, Smith A, Hall JE. Impact of hyperandrogenemia on cardiovascular and metabolic function and ventilatory responses to hypercapnia in female SHRs. *Hypertension* 64 (suppl 1):A209, 2014.

35. **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* 28:1083.5, 2014.
36. **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* 28:854.3, 2014.
37. 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* 28:686.7, 2014.
38. Wang Z, do Carmo JM, **da Silva AA**, Hall JE. Inhibition of endoplasmic reticulum stress attenuates aorta coarctation induced hypertension and kidney injury in diabetic Goto-Kakizaki rats. *FASEB J* 28:LB724. 2014.
39. do Carmo JM, da Silva AA, Wang Z, Hall JE. Role of hindbrain endogenous melanocortin receptor activity in contributing to hypertension in SHR. *Hypertension* 62:A439, 2013.
40. do Carmo JM, **da Silva AA**, Wang Z, Hall JE. Role of hindbrain endogenous melanocortin receptor activity in contributing to hypertension in SHR. *Hypertension* 62:A439, 2013.
41. **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*. 27:1123.12, 2013.
42. 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*. 27:1153.6, 2013.
43. 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*. 27:1120.3, 2013.
44. 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 CO<sub>2</sub>-sensitivity and respiration. *FASEB J*. 27:1120.3, 2013.
45. 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* 60:A27. 2012.
46. **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*. 26:1128.3, 2012.
47. 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*. 26:877.2, 2012.
48. 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*. 26:1093.6, 2012.
49. 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.
50. 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.
51. 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
52. 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
53. 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.
54. **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
55. 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

56. 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. *Experimental Biology*, Anaheim, CA, 2010. *FASEB J.* 2010 24:597.6
57. 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. *Experimental Biology*, Anaheim, CA, 2010. *FASEB J.* 2010 24:996.2
58. 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. *Experimental Biology*, Anaheim, CA, 2010. *FASEB J.* 2010 24:1051.1.
59. Bassi M, do Carmo JM, **da Silva AA**, Hall JE. Chronic CNS actions of adiponectin on appetite, metabolism and cardiovascular function. *Experimental Biology*, Anaheim, CA, 2010. *FASEB J.* 2010 24:780.1
60. 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). Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2009. *Hypertension* 2009 54:e103.
61. 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. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2009. *Hypertension* 2009 54:e102.
62. 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. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2009. *Hypertension* 2009 54:e104.
63. do Carmo JM, **da Silva AA**, Hall JE. Cardiovascular function and metabolism in mice with Shp2 deletion in forebrain neurons. *Experimental Biology*, New Orleans, LA, 2009. *FASEB J.* 2009 23:785.5.
64. Dubinion J, **da Silva AA**, do Carmo JM, Hall JE. Cardiovascular and metabolic responses to chronic PYY infusion. *Experimental Biology*, New Orleans, LA, 2009. *FASEB J.* 2009 23:983.4.
65. 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. *Experimental Biology*, New Orleans, LA, 2009. *FASEB J.* 2009 23:1015.5.
66. 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<sup>-/-</sup>) mice treated with L-NAME. Jackson Cardiovascular-Renal Meeting, Jackson, MS, 2008.
67. **da Silva AA**, do Carmo JM. Chronic CNS Actions of Ghrelin on Appetite, Body Weight and Cardiovascular Function. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Atlanta, GA, 2008.
68. do Carmo JM, **da Silva AA**, Hall JE. Impaired spontaneous baroreflex sensitivity and absence of hypertension in old leptin deficient obese mice. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Atlanta, GA, , 2008.
69. **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. *Experimental Biology*, San Diego, CA, 2008.
70. do Carmo JM, **da Silva AA**, Brandon E, Hall JE. Cardiovascular function and metabolism in old melanocortin-4 receptor deficient obese mouse. *Experimental Biology*, San Diego, CA, 2008.
71. Dubinion JH, **da Silva AA**, Dreher A, Hall JE. Cardiovascular and metabolic responses to chronic central MC3/4R antagonism in rats fed a high fat diet. *Experimental Biology*, San Diego, CA, 2008.
72. 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. *Experimental Biology*, San Diego, CA, 2008.

73. do Carmo JM, Hall JE, **da Silva AA**. 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.
74. **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.
75. **da Silva AA**, Tallam LS, Liu J Brandon E, Hall JE. A functional melanocortin system is required for the CNS actions of leptin on peripheral glucose regulation and cardiovascular function. Experimental Biology, San Francisco, CA, 2006.
76. Tallam LS, Roberts JV, **da Silva AA** and Hall JE. Impact of obesity on renal structure and function in the absence of hypertension: evidence from melanocortin-4 receptor deficient mice. Experimental Biology, San Francisco, CA, 2006.
77. **da Silva AA**, Tallam LS, Liu J, Hall JE. CNS actions of leptin play a major role in peripheral glucose regulation independent of adrenergic activation. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, DC, 2005.
78. Tallam LS, **da Silva AA**, Hall JE. Melanocortin-4 receptor mediates chronic cardiovascular and metabolic actions of leptin. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, DC, 2005.
79. **da Silva AA**, Kuo JJ, Brown P, Tallam LS, Liu J and Hall JE. Chronic cardiovascular, metabolic and renal actions of central hyperleptinemia in type-1 diabetic rats. Experimental Biology, San Diego, CA, 2005.
80. Tallam LS, Stec DE, **da Silva AA** and Hall JE. Renal Changes in Severely Obese Normotensive Melanocortin-4 Receptor Deficient (MC4R (-/-)) Mice. Experimental Biology, San Diego, CA, 2005.
81. Meng S, **da Silva AA**, Liu J, Kuo JJ, Tallam LS, Hall JE. Role of oxidative stress in mediating chronic cardiovascular actions of leptin. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2004.
82. Liu J, **da Silva AA**, Meng S, Hall JE. Chronic central infusion of insulin transiently decreases food intake without changing arterial pressure and heart rate in rats. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2004.
83. Tallam LS, Stec DE, **da Silva AA**, Kuo JJ and Hall JE. Melanocortin-4 receptor deficient mice are neither hypertensive nor salt-sensitive despite obesity. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Chicago, IL, 2004.
84. **da Silva AA**, Kuo JJ, Tallam L, Hall JE. Blood pressure regulation in rats exposed to low protein intra-uterine: role of endothelin-1. Experimental Biology Meeting, Washington, D.C., 2004.
85. Kuo JJ, **da Silva AA**, Tallam LS, and Hall JE. Chronic Cardiovascular and Renal Actions of Melanin-Concentrating Hormone. Experimental Biology Meeting, Washington, D.C., 2004.
86. Tallam LS, Kuo JJ, **da Silva AA** and Hall JE. Role of Agouti Related Peptide in Chronic Regulation of Cardiovascular and Renal Function. Experimental Biology Meeting, Washington, D.C., 2004.
87. **AA da Silva**, JJ Kuo, LS Tallam, J Liu, JE Hall. Chronic cardiovascular and dietary responses to activation of melanocortin 3/4 receptors in a model of diet-induced obesity. 20<sup>th</sup> Meeting of the International Society of Hypertension, Sao Paulo – Brazil, 2004.
88. Vidonho Jr. AF ; Furukawa LNS, **da Silva AA**, Nascimento CA, Heimann JC. Salt restriction during the perinatal period: a new pathway to insulin resistance and dyslipidemia on adulthood. 20<sup>th</sup> Meeting of the International Society of Hypertension, Sao Paulo – Brazil, 2004.
89. **da Silva AA**, Kuo JJ, Tallam LS, Hall JE. Role of endothelin-1 in blood pressure regulation in a rat model of visceral obesity and hypertension. 57<sup>th</sup> Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, D.C., 2003.
90. Kuo JJ, **da Silva AA**, Tallam LS, Hall JE. Role of adrenergic activity in pressor responses to chronic melanocortin receptor activation. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, D.C., 2003.
91. Vidonho Jr. AF, Carrilho BA, Furukawa LNS, **da Silva AA**, Bergamaschi CT, Campos RR, Heimann JC. Maternal salt intake during pregnancy and lactation influences blood pressure and insulin sensitivity in adult

- offspring. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Washington, D.C., 2003.
92. **da Silva AA**, Kuo JJ, Hall JE. Hypothalamic Melanocortin-3/4 Receptor Inhibition Abolishes the Dietary and Cardiovascular Responses to Chronic Leptin Infusion. *Experimental Biology*, San Diego, CA, 2003.
  93. Vidonho Jr. AF, Carrilho BA, Furukawa LNS, **da Silva AA**, Bergamaschi CT, Campos RR, Heimann JC. Blood pressure and insulin sensitivity in adult offspring are influenced by maternal salt intake during pregnancy and lactation. *Experimental Biology*, San Diego, CA, 2003.
  94. de Paula RB, **da Silva AA**, Hall JE. Aldosterone antagonism attenuates obesity-induced hypertension and glomerular hyperfiltration. *Inter-American Society of Hypertension*, San Antonio, TX, 2003.
  95. Vidonho Jr. AF, Carrilho BA, Furukawa LNS, **da Silva AA**, Bergamaschi CT, Campos RR, Heimann JC. Maternal salt intake during pregnancy and lactation influences blood pressure and insulin sensitivity in adult offspring. *Inter-American Society of Hypertension*, San Antonio, TX, 2003.
  96. Vidonho Jr. AF, Furukawa LNS, **da Silva AA**, Heimann JC. Salt intake during pregnancy and lactation influences blood pressure, insulin sensitivity, and plasma lipid profile in adult offspring. 1<sup>o</sup> Simposio Avancos em Pesquisas Medicas, São Paulo, Brazil, 2003.
  97. Hall JE, Kuo J, **da Silva AA**, Tallam L, Liu J, Dai Y. Obesity hypertension, sympathetic activation, and neuroendocrine pathways. *Clin Auto Res*. 13:112, 2003.
  98. Kuo JJ, **da Silva AA**, Hall JE. Chronic cardiovascular and renal responses to chronic hypothalamic melanocortin-4 receptor activation or inhibition. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Orlando, FL, 2002.
  99. Vidonho Jr. AF, Furukawa LNS, **da Silva AA**, Heimann JC. Blood pressure and insulin sensitivity in adult offspring are influenced by maternal salt intake during pregnancy and lactation. 19<sup>th</sup> Meeting of the International Society of Hypertension, Prague, 2002.
  100. Kuo JJ, **da Silva AA**, Hall JE. Cardiovascular and Renal Responses to Chronic Hypothalamic Melanocortin-4 Receptor Blockade. *Experimental Biology*, New Orleans, LA, 2002.
  101. **da Silva AA**, Kuo JJ, Hall JE. Cardiovascular and Renal Actions of Chronic Infusions of NPY and NPY-Y1 Antagonist into the Rat Hypothalamus. The Second Gulf Coast Physiological Society Meeting, Jackson, MS, 2002.
  102. Kuo JJ, **da Silva AA**, Hall JE. Cardiovascular and Renal Actions of Chronic Blockade of the Hypothalamic Melanocortin System in Rats. The Second Gulf Coast Physiological Society Meeting, Jackson, MS, 2002.
  103. **da Silva AA**, Heimann JC. Perinatal salt overload leads to higher blood pressure, lower salt sensitivity, and loss of the renin-angiotensin system modulation by salt in the adult offspring. In: XXXIV International Congress of Physiological Sciences, Christchurch, 2001.
  104. **da Silva AA**, Braga IO, Noronha IL, Malheiros DMAC, Heimann JC. Efeitos da sobrecarga salina no período perinatal sobre a pressão arterial e sistema renina-angiotensina na idade adulta. Congresso Brasileiro de Hipertensão, Goiania, Brazil, 2000.
  105. **da Silva AA**, Heimann JC. Perinatal salt overload leads to higher blood pressure, lower salt sensitivity, and loss of the renin-angiotensin system modulation by salt in the adult offspring. 18<sup>th</sup> Meeting of the International Society of Hypertension, Chicago, IL, 2000.
  106. **da Silva AA**, Heimann JC. Dietary salt overload during pregnancy and lactation increases blood pressure, and decreases salt sensitivity and the modulation of the renin-angiotensin system in response to salt in adult offspring. Council for High Blood Pressure Research in association with the Council on the Kidney in Cardiovascular Disease, Orlando, FL, 1999.
  107. **da Silva AA**, Heimann JC. Sobrecarga salina durante a gestação e lactação aumenta a pressão arterial, diminui a sensibilidade ao sal, a modulação do sistema renina-angiotensina e o desenvolvimento ponderal da prole em ratos wistar. VIII Congresso da Sociedade Brasileira de Hipertensão, Belo Horizonte, Brazil, 1999.
  108. **da Silva AA**, Dolnikoff MS, Heimann JC. Sobrecarga salina durante a gestação e lactação aumenta a pressão arterial e diminui a sensibilidade ao sal e o desenvolvimento ponderal da prole em ratos wistar. XIV Reunião Anual da Federação de Sociedades de Biologia Experimental, Caxambu, Brazil, 1999.

109. **da Silva AA**, Furukawa LNS, Santos EA, Heimann JC. The consequences on the offspring due to chronic salt overload during pregnancy. 17<sup>th</sup> Meeting of the International Society of Hypertension, Amsterdam, 1998.
110. Catanozi S, Passarelli M, Rocha JC, **da Silva AA**, Nakandakare EN, Mesquita CH, Harada LM, Dolnikoff MS, Heimann JC, Quintao ECR. On low salt diet, a high plasma triglyceride concentration is associated with normal triglyceride production. 17<sup>th</sup> Meeting of the International Society of Hypertension, Amsterdam, 1998.
111. Catanozi S, Passarelli M, Rocha JC, **da Silva AA**, Nakandakare EN, Mesquita CH, Harada LM, Dolnikoff MS, Heimann JC, Quintao ECR. Low salt consumption increases plasma triglyceride despite a normal production rate. Meeting of the American Society of Hypertension, New York, NY, 1998.

#### **D. Additional Information: Research Support and/or Scholastic Performance**

##### **Ongoing Research Support**

- NIH-NIGMS - P20GM104357 (Hall, Director) 2021-2022  
 Supplement Grant – Alzheimer’s disease: Parental obesity and developmental origins of cognitive dysfunction  
 Cardiorenal and Metabolic Diseases Research Center  
 Role: PI (with Dr. do Carmo, MPI)
- NIH-NIGMS - P20GM104357 (da Silva, PI) 07/01/2019-06/30/2021  
 Pilot Grants Program-Center of Biomedical Research Excellence (COBRE) “Obesity, Cardiorenal and Metabolic Disease Center”  
 Title: “CNS mechanisms of cardiac protection in heart failure.”
- NIH-NIDDK - R01 DK121411 (do Carmo, PI) 09/19/2019-09/18/2022  
 “Long-term consequences of parental obesity on development programming of cardiorenal diseases in offspring”  
 The major goal of this project is to investigate the effects of parental obesity on kidney dysfunction in offspring.  
 Role: Investigator (15%)
- NIH-NIGMS - P20GM104357 (Hall, Director) 07/16/2018-04/30/2023  
 National Institutes of Health, National Institute of General Medical Science  
 Cardiorenal and Metabolic Diseases Research Center  
 Role: Core Investigator, Cardiometabolic Phenotyping and Imaging Cores

##### **Completed Research Support**

- P20 RR024217 Hall (Director and PI of Project I) 08/01/2014-05/31/2019  
 NIH/NHLBI  
 "Cardiovascular dynamics and their control"  
 The major long-term goal of this project is to investigate the central nervous system signaling pathways that mediate the antidiabetic actions of leptin.  
 Role: Investigator of Project I
- P20 RR024217 da Silva (PI of Project I) 09/05/2013-04/30/2018  
 NIH/NHLBI  
 "Hypertension and Cardiorenal Diseases Research Center"  
 The major long-term goal of this project is to investigate the central nervous system signaling pathways that mediate the antidiabetic actions of leptin.  
 Role: PI of Project I
- JP-15440 da Silva (PI) 02/01/15-10/31/2017  
 CAPES-Brazil  
 "Protective cardiovascular effects of leptin in type-1 diabetes"  
 Role: Project PI
- P01-HL051971 Hall (Director and PI of Project I) 12/15/08-11/30/2013  
 NIH/NHLBI  
 "Cardiovascular dynamics and their control"  
 Role: Co-Investigator of Project I

Intramural Research Support Grant da Silva (PI) 11/01/10-10/31/11  
UMHC

"Neurohumoral control of peripheral glucose homeostasis"

Role: Project PI

AHA 0635600N da Silva (PI) 07/01/06-6/30/10

AHA National

"Antidiabetic and Cardiovascular Actions of Leptin Mediated by the Central Nervous System"

Role: Project PI

AHA 0325353B da Silva (PI) 07/01/03-6/30/05

AHA Southeast Affiliate

"Role of Melanocortin and Sympathetic Nervous Systems in Mediating the Actions of Leptin in Type-1 Diabetes"

Role: Project PI

P01-HL051971 Hall (PI) 01/01/04-12/31/08

NIH/NHLBI

"Cardiovascular dynamics and their control"

Role: co-Investigator of Project I

### **Pending Research Support**

R01 proposal da Silva, do Carmo (MPI)

NIH

"Cardiometabolic protective mechanisms of CNS melanocortin system activation"

Role: PI

R01 proposal do Carmo, da Silva (MPI)

NIH

"Parental obesity, developmental origins of cardiovascular diseases and interactions with aging"

Role: PI