BIOGRAPHICAL SKETCH

NAME: Joao Pedro Torres Guimaraes

POSITION TITLE: Post-Doctoral Research Associate

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Texas Tech University, Lubbock, TX, USA	Post-Doc	Ongoing	Metabolic Diseases
University of Sao Paulo, Sao Paulo, SP, Brazil	PHD	2021	Immunology
Federal University of Goias, Goiania, GO, Brazil	MS	2017	Immunology
Faculty of the Brazilian Academy of Education and Culture Ltda, Goiania, GO, Brazil	EDS	2016	Undergraduate teaching
Federal University of Goias, Goiania, GO, Brazil	BS	2015	Biomedical Sciences

A. Positions and Honors

Positions and Employment

2021- Current Postdoctoral Fellow, Texas Tech University, Department of Nutritional Sciences, Lubbock, TX.

Honors

2022- 1st Place on Poster Presentation for the Laura W. Bush Institute for Women's Health at the ORI - Obesity Research Institute's 7th Annual Meeting at Texas Tech University - **"Regulation of energy metabolism by dietary pH and protein source in diet-induced obese male and female mice".**

2021- Honorable Mention of oral presentation in virtual format at 53º Brazilian Congress of Pharmacology and Experimental Therapeutics - **"Role of RAS in glucose metabolism and autophagy in metabolically active tissues from type 1 diabetic and obese mice".**

Other experience and Professional Membership

2021- Current American Heart Association
2021- Current American Society for Biochemistry and Molecular Biology
2018- Current Brazilian Society of Immunology

B. Contribution to Science

During my PhD, I have evaluated the effects of leukotrienes and RAS in metabolically active tissues from mice with T1D and obese mice that overexpress angiotensinogen. We found that, in the muscle of T1D mice, the treatment with captopril increased the expression of genes related to the insulin receptor, autophagy, and RAS pathway. In the liver of wild type T1D and leukotriene KO T1D mice, the treatment with captopril increased the expression of genes from these pathways as well. In the liver of obese mice, we found decreased gene expression of the insulin pathway, regardless of treatment with captopril or overexpression of angiotensinogen. Analyzing the set of results, we concluded that leukotrienes have a fundamental role in the development of insulin resistance in the muscle of mice with T1D. In addition, treatment with captopril recovered the gene expression of the main markers of the insulin signaling pathway, as well as those related to the functioning of the autophagy pathway in the muscle and liver, both in T1D and in obesity. This indicates a possible role of captopril in insulin sensitivity and activation of autophagy in these diseases, which could improve life quality for patients with metabolic diseases, since this drug is currently in use as a treatment for cardiovascular diseases (CVDs), for which both obesity and diabetes are considered risk factors. In the meantime, I had the opportunity to write 2 review papers as coauthor, were we discussed the relationship of

RAS and breast cancer, as well as the mechanisms of ER stress and microRNAs in obesity. I am about to complete one year and a half of my postdoctoral position and since then I was able to publish one paper as first author, besides being a co-author in another published paper from our group, from the project that I am currently enrolled, and co-author in other published papers listed below from the current and past group that I have worked. During this time, I was able to learn/improve lab techniques and help in the mentoring of both undergraduate and graduate students. I have also improved my grant writing skills by writing proposals and attending grant writing seminars/workshops, one of them ministered by Dr. John Robertson, which was very productive and informative. Overall, I have worked in several different research fields, which helped me to develop a versatile profile for both bench and writing tasks. Additionally, I have attended several national and international conferences, where I was able to improve my knowledge and share my work with other researchers. All published works listed below have a potential role in a better understanding of the metabolic diseases and their causes, treatments, and prospective for healthier outcomes.

1. Emanuella S. A. Sousa, Luiz A. D. Queiroz, **João P. T. Guimarães**, Kamilla C. Pantoja, Rafael S. Barros, Sabrina Epiphanio, Joilson O. Martins. The influence of high glucose conditions on macrophages and its effect on the autophagy pathway. **Frontiers in Immunology**, 2023. **In press**

2. **Guimarães, J. P. T.**; Menikdiwela, K.R.; Ramalho, T.R.; Queiroz, L.A.D.; Kalupahana, N. S.; Jancar, S.; Ramalingam, L.; Martins, J.O.; Moustaid-Moussa, N. Effects of Captopril on Glucose Metabolism and Autophagy in Liver and Muscle from Mice with Type 1 Diabetes and Diet-Induced Obesity. **Biochimica at Biophysica Acta - Molecular Basis of Disease**, 2022.

3. Menikdiwela, K.R.; **Guimarães, J. P. T.**; Scoggin, S.; Gollahon, L. S.; Moustaid-Moussa, N. Dietary pH Enhancement Improves Metabolic Outcomes in Diet-induced Obese Male and Female Mice: Effects of Beef vs. Casein Proteins. **Nutrients**, 2022.

4. Menikdiwela, K.R.; **Guimarães, J. P. T.**; Ramalingam, L.; Kalupahana, N. S.; Dufour, J. M.; Washburn, R. L.; Moustaid-Moussa, N. Mechanisms linking endoplasmic reticulum (ER) stress and microRNAs to adipose tissue dysfunction in obesity. **Critical Reviews in Biochemistry and Molecular Biology**, 2021.

5. Queiroz L.A.D.; Assis, J.B.; **Guimarães, J. P. T.**; Sousa, E.S.A.; Milhomem A.C.; Sunahara K.K.S.; Sá-Nunes, A.; Martins, J.O. Endangered Lymphocytes: The Effects of Alloxan and Streptozotocin on Immune Cells in Type 1 Induced Diabetes. **Mediators of Inflammation**, 2021.

6. Sardela de Miranda, F; **Guimarães, J.P.T.**; Menikdiwela, K.R.; Mabry, B; Dhakal, R; Rahman, R.L.; Moussa, H; Moustaid-Moussa, N. Breast cancer and the renin-angiotensin system (RAS): therapeutic approaches and related metabolic diseases. **Molecular and Cellular Endocrinology**, 2021.

7. Casagrande, F.B.; Ferreira, S.S.; De Sousa, E.S.A.; **Guimarães, J.P.T.**; Romera, L.M.D.; Tessaro, F.H.G.; Almeida, S.R; Rodrigues, S.F.P.; Martins, J.O. Insulin modulates inflammatory cytokine release in acute stages and augments expression of adhesion molecules and leukocytes in lungs on chronic stages of paracoccidioidomycosis. **Frontiers in Immunology**, 2020.

8. **Guimarães, J. P. T**.; Filgueiras, L. R.; Martins, J. O.; Jancar, S. Leukotriene involvement in the insulin receptor pathway and macrophage profiles in muscles from type 1 diabetic mice. **Mediators of Inflammation**, 2019.

Ready for submission: João Pedro Tôrres Guimarães, Luiz A. D. Queiroz, Kalhara R. Menikdiwela, Nayara Pereira, Theresa Ramalho, Sonia Jancar, Naima Moustaid-Moussa, Joilson O. Martins. The role of captopril in leukotriene deficient type 1 diabetic mice. 2023.

C. Skills

Research design, experiment development, research reporting, literature review, paper and grant writing, good laboratory practices (GLP), laboratory organization and reagents ordering, academic presentations, undergraduate/graduate student mentoring, extensive background in immunology and immunometabolism. Proficient in qPCR, RNA and DNA extraction, primer design, protein extraction and quantification, western blotting, ELISA, multiplex assay, animal handling and tissue acquisition, insulin, and glucose tolerance test.

D. Research Support

Ongoing:

Empirical Foods, Inc 2018-2022
Naima Moustaid-Moussa (PI), Lauren Gollahon.
Effects of lean beef proteins and diet pH on age-related obesity, diabetes, and cancer
Goal is to test effects of lean beef proteins in high fat and low-fat fed B6 mice, with emphasis on metabolic outcomes in diet-induced obesity, diabetes, and age-related cancer development.

Completed (Past 3 years):

FAPESP scholarship, a competitive state grant, to develop the PhD research (Fundação de Amparo a Pesquisa de Sao Paulo, FAPESP 2019, 2018/23266-0) - R$ 61,501.05.

BEPE/FAPESP scholarship, a competitive state grant, to develop part of the PhD research during one year at Texas Tech University (Fundação de Amparo a Pesquisa de Sao Paulo, FAPESP 2019, 2019/09983-3) - US$ 23,680.00.