



**Name:** Aishwarya Rengarajan

**Email:** arengarajan@wisc.edu

**Major Professor:** Dr. Derek Boeldt

**Degree Objective:** Ph.D. Endocrinology and Reproductive Physiology, Minor in Quantitative Biology

**Background:** B.Tech Biotechnology, National Institute of Technology - Warangal, India 2016

**Current Research Project:** Study of immune-endothelial interactions on endothelial dysfunction in preeclampsia

Preeclampsia is a maternal hypertensive disorder in pregnancy that is characterized by endothelial dysfunction. In pregnancy, adequate vasodilation of the endothelium is necessary to maintain appropriate maternal blood pressure. Endothelial barrier function is required for maintaining appropriate fluid/solute concentrations in pregnancy and is compromised in preeclampsia. The cause of endothelial dysfunction in preeclampsia remains unknown. There is a possibility that immune cells and secreted cytokines mediate endothelial dysfunction, since preeclampsia is associated with an altered immune response in terms of immune cell numbers, localization of immune cell types and cytokine secretion. I am studying the role of inflammatory cytokines and cord blood mononuclear cells (CBMCs) on endothelial function in pregnancy and preeclampsia. I utilize a unique microscale LumeNEXT model to generate an in vitro vessel model using Human Umbilical Vein Endothelial Cells (HUVECs) towards this study.

### **Honors:**

2018 In Training Investigator Poster Award for best poster at 65<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, San Diego, CA, 2018 (Awarded to ~3% of poster presenters).

Exceptional Poster Award at Women's Health and Health Equity Research Symposium, University of Wisconsin – Madison, 2018.

### **Grants Received:**

Endocrinology-Reproductive Physiology Research Supply Grant, University of Wisconsin, Madison, 2018.

Student Research Travel Grants (for Conference travel), University of Wisconsin, Madison, 2019 for participation at 66<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, Paris, France.

Student Research Travel Grants (for Conference travel), University of Wisconsin, Madison, 2021 for participation at 68<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, Boston, Massachusetts.



## Publications:

**Aishwarya Rengarajan**, Amanda K. Mauro, and Derek S. Boeldt. "Maternal disease and gasotransmitters." *Nitric Oxide* (2020).

## National Presentations:

Poster Presentation: **Aishwarya Rengarajan**, Jason Austin, Amanda Mauro, Derek Boeldt (2021) Peripheral Blood Mononuclear Cells (PBMCs) Induce Endothelial Dysfunction in Human Umbilical Vein Endothelial Cells (HUVECs) via Proinflammatory Cytokines, T-182, 68<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, Boston, Massachusetts.

Poster presentation: **Aishwarya Rengarajan**, Ian Bird, Manish Patankar, Derek Boeldt (2019) Immune Cell Lines Induce Endothelial Dysfunction in Human Umbilical Vein Endothelial Cells (HUVECs), F-195, 66<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, Paris, France.

Poster presentation: Amanda Mauro, **Aishwarya Rengarajan**, Ian Bird, Derek Boeldt (2019) CLA Rescues VEGF-Inhibited Ca<sup>2+</sup> Signaling While Preserving Monolayer Integrity in HUVECs, T-202, 66<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, Paris, France.

Poster presentation: **Aishwarya Rengarajan**, Ian Bird, Manish Patankar, Derek Boeldt (2018) Peripheral blood mononuclear cells (PBMC) induce endothelial dysfunction in Human Umbilical Vein Endothelial Cells (HUVEC), F-188, 65<sup>th</sup> Annual Meeting for the Society for Reproductive Investigation, San Diego, CA.

## Other Presentations:

Poster Presentation: **Aishwarya Rengarajan**, Jason Austin, Amanda Mauro, Derek Boeldt (2021) Peripheral Blood Mononuclear Cells (PBMCs) Induce Endothelial Dysfunction in Human Umbilical Vein Endothelial Cells (HUVECs) via Proinflammatory Cytokines, Endocrinology Reproductive Physiology Symposium 2021, Madison, WI.

Poster presentation: **Aishwarya Rengarajan**, Ian Bird, Manish Patankar, Derek Boeldt. Immune Cell Lines Induce Endothelial Dysfunction in Human Umbilical Vein Endothelial Cells (HUVECs), UW Women's Health and Health Equity Symposium 2019.

Oral presentation: **Aishwarya Rengarajan**, Ian Bird, Manish Patankar, Derek Boeldt. Immune Cell Lines Induce Endothelial Dysfunction in Human Umbilical Vein Endothelial Cells (HUVECs), Endocrinology Reproductive Physiology Symposium 2019, Madison, WI.

Poster presentation: Amanda Mauro, **Aishwarya Rengarajan**, Ian Bird, Derek Boeldt. CLA Rescues VEGF-Inhibited Ca<sup>2+</sup> Signaling While Preserving Monolayer Integrity in HUVECs, UW Women's Health



and Health Equity Symposium 2019, Department of Obstetrics & Gynecology Research Day 2019, Endocrinology Reproductive Physiology Symposium 2019.

Poster presentation: **Aishwarya Rengarajan**, Ian Bird, Manish Patankar, Derek Boeldt. Peripheral blood mononuclear cells (PBMC) induce endothelial dysfunction in Human Umbilical Vein Endothelial Cells (HUVEC), UW Women's Health and Health Equity Symposium 2017, Department of Obstetrics & Gynecology Research Day 2018, UW Women's Health and Health Equity Symposium 2018, Endocrinology Reproductive Physiology Symposium 2018.

### **Teaching and Mentorship:**

Teaching Assistant: Advanced Responsible Conduct of Research for Biomedical Students (OBS&GYN 956), Spring 2019 and Spring 2021

Teaching Assistant: Responsible Conduct of Research for Biomedical Students (OBS&GYN 956), Fall 2020.

Mentored Qingyun Zou: Ca<sup>2+</sup> imaging.

Mentored Daniel Adu, MD : Basic laboratory methods and cell culture techniques.

### **ERP Service:**

ERP student committee member: 2017-present

ERP recruitment volunteer: 2018-present