BIOMEDICAL SCIENCES PhD PROGRAM

Dr. Mill W. Miller, Director, 114 BS I, 775-2504

DISSERTATION DEFENSE

RENEE E. ALBERS

PhD Candidate

"Glycolytic Metabolism and Pregnancy Parameters in the Murine Placenta"

Friday, November 17th, 2017

9:00 a.m.

101 NEC (Auditorium)

Advisor: Thomas Brown, PhD

Department of Neuroscience, Cell Biology & Physiology

WRIGHT STATE UNIVERSITY

BIOMEDICAL SCIENCES PhD PROGRAM

ALBERS, Renee E., Biomedical Sciences PhD Program
Wright State University, 2017

The placenta is a complex and essential organ composed largely of fetal-derived cells, including several different trophoblast subtypes that work in unison to support nutrient transport to the fetus during pregnancy. Abnormal placental development can lead to pregnancy-associated disorders that often involve metabolic dysfunction. The scope of dysregulated metabolism during placental development may not be fully representative of the *in vivo* state in defined culture systems, such as cell lines or isolated primary cells. Thus, assessing metabolic function in intact placental tissue would provide a better assessment of placental metabolism. In this study, we describe a methodology for assaying glycolytic function in structurally-intact mouse placental tissue, *ex vivo*, without culturing or tissue dissociation, that more closely resembles the in vivo state. Additionally, we present data highlighting sex-dependent differences of two mouse strains (C57BL/6 and ICR) in the pre-hypertrophic (E14.5) and hypertrophic (E18.5) placenta. These data establish a foundation for investigation of metabolism throughout gestation and provides a comprehensive assessment of glycolytic function during placental development.