2024-2025 Available MSc Thesis Project from the Brouwer-Tiley Lab
UNC Eshelman School of Pharmacy

Optimization of Methods to Extract Transporter-Enriched Extracellular Vesicles from Various Biological Samples

Description: Organ specific extracellular vesicles (EVs) are released from cells into the blood that contain protein cargo reflective of the cell's current state. Because of challenges in measuring transport protein and metabolic enzyme levels and function directly from tissues, a minimally invasive approach to assess the levels of these proteins in different organs (e.g., liver, placenta) is urgently needed. In this research project, the aims are to optimize and validate methods to extract EVs from hepatocyte media, placenta perfusion media, and/or plasma/ to measure hepatic and/or placental transport proteins and metabolic enzymes by quantitative targeted absolute proteomic (QTAP) analysis.

Methods: The student will learn cell culture methods, different methods to extract EVs, and sample preparation for QTAP and data analysis.

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