

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

Light responsive approach to study NTCP regulation and function.

Description: Sodium-taurocholate co-transporting polypeptide (NTCP) plays a major role for endogenous bile acid disposition and has shown to be a path of entry for hepatitis B virus. Signaling pathways (e.g., cAMP, protein kinases) can impact the localization of NTCP and alter bile acid disposition. The aim of this study will be to use light responsive localization to study the regulation and function of NTCP. Optimization of optogenetic analogs of NTCP and functional use of established light responsive kinase tools will be tested for impact on bile acid disposition.

Methods: The student will learn cell culture methods, cell transfection, mutagenesis, cloning, transporter studies (e.g., uptake studies), sample preparation for western blot and LC-MS/MS proteomic analysis and data analysis.

Advisor and Direct Supervisors: Drs. Lauren Haar and Jacqueline B. Tiley