

DIVISION OF PHARMACEUTICAL SCIENCES
COLLEGE OF PHARMACY

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: 03/01/2018

PROJECT TITLE: Neuroinflammatory and Behavioral Effects of Traumatic Brain Injury

Matthew J. Robson
Division of Pharmaceutical Sciences
College of Pharmacy
MSB 3213
231 Albert Sabin Way
Cincinnati, OH 45267
Phone: 315-246-8879

Project Description

Traumatic Brain Injury (TBI) is a leading cause of civilian disability and is the hallmark injury associated with current military conflicts occurring around the globe. Individuals with TBI often have concomitant neuropsychiatric disorders, such as anxiety and depression, that may be linked to the inflammatory signaling and neuroinflammation elicited by TBI. A greater understanding of the molecular signaling associated with TBI-induced neuroinflammation may lead to potential drug targets for the treatment of the neuropsychiatric complications of TBI. The current WISE project will center upon the hypothesis that a specific inflammatory signal, interleukin-1, is increased after TBI in specific brain regions, and that this increase alters neuronal signaling that manifests as depressive- and anxiety-like behavior. To test this hypothesis, an in vivo animal model of blast-induced TBI will be utilized in conjunction with rodent behavioral analysis and standard molecular biology techniques such as real-time quantitative PCR, western blotting and ELISA. Experiments planned will give undergraduate researchers the opportunity to experience a wide breadth of laboratory assays and workflow. All research will be conducted under an approved IACUC protocol (IACUC protocol to be approved by start date of May 8th, 2018).