



April, 2024

IN THE SPOTLIGHT

MACKENZIE BROWNING

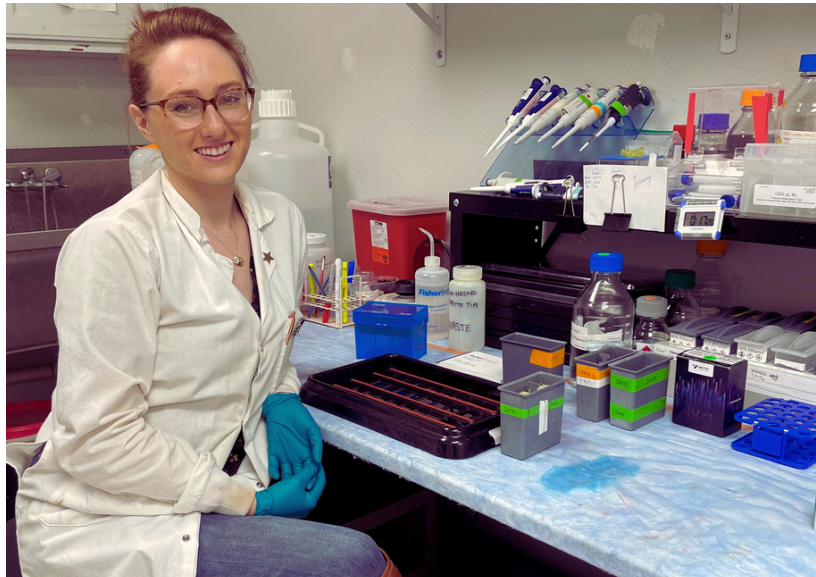
LAB MANAGER &
RESEARCH ASSISTANT

Where are you from?

- Bradenton, FL,
USA

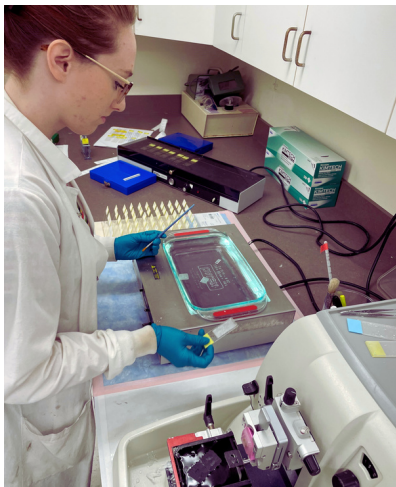
How long have you
worked at Roskamp?

- 5 years



WHAT AREAS OF RESEARCH ARE YOU INVOLVED IN?

I am the Lab Manager for all labs and a Research Assistant for Dr. Benoit Mouzon, a Principal Investigator and Neuropathologist on the Traumatic Brain Injury (TBI) team. I am working to discover effective treatments for the negative impacts of TBI, specifically repetitive mild TBI (r-mTBI) or concussive-type injuries. While the primary research focus of the team is to find effective therapeutic targets for TBI, my work with Dr. Mouzon spans from investigation of behavioral and pathological effects of long-term opioid use following TBI, to prevention or repair of visual deficits seen in TBI patients, and even examining the impact of TBI on diseases such as Gulf War Illness.

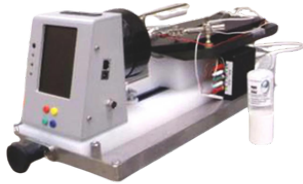


Can you
share details
about a
current
project?

I am working to publish my first peer-reviewed manuscript for a study we performed using an intranasally administered therapeutic given prior to and concurrent with r-mTBI to measure its efficacy at protecting the visual system after brain injury. Using knowledge we gained from that study, we have started another study using the same therapeutic but investigating administration at later timepoints. The original work targets individuals at a high risk for TBI, while the current project investigates efficacy for populations that experienced injury in the past, such as veterans or retired athletes.

LAB ITEM WISHLIST

1. Electroretinogram (HM_sERG System)



"IMAGE PROVIDED BY OCUSCIENCE"

COST OF THIS EQUIPMENT?
\$30,000

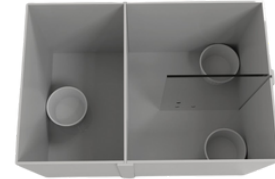
2. Benchtop tissue processor (Leica TP1020 Automatic Benchtop Tissue Processor, Semi-Enclosed)



"IMAGE PROVIDED BY LEICA BIOSYSTEMS"

COST OF THIS EQUIPMENT?
\$65,000

3. Attentional set-shifting apparatus



"IMAGE PROVIDED BY MAZE ENGINEERS"

COST OF THIS EQUIPMENT?
\$2,000

HOW WILL THIS EQUIPMENT BENEFIT YOUR WORK?

1. A **non-invasive ERG machine** provides an accurate measure of the cellular activity in the retina. It's a more objective and reliable way to investigate the behavior of living cells of the retina as they react to light. This can help us understand the physiological alterations to the retina following TBI. Currently, we use a behavioral measure of vision called the optomotor response. This test measures a reflex response and is manually scored, meaning this test can take hours of scientists' time and is more subjective, reducing the accuracy of the data.
2. A second, **small volume tissue processor** is needed to increase the flow of sample processing and remove backlog in the laboratory as many investigators need access to the same equipment. We currently have one tissue processor dedicated to the processing of all collected tissue. However, brain tissue takes 12 hours to process while optic nerves take 7 hours. As collected tissue needs to be processed within 24 hours of harvesting this requires a lot of coordination among the scientists to avoid congestion on the tissue processor!
3. The **attentional set-shifting** test in rodents is used to measure cognitive flexibility utilizing odor, rather than visual cues. Our current approaches to cognitive testing rely on visual cues. However, we know first-hand that TBI has significant effects on vision, so an alternative test that does not depend on visual acuity would be a more appropriate way to assess cognitive function after TBI.

What do you hope readers will take away from this?

I am hoping that we can contribute to the growth of scientific knowledge within the community. I think there is a "black box" situation in reference to what goes on behind research lab doors. What excites me the most about being In The Spotlight is that we are providing the opportunity for all members of our labs to share their lived experience inside the "black box", and hopefully readers will really start to understand the significance of every minute each one of us spends in the lab.

YOU CAN MAKE A DIFFERENCE!

You have an opportunity to make a tangible impact in the realm of neuroscience and healthy aging. Our team is dedicated to scientific research with the goal of identifying safe and effective therapies for brain diseases.

By equipping our labs with the latest technology, we can significantly expedite our research efforts. Your support could catalyze groundbreaking discoveries bringing us closer to our vision: "A World Without Brain Disease".

HOW TO DONATE

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