Charles & Mary Latham Fund

SunTrust (now Truist) Foundations & Endowments Specialty Practice

Status Report 2021

(due to Covid-19 related lab closures and project delays)

Grant Information

- Researcher: Dr. Kimberlei Richardson
- Institution: Howard University College of Medicine
- Project Title: Cracking the Molecular Code of Binge Eating
- Grant Amount: $14, 199.00
- Year Funded: 2017

Please provide BRIEF answers to the below

(bullet points are preferable, no more than 2 pages of responses)

- What progress have you made / What work has been completed so far?

Binge eating disorder (BED) is characterized by the recurring consumption of large amounts of high sugar, high fat foods in a short period of time. BED has been associated with an increased risk of metabolic disorders in the liver and changes in liver microRNA expression that may be a contributing factor to the development of these disorders. A specific aim of this study is to determine whether exposure to a high fat/sugar diet affects the expression of liver specific microRNAs in a binge eating model. After the delay due to infrastructural issues in 2018 and 2019, we were further delayed due to COVID-19 delays and recurrent, electrical outages on campus during, 2020 and 2021. Since August 2021, the focus has been to analyze data and begin writing sections for the paper that will be submitted.

- 1) We have established an intermittent binge model to identify binge eating prone (BEP) and binge eating resistant (BER)phenotypes.
- 2) We have biopsied additional liver samples from BEP, BER, and regular chow rats (n= 8/group).
- 3) We have processed samples for RNA isolation and optimized our Nanostring protocol to measure various microRNAs in the liver samples from each group of rats.
- 4) Completed Orexin Receptor-1 (OXR1) antagonism studies. After BEP and BER phenotypes are identified, these groups, along with the control-regular chow only group were given the OXR1 antagonist, SB334867 (SB, 5, 10 and 20mg/kg, i.p.) or vehicle and then given a challenge feeding test.

- 5) We have begun drafting sections of the paper that will be submitted for peer review upon completion.
- Preliminary Results: Rats that are characterized as BEP display higher fold changes in the expression of several microRNAs in the liver versus BER and control-regular chow groups. In addition to progress previously reported, we have been able to identify specific microRNAS that were directly affected by food preference and orexin receptor-1 antagonism.

- How has Covid-19 affected your project (lab closures, participant delays, etc.)?

  The laboratory was closed for almost a year. Eventually, we were able to come back into the lab. However, our productivity was severely affected by the mandatory reduction in staff (only the PI and tech were allowed). There were also delays in receiving supplies from companies. The procurement and delivery of items to the lab from Central Services (at Howard) was also delayed and items took several months to be delivered to the lab.

- What work is left to complete based on your original proposal?
- To complete statistical analysis to quantify and compare changes in microRNA expression in the various samples.
- To write and submit findings for publication in a peer-reviewed journal

- When do you realistically anticipate completing your project? We realistically anticipate completing all experiments and submitting the final report by December 31, 2022.