B. Accomplishments

B1. What are the major goals of the project?

This project was an extension of my TL1 to understand and evaluate neurocardiac pathophysiology as a clinician-scientist. The major goals of the project were encapsulated within the specific aims:

1. Quantify the relationship between depressive symptoms and autonomic dysfunction
2. Examine the relationships of ischemic heart disease with autonomic dysfunction

Additionally, goals incorporated within the training plan included: expansion of biostatistical skills, signal processing techniques, and understanding of stress physiology.

In terms of future planning, the end of the F32 is to help bridge me towards a K23 or K08 to move towards independence.

B2. What was accomplished under these goals?

These goals allowed me to expand upon academic training, clinical training, and impactful scientific discoveries.

1. Master of Science degree: Able to complete a Master's Thesis and defend this using dedicated time from the F32 funding period.
2. Clinical training: Completion of time as a clinical cardiology fellow, and movement towards electrophysiology training
3. Translational skills: Observation and development of basic science skills to allow for translational opportunities using mice models and IPSC models.
4. Publications: "Alterations in heart rate variability are associated with abnormal myocardial perfusion" (PMID: 32024598) and "Association of Psychosocial Factors With Short-Term Resting Heart Rate Variability: The Atherosclerosis Risk in Communities Study" (PMID: 33631952) as first author publications. Additionally, a key middle author publication in JAMA "Association of Mental Stress-Induced Myocardial Ischemia with Cardiovascular Events in Patients with Coronary Heart Disease" (PMID: 34751708).
5. Software development: During the learning of MATLAB, R, and other biostatistical techniques, I was able to generate and publish software on cosinor analyses, recurrent event analyses, and DAG-oriented modeling. These are actively maintained software packages that are furthering in development.

B4. What opportunities for training and professional development has the project provided?

Computational: The project has allowed me to develop an extensive technical skill base using programming techniques to learn biostatistics and signal processing. I have now become proficient in R and MATLAB, and routinely use this software on a daily basis.

Clinical: I have entered and finished a majority of clinical cardiology training, and will expand my knowledge base as a researcher prior to entering clinical electrophysiology. I have made broad connections with federally funded investigators and continue to expand my pool of mentors.

B5. How have the results been disseminated to communities of interest?

I have published within both JAHA, IJC, and JAMA, along with sending publications in abstract form to local and national conferences.

B6. What do you plan to do during the next reporting period to accomplish the goals?

I plan to complete data collection on patients being enrolled at my research center (Emory), and develop a translational model in animals to evaluate this further with my other mentors.