**Activities Planned under this Award**

| *Year* | *Research* | *Clinical* | *Professional Development* |
|---|---|---|---|
| **1** | 80% | 10% | 10% |
| **2** | 80% | 10% | 10% |
| **3** | 80% | 10% | 10% |
| **4** | 5% | 90% | 5% |

**Graduate School (years 1-3)**

**Research:** The techniques I will master during my fellowship training will complement and enhance the skill set I obtained during my pre-doctoral studies and first two research rotations. In my mentor's laboratory, I will employ sophisticated *in vitro* and *in vivo* models: primary human cells and inducible pluripotent stem cell-derived cells and a tissue-specific inducible knockout mouse model. I will apply molecular biology, *in situ* hybridization and immunofluorescence microscopy, and cellular function techniques in a highly translational environment. I will also have access to systems-driven bioinformatics support and will learn how to incorporate this into my future research. These resources will allow me to systematically define a novel mechanism centered on frataxin. I will collect and analyze my own data and organize my findings into written form amenable to journal submission (see "Training Plan"). I will continue to meet with my sponsor throughout the fellowship process. Biannual meetings with my committee will provide valuable technical and conceptual advice pertinent to the completion of this proposal.

Most of my required coursework will be completed by the beginning of the fellowship. Classes range from a technical emersion course in "Multiparametric Microscopic Imaging" (Summer 2017)--offered through the nationally recognized Center for Biologic Imaging; to in depth discussions of the basic molecular biology and pathology in "Angiogenesis" (Spring 2017), and "Tissue Growth and Differentiation" (Spring 2017); to translational topics in "Personalized Medicine" (Fall 2016). Additional courses are available pending developments in my fellowship research and my evolving interests. Longitudinal participation in weekly seminar will keep me apprised of recent findings in a wide range of active areas of investigation and provide an opportunity to improve my critique of the literature. I will deliver talks each semester in both the seminar course, as well as at a monthly Research in Progress meeting, during which time I present and receive feedback on my work from peers and faculty instructors.

**Clinical:** I will participate in two LCCs (20-week, one half-day per week one-on-one clinical emersion with a clinician-scientist of my choice). LCCs will provide me a continued connection with clinical medicine during my research training, foster the career integration of research and clinical practice, and provide an up-to-date understanding of the medical needs that underlie translational cardiovascular research. I plan to complete clerkships in both pediatric and adult cardiology subspecialties in order to enhance my diagnostic acumen and clinical decision-making while receiving specialized training in cardiology. I will attend weekly Grand Rounds.

**Professional Development:** I was selected for the Angiopathy Training Program--a cross-campus, pre-doctoral training opportunity for students interested in the role of vascular remodeling and regeneration in health and disease. This program supports my participation in vascular-oriented international organizations (ISACB, NAVBO, AHA); it also creates opportunities for networking and giving talks at multiple programs retreats, including Cell Biology and Molecular Physiology, the Center for Vascular Remodeling and Regeneration, and the Vascular Medicine Institute. I will also participate in the VMI-specific seminars--including Research in Progress, Department Seminar, and PH Conference--which will broaden my knowledge on a diversity of topics in vascular research, allow me to meet with potential collaborators, and identify resources for new ideas. My training will be enhanced by the MSTP: monthly seminars discussing issues on ethics and career development, a formal "Ethics for Medical Scientists" course during the first year of fellowship, and meetings with my career advisor, Dr. Marie DeFrances, to discuss my goals, research, and career trajectory.

**Medical School (year 4)**

**Research:** I will complete one research elective month during my third year of medical school to finish any outstanding work or manuscripts related to my dissertation. I will also pursue a discrete clinical research project, complementary to my thesis work and/or my clinical interests, to ensure a continuation of training in translational research.

**Clinical:** I will complete my core clerkships and electives, tailored to my desire to become a cardiologist.

**Professional Development:** I will seek out opportunities during clerkships to review relevant literature, participate in clerkship-specific Grand Rounds and Fellows Research Seminars, and receive invaluable advice from clinicians and physician-scientists on the next stages of my career. I will continue to pursue opportunities to engage in research, to attend national and/or international meetings, to enhance my involvement in the MSTP.