

Goals for Fellowship Training and Career

My **goals for this fellowship** are to 1) master a diverse set of *in vitro* and *in vivo* experimental techniques as well as rigorous statistical data analysis, 2) improve my ability to independently ask a pertinent question and apply the scientific method, 3) broaden my intellectual growth by critical review of the literature, attending seminars, and coursework, 4) identify and build upon opportunities for professional development, networking, and mentorship, 5) mature as a communicator of my science both in writing and in presenting, 6) and participate in a breadth of clinical and research experiences to enhance my training as a physician scientist.

My **goals for my career** as a physician scientist are to maintain an NIH-funded translational research laboratory while practicing and teaching medicine at an academic institution. I envision myself in an environment in which diagnosis of a patient's disease is informed by investigation into the basic mechanisms; in turn, investigation of that disease augments diagnostic and therapeutic discovery. Specifically, my long-term efforts will focus on basic scientific research of vascular disease with the intent to become an academic cardiovascular researcher. These goals align with my current clinical plan to practice cardiology.

My proposed research, selection of sponsor, and available program and institutional resources increase my confidence in achieving these goals during my fellowship training. As outlined in the "Research Approach", this project combines sophisticated *in vitro* and *in vivo* modeling as well as practical, standardized laboratory techniques that I had not previously mastered (e.g. induced pluripotent stem cell differentiation and culture, *in situ* hybridization and immunofluorescence microscopy, molecular biology techniques). I will be planning and executing experiments as well as collecting and analyzing data independently allowing me to gain a technical and analytical skill set that builds upon my previous training and can be applied to future projects.

My sponsor, Dr. Stephen Chan, is ideally positioned to help me complete my proposal and also challenge me to grow intellectually and professionally. As outlined in the "Training Plan," Dr. Chan and I meet regularly to track research progress, discuss and critique relevant literature, and set measurable goals. He balances providing advice with encouraging independence and will continue to provide me with opportunities to present my work to different audiences (e.g. department seminars, national and international conferences) and to write (e.g. book chapter, grants, manuscripts for this proposal). The training potential of his laboratory is enhanced by the faculty and resources offered by the University of Pittsburgh School of Medicine, UPMC's Heart and Vascular Institute, and the Vascular Medicine Institute. My graduate training in the Angiopathy Training Program includes specific coursework that will improve my fundamental understanding of vascular biology and disease, incorporating critical literature throughout the research period. At the same time, the program encourages cross-institutional networking with students and faculty in vascular medicine and research.

The MSTP has designed a targeted curriculum for each phase of training (see "Additional Educational Information"), beginning with Professional Development and Research Basis of Medical Knowledge courses that introduce scientific writing techniques, stress the importance of proper statistical analysis and reproducibility, and hone skills on literature review. During graduate school, the MSTP presents an ethics course and created the Longitudinal Clinical Clerkships, which will help maintain my clinical skills and provide an accurate experience of balancing both clinical and research responsibilities in real-time. Lastly, the MSTP provides workshops, retreats, and longitudinal formal and informal advising for professional development.

In summary, the rigorous clinical and research training outlined in this proposal will add value and scope to my goals for fellowship, but more importantly provide concrete support to the integration of these roles and uniquely position me for a future career as a true physician-scientist involved in translational research.