

SELECTION OF SPONSOR AND INSTITUTION

I aspire to become a physician-scientist who runs an NIH-funded basic science laboratory, practices cardiology, and teaches. The mentorship of my sponsor, Dr. Alexander Deiters, in the context of the University of Pittsburgh-Carnegie Mellon University Medical Scientist Training Program (MSTP) will provide me with an exceptional training project to carry out my proposed research and build a strong foundation for my career.

I chose to work with Dr. Deiters based on his superb record of training pre-doctoral students, his superb reputation as an expert in chemical biology, and his dedication to mentoring his students as his top priority. Despite it being relatively early in his career, Dr. Deiters has already trained 24 graduate students and 11 post-doctoral fellows, and he currently runs a dynamic lab comprised of 12 graduate students, another MSTP trainee, several undergraduates, and myself. His trainees publish prolifically (5 to 6 papers on average) in the top journals in the field (including *Nat. Chem.*, *J. Am. Chem. Soc.*, and *Angewandte Chemie*). Alumni from our group have gone on to post-doctoral fellowships at top-notch institutions (including the NCI and Scripps) and have started NIH-funded research labs. The group has several collaborations within the department, the university, and the nation making it an exciting and dynamic place to work.

Dr. Deiters himself is a brilliant chemical biologist with over 100 publications and over a dozen patents who—despite his many commitments—makes active mentoring his top priority. His office door inside our lab area is always open, and he regularly responds to emails between 7 AM and 12:30 AM. We have a standing weekly one-on-one meeting at 4:00 PM to discuss results, milestones, the latest developments in the field, the responsible conduct of research, and our new ideas. As a trainee in his lab, I have had the opportunity to write all of my own manuscripts, posters, and grant applications (including the present proposal and an aim for an R01 proposal), and Dr. Deiters consistently works with me through several rounds of revisions until each document is quite polished. Just as I have had independence in writing, I have taken on independence in managing my projects as well. Several of the projects I have taken on have stemmed from my own ideas (with Dr. Deiters' expert guidance), allowing me to grow into a more independent scientist as I become more advanced in my training. Additionally, Dr. Deiters constantly receives emails from undergraduates eager to work in his lab; he lets us interview candidates and choose students to mentor, which has given me the rare opportunity to gain experience in managing lab personnel followed by experience mentoring them. Dr. Deiters has also supported and advised me as I independently spearheaded the new collaborations in this project. The collaborations will take the new treatment approach we're developing and give me the opportunity to test it in an innovative new tissue culture model and in animals, all while obtaining input from an expert cardiologist. In sum, I am confident that the superb training environment of Dr. Deiters' group will allow me to complete my proposed research and will help me develop into an independently-funded physician-scientist.

The University of Pittsburgh Medical Center (UPMC) and the School of Medicine have consistently ranked among the best hospital systems and medical schools in the nation. The University receives the fifth-highest amount of NIH support of any institution. Pitt and CMU are across from one another in Pittsburgh's Oakland neighborhood, an area packed densely with UPMC's academic hospitals. Thanks in part to the physical proximity, scientists and clinicians collaborate much more often than comparable institutions. Investigators have a culture of sharing resources (e.g., tissue specimens and research compounds) that has facilitated the collaborations I have set up for this project and that makes Pitt a great place to train to become a physician-scientist.

Our MSTP integrates clinical training and research through innovations in our curriculum. When I interviewed, I was impressed that I would have the opportunity to do three lab rotations, three semesters of journal club synchronized with the medical school curriculum, and three semesters of professional development courses all within the first two years of the program. These classes have built up key skills I will rely on during my career, including statistical analysis, manuscript writing, and grant writing. Our program invented Longitudinal Clinical Clerkships, which are one-on-one experience with a clinician during graduate school that will strengthen my clinical acumen in cardiology and reinforce the translational aspects of my research (see **Additional Educational Information**). To keep me immersed in research at the end of my clinical training, the program will fund a five-month "mini post-doc" fellowship when I complete medical school.

On a more personal note, I selected the Pitt-CMU MSTP because of the people in it. The program director, Dr. Richard Steinman, gets to know every trainee and their research, and is a fierce advocate for us as we navigate our dual degree training. The other students are some of the kindest and brightest people I have ever met, and I have greatly enjoyed working on MSTP committees and talking about science with them. I could not be more pleased with my choice to matriculate at the Pitt-CMU MSTP and to join the Deiters lab.