

Rao Me

Heed Retreat Application – Personal Statement

I have always been driven by curiosity and a desire for excellence in both academic and clinical ophthalmology. I find myself asking not only "what" but "why"—why diseases develop, why some patients respond to treatment while others do not, and how we can do better. This curiosity led me to pursue eight years of postdoctoral and translational research training, and it continues to guide me every day as an ophthalmology resident.

During medical school, I participated in clinical and basic science studies on corneal surface diseases and myopia development, which cultivated my interest in ophthalmology research. After graduating, I pursued a postdoctoral research fellowship focused on corneal immunology with Dr. Fu-Shin Yu, identifying IL-36/IL-17 signaling pathways in innate immune host defense against bacterial and fungal keratitis. I acquired essential skills in microsurgery, independent project management, troubleshooting, and formulating strong scientific questions.

I subsequently completed a second postdoctoral fellowship with clinician-scientist Dr. Maryam Tahvildari, where I served in a leadership role conducting and directing research projects. My work focused on adaptive immunity in corneal homeostasis, and we identified the role of regulatory T cells (Tregs) in maintaining the limbal stem cell niche and facilitating corneal wound healing. During this time, I also observed and learned how successful clinician-scientists balance clinical work with research—a lesson that further confirmed my career aspirations.

During my translational research fellowship, I worked with Dr. Gary Abrams and Dr. Xihui Lin, who are both excellent vitreoretinal surgeons and scientists. This experience further enhanced both my research and clinical skills. I learned to lead projects, integrate clinical resources with basic science research, and coordinate across multidisciplinary teams. As a translational research fellow, I have applied proteomics and metabolomics to characterize vitreoretinal diseases. I have led studies utilizing these approaches to analyze vitreous fluid in rhegmatogenous retinal detachment and diabetic retinopathy. I am currently investigating mitochondrial DNA damage and epigenetic modifications in diabetic macular edema, with the goal of identifying novel biomarkers and therapeutic targets for vitreoretinal diseases.

Throughout these experiences, I have generated 27 peer-reviewed publications. I have had the privilege of working alongside exceptional clinician-scientists who seamlessly integrate patient care with scientific discovery. I have come to believe deeply that being a good clinician helps generate good research ideas and inspiration. Seeing patients in clinic sharpens my scientific questions; understanding their struggles gives meaning to

my work at the bench. Conversely, doing good research helps generate a deeper understanding of disease, opens the door to better therapies, and ultimately feeds back into better patient care.

Now, as an ophthalmology resident at Kresge Eye Institute, my passion for both patient care and science continues to grow. My long-term goal is to establish an independent research program investigating the interplay between ocular immunity, metabolism, and neurodegeneration diseases.