PERSONAL STATEMENT

I have been fascinated with genetics from a very early age but it was only in graduate school that I came face-to-face with a deceptively simple question: how do the myriad cell types in our body arise from a single genome, identical in every cell? This process governs normal development and drives disease, such as through oncogenesis. I was fortunate to have had rigorous and visionary mentors that encouraged me to pursue this topic with curiosity and creativity. For my dissertation, I developed new methods to map epigenetic profiles at the single cell level and in complex tissues like the mouse brain. This project led me to the field of developmental genomics, where the theoretical potential of DNA meets the complex reality of biology. My future lab will explore this space: the causes, consequences, and potential treatments of genomic dysregulation as it pertains to ocular disease.

I am currently a physician-scientist and research-track resident in ophthalmology. During residency I have developed a broad clinical foundation while also continuing to advance my research interests. I have gained new exposure to the basic science of retinal development and relevant mouse models. I have also learned cutting-edge microscopy-based methods to study *in situ* genome regulation which complements my strong background in genomics. Through these experiences I have started an independent project to studying gene regulation during terminal retinal differentiation. We anticipate that the principles we uncover will be broadly applicable to advancing gene therapy and regenerative medicine in ophthalmology.

After residency, I plan to pursue subspecialty training in vitreoretinal surgery and ocular oncology, continuing to deepen my surgical and clinical skills to treat complex retinal disease. After completing fellowship, I hope to join an academic medical center with joint appointments in ophthalmology and genetics. In addition to seeing both pediatric and adult patients with genetic and oncologic retinal diseases, I plan to lead an independent, competitively funded basic science lab studying molecular control of cell fate with specific applications toward engineering new tools for gene therapies and regenerative medicine.