

**BIOGRAPHICAL SKETCH**

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NAME: Minjia Tang

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Heed Fellowship

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Princeton University	BA	08/2014	05/2018	Ecology and Evolutionary Biology - Focus in Genetics
Northwestern Feinberg School of Medicine	MD	08/2019	05/2024	Medicine
Thomas Jefferson University Hospital	Resident	06/2024	07/2025	Internship
Wills Eye Hospital	Resident	07/2025	Present	Ophthalmology

**A. Personal Statement**

Having two parents with in backgrounds in cancer research, I have grown up being encouraged to ask questions. I carried this curiosity with me to college, where I studied Ecology and Evolutionary Biology with a focus in genetics. I investigated the link between various genomic markers and behavior as well as genetic adaptation to high-sugar diets to better understand metabolic syndrome. The latter is what I wrote my senior thesis on at Princeton University. Through work in their labs, I gained valuable experience in designing research projects, working through setbacks and adapting to new challenges, as well as data analysis and interpretation. After graduation, I worked as a clinical research coordinator at Massachusetts General Hospital on a NIH-funded nationwide project studying environmental and clinical risk factors in the development of childhood asthma. My interest in clinical research has remained to this day. At Northwestern Feinberg School of Medicine, I worked with Dr. Tanna in the Glaucoma Department on a series of projects with the focus on optimizing surgical outcomes. Dr. Tanna also served as my mentor during a fully-grant supported research year, where I investigated the promising potential of a new resorbable polycitrate hydrogel in the prevention of fibrosis as a safer alternative to MMC, performing trabeculectomies in rabbit models. During this past year at Wills Eye Hospital, I have had the fortune to work closely with Dr. Myers and Dr. Amarasekera in glaucoma to lead a prospective clinical study investigating the efficacy of standalone combined iDose and iStent Infinite, with their favorable safety profile, as an alternative to traditional filtering surgery in patients with uncontrolled open angle glaucoma. Finally, I have had the opportunity to work with Dr. Huang on a prospective clinical study exploring the potential of new technology with home visual field devices to detect earlier progression of glaucoma. I aim to pursue a glaucoma fellowship, and my long-term research goals involve continuing to focus on innovation and enhancement of surgical outcomes to maximize the preservation of vision.

**B. Positions, Scientific Appointments and Honors**

2022 – Present Member, Association for Research in Vision and Ophthalmology (ARVO)  
 2019 – Present Member, American Academy of Ophthalmology (AAO)  
 2018 – 2019 Clinical Research Coordinator II, Massachusetts General Hospital  
 2018 – Present Member, Society of Sigma Xi  
 2016 Research Assistant, Genomics Andolfatto Lab at Princeton

**Honors**

2024	Magna Cum Claude, Northwestern Feinberg School of Medicine
2023	Alpha Omega Alpha
2023	Fellowship Recipient, Research Intensive Scholarly Emphasis
2022	Best Poster, Education-Centered Medical Home Clinic Quality Improvement Project
2021 – 2022	Grant Recipient, Illinois Society for the Prevention of Blindness
2018 – 2019	Fellowship Recipient, Project 55 Princeton University
2018	Magna Cum Claude, Princeton University

### C. Contributions to Science

- 1. Undergraduate Research:** My research at Princeton University was focused on evolutionary genetics with aims to identify genetic patterns with behavior and energy processing. I worked as a research assistant in the laboratory of Dr. Peter Andolfatto investigating the relationship between evolutionary genetics and genotypes of flight in *Drosophila*. Early in my career, I gained valuable experience as I supported a Ph.D. candidate in research experiment design, collection of data, and data analysis. Afterwards, I worked two years in the laboratory of Professor Julien Ayroles researching for my senior thesis on genetic adaptation to high-sucrose dietary stress in *Drosophila*. Through full-genome sequencing of *Drosophila* exposed to a high-sucrose diet at different time points, we were excited to find a number of adaptive genes that were significantly selected for over 25 generations. Three candidate genes were highlighted to serve as groundwork for future studies directed at better understanding their relationship with metabolic syndrome.

  - Tang M**, Ayroles J. Genetic adaptation to high-sucrose dietary stress in *Drosophila* *Melanogaster*. Princeton University Thesis; 2018.
  - Forsberg SKG, Melo D, Wolf S, Grenier J, **Tang M**, Henry LP, Pallares LF, Clark AG, Ayroles J. Longitudinal sequencing reveals polygenic and epistatic nature of genomic response to selection. *Proceedings of the National Academy of Sciences of the United States of America*. 2025.
- 2. Postgraduate Research:** As a Princeton Project 55 Fellowship recipient, I worked as a clinical research coordinator at the Massachusetts General Hospital in the Emergency Medicine Network research department. I had the great opportunity to be part of the team of researchers working on a NIH-funded nationwide project called the WIND Study, investigating the development of childhood asthma for future prevention with development of a predictive model. Through participant phone calls, I collected data on possible risk factors, including socioeconomic and environmental factors. I organized in-person visits to hospitals with participants and partnering coordinators across the country, reviewed medical records to document patient breathing exacerbations and emergency department visits, and created informative material for participants. I look forward to seeing how this work will assist us in better understanding the risk factors in asthma development and in creating recommended guidelines for early treatment of childhood asthma.
- 3. Medical School Research:** At Feinberg, I was fortunate to work with Dr. Angelo Tanna in the Glaucoma Department. I worked on a series of retrospective projects focused on optimizing surgical outcomes and timing of medical treatment. My role in these projects all involved study design, data collection, analysis, and first-author publication. During this time, I led a project focused on the clinical efficacy of the newly released netarsudil therapy as a conjunctive medication in treating open-angle glaucoma. We found that usage of this newer medication netarsudil led to significant intraocular pressure reduction when used in conjunction with up to four other ocular hypotensive agents, serving as a possible solution for glaucoma patients who may otherwise need surgery. Another project investigated the application of early aqueous suppression in the high-risk population of uveitic glaucoma patients after Ahmed tube shunt surgery, which found association with lower final IOP and may be of beneficial clinical application. With assessment of a series of cases, we found that intraluminal 3-0 Supramid stent placement, with or without external ligature, can be an effective long-term solution for hypotony after tube shunt surgery. This may reduce the need for larger conjunctival dissection, reducing, without eliminating, aqueous flow. Finally, we studied the incidence of hypertensive phase (HP) after Ahmed and Baerveldt tube shunt surgery. Results showed that HP was observed in 10% of eyes and associated with higher risk of surgical failure at two post-operative years.

Significant risk factors of HP development from multivariable analysis included younger and neovascular glaucoma. We concluded that it is important to recognize patients at higher risk of HP, perhaps considering early aqueous treatment, as they are associated with surgical failure later on.

- a. Prager AJ\*, **Tang M\***, Pleet AL, Petito LC, Tanna AP. Effectiveness and tolerability of netarsudil in combination with other ocular hypotensive agents. *Ophthalmol Glaucoma*. 2021 Nov-Dec; 4 (6):597-603 <https://doi.org/10.1016/j.ogla.2021.03.014>  
\* Co-first authors contributed equally to this work
- b. **Tang M**, Gill N, Tanna AP. Effect of early aqueous suppression after valved tube shunt surgery for uveitic glaucoma. *Ophthalmol Glaucoma*. 2023. <https://doi.org/10.1016/j.ogla.2023.08.002>
- c. **Tang M**, Anchala AR, Tanna AP. Intraluminal suture placement for management of hypotony after glaucoma drainage device surgery. *Journal of Glaucoma*. 2024.
- d. **Tang M**, Gill N, Tanna AP. Incidence and outcomes of hypertensive phase after glaucoma drainage device surgery. *Journal of Glaucoma*. 2024.

4. **RISE Research:** I was the recipient of a competitive Feinberg School of Medicine fellowship with full grant funding for an additional year of intensive, mentored research in the Department of Ophthalmology with Dr. Angelo Tanna between my M3 and M4 year. During this year, I investigated the potential efficacy of a novel resorbable polycitrate hydrogel in improving surgical outcomes for glaucoma surgery. This hydrogel was developed by a Northwestern biomaterials team and can be used alone or in conjunction with bioactive peptides. It is also thermoresponsive, becoming liquid at room temperature and a porous gel at body temperature, allowing for easier surgical injection into desired spaces. We wanted to determine if it could serve as an effective physical barrier to reduce fibrosis and maintain lower IOP after trabeculectomy in comparison with MMC, which is associated with bleb leaks and higher risk of injection. During this year, I learned and performed 22 trabeculectomies in rabbits, with each rabbit receiving the hydrogel in one eye and MMC in the other. I collected IOP post-operatively, which was comparable between groups, and performed enucleations at 1 month for pathology samples. Initial preliminary histology shows no significant qualitative difference with H&E and Masson Trichrome staining. This novel hydrogel may serve as a safer alternative to MMC. This phase of research was focused on assessing the gel as a physical barrier; the next step is to see how it can serve as a tethered focal area for anti-inflammatory peptides.
5. **Residency Research:** During this first year at Wills Eye Hospital, I have had the incredible opportunity to work with Drs. Jonathan Myers, Dilru Amarasekera, and Ping Huang to continue research focused on innovation in glaucoma, from outcomes of surgical devices as well as new technology for closer monitoring. Though there is growing prevalence of minimally invasive glaucoma surgery (MIGS) in glaucoma, there was limited real-world investigation on adverse events in recent years. I was involved in study design, data collection, analysis, and first-author manuscript creation (currently in review) for our project assessing MIGS reports in the FDA Manufacturer and User Facility Device Experience (MAUDE) database. This database is the largest publicly searchable database of medical device reports over the past ten years. We found that a low number of adverse events were reported overall for Hydrus, iStent inject W, and iStent infinite from 2020 to 2025. However, despite market data estimates of approximately double the sales of iStent inject W compared to Hydrus during this period, a similar number of complications were reported for these devices. I am also leading a prospective clinical study investigating the efficacy of standalone iDose, a newly released to market prostaglandin implant, with standalone iStent Infinite in patients with medically uncontrolled OAG. Prior studies have demonstrated their efficacy separately; however, there is limited research investigating the possible role of combination MIGS. Combined MIGS surgery may avoid the greater risks associated with traditional filtering surgeries without compromising IOP reduction and may serve as a beneficial alternative for patients with difficulty returning for frequent post-operative visits as required for trabeculectomy and tube shunt procedures. My role involved creation of the study protocol, writing of the IRB, involvement with meeting with Glaukos representatives, and enrollment of patients, which is the current state of the project. The protocol plans for up to 5-years of post-operative evaluation. Finally, I am working on data analysis of a prospective clinical trial investigating if utilization of a home VF monitoring device, Olleyes, can allow for accurate VF measurements compared to the gold-standard Humphrey VF and thus, earlier detection of glaucoma progression.

- a. **Tang M**, Myers JS, Amarasekera DC. "Adverse Events with Trabecular Meshwork Bypass Devices Reported to the MAUDE Database from 2020-2025". Poster presentation at the Association for Research in Vision and Ophthalmology Conference, Denver, CO. May 2026.

**D. Scholastic Performance**

YEAR	COURSE TITLE	GRADE
NORTHWESTERN FEINBERG SCHOOL OF MEDICINE		
2020-2021	Ophthalmology Research Elective	C
2021-2022	Obstetrics & Gynecology Clerkship	H
2021-2022	Intro to Ophthalmology Elective	C
2021-2022	Neurology Clerkship	H
2021-2022	Pediatrics Clerkship	H
2021-2022	Surgery Clerkship	H
2021-2022	Psychiatry Clerkship	H
2021-2022	Medicine Clerkship	H

Feinberg School of Medicine electives are graded C (Credit) or NC (No Credit). Clerkships are graded as H (Honors), HP (High Pass), or P (Pass).