

APAO International Fellowship Program (IFP) Report

Fellow: Dr. Chenxi Zhang

Home Institution: Peking Union Medical College Hospital (PUMCH), Beijing, China

Host Institution: Singapore National Eye Centre (SNEC), Singapore

Supervisor: Professor Gemmy Cheung

Fellowship Period: November 2024 – October 2025

It was a great privilege to be selected as an APAO International Fellow and to undertake a one-year clinical research fellowship at the Singapore National Eye Centre (SNEC). As a clinical research fellow, I was immersed in both clinical practice and retinal research, particularly in the field of age-related macular degeneration (AMD). Under the mentorship of Prof. Gemmy Cheung, I gained valuable experience that has greatly enriched my professional development and broadened my perspectives in both clinical care and academic ophthalmology.



(with Prof Gemmy Cheung)

Clinical Exposure

Although my fellowship was primarily research-focused, under the thoughtful arrangement of Prof. Gemmy Cheung, I still had 3 clinical sessions per week under the supervision of consultants. These clinics offered me an opportunity to enhance my understanding of retinal disease diagnosis and management. More importantly, they allowed me to stay closely connected to clinical practice, inspiring research questions grounded in real-world patient care. Through these sessions, I was also able to communicate with other retinal specialists, from whom I gained valuable insights and perspectives that further enriched both my clinical reasoning and research thinking.

What particularly impressed me was the longitudinal patient care system at SNEC, which integrates multimodal imaging and treatment data cross more than a decade. OCT series could be dated back more than 10 years, offering a unique opportunity to understand disease progression and treatment response over time. This made me realized the continuity of care not only facilitated real-world clinical insight but also supported high-quality longitudinal research.



(With Dr. Ranjana Mathur(left) and Dr. Beau Fenner(right) after a medical retina clinic session)

Research Training

During my fellowship, I was actively involved in the Asian AMD Phenotyping Study, a prospective cohort designed to characterize neovascular AMD in Asian patients using standardized multimodal imaging and longitudinal follow-up. Together with other fellows, I helped to develop a structured phenotyping grading system, which included developing detailed grading criteria, performing standardized image assessment at baseline, month 3, and month 12. This aimed to build a comprehensive grading database to support future analyses.

Within this framework, my primary research focus centered on cuticular drusen (CD) in Asian eyes with neovascular AMD. I led a sub-study involving detailed phenotyping of 206 patients using color fundus photography, FA/ICGA, and spectral-domain OCT. I was responsible for image grading, data analysis, and manuscript writing. This study characterized the clinical features of CD in Asian patients with nAMD, and evaluated its association with polypoidal choroidal vasculopathy (PCV) and the risk of macular neovascularization (MNV). The manuscript is currently under review by *Graefe's Archive for Clinical and Experimental Ophthalmology*.

In addition to this main project, I also participated in other research projects, such as denoised OCTA and hypofluorescent spots on late ICGA. These experiences sharpened my skills in retinal image interpretation, data processing, and clinical research collaboration.



(Research group photo)

This fellowship has been an invaluable chapter in my career. It enabled me to deepen my clinical expertise, refine my research skills, and learn directly from leading experts in the field. I am especially grateful to Prof. Gemmy Cheung for her generous mentorship throughout the year, and to all the colleagues at SNEC who supported and inspired me along the way.

I sincerely thank the APAO International Fellowship Program for granting me this opportunity. I look forward to applying the knowledge and experience gained in Singapore to further advance retinal care and research in China.



(Medical Retina team dinner at NOX, a Singapore restaurant where blind waiters serve guests in total darkness, which is an unforgettable experience for ophthalmologists)