

Curriculum Vitae – Tan Tien-En (Feb 2022)



Personal Details & Contact Information

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Brief Biography

Dr Tan completed his medical training at the Yong Loo Lin School of Medicine, National University of Singapore, in 2014, graduating with an MBBS (Honours). During his medical training, he was recognized on the Dean's List twice, and received numerous awards, including the Gold Medal and Book Prize in Ophthalmology, the S.S. Ratnam Book Prize, the Nihal Kaur Memorial Medal, the Nihal Kaur Sidhu Medal in Obstetrics and Gynaecology, the Singapore Medical Association Bronze Medal, and the Yeo Khuan Joo Gold Medal. Dr Tan completed his housemanship in SingHealth, and was awarded the Best House Officer Award in 2015.

Dr Tan is currently undertaking specialist training in Ophthalmology, as a 5th-year Senior Resident at the Singapore National Eye Centre. He has been recognized with the Outstanding Resident Award three times, as well as the Inspiring Resident Educator Award, was the Lead Resident in 2020, and is currently Senior Lead Resident, of the Ophthalmology Residency Programme. He graduated from the Singapore Chief Residency Programme in 2021, and was selected as one of the Top Chief Residents by SingHealth. He was inducted as a Fellow of the Royal College of Ophthalmologists (FRCOphth), conferred a Master of Medicine in Ophthalmology, MMed (Ophth), and the Master of Medicine (Ophthalmology) Medal in 2020.

Dr Tan has an active interest in clinical and translational research in Ophthalmology, and has more than 25 publications in the peer-reviewed literature, including first author publications in *The Lancet Digital Health*, *Ophthalmology*, and *The British Journal of Ophthalmology*. His research interests include gene-based and other novel therapeutics for inherited and acquired retinal disease, diabetic retinopathy, and artificial intelligence. His current work includes leading a translational research project on adeno-associated viral vector gene therapy in a murine model at the Singapore Eye Research Institute, and he is part of an international workgroup involved in updating the classification system for diabetic retinopathy. He is also co-inventor on a patent for an experimental ophthalmic surgical device. He was inducted into the Khoo Scholars' Programme by Duke-NUS Medical School in 2020, and is an Adjunct Research Fellow with the Ophthalmology & Visual Sciences Academic Clinical Programme (EYE ACP) in Duke-NUS Medical School. He also reviews journal articles for a number of publications, such as *Ophthalmology*, and *The British Journal of Ophthalmology*. He has been invited to speak at international meetings such as the 36th Asia-Pacific Academy of Ophthalmology (APAO) Congress in 2021, and has been awarded Best Scientific Paper Award at the 34th APAO Congress in 2019, and Best Poster Award at the 33rd APACRS-SNEC 30th Anniversary Virtual Meeting in 2021.

Affiliation and Current Appointments

- 5th-year Senior Resident, Ophthalmology, Singapore National Eye Centre (SNEC)
- Senior Lead Resident, Ophthalmology, SNEC, Jul 2021 – Jun 2022
- Singapore Chief Residency Programme, 8th Cohort, 2021
 - Selected as one of the Top Chief Residents by SingHealth
- Adjunct Research Fellow, Ophthalmology & Visual Sciences Academic Clinical Programme (EYE ACP), Duke-NUS Medical School
- Khoo Scholar, Khoo Scholars' Programme (KSP), Duke-NUS Medical School
- Honorary Committee Member, SingHealth Cluster Artificial Intelligence (AI) Program
- Executive Secretariat, Forward Planning Covid-19 Committee, SNEC
- Member, Secretariat, SNEC Global Ophthalmology Unit

Professional Degrees and Qualifications

- MBBS (Hons) – Bachelor of Medicine and Bachelor of Surgery with Honours (NUS, S'pore) (2014)
- MMed (Ophth) – Master of Medicine (Ophthalmology) (NUS, S'pore) (2020)
- FRCOphth – Fellow of Royal College of Ophthalmologists (2020)

Other Post-Graduate Examinations

- United States Medical Licensing Examination (USMLE) Step 1 (2017) – Pass, 236 points
- United States Medical Licensing Examination (USMLE) Step 2 CK (2017) – Pass, 264 points
- United States Medical Licensing Examination (USMLE) Step 2 CS (2018) – Pass
- Educational Commission for Foreign Medical Graduates (ECFMG) Certificate 2018

Awards, Medals and Prizes

- Invited Speaker and Panellist, 36th Asia-Pacific Academy of Ophthalmology (APAO) Congress, 2021
 - "The Use of Blockchain as a New Fuel for AI and Digital Innovation"
 - "Global Ophthalmology Practice Patterns in COVID-19: What Has Changed in 2021?"
- Best Poster Award, SingHealth Duke-NUS Scientific Congress, 2021
 - Clinical Research (Senior) Category – "Retinal Photograph-Based Deep Learning Algorithms for Myopia and a Blockchain Platform to Facilitate Artificial Intelligence Medical Research"
- Best Poster Award, 33rd APACRS-SNEC 30th Anniversary Virtual Meeting, 2021
 - General Category – "Pre-Clinical Retinal Neural Dysfunction in Diabetes Mellitus Detected Using Handheld Chromatic Pupilometry"
- Outstanding Resident Award, SingHealth RiSE Awards, 2021
- Young Educator Award (Senior Resident), SNEC-SERI Educator Awards, 2021
- Master of Medicine (Ophthalmology) Medal, 2020
- Khoo Scholars' Programme, Duke-NUS Medical School, Aug 2020 – Jan 2022
- Inspiring Resident Educator Award, SingHealth RiSE Awards, 2020
- Outstanding Resident Award, SingHealth RiSE Awards, 2019
- Best Scientific Paper Award, 34th APAO Congress, 2019
 - Free Paper presentation – "Quantification of Endothelial Cell Loss with a Pull-Through Insert for Descemet's Membrane Endothelial Keratoplasty"
- Outstanding Resident Award, SingHealth RiSE Awards, 2016
- Best House Officer Award, SingHealth Best Junior Doctors Awards, 2015
- Yeoh Khuan Joo Gold Medal, 2014
 - Best student in Surgery in the Yong Loo Lin School of Medicine Final Professional MBBS Examination
- Singapore Medical Association Bronze Medal, 2014
 - 2nd place in the Yong Loo Lin School of Medicine Final Professional MBBS Examination
- Nihal Kaur Sidhu Medal in Obstetrics and Gynaecology, 2014
 - Best student in Obstetrics and Gynaecology for the degrees of MBBS
- Nihal Kaur Memorial Medal, 2013
 - 1st place in the Yong Loo Lin School of Medicine Fourth Professional Examination
- Gold Medal and Book Prize in Ophthalmology, 2013
 - Best essay on a topic in Ophthalmology, entitled "Tissue Engineering for the Treatment of Corneal Disease: Historical Perspectives, Recent Advancements & Future Potential"
- S.S. Ratnam Book Prize, 2013
 - Awarded by the Obstetrical & Gynaecological Society of Singapore, to the top student in the Obstetrics & Gynaecology posting
- Distinction in Surgery in the Yong Loo Lin School of Medicine Final Professional MBBS Distinction Viva Voce Examination, 2014
- Distinction in the Yong Loo Lin School of Medicine Fourth Professional Distinction Viva Voce Examination, 2013
- Yong Loo Lin School of Medicine M5 Dean's List (for Top 10% of cohort), 2014
- Yong Loo Lin School of Medicine M4 Dean's List (for Top 10% of cohort), 2013
- Yong Loo Lin School of Medicine M3 Dean's Dinner (for Top 30 students), 2012
- Yong Loo Lin School of Medicine M2 Dean's Dinner (for Top 30 students), 2011
- Yong Loo Lin School of Medicine M1 Dean's Dinner (for Top 30 students), 2010

Research

Personal h-index: 9 (Google Scholar Citations, Feb 2022)

Reviewer for:

- *Ophthalmology* (IF: 12.079)
- *npj Digital Medicine* (IF: 11.653)
- *Computer Methods and Programs in Biomedicine* (IF: 5.428)
- *The British Journal of Ophthalmology* (IF: 4.638)
- *Translational Vision Science & Technology* (IF: 3.283)
- *Ophthalmology Retina*

Publications:

1. **Tan TE**, Fenner BJ, Barathi VA, Tun SBB, Wey YS, Tsai ASH, Su X, Lee SY, Cheung CMG, Wong TY, Mehta JS, Teo KYC. Gene-Based Therapeutics for Acquired Retinal Disease: Opportunities and Progress. *Frontiers in Genetics* 2021;12:2480.
2. Fenner BJ, **Tan TE**, Barathi AV, Tun SBB, Wey YS, Tsai ASH, Lee SY, Cheung CMG, Chan CM, Mehta JS, Teo KYC. Gene-Based Therapeutics for Inherited Retinal Diseases. *Frontiers in Genetics* 2021;12:794805.
3. Ng WY, **Tan TE**, Movva PVH, Fang AHS, Yeo KK, Ho D, Foo FSS, Xiao Z, Sun K, Wong TY, Sia ATH, Ting DSW. Blockchain applications in health care for COVID-19 and beyond: a systematic review. *Lancet Digit Health* 2021:S2589-7500(21)00210-7.
4. Lim HB, **Tan TE**, Fenner BJ, Heah J, Arundhati A, Khor WB, Boey PY, Lee SY, Wong EYM, Wong TY. Clinical operational considerations and responses to lockdown and reopening in the Covid-19 pandemic: experience of a tertiary ophthalmology centre in Singapore. *Eye (Lond)* 2021.
5. **Tan TE**, Chodosh J, McLeod SD, Parke DW, Yeh S, Wong TY, Ting DSW. Global Trends in Ophthalmic Practices in Response to COVID-19. *Ophthalmology*. 2021 Aug 17;S0161-6420(21)00559-5.
6. Ng WY, **Tan TE**, Xiao Z, Movva PVH, Foo FSS, Yun D, Chen W, Wong TY, Lin HT, Ting DSW. Blockchain Technology for Ophthalmology: Coming of Age? *Asia Pac J Ophthalmol (Phila)* 2021;10:343-347.
7. **Tan TE**, Wong TY, Ting DSW. Artificial Intelligence for Prediction of Anti-VEGF Treatment Burden in Retinal Diseases: Towards Precision Medicine. *Ophthalmol Retina*. 2021 Jul;5(7):601-3.
8. **Tan TE**, Chan HW, Singh M, Wong TY, Pulido JS, Michaelides M, Sohn EH, Ting D. Artificial intelligence for diagnosis of inherited retinal disease: an exciting opportunity and one step forward. *Br J Ophthalmol* 2021; published online May 24. DOI:10.1136/bjophthalmol-2021-319365.
9. **Tan TE**, Anees A, Chen C, Li S, Xu X, Li Z, Xiao Z, Yang Y, Lei X, Ang M, Chia A, Lee SY, Wong EYM, Yeo IYS, Wong YL, Hoang QV, Wang YX, Bikbov MM, Nangia V, Jonas JB, Chen Y-P, Wu W-C, Ohno-Matsui K, Rim TH, Tham Y-C, Goh RSM, Lin H, Liu H, Wang N, Yu W, Tan DTH, Schmetterer L, Cheng C-Y, Chen Y, Wong CW, Cheung GCM, Saw S-M, Wong TY, Liu Y, Ting DSW. Retinal photograph-based deep learning algorithms for myopia and a blockchain platform to facilitate artificial intelligence medical research: a retrospective multicohort study. *Lancet Digit Health* 2021; 3: e317-29.
10. Ting DSJ, Liu Y-C, Lee YF, Ji AJS, **Tan TE**, Htoon HM, Mehta JS. Cosmetic outcome of femtosecond laser-assisted pterygium surgery. *Eye Vis (Lond)* 2021; 8: 7.
11. **Tan TE**, Xu X, Wang Z, Liu Y, Ting DSW. Interpretation of artificial intelligence studies for the ophthalmologist. *Curr Opin Ophthalmol*. 2020 Sep;31(5):351-6.
12. **Tan TE**, Ting DSW, Wong TY, Sim DA. Deep learning for identification of peripheral retinal degeneration using ultra-wide-field fundus images: is it sufficient for clinical translation? *Ann Transl Med* 2020, May;8(10):611.
13. **Tan TE**, Devarajan K, Seah X-Y, Lin S-J, Peh GSL, Cajucom-Uy HY, Ang M, Mehta JS, Tan DTH. Descemet Membrane Endothelial Keratoplasty With a Pull-Through Insertion Device: Surgical Technique, Endothelial Cell Loss, and Early Clinical Results. *Cornea* 2020, 39(5):558-65.
14. Ting DSW, Foo VHX, **Tan TE**, Sie NM, Wong CW, Tsai ASH, Tan GSW, Lim LS, Yeo IYS, Wong DWK, Ong SG, Wong EYM, Ang CL, Lee SY. 25-years Trends and Risk factors related to Surgical Outcomes of Giant Retinal Tear-Rhegmatogenous Retinal Detachments. *Sci Rep* 2020, 25;10(1):5474.

15. Yip MYT, Lim G, Lim ZW, Nguyen QD, Chong CCY, Yu M, Bellemo V, Xie Y, Lee XQ, Hamzah H, Ho J, **Tan TE**, Sabanayagam C, Grzybowski A, Tan GSW, Hsu W, Lee ML, Wong TY, Ting DSW. Technical and imaging factors influencing performance of deep learning systems for diabetic retinopathy. *NPJ Digit Med* 2020;3:40.
16. Liu YC, Ji AJS, **Tan TE**, Fuest M, Mehta JS. Femtosecond Laser-assisted Preparation of Conjunctival Autograft for Pterygium Surgery. *Sci Rep* 2020;10(1):2674.
17. **Tan TE**, Devarajan K, Seah XY, Lin SJ, Peh GSL, Cajucom-Uy HY, Ang MHN, Tan DTH. Lamellar Dissection Technique for Descemet Membrane Endothelial Keratoplasty Graft Preparation. *Cornea* 2020, 39(1):23-9.
18. **Tan TE**, Nguyen Q, Chua J, Schmetterer L, Tan GSW, Wong CW, Tsai A, Cheung GCM, Wong TY, Ting DSW. Global Assessment of Retinal Arteriolar, Venular and Capillary Microcirculations Using Fundus Photographs and Optical Coherence Tomography Angiography in Diabetic Retinopathy. *Sci Rep* 2019;9(1):11751.
19. Liu YC, Devarajan K, **Tan TE**, Ang M, Mehta JS. Optical Coherence Tomography Angiography for Evaluation of Reperfusion following Pterygium Surgery. *Am J Ophthalmol* 2019.
20. **Tan TE**, Tan DTH. Cytomegalovirus Corneal Endotheliitis After Descemet Membrane Endothelial Keratoplasty. *Cornea* 2019, 38(4):413-418.
21. Ting DSW, **Tan TE**, Lim CCT. Development and Validation of a Deep Learning System for Detection of Active Pulmonary Tuberculosis on Chest Radiographs: Clinical and Technical Considerations. *Clin Infect Dis* 2018.
22. **Tan TE**, Liu YC, Jayasinghe LS, Mehta JS. Intraoperative Optical Coherence Tomography Vault Measurement in Posterior Chamber Phakic Intraocular Lens Implantation. *J Refract Surg* 2017, 33(4):274-277.
23. **Tan TE**, Cheung CM, Mehta JS. Activation of Cytomegalovirus corneal endotheliitis following laser in situ keratomileusis. *BMJ Case Rep* 2016, 2016.
24. **Tan TE**, Peh GS, Finkelstein EA, Mehta JS. A practical model for economic evaluation of tissue-engineered therapies. *Wiley Interdiscip Rev Syst Biol Med* 2015, 7(2):91-100.
25. **Tan TE**, Peh GS, George BL, Cajucom-Uy HY, Dong D, Finkelstein EA, Mehta JS. A cost-minimization analysis of tissue-engineered constructs for corneal endothelial transplantation. *PLoS One* 2014, 9:e100563.
26. **Tan TE**, Mehta JS. Cataract surgery following KAMRA presbyopic implant. *Clin Ophthalmol* 2013, 7:1899-1903.

Patents & Inventorship:

- “Anterior Chamber Angle Devices and Methods”
 - Patent published in February 2019
 - Co-Inventor