

Subashree Murugan, B. Optometry

Indiana University School of Optometry

Email: sumuru@iu.edu

EDUCATION	
Doctor of Philosophy in Vision Science <i>Indiana University School of Optometry, Bloomington, Indiana, USA</i>	2018-Present
Bachelor of Optometry <i>Elite School of Optometry, Chennai, India</i>	2013-2017
Diploma in Medical Lab Technology and Medical Biotechnology <i>Stella Maris College, Chennai, India</i>	2011-2012
Bachelor of Science in Advanced Zoology and Biotechnology <i>Stella Maris College, Chennai, India</i>	2010-2013

TEACHING EXPERIENCE	
Graduate Teaching Assistant/ Associate Instructor <i>Indiana University School of Optometry, Bloomington, Indiana, USA</i>	
<ul style="list-style-type: none">• A Graduate Associate Instructor for Systems Approach Biomedical Sciences 1 & 2 for first-year Doctor of Optometry students.	2019-2022
<ul style="list-style-type: none">• A Graduate Teaching Assistant for Ocular Biology for first-year Doctor of Optometry students.	2023
<ul style="list-style-type: none">• An Associate Instructor for a seminar/discussion class called Oxyopia for graduate students to moderate and facilitate the class.	2020-Present

CLINICAL EXPERIENCE	
Intern Optometrist <i>Sankara Nethralaya, A unit of Medical Research Foundation, Chennai, India</i>	2016-2017

RESEARCH EXPERIENCE	
Developing a mouse model for Dry eye disease <i>Indiana University School of Optometry</i> Develop a mouse model to understand the signaling pathways involved in the pathophysiology of Dry eye disease.	2023-Present

<p>Aging in corneal endothelial cells</p> <p><i>Indiana University School of Optometry</i></p> <p>Understand the cellular dysfunctions that lead to corneal endothelial physiology and density changes with age.</p>	2023-Present
<p>Role of Protein Clearance Pathways in Fuchs Endothelial Corneal Dystrophy using a novel mouse model</p> <p><i>Indiana University School of Optometry</i></p> <p>Understand molecular pathways in FECD, to help identify potential therapeutic targets to restore normal cellular function and alleviate disease progression.</p>	2022-Present
<p>Eph-ephrin signaling in the ocular lens</p> <p><i>Indiana University School of Optometry</i></p> <p>Study the pathophysiology of age-related diseases such as cataracts, associated with disruption of the Eph-Ephrin pathway.</p>	2021-2022
<p>Role of Wnt signaling in Corneal epithelium</p> <p><i>Indiana University School of Optometry</i></p> <p>Understand the role of Wnt-β-Catenin signaling in precocious stratification of the corneal epithelium</p>	2019-2021
<p>Corneal epithelial permeability in dry eye disease, endothelial permeability in Fuchs dystrophy, and aqueous flare in uveitis</p> <p><i>Sankara Nethralaya, Medical Research Foundation – India</i></p> <p>Used a custom-made ocular fluorometer to measure corneal epithelial and endothelial permeability and as a flare meter to measure aqueous flare in uveitis.</p>	2017-2018
<p>Visual Task Analysis in Embroidery Workers</p> <p><i>Elite School of Optometry – India</i></p> <p>The study helped to understand the visual demands of the job on the workers and the work-related hazards they encountered.</p>	2016
<p>Profiling Vision Standards for Rubber, Tyre, Electronics and Software Industries</p> <p><i>Elite School of Optometry – India</i></p> <p>The study helped to set vision standards for the different job designations in an industrial set-up based on their visual requirement, which can help prevent work-related hazards and improve their work efficiency. The study's results were found to correlate with the available literature.</p>	2015-2016

PEER-REVIEWED PUBLICATIONS

Murugan, S., de Campos, V. S., Ghag, S. A., Ng, M., & Shyam, R. (2024). Characterization of a Novel Mouse Model for Fuchs Endothelial Corneal Dystrophy. *Investigative ophthalmology & visual science*, 65(4), 18. <https://doi.org/10.1167/iovs.65.4.18>

Murugan, S., & Cheng, C. (2022). Roles of Eph-Ephrin Signaling in the Eye Lens Cataractogenesis, Biomechanics, and Homeostasis. *Frontiers in cell and developmental biology*, 10, 852236. <https://doi.org/10.3389/fcell.2022.852236>

Shyam, R., Ogando, D. G., Kim, E. T., **Murugan, S.,** Choi, M., & Bonanno, J. A. (2022). Rescue of the Congenital Hereditary Endothelial Dystrophy Mouse Model by Adeno-Associated Virus-Mediated Slc4a11 Replacement. *Ophthalmology Science*, 2(1), 100084. [https://www.opthalmologyscience.org/article/S2666-9145\(21\)00086-5/fulltext](https://www.opthalmologyscience.org/article/S2666-9145(21)00086-5/fulltext)

Sudhir, R. R., *Murthy, P. P., *Tadepalli, S., ***Murugan, S.,** Padmanabhan, P., Krishnamurthy, A., ... & Srinivas, S. P. (2018). Ocular spot fluorometer equipped with a lock-in amplifier for measurement of aqueous flare. *Translational vision science & technology*, 7(6), 32-32. *Authors contributed equally. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6314058/>

PEER-REVIEWED ABSTRACTS

Murugan, S., Ghag, S., Campos, V., Ng, M., Shyam, R. (2024). Functions of protein clearance pathways in corneal endothelial cells. *Investigative Ophthalmology & Visual Science*. **(Paper presentation)**

Ghag, S., **Murugan, S.,** Campos, V., Shyam, R. (2024). Ex-vivo and in-vitro analysis of the effects of aging in the corneal endothelium. *Investigative Ophthalmology & Visual Science* **(Poster presentation)**

Campos, V., **Murugan, S.,** Ghag, S., Herberg, S., Shyam, R. (2024). Exploring the Impact of ECM Stiffness on Corneal Endothelial Cells. *Investigative Ophthalmology & Visual Science* **(Poster presentation)**

Murugan, S., Ghag, S., Campos, V., Ng, M., Shyam, R. (2023). Aberrant Protein Clearance Pathways in Fuchs Endothelial Corneal Dystrophy. *American Academy of Optometry*. **(Paper presentation)**

Murugan, S., & Cheng, C. (2022). Mapping the universe of Eph and ephrin transcripts in adult mouse lenses. *Investigative Ophthalmology & Visual Science*, 63(7), 16-16. **(Paper presentation)**

Maddipatla, R., **Murugan, S.,** Liu, C. Y., & Tankam, P. (2021). High-speed, high-resolution optical coherence microscopy combined with dual-channel fluorescence microscopy for small animal models imaging. *Investigative Ophthalmology & Visual Science*, 62(8), 2039-2039. **(Poster presentation)**

Tankam, P., & **Murugan, S.** (2019). Improving the Scleral Clarity to Enable the Imaging of the Trabecular Meshwork using 800 nm Optical Coherence Tomography. *Investigative Ophthalmology & Visual Science*, 60(9), 2136-2136. **(Poster presentation)**

Srinivas, S. P., Rathore, M., Murugan, S. , Rachapalle, S., Padmanabhan, P., Jain, A., Hasheem A, & Babu, R. (2019). Aqueous flare in uveitis: Measurements with an enhanced spot fluorometer. <i>Investigative Ophthalmology & Visual Science</i> , 60(9), 6688-6688. (Poster presentation)
Rankin, D. N., Lingesh, S., Akshata, V., Murugan, S. , Padmanabhan, P., Rachapalle, S. R., Babu, R. & Srinivas, S.P. (2019). Enhanced ocular spot fluorometry in the frequency domain. <i>Investigative Ophthalmology & Visual Science</i> , 60(9), 2140-2140. (Poster presentation)
Rankin, D., Akshata, V., Thanuja, M. Y., Lingesh, S., Povrozin, Y., Barbier, B., Murugan, S. , Ranganathan, S.& Srinivas, S. P. (2019). Digital frequency domain approach for pO ₂ sensing with a microfluorometer developed for transcorneal measurements. <i>Investigative Ophthalmology & Visual Science</i> , 60(9), 4167-4167. (Poster presentation)
Murugan, S. , Padmanabhan, P., Sudhir, R. R., Goyal, A., Talele, D., & Srinivas, S. P. (2018). Ocular surface kinetics of fluorescein in human eyes: Effect of viscosity enhancing agents and drop size. <i>Investigative Ophthalmology & Visual Science</i> , 59(9), 5709-5709. (Poster presentation)
Srinivas, S. P., Murugan, S. , Rachapalle, S., & Padmanabhan, P. (2018). Functions of the corneal endothelium as measured by swelling and deswelling dynamics in response to contact lens-induced transient hypoxia. <i>Investigative Ophthalmology & Visual Science</i> , 59(9), 2914-2914. (Poster presentation)
Rachapalle, S., Murugan, S. , Padmanabhan, P., Murthy, P., Kompella, U. B., & Srinivas, S. P. (2018). Ocular spot fluorometer equipped with a lock-in amplifier for measurement of aqueous flare. <i>Investigative Ophthalmology & Visual Science</i> , 59(9), 4216-4216. (Poster presentation)

AWARDS AND HONORS	
Mike Daley Ezell Fellowship	2024
Best presentation award at Heartland Vision Science Symposium	2023
Student Leader of the Year- Runner-up	2022
Nominated for the Yolanda Treviño Service Award	2022
Valedictorian	2017
Srimathi Pramila Singh Memorial Prize for General Physiology	2017
Luxottica Excellence Award for Ocular Physiology and Geriatric Optometry	2017
Sri Narayana Gupta Prize for Visual Optics	2017
Sri V R Ramanatha Iyer Memorial Prize for Optometric Optics	2017
Sri V Vaidyasubramaniya Iyer Memorial Prize for Contact Lens	2017
Sri K Sreenivasan Prize for Glaucoma	2017
Essilor Award for Dispensing Optics	2017

Sri CNS Panicker Memorial Prize for Public Health and Community Optometry	2017
Professor SRG Prize for Pediatric Optometry	2017
Dr. S. Srinivasan Prize for Best Project in Occupational Optometry	2017
Sri Sugalachand Jain Prize for Clinical Examinations	2017
Shree Banaskantha Palanpur Jain Association Award for Community Vision Care Service	2017
Mrs. Shakeron Nissa N P Jamal Prize for Optometry Clinical Excellence Award	2017
Best Student of the Year	2016, 2014, 2011

PROFESSIONAL MEMBERSHIP	
Association for Ocular Pharmacology and Therapeutics (AOPT)	2023- Present
American Academy of Optometry (AAO)	2022- Present
Association for Research in Vision and Ophthalmology (ARVO)	2018- Present
Optometric Association of Tamil Nanbargal (OATN)	2014-2018

PROFESSIONAL DEVELOPMENT	
Career Development Forum by North American Vascular Biology Organization	2023
ASCO's Future Faculty Program	2022
Career development sessions	2021-2022
Research compliance at Indiana University webinar	2021
Multiplexing in qPCR organized by Thermo Fisher Scientific	2021
Research Methodology workshop	2017
Continuing Optometric Education on Advanced Low vision Care and Neuro- Optometry	2017

PROFESSIONAL AND COMMUNITY SERVICES	
Dean's Graduate Students Advisory Board at Indiana University	2023- Present
Graduate Students Association at Indiana University School of Optometry- President	2021-2022
Volunteered in the IUSO Summer Program, an interactive session for high schoolers and undergraduates to introduce them to Optometry as a career and profession	2021- 2023
Volunteered in Science Fest organized by the Department of Arts and Science of Indiana University	2019-2020
Graduate Students Association at Indiana University School of Optometry- Treasurer	2019 & 2021

Volunteered in Girls in Engineering, Math, and Science (GEMS) event organized by the Monroe County Community School Corporation and the Foundation for Monroe County Community Schools for 5 th and 6 th -grade girls	2019 & 2021
Participated in World Optometry Day camp at Karumandhurai village, Salem. Educated the local population on presbyopia and distributed spectacles to the elderly population	2016
Participated in Glaucoma awareness program	2015
Participated in Vision screening camps for school children in Chennai	2014-2017

OTHER INTERESTS
Listening to music
Acrylic and Oil Painting
Nature photography
Hiking and exploring new trails