



Y. Joyce Liao, MD, PhD

Stanford Medicine Professor of Ophthalmology and Professor of Neurology and Neurological Sciences

CLINICAL OFFICE (PRIMARY)

- **Stanford Byers Eye Institute**

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Palo Alto, CA 94303

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

Brianna Bennett - Administrative Assistant

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Bio

BIO

Dr. Liao is a clinician-scientist who is dedicated to making basic discoveries and improving clinical care and treatment of patients with eye-brain diseases. Dr. Liao received her undergraduate degree with high honors from Harvard University in Biochemical Sciences and her M.D., Ph.D. in Neuroscience (Medical Scientist Training Program) and Fellowship in Neuro-Ophthalmology from University of California San Francisco. She has served as Director of the Neuro-Ophthalmology since 2008 and Founding Director of the Stanford Center for Optic Disc Drusen since 2019. She also serves as Co-Director of the T32-funded Stanford Postdoctoral Vision Training Program since 2009.

Dr. Liao's research is focused on the pathogenesis and novel treatment of optic neuropathies, which are diseases affecting the 1.2 million axons connecting the eye (captures visual information) and the brain (interprets visual information). Disruption of this important information highway leads to visual dysfunction despite good function in the retina and the brain. In particular, Dr. Liao is studying OPTIC NERVE STROKE (also called nonarteritic anterior ischemic optic neuropathy), which is the most common acute optic neuropathy in those older than 50 years of age, and OPTIC DISC DRUSEN, which is associated with deposition of calcified deposits in the optic nerve and the most common cause of young-onset optic nerve stroke. Her research lab aims to identify the first genes for autosomal dominant optic disc drusen. Dr. Liao's research areas also include: (1) development of state-of-the-art in vivo imaging techniques in the eye as novel biomarkers of disease; (2) investigations of the key cellular and molecular changes in optic neuropathies leading to vision loss, including the use of patient specimen and stem cell research; and (3) testing of novel treatment for optic neuropathies, including neuroprotection and regenerative therapy.

Dr. Liao is also an expert on diseases causing eye movement abnormality and double vision. The eyes move to allow us to see, and we move our eyes about 3 times per second. Because eye movement is very precisely controlled and integrated with visual processing, vision loss or eye movement abnormality both lead to impairment of visuo-motor behavior, leading to debilitating symptoms such as eye strain, dizziness, and headache during activities of daily living. Dr. Liao uses noninvasive infrared eye trackers (sampling up to 1000 times per second) to perform recordings of visuo-motor behavior in the Stanford Eye Clinic. By recording and studying eye behavior, Dr. Liao's team can decipher the most important contributors to visual disability, which will help her design the most appropriate treatment and visual rehabilitation for each patient.

CLINICAL FOCUS

- Neuro-Ophthalmology
- Ischemic Optic Neuropathy
- Hypoxic-ischemic injury
- Optic Disc Drusen
- Stroke
- Parkinson's disease and parkinsonism
- Eye Movement Disorders
- Diplopia
- Stem cell
- Leber's hereditary optic neuropathy
- Optic Neuritis and Multiple Sclerosis
- Pseudotumor Cerebri
- Nystagmus
- Space travel
- Neuro-ophthalmology

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Ophthalmology
- Professor - University Medical Line, Neurology and Neurological Sciences
- Member, Bio-X
- Member, SPARK at Stanford
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Director, Center for Optic Disc Drusen, Stanford University School of Medicine, (2019- present)
- Vice Chair for Academic Affairs, Stanford University Department of Ophthalmology, (2019- present)
- Director, Neuro-Ophthalmology, Stanford University Department of Ophthalmology, (2008- present)
- Director, Neuro-Ophthalmology Fellowship, Stanford University Department of Ophthalmology, (2017- present)
- Co-Director, Vision Postdoctoral Training Program, Stanford University Department of Ophthalmology, (2010- present)
- Director, Stanford Human Ocular Motor Center, Stanford University Department of Ophthalmology, (2006- present)
- Editorial Board, American Journal of Ophthalmology Case Report, (2020- present)

HONORS AND AWARDS

- Faculty Educator of the Year, Department of Ophthalmology, Stanford (2020)
- Young Investigator Award, North American Neuro-Ophthalmology Society (2011)
- Grant Award, Weston Havens Foundation (2011-2013)
- McCormick Faculty Award, Office of Diversity and Leadership (2011-2013)
- Grant Award, Stanford University Vice Provost Undergraduate Research Faculty Grant (2010-2020)

- Career Award in Biomedical Sciences, Burroughs Wellcome Foundation (2005-2014)
- S. Weir Mitchell Award, American Academy of Neurology (2004)
- K08 Award, National Institute of Neurological Diseases and Stroke (2003-2008)
- Dean's Prize in Research, University of California, San Francisco (1992)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Assistant Professor Review Committee, Stanford University School of Medicine (2018 - present)
- Member, Research Committee, North American Neuro-Ophthalmology Society (NANOS) (2018 - present)
- Member, Scientific Program Committee, North American Neuro-Ophthalmology Society (NANOS) (2015 - present)
- Member, Neuro-Ophthalmology subcommittee of Annual Meeting Program Committee, American Association of Ophthalmology (AAO) (2014 - present)
- Vice Chair and Board Member, California State Athletic Commission Medical Advisory Board (2010 - 2013)
- Member, Abstract Committee, North American Neuro-Ophthalmology Society (NANOS) (2008 - 2014)

PROFESSIONAL EDUCATION

- Residency: Stanford University Dept of Neurology (2002) CA
- Fellowship: UCSF Ophthalmology Fellowships (2006) CA
- Internship: Stanford University Internal Medicine Residency (1999) CA
- Medical Education: University of California at San Francisco School of Medicine (1998) CA
- A.B., Harvard , Biochemical Sciences (1991)
- Ph.D., UCSF , Neuroscience (1996)
- Board Certification: Neurology, American Board of Psychiatry and Neurology (2005)

LINKS

- Eye-Brain Research: <http://med.stanford.edu/eyebrain.html>
- Eye Movement Research: <http://med.stanford.edu/eyemovement.html>
- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>
- Stanford Center for Optic Disc Drusen: <https://med.stanford.edu/optic-disc-drusen.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Ischemic optic neuropathy
Stem cell transplantation
Optic neuropathy
Optic neuritis
Eye movement disorders
Reading
Parkinson's disease
Multiple sclerosis

PROJECTS

- Pathogenesis and Treatment of Anterior Ischemic Optic Neuropathy - Stanford University (9/9/2008 - present)

- Pathogenesis and treatment of optic disc drusen and ectopic calcification (3/1/2026)
- Eye Movement Control and Abnormalities in Neuro-Ophthalmic Conditions - Stanford University (9/9/2006 - present)
- Reading Abnormalities in Neuro-Ophthalmic Disorders (8/1/2006)
- Eye-Brain Vision Issues in Space - Stanford University (January 1, 2018)

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Andrew Berneshawi

Postdoctoral Faculty Sponsor

Tazbir Ahmed, Anas Alkhabaz, Karanvir Kaushal, Howard Li, Manisha Prajapat, Ming Yang

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **Optic disc flavoprotein fluorescence imaging as a novel method to quantify disease burden in optic disc drusen.** *American journal of ophthalmology*
Pujari, R. R., Yu, M., Zhang, J., Almeda, L., Pugazhendhi, S., Zhu, P., Rich, C., Moss, H. E., Beres, S., Liao, Y. J.
2025
- **High Altitude as a Risk Factor for the Development of Nonarteritic Anterior Ischemic Optic Neuropathy.** *Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society*
Liu, Y. A., Mesentier-Louro, L. A., Shariati, M. A., Moss, H. E., Beres, S. J., Liao, Y. J.
2022
- **Multimodal Imaging Features of Optic Disc Drusen.** *American journal of ophthalmology*
Yan, Y., Ludwig, C. A., Liao, Y. J.
2021
- **The Project Baseline Health Study: A Step Towards a Broader Mission to Map Human Health** *npj Digital Medicine*
Gambhir, S., ..., Liao, Y. J., et al., et al
2020
- **Vision loss in optic disc drusen correlates with increased macular vessel diameter and flux and reduced peripapillary vascular density.** *American journal of ophthalmology*
Yan, Y. n., Zhou, X. n., Chu, Z. n., Stell, L. n., Shariati, M. A., Wang, R. K., Liao, Y. J.
2020
- **Vision loss in optic disc drusen correlates with increased macular vessel diameter and flux and reduced peripapillary vascular density** *American Journal of Ophthalmology*
Yan, Y., Zhou, X., Chu, Z., Stell, L., Shariati, M. A., Wang, R. K., Liao, Y. J.
2020
- **Increased ER Stress After Experimental Ischemic Optic Neuropathy and Improved RGC and Oligodendrocyte Survival After Treatment With Chemical Chaperon.** *Investigative ophthalmology & visual science*
Kumar, V., Mesentier-Louro, L. A., Oh, A. J., Heng, K., Shariati, M. A., Huang, H., Hu, Y., Liao, Y. J.
2019; 60 (6): 1953–66
- **Direct targeting of the mouse optic nerve for therapeutic delivery.** *Journal of neuroscience methods*
Mesentier-Louro, L. A., Dodd, R., Domizi, P., Nobuta, H., Wernig, M., Wernig, G., Liao, Y. J.

2018

- **Slower saccadic reading in Parkinson's disease** *PLOS ONE*
Jehangir, N., Yu, C., Song, J., Shariati, M., Binder, S., Beyer, J., Santini, V., Poston, K., Liao, Y.
2018; 13 (1): e0191005
- **Report on the National Eye Institute Audacious Goals Initiative: Regenerating the Optic Nerve.** *Investigative ophthalmology & visual science*
Goldberg, J. L., Guido, W., For The Agi Workshop Participants
2016; 57 (3): 1271-1275
- **Utility of Optical Coherence Tomographic Angiography in Neuro-Ophthalmic Practice.** *Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society*
Gaier, E. D., Liao, Y. J.
2026; 46 (1): 8-17
- **Using multimodal imaging to improve the diagnostic accuracy and confidence in distinguishing non-arteritic anterior ischemic optic neuropathy from optic disc drusen.** *Frontiers in neurology*
Kim, M. Y., Alkhabaz, A., Yu, M., Pujari, R., Liao, Y. J.
2026; 17: 1653402
- **Pediatric ABCG6 deficiency: a genotypic and phenotypic analysis.** *Orphanet journal of rare diseases*
Bertamino, M., Goldberg, D. J., Mughal, M. Z., Pabst, L., Liao, Y. J., Sun, L. R., Beckwell, J., Kozaric, A., du Moulin, R., Swanner, K., Ferreira, C. R., Ziegler, S. G.
2025; 20 (1): 593
- **Long-term test and retest reliability of clinical vergence testing.** *Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists)*
Scheiman, M., Raghuram, A., Master, C., Robich, M. L., Toole, A., Shelton, E. R., Srinivasan, G., Marusic, S., Meiyeppen, S., Jordan, L. A., Roberts, T. L., EPICC Study Group, Roberts, T. L., et al
2025
- **Cryogenic electron tomography and elemental analysis of mitochondrial granules in human retinal ganglion cells.** *Structure (London, England : 1993)*
Wu, G. H., Hou, C., Thron, A., Patel, H. R., Spillane, L., Gupte, S. R., Yeung-Levy, S., Gulati, S., Booth, C., Liao, Y. J., Chiu, W.
2025
- **Age-related macular degeneration associated with optic disc drusen** *FRONTIERS IN OPHTHALMOLOGY*
Alkhabaz, A., Kim, M., Pujari, R., Zhang, J., Ren, Y., Leung, L., Liao, Y.
2025; 5: 1620616
- **Niacinamide protect visual function in optic nerve stroke**
Liu, L., Modgil, S., Shariati, A., Kim, M., Ahmed, T., Wu, H., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Classification of Superficial and Buried Optic Disc Drusen using EDI-OCT B-Scans**
Yu, M., Pujari, R., Zhang, J., Zhu, P., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Plasma lipids as novel biomarker of non-arteritic anterior ischemic optic neuropathy**
Alkhabaz, A., Kaushal, K., Ren, Y., Modgil, S., Pujari, R., Zhang, J., Zhu, P., Fu, M., Dai, Y., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Reading and Eye-Tracking Metrics as Visual Function Indicators for Patients with Optic Neuropathies**
Ren, Y., Pujari, R., Peters, P., Zhang, J., Zhu, P., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Increased oxidative stress and inflammation in human and experimental optic nerve stroke**
Ahmed, T., Liu, L., Wang, Q., Wu, H., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Flavoprotein Fluorescence in the 24-Month FALCON Natural History Study of Autosomal Dominant Optic Atrophy: A Potential Biomarker for Mitochondrial Dysfunction**

- Votruba, M., Gross, S., Lam, B., Liao, Y., Mudumbai, R. C., Saluti, K., Ticho, B., Wang, Y., Yu-Wai-Man, P.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Optic disc edema masks optic disc flavoprotein fluorescence signal in optic nerve stroke**
Pujari, R., Ren, Y., Zhang, J., Zhu, P., Pugazhendhi, S., Rich, C., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
 - **Development of SCONE, a targeted optic nerve head drug delivery system**
Chiang, B., Onyekwere, O., Jang, K., Nahmou, M., Heng, K., Dalal, R., Liao, Y., Myung, D., Goldberg, J. L.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
 - **Using Multimodal Imaging to Improve the Diagnostic Accuracy of Optic Disc Edema**
Kim, M., Alkhabaz, A., Yu, M., Pujari, R., Zhang, J., Zhu, P., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
 - **Optic disc drusen-associated neovascularization: A systematic review.** *Survey of ophthalmology*
Alkhabaz, A., Pujari, R., Ren, Y., Smith, S. J., Liao, Y. J.
2025
 - **Using blood biomarkers and ophthalmological indicators of optical coherence tomography and angiography for the diagnosis of fundus lesions in patients with diabetes mellitus.** *Frontiers in clinical diabetes and healthcare*
Huang, F., Yu, M., Huang, L., Wang, R. K., Leng, T., Wang, S. Y., Liao, Y. J.
2025; 6: 1499344
 - **Development of a novel SupraChoroidal-to-Optic-Nerve (SCONE) drug delivery system.** *Drug delivery*
Chiang, B., Heng, K., Jang, K., Dalal, R., Liao, Y. J., Myung, D., Goldberg, J. L.
2024; 31 (1): 2379369
 - **Siponimod-associated cystoid macular edema without known risk factors.** *American journal of ophthalmology case reports*
Kim, M. Y., Alkhabaz, A., Smith, S. J., Liao, Y. J.
2024; 36: 102124
 - **Axonal Energy Crisis and Calcium Phosphate Dysregulation as Pathogenesis of Optic Disc Drusen** *AGING AND DISEASE*
Modgil, S., Ahmed, T., Liao, Y.
2024
 - **Axonal Energy Crisis and Calcium Phosphate Dysregulation as Pathogenesis of Optic Disc Drusen.** *Aging and disease*
Modgil, S., Ahmed, T., Liao, Y. J.
2024
 - **FALCON: A Prospective Natural History Study of Patients with Autosomal Dominant Optic Atrophy (ADOA)**
Gross, S., Liao, Y., Yu-Wai-Man, P., Lam, B. L., Mudumbai, R., Votruba, M., Saluti, K., Wang, Y., Ticho, B.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
 - **Blood-born biomarkers for optic disc drusen**
Zhang, Y., Gong, X., Moss, H., Beres, S. J., Wang, S. Y., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
 - **Role of methylglyoxal on retinal changes and neuronal loss in a photochemically induced animal model of anterior ischemic optic neuropathy**
Ahmed, T., Shariati, A., Liu, L., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
 - **Plasma proteomics of non-arteritic ischemic optic neuropathy reveals potential biomarkers and interaction with retinal cells**
Mesentier-Louro, L., Yu, M., Rangel, B., Pugazhendhi, S., Shariati, A., Dalal, R., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
 - **Endogenous flavoprotein fluorescence imaging revealed increased optic disc metabolic stress in optic neuropathies**
Liao, Y., Pujari, R., Zhu, P., Rich, C., Yu, M., Pugazhendhi, S.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024

- **Proteomics Biomarkers of Optic Nerve Stroke with and without Optic Disc Drusen**
Alkhabaz, A., Kaushal, K., Liu, L., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Visual Cortex Stimulation Preserves Vision function and Enhances Synaptic Plasticity in the Lateral Geniculate Nucleus in AION mouse model**
Jia, X., Shariati, A., Liu, L., Liang, J., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Multiomics Analysis Illuminates the Molecular Basis of Autosomal Dominant Optic Disc Drusen**
Kaushal, K., Liu, L., Patel, H., Kumar, A., Pugazhendhi, S., Oses-Prieto, J. A., Shariati, M., Dai, Y., Burlingame, A., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Invitro modeling of Optic Disc Drusen (ODD) using iPSC-derived retinal cells**
Patel, H., Parte, S., Kumar, A., Kaushal, K., Swarup, A., Shariati, A., Liang, J., Wu, G., Iweka, C., Liu, L., Wu, A. Y., Chiu, W., Liao, et al
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Visual Outcomes of Optic Disc Drusen and Structural Changes in Optic Nerve Head**
Gong, X., Pugazhendhi, S., Zhu, P., Ludwig, C., Wang, S., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Development of a targeted drug delivery approach to the optic nerve head**
Chiang, B., Heng, K., Jang, K., Dalal, R., Liao, Y., Myung, D., Goldberg, J.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Perivascular Neurons Instruct Three-Dimensional Retinal Vascular Lattice Formation via Direct Neurovascular Contact**
Toma, K., Zhao, M., Zhang, S., Modgil, S., Shang, W., Liao, Y., Kim, T., Duan, X.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Structure and Function Comparison of Autosomal Dominant and Sporadic Optic Disc Drusen**
Zhang, J., Pujari, R., Zhu, P., Pugazhendhi, S., Yu, M., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Mitochondrial Dysfunction in Autosomal Dominant Optic Atrophy (ADOA) Assessed in FALCON, A Non-interventional, Natural History Study**
Mudumbai, R., Liao, Y., Yu-Wai-Man, P., Lam, B. L., Votruba, M., Saluti, K., Wang, Y., Gross, S., Ticho, B.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **High-Phosphate induced Calcium deposits in Optic Nerve following Anterior Ischemic Optic Neuropathy (AION)**
Modgil, S., Hsu, R., Shariati, A., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Perivascular neurons instruct 3D vascular lattice formation via neurovascular contact. *Cell***
Toma, K., Zhao, M., Zhang, S., Wang, F., Graham, H. K., Zou, J., Modgil, S., Shang, W. H., Tsai, N. Y., Cai, Z., Liu, L., Hong, G., Kriegstein, et al
2024
- **Therapeutic benefit of idebenone in patients with Leber hereditary optic neuropathy: The LEROS nonrandomized controlled trial. *Cell reports. Medicine***
Yu-Wai-Man, P., Carelli, V., Newman, N. J., Silva, M. J., Linden, A., Van Stavern, G., Szaflik, J. P., Banik, R., Lubinski, W., Pemp, B., Liao, Y. J., Subramanian, P. S., Misiuk-Hojlo, et al
2024: 101437
- **Compartmentalized ciliation changes of oligodendrocytes in aged mouse optic nerve. *Journal of neuroscience research***
Ning, K., Tran, M., Kowal, T. J., Mesentier-Louro, L. A., Sendayen, B. E., Wang, Q., Lo, C. H., Li, T., Majumder, R., Luo, J., Hu, Y., Liao, Y. J., Sun, et al
2024; 102 (1): e25273
- **California Stress, Trauma, and Resilience Study (CaISTARS) protocol: A multiomics-based cross-sectional investigation and randomized controlled trial to elucidate the biology of ACEs and test a precision intervention for reducing stress and enhancing resilience. *Stress (Amsterdam, Netherlands)***

- Kim, L. Y., Schüssler-Fiorenza Rose, S. M., Mengelkoch, S., Moriarity, D. P., Gassen, J., Alley, J. C., Roos, L. G., Jiang, T., Alavi, A., Thota, D. D., Zhang, X., Perelman, D., Kodish, et al
2024; 27 (1): 2401788
- **Osteopontin drives retinal ganglion cell resiliency in glaucomatous optic neuropathy.** *Cell reports*
Zhao, M., Toma, K., Kinde, B., Li, L., Patel, A. K., Wu, K. Y., Lum, M. R., Tan, C., Hooper, J. E., Kriegstein, A. R., La Torre, A., Liao, Y. J., Welsbie, et al
2023; 42 (9): 113038
 - **Development of human cellular model for ectopic calcification to study the physiopathological mechanism for Optic Disc Drusen (ODD)**
Patel, H., Imventarza, J., Kumar, A., Shariati, A., Iweka, C., Swarup, A., Kaushal, K., Modgil, S., Li, S., Nahmou, M., Wu, G., Chiu, W., Liao, et al
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Clinical and Ophthalmic Biomarkers of Diabetes Mellitus: A Longitudinal Study of Visual Outcome**
Huang, F., Yu, M., Huang, L., Zhou, X., Wang, R. K., Leng, T., Wang, S., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Endogenous flavoprotein fluorescence imaging revealed increased metabolic stress in non-arteritic anterior ischemic optic neuropathy**
Pugazhendhi, S., Yu, M., Zhu, P., Rich, C., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **SCONE: Development of optic nerve head delivery technology**
Chiang, B., Dalal, R., Heng, K., Liao, Y., Goldberg, J. L., Myung, D.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Spp1 drives retinal neuron resiliency in glaucomatous neuropathy but not axotomy**
Zhao, M., Toma, K., Kinde, B., Li, L., Patel, A., Liao, Y., Vila, A., Kriegstein, A., Welsbie, D., Hu, Y., Han, Y., Duan, X.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Whole genome sequencing to elucidate the molecular pathology of Optic Disc Drusen**
Kaushal, K., Pugazhendhi, S., Li, Y., Wang, M., Patel, H., Modgil, S., Chen, R., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Ischemic optic neuropathy with and without optic disc drusen**
Gong, X., Pugazhendhi, S., Zhu, P., Ludwig, C., Wang, S., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Expert vs. Novice: Characterizing Visuo-Motor Behavior During Static Perimetry Interpretation**
Berneshawi, A., Patwardhan, A., Yu, M., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Plasma proteomics of non-arteritic anterior ischemic optic neuropathy patients using mass spectrometry.**
Yu, M., Mesentier-Louro, L., Pugazhendhi, S., Zhu, P., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Expert vs. Novice Review of Ophthalmic Data: An Oculography Study of Optic Neuropathies**
Patwardhan, A., Berneshawi, A., Yu, M., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
 - **Association of left ventricular diastolic function with coronary artery calcium score: A Project Baseline Health Study.** *Journal of cardiovascular computed tomography*
Haddad, F., Cauwenberghs, N., Daubert, M. A., Kobayashi, Y., Bloomfield, G. S., Fleischman, D., Koweek, L., Maron, D. J., Rodriguez, F., Liao, Y. J., Moneghetti, K., Amsallem, M., Mega, et al
2022
 - **Upregulation of retinal VEGF and connexin 43 in murine nonarteritic anterior ischemic optic neuropathy (NAION) induced with 577nm laser.** *Experimental eye research*
Rangel, B., Mesentier-Louro, L. A., Lowe, L. L., Shariati, M. A., Dalal, R., Imventarza, J. A., Liao, Y. J.
2022: 109139
 - **Visuo-motor assessments of eye-brain diseases using infrared oculography**

- Yu, M., Shariati, M., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
- **Development of a Skin Biopsy-Based Calcification Assay for Detection of Optic Disc Drusen: A Pilot Study**
Imventarza, J., Kumar, A., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
 - **Increased ciliary length of oligodendrocytes in anterior optic nerve with ageing**
Tran, M., Ning, K., Kowal, T., Majumder, R., Wang, Q., Hu, Y., Liao, Y., Sun, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
 - **Age-Associated Changes in Astrocytes Cilia of Mouse Retina and Optic Nerve**
Majumder, R., Ning, K., Kowal, T., Wang, Q., Tran, M., Wang, B., Hu, Y., Liao, Y., Sun, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
 - **Optical Coherence Tomography Angiography Features of Optic Nerve Ischemia**
Pugazhendhi, S., Yu, M., Shariati, M., Zhou, X., Cheng, Y., Wang, R. K., Liao, Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
 - **Multicolor Imaging of Optic Disc Drusen.** *Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society*
Yan, Y., Pugazhendhi, S., Beres, S. J., Liao, Y. J.
2022
 - **Multimodal Ophthalmic Imaging of Nonarteritic Anterior Ischemic Optic Neuropathy With and Without Optic Disc Drusen** *JOURNAL OF NEURO-OPHTHALMOLOGY*
Pugazhendhi, S., Yan, Y., Liao, Y.
2022; 42 (1): E349-E351
 - **Predicting Visuo-Motor Diseases From Eye Tracking Data.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*
Vodrahalli, K., Filipkowski, M., Chen, T., Zou, J., Liao, Y. J.
2022; 27: 242-253
 - **Peripapillary and macular microvasculature features of non-arteritic anterior ischemic optic neuropathy.** *Frontiers in medicine*
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PRESENTATIONS

- Eyes - the Window to Your Health (Project Baseline Lecture) - Stanford University
- Eye-Brain Issues in Microgravity and the Effect of Hypoxia in COVID-19 Infection - American Institute of Aeronautics and Astronautics Los Angeles-Las Vegas Section (April 18, 2020)
- Vision Issues in Parkinson's Disease - Parkinson's Institute
- Hot Topics in Eye-Brain Diseases - Moran Eye Center
- Brain and eye edema and dysfunction in space travel - American Institute of Aeronautics and Astronautics (AIAA) Los Angeles-Las Vegas Mini-Conference
- Eye Problems in Acoustic Neuroma - 2019 Acoustic Neuroma Society Meeting
- Profiling Health Changes in Prolonged Space Travel Using Proteomics - International Space Station Research and Development Meeting (<https://www.issconference.org>)
- Eye-brain issues in microgravity - The Space Show (May 31, 2020)