

Optical Coherence Tomography technology helps stop blindness

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The Association for Research in Vision and Ophthalmology today published a special anniversary edition in their journal *Investigative Ophthalmology & Visual Science* with more than 70 articles to commemorate the 25th anniversary of the invention of Optical Coherence Tomography technology, co-invented by Oregon Health & Science University Casey Eye Institute's David Huang, M.D., Ph.D. while Huang was a Ph.D. student with James Fujimoto, Ph.D. at Massachusetts Institute of Technology.

OCT is the most commonly used ophthalmic diagnostic technology worldwide, with an estimated 30 million OCT imaging procedures performed every year.

"I am pleased to see how well the OCT technology has evolved over the past 25 years to help diagnose and treat the most common causes of blindness, age-related macular degeneration, diabetic retinopathy and glaucoma," said Huang, Peterson Professor of Ophthalmology and Biomedical Engineering at OHSU Casey Eye Institute. "OCT use continues to grow exponentially in ophthalmology and other medical specialties, including cardiology, dermatology, neurology and gastroenterology."

OCT has transformed the way ophthalmologists are able to diagnose, monitor and treat devastating eye diseases, and it has advanced drug discovery and development. The technology is particularly suitable for the early detection of glaucoma and macular degeneration, diseases that

may cause significant damage prior to the appearance of symptoms. OCT is also widely used for diabetic macular edema, the leading cause of blindness in young patients.

"Dr. Huang's contribution to the field of ophthalmology has been tremendous and we are very fortunate to have such a brilliant mind here at Casey Eye Institute and in Oregon," said David J. Wilson, M.D., director of the OHSU Casey Eye Institute and chair of the Department of Ophthalmology in the OHSU School of Medicine. "This anniversary is a perfect opportunity to celebrate OCT as a truly transformative medical technology. Such transformations do not occur often in medicine."

OCT technology has evolved over the past 25 years with great advances in imaging speed and quality. Ophthalmologists can now study disease at the microscopic level without biopsy, and with complete patient comfort. For the first time, eye physicians can visualize and measure blood flow in the smallest of blood vessels, without the need to inject contrast agents. Non-invasive visualization and measurement of blood flow gives great insight into the cause and progression of eye disease.

Huang, who was recently ranked the 4th most influential figure in the world of ophthalmology by The Ophthalmologist PowerList 2016, runs the Center for Ophthalmic Optics and Lasers Lab, or COOL Lab, at Casey Eye Institute which includes a team of top scientists from around the world who have been perfecting OCT technology for more than 15 years. Several members of the lab have contributed articles for the special issue in IOVS (see Related Content for links to articles).

"The special issue focused on Optical Coherence Tomography is a timely compendium of recent research papers that are using this [technology](#) that has reshaped our thinking about disease processes and drug mechanisms," said Thomas Yorio, Ph.D., a fellow of ARVO and

editor-in-chief at the ARVO journal IOVS. "The ability to utilize OCT and the advances in this imaging technique have allowed us to see sections of the eye in a vastly new way, making surgical procedures easier, clinical observations clearer and providing insight into new research areas. IOVS is excited to host this exciting special issue. Special thanks go to our contributing editors, Dr. Huang and Dr. Fujimoto."

Key OHSU collaborators with Huang's lab include Ou Tan, Ph.D., John C. Morrison, M.D., Yali Jia, Ph.D., Winston Chamberlain, M.D., Ph.D., Steven Bailey, M.D., Thomas S. Hwang, M.D., and Douglas D. Koch, M.D. at Baylor College of Medicine in Houston.

More information: www.arvo.org/About_ARVO/Press...tomography_released/

Provided by Oregon Health & Science University

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