MCW researchers to develop adaptive optics retinal imaging tool for National Eye Institute

November 7, 2014 MCW News - A Medical College of Wisconsin (MCW) research team has entered a two-year, $230,000 contract with the National Institutes of Health’s National Eye Institute to investigate the development and use of a custom adaptive optics scanning light ophthalmoscope for human research.

Alfredo Dubra, PhD, Assistant Professor and Co-Director of the MCW Eye Institute’s Advanced Ocular Imaging Program (AOIP), will work on the project in collaboration with Joseph Carroll, PhD, the Richard O. Schultz, MD/Ruth Works Professor in Ophthalmology and Co-Director of MCW Eye Institute’s AOIP.

Adaptive optics is a technology used to improve the clarity of imaging systems by reducing distortions produced by incoming wavefronts—in much the same way a telescope is adapted to reduce the distortion of the earth’s atmosphere. Custom adaptive optics scanning light ophthalmoscopes (AOSLO) use adaptive optics technology and apply it to imaging for the eye. AOSLO’s are able to generate a view of the retina with a high degree of spatial sensitivity and produce the highest resolution images of the living retina ever seen. Such clarity allows for eye disease to be accurately monitored and tracked as it progresses throughout the retina. These insights yield a better understanding of eye conditions such as glaucoma, macular degeneration and other diseases of the retina.

In this project, Drs. Dubra and Carroll will assist Johnny Tam, PhD, of the National Eye Institute (NEI) to develop a working AOSLO for NEI’s Intramural Research Program with the intention of accelerating the testing and treatment of eye disease with the development and use of AOSLO technology.