

# **Functional Optical Coherence Tomography Enables *In Vivo* Physiological Assessment of Retinal Rod and Cone Photoreceptors**

*Qiuxiang Zhang<sup>1</sup>, Rongwen Lu<sup>1</sup>, Benquan Wang<sup>1</sup>, Jeffrey D. Messinger<sup>2</sup>, Christine A. Curcio<sup>2</sup>, and Xincheng Yao<sup>1,2,3\*</sup>*

<sup>1</sup>Department of Biomedical Engineering, University of Alabama at Birmingham, Birmingham, AL 35294

<sup>2</sup>Department of Ophthalmology, University of Alabama at Birmingham, Birmingham, AL 35294

<sup>3</sup>Department of Bioengineering, University of Illinois at Chicago, Chicago, IL 60607

\*Corresponding author: [xcy@uic.edu](mailto:xcy@uic.edu)

Video Legend:

Video 1: Dynamic IOSs with a 10 ms flash stimulus for a2

Video 2: Dynamic IOSs with a 10 ms flash stimulus for a3

Video 3: Dynamic IOSs with a 10 ms flash stimulus up to 7 s recording time

Video 4: Dynamic IOSs with a 500 ms stimulus up to 7 s recording time

Video 5: Transient IOSs in the dark condition

Video 6: Transient IOSs in the light condition

Video 7: Two OCT images before and after stimulation showing transient photoreceptor displacement

Video 8: In vivo OCT retinal images before image registration

Video 9: In vivo OCT retinal images after image registration