

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF OPHTHALMOLOGY AND VISUAL SCIENCES
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS
DEPARTMENT OF MOLECULAR, CELLULAR, AND DEVELOPMENTAL BIOLOGY

Kwoon Wong, Ph.D., assistant professor of ophthalmology and visual sciences, Department of Ophthalmology and Visual Sciences, Medical School, and assistant professor of molecular, cellular, and developmental biology, Department of Molecular, Cellular, and Developmental Biology, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of ophthalmology and visual sciences, with tenure, Department of Ophthalmology and Visual Sciences, Medical School, and associate professor of molecular, cellular, and developmental biology, with tenure, Department of Molecular, Cellular, and Developmental Biology, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2003	Harvard University
B.S.	1998	University of Texas, Austin

Professional Record:

2010-present	Assistant Professor of Ophthalmology and Visual Sciences, University of Michigan
2010-present	Assistant Professor of Molecular, Cellular, and Developmental Biology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Wong has a passion for teaching and has a particular talent for mentoring undergraduate students, graduate students and post-doctoral fellows. Additionally, his teaching at the University of Michigan includes half of a large-enrollment undergraduate course since Winter 2010: BIO 222 until 2012, and MCDB 352 since 2014. MCDB 352 was a new course that Dr. Wong developed, and he has been its primary instructor. Beginning Winter 2012, he also delivers two to five two-hour lectures per year in the Neuroscience Graduate Program core course. His student evaluations have consistently been excellent, especially in Winter 2016 when he had a Q2 ("the instructor was an excellent teacher") score of 4.77 out of 5 for MCDB 352. In his lab, he has trained seven post-doctoral fellows, four graduate students and 21 undergraduate students. All post-doctoral fellows and most students have published with Dr. Wong and many have given paper or poster presentations at ARVO and the Society for Neuroscience. Dr. Wong is routinely invited to major conferences to give lectures on specific topics at various national and international organizations such as the Asia-Pacific Glaucoma Congress (Hong Kong), the BIT's Annual World Congress of Neuro Talk (Hangzhou, China), and the Association for Research in Vision and Ophthalmology (ARVO). Dr. Wong has taken his own experiences as an undergraduate and created seminars and lectures that are valuable to students. Instead of students preparing to regurgitate memorized facts, Dr. Wong is working with students to build thinking and problems

resolution skill sets. In his lab he is very involved with new students to provide them with needed guidance but is also intuitive to see if they are able to function autonomously. Dr. Wong has helped inspire and motivate their efforts, helping make the department an attractive destination for many young faculty clinician-scientist stars through his support and enthusiasm as well as his hard work. Dr. Wong has served on three dissertation committees.

Research: Since being appointed as an assistant professor in 2010, Dr. Wong's research focuses on intrinsically photosensitive retinal ganglion cells (ipRGCs). ipRGCs are novel retinal output neurons that function as photoreceptors. They mediate mainly subconscious, non-image-forming (NIF) visual behaviors such as pupil constriction, neuroendocrine regulation, and circadian photoentrainment. NIF vision impacts health profoundly. For example, daytime NIF photostimulation enhances alertness and mood, and inadequate daytime stimulation, such as in winter or dimly lit homes, contributes to depression and sleep disturbances. On the other hand, excessive NIF stimulation at night can disrupt sleep. For travelers and shift workers, who experience abrupt shifts in light/dark schedules, improper NIF stimulation impairs their ability to overcome "jet lag." Dr. Wong and his lab have characterized how ipRGCs respond to different kinds of light, with the goal of developing new lighting technologies that promote health and ameliorate conditions for the blind. They have engineered lights that optimally stimulate human ipRGCs, which could be used for phototherapy devices for treating depression and jet lag.

Dr. Wong's research at the University of Michigan has been supported by departmental start-up funds, a NIH R00 grant, a Research to Prevent Blindness career development award, a Department of Defense grant, a NIH R01 grant, two MCubed pilot grants and several smaller foundation grants. As evidence of Dr. Wong's outstanding research achievements, he was awarded the Scientific Career Development Award from Research to Prevent Blindness (2010), the Carl Camras Translational Research Award from ARVO Foundation and Pfizer Ophthalmics (2016) and the William & Mary Greve Special Scholar Award from Research to Prevent Blindness (2016). All of these are highly competitive international research awards and speak to both his accomplishments and his potential to make field-changing discoveries.

Recent and Significant Publications:

Wong KY: A retinal ganglion cell that can signal irradiance continuously for 10 hours. *J Neurosci* 32:11478-11485, 2012.

Hu C, Hill DD, Wong KY: Intrinsic physiological properties of the five types of mouse ganglion-cell photoreceptors. *J Neurophysiol* 109:1876-1889, 2013.

Zhao X, Stafford BK, Godin AL, King WM, Wong KY: Photoresponse diversity among the five types of intrinsically photosensitive retinal ganglion cells. *J Physiol (Lond)* 592:1619-1636, 2014.

Reifler AN, Chervenak AP, Dolikian ME, Benenati BA, Li BY, Wachter RD, Lynch AM, Demertzis ZD, Meyers BS, Abufarha FS, Jaeckel ER, Flannery MP, Wong KY: All spiking, sustained ON displaced amacrine cells receive gap-junction input from melanopsin ganglion cells. *Curr Biol* 25:2763-2773, 2015.

Zhao X, Pack W, Khan NW, Wong KY: Prolonged inner retinal photoreception depends on the visual retinoid cycle. *J Neurosci* 35:4209-4217, 2016.

Service: In addition to his ambitious research program and educational accomplishments, Dr. Wong has served on many committees both within and external to the University of Michigan. Dr. Wong is the director of the Core Center for Vision Research – Electronics and Computer Module Committee. He also serves on the promotion review committee. As part of MCDB and the Neuroscience Graduate program, Dr. Wong has served on four graduate admissions committees and two faculty search committees. Dr. Wong has served as an invited grant reviewer for French, UK and Swiss funding agencies, as well as for two NSF CAREER grants and for NIH R01 study sections. Dr. Wong serves on the editorial board of *Current Eye Research*, as well as a reviewer for several peer-reviewed journals. He has also served as a moderator for several poster and paper sessions at ARVO conferences.

External Reviewers:

Reviewer A: "...Dr. Wong's research has made substantial impacts on the ipRGC field, in terms of both basic neurobiology and potential translational applications....In addition, Kwoon seems to [have] inspired and trained a good group of junior scientists who have been very productive. This ability to attract students is a good indicator that he will continue to prosper at the University of Michigan."

Reviewer B: "...Kwoon has published in the best journals in his field...Kwoon's publications have been cited numerous times: more than 1,700 citations of his publications since 2008; 6 articles cited more than 100 times each; steadily [sic] growth in annual citations during this time..."

Reviewer C: "...the publications exhibit a clear focus on the properties and diversity of intrinsically photosensitive ganglion cells. Kwoon was in the laboratory that discovered these cell types and has made numerous key contributions to understanding their function. This is an exciting area of vision research and is likely to remain so for many years. Kwoon is well positioned in the field."

Reviewer D: "...Dr. Wong has built a successful and strong research program in the area of non-visual photoreception. He has obtained competitive extramural funding, and has published a number of impactful papers. He is a successful mentor and teacher, and has taken on a number of service roles as well. He is clearly a national leader in the area of non-visual photoreception within vision science."

Reviewer E: "Kwoon has done perhaps more than anyone else in the field to characterize how ipRGCs respond to different kinds of light, with the ultimate goal of developing new lighting technologies that promote health and ameliorate conditions of the blind.....I believe that Dr. Wong is a brilliant visual neuroscientist...he has already demonstrated all [the] important ingredients for a world-class biomedical researcher."

Reviewer F: "Kwoon is considered nationally and internationally to be a rising talent [of his cohort] in the retina field, especially regarding non-image vision. He is intellectually driven and highly interactive in scientific meetings. He gives very clear and emphatic talks. I can imagine that he is an excellent classroom teacher and also a good mentor."

Summary of Recommendation:

Dr. Wong has shown excellence and productivity in his teaching, research and service and we believe he will continue to establish himself as a leading academic scientist, nationally and internationally. We enthusiastically recommend Kwoon Wong, Ph.D. for promotion to associate professor of ophthalmology and visual sciences, with tenure, Department of Ophthalmology and Visual Sciences, Medical School, and associate professor of molecular, cellular, and developmental biology, with tenure, Department of Molecular, Cellular, and Developmental Biology, College of Literature, Science, and the Arts.



Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School



Andrew D. Martin, Dean
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