

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY

Xian-Zhong Xu, Ph.D., assistant professor of molecular and integrative physiology, Department of Molecular and Integrative Physiology, Medical School, is recommended for promotion to associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology [also being promoted to research associate professor in the Life Sciences Institute].

Academic Degrees:

Ph.D.	2000	Johns Hopkins University
M.S.	1994	Wuhan University, P.R. of China
B.S.	1991	Wuhan University, P.R. of China

Professional Record:

2005-present	Assistant Professor of Molecular and Integrative Physiology University of Michigan
2005-present	Research Assistant Professor, Life Sciences Institute University of Michigan

Summary of Evaluation:

Teaching: Dr. Xu is an outstanding teacher in both the classroom and the laboratory. He has been teaching in Physiology 591 (Advanced Topics in Signal Transduction) since 2006. He presents four to six two-hour classes each year where he lectures and leads discussion of scientific papers. He also lectures in Physiology 555 (Integrative Genomics), where he lectures three hours on the use of simple model organisms. He has also lectured in MCDB 401 (Advanced Topics in Biology), served as the course leader for Neuroscience 700 (Current Topics in Neuroscience) and taught in PIBS 503 (Lab Skills & Ethics). Both graduate students and the course director report that his teaching is excellent. Individual comments included, "Fantastic lecturer," "Passionate about research," and "Very upbeat, positive, engaging teacher." In the laboratory, he has supervised seven postdoctoral fellows, with one having already gone on to an independent faculty position, three graduate students, six undergraduates, and one high school student. In addition, he has supervised six other rotation projects for PIBS students. He has served on two thesis committees and three prelim exam committees in addition to his own students.

Research: Dr. Xu's research deals with how sensory inputs are detected by the nervous system, how neural circuits process information to generate behavior, and how genes and drugs of abuse regulate these processes. He uses the roundworm, *C. elegans* as a model and has been both very creative and able to open up new fields. For example, he was the first to develop a worm model

to study proprioception, the first to develop a worm model for nicotine addiction, and the first to show a mechanism in worms for photosensation. His research has been published in *Cell*, *Nature*, and other high profile journals and covered as news by *Science*, *The Scientist* and *The New York Times*. He has published 19 papers and book chapters and, although the number may be perceived as somewhat limited, each is complete and thorough and at least half are instant classics that open a new field. Dr. Xu's work is supported by three R01 grants, each of which was obtained on the initial submission. He also holds a highly competitive Pew Scholar Award and a Sloan Fellow Award. He is widely sought after as an invited speaker with twelve invitations in 2007-2009, and has presented his work at Gordon Conferences, Keystone Symposium and a Nobel Forum. His expertise has also been recognized by invitations to review grants for NIH, NSF of China, and the Canadian Government.

Recent and Significant Publications:

Ward A, Walker VJ, Feng Z, Xu XZS: Cocaine modulates locomotion behavior in *C. elegans*. *PLoS ONE* 4, e5946, 2009.

Hsu AL, Feng Z, Hsieh M-Y, Xu XZS: Identification by machine vision of the rate of motor activity decline as a lifespan predictor in *C. elegans*. *Neurobiology of aging* 30:1498-1503, 2008.

Ward A, Liu J, Feng Z, Xu XZS: Light-sensitive neurons and channels mediate phototaxis in *C. elegans*. *Nature Neuroscience* 11:916-922, 2008.

Li W, Feng Z, Sternberg PW, Xu XZS: A *C. elegans* stretch receptor neuron revealed by a mechanosensitive TRP channel homologue. *Nature* 440, 684-687, 2006.

Feng Z, Li W, Ward A, Piggott BJ, Larkspur E, Sternberg PW, Xu XZS: A *C. elegans* model of nicotine-dependent behavior: regulation by TRP-family channels. *Cell* 127:621-633, 2006.

Service: Dr. Xu has provided service within the University in multiple settings. He has served on the Admissions Committee for the Neuroscience Program, on the International Admissions Committee for Molecular and Integrative Physiology, and on an advisory Committee in the Life Sciences Institute. Outside the University, he reviews manuscripts for a number of journals and serves on the editorial board for *The Open Cell Signaling Journal*. He has reviewed grants for various organizations in the U.S., Canada, and China as well as the University of Michigan OVPR.

External Review:

Reviewer A: "He has been very successful in obtaining funding for his research, and he has also obtained prestigious awards such as the Pew Scholar Award and the Sloan Award, showing that he is respected in the field."

Reviewer B: "He is considered to be one of the very best PIs [of his cohort] in the neurobiology field and probably the very best *C. elegans* PI [of his cohort]. He would easily be tenured [at my institution], and would easily be promoted in any institution in the US."

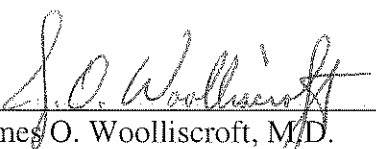
Reviewer C: "Shawn is at the forefront of the mechanistic studies of neural circuits. I expect many exciting findings from his lab in the near future. Shawn has received several prestigious junior researcher awards, and has also obtained three NIH grants within just three years...His achievement is at the level of several bright stars of his generation..."

Reviewer D: "...you are to be congratulated for attracting Dr. Xu to Michigan and for providing a nurturing environment for him to flourish...There is no question in my mind that Dr. Xu deserves tenure. He will continue to bring honor and distinction to the University of Michigan."

Reviewer E: "His accomplishments as an Assistant Professor are breathtaking...Some of this early work will become classics, and cited for a very long time...He would be promoted at any top institution."

Summary of Recommendation:

Dr. Xu is an outstanding researcher and an acknowledged leader in the field of neurobiology of simple organisms. His work is seminal and addresses areas of major importance in neuroscience. He is also an outstanding teacher and mentor. I am pleased to recommend his promotion to associate professor, with tenure, in the Department of Molecular and Integrative Physiology.


James O. Woolliscroft, M.D.
Dean
Lyle C. Roll Professor of Medicine

May 2010