Approved by the Regents May 15, 2014

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

X.Z. Shawn Xu, Ph.D., associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, Medical School, is recommended for promotion to professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, Medical School [also being promoted to research professor, 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:

2010- present	Associate Professor of Molecular and Integrative Physiology and Research Associate Professor, Life Sciences Institute, University of Michigan
2005-2010	Assistant Professor of Molecular and Integrative Physiology and Research Assistant Professor, Life Sciences Institute, University of Michigan

Summary of Evaluation:

Teaching: Teaching has played an important role in Dr. Xu's academic career at the University of Michigan. He has participated in six dissertation committees and six preliminary committees, as well as classroom teaching of 10-15 hours per year in a variety of courses. In addition, he oversees the work and training of a modest-sized laboratory that currently includes one medical student, four post-doctoral fellows, two undergraduate students and three visiting scholars.

Research: Dr. Xu came to the University of Michigan in 2005 and was promoted in 2010 to associate professor, with tenure. Since that time he has continued to excel at the absolute highest level. Dr. Xu's research is in the area of neurocircuitry underlying sensory perception; his work uses *C. elegans* as a model system. He is currently the principal investigator on two R01 grants in this area, which are funded through 2015 and 2017 and is a co-investigator on a third R01. He also received a new and highly competitive NIH EUREKA (Exceptional, Unconventional Research Enabling Knowledge Acceleration) award, funded through the R01 mechanism. Since his last promotion, he has authored 18 publications, many in top journals including *Neuron*, *Nature Neuroscience* (two papers) and *Cell* (two papers) and he is senior author on all of these manuscripts. He was a recipient of the highly competitive University of Michigan Medical School Basic Science Research Award in 2011. Dr. Xu's stature on the international stage is demonstrated by 16 invitations to give high profile talks around the world since his last

promotion. He is a stellar force in his field of research and we are delighted and fortunate to have him representing the University of Michigan.

Recent and Significant Publications:

Kang L, Gao J, Schafer WR, Xie Z, Xu XZS: *C. elegans* TRP family protein TRP-4 is a pore-forming subunit of a native mechanotransduction channel. *Neuron* 67:381-391, 2010.

Liu J, Ward A, Gao J, Dong Y, Nishio N, Inada H, Kang L, Yu Y, Ma D, Xu T, Mori I, Xie Z, Xu XZS: *C. elegans* phototransduction requires a G protein-dependent cGMP pathway and a taste receptor homolog. *Nature Neuroscience* 13:715-722, 2010.

Piggott BJ, Liu J, Feng Z, Wescott SA, Xu XZS: The neural circuits and synaptic mechanisms underlying motor initiation in *C. elegans*. *Cell* 147, 922-933, 2011.

Li W, Piggott BJ, Feng Z, Xu XZS: The neural circuits and sensory channels mediating harsh touch sensation in *Caenorhabditis elegans*. *Nature Communications* 2:315, 2011.

Xiao R, Zhang B, Dong Y, Gong J, Xu T, Liu J, Xu XZS: A genetic program promotes *C. elegans* longevity via a thermosensitive TRP channel. *Cell* 152:806-817, 2013.

Service: In terms of service, Dr. Xu is an appointed member of the NIH Study Section "Neurotransporters, Receptors, Channels and Calcium-signaling," is an ad hoc reviewer for the Medical Research Council, Wellcome Trust, and five additional organizations. He is also a reviewer for many high impact journals. At the institutional level, he has been an active member of several programs including PIBS, Admissions Committees, the Life Sciences Institute (LSI) Strategic Self-Assessment Committee and most recently the Organizing Committee for the LSI 11th Annual Symposium.

External Reviewers:

Reviewer A: "Shawn's field of research—ion channels in neural development—is highly competitive and very sophisticated. Nevertheless, it is absolutely clear that Shawn has become a leader. His NIH funding is outstanding during this very difficult time. His publications appear in preeminent journals and are highly cited by other scientists....I believe that Shawn would be promoted at any leading research university in the U.S."

Reviewer B: "Clearly Shawn has been effective and productive in recent years, with a spectacular set of high-profile publications at the intersection of genetics, molecular biology, and neuroscience. He has received prestigious awards recognizing his work, and has been successful in obtaining funding during challenging times. I'm happy to see that he's also taking the leadership roles appropriate to his career stage, such as serving as a permanent member of an NIH study section. He is invited to present his work at national and international meetings, speaking to his visibility in the field. By all standards, Shawn is operating at a high professional level....Shawn has the drive, intelligence, skill, and energy to do great things."

Reviewer C: "I feel these adjectives best describe Dr. Xu: driven, intense, intellectual leader, fearless experimentalist, eloquent speaker, compelling writer. Dr. Xu changes the way people think about and do science."

Reviewer D: "Put simply, Shawn is one of the most productive and creative scientists in the field of molecular sensory biology and has established a firm international reputation as a leader in this field."

Reviewer E: "Some of his research accomplishments, including the identification of the role of a TRP channel in promoting longevity, are considered high profile, paradigm-shifting findings."

Reviewer F: "He is a gifted researcher and possesses leadership skills in a wide-range of expertise. The work from his lab has consistently been innovative, cutting-edge in multiple areas of *C. elegans* neurobiology."

Summary of Recommendation:

Dr. Xu is an exceptional scholar and faculty colleague with an outstanding international reputation. I most enthusiastically and wholeheartedly support X.Z. Shawn Xu, Ph.D. for promotion to professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, Medical School.

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

May 2014