Approved by the Regents
May 18, 2017

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF CELL AND DEVELOPMENTAL BIOLOGY

Yukiko Yamashita, Ph.D., associate professor of cell and developmental biology, with tenure, Department of Cell and Developmental Biology, Medical School, is recommended for promotion to professor of cell and developmental biology, with tenure, Department of Cell and Developmental Biology, Medical School [also being promoted to research professor in the Life Sciences Institute].

Academic Degrees:

Ph.D.	1999	Kyoto University, Japan
B.S.	1994	Kyoto University, Japan

Professional Record:

2013-present	Associate Professor of Cell and Developmental Biology, University of Michigan
2013-present	Research Associate Professor, Life Sciences Institute, University of Michigan
2014- present	Investigator, Howard Hughes Medical Institute, Chevy Chase
2007-2013	Assistant Professor of Cell and Developmental Biology, University of Michigan
2007-2013	Research Assistant Professor, Life Sciences Institute, University of Michigan

Summary of Evaluation:

Teaching: Dr. Yamashita is extensively involved in teaching. She presents lectures and is involved in classroom discussions in the graduate level courses Developmental Biology (CDB580), Organogenesis of Complex Tissues (CDB680, now CDB582) and Cell Biology (CDB530). For the past four years, Dr. Yamashita has also served as a faculty evaluator for the CDB and the Cell and Molecular Biology (CMB) graduate student seminars, has served as the faculty coordinator for CMB short courses on the Stem Cell Niche and on the Microenvironment. She was a lecturer and laboratory supervisor of the M1 Medical Histology course, and was a lecturer in the Dental School Histology course. In addition to Dr. Yamashita's extensive experience in classroom instruction, she is very involved in teaching in her laboratory, providing hands-on training to post-doctoral fellows, graduate students, and undergraduate students. She has mentored 10 post-doctoral fellows (six currently) and eight graduate students (four currently). In 2014, her graduate student, Swathi Yadlapalli, received an extremely prestigious Harold Weintraub Dissertation Award from the Fred Hutchison Cancer Center, identifying her as one of the top 10 biological science students in the country. Dr. Yamashita has served or continues to serve on 17 graduate dissertation committees and has served on nine Ph.D. candidacy examination committees.

Research: The overall goal of Dr. Yamashita's research is to determine the functions and regulation of adult stem cells. Adult stem cells provide differentiated cells, and maintenance of their proper number is critical for human health. Loss of adult stem cells likely underlies aging, and conversely, over-proliferation of stem cells also has severe pathological outcomes including cancer. Dr. Yamashita has made several important contributions to this competitive field. She discovered that there is a centrosome orientation checkpoint that prevent cells from undergoing cell division prior to correct positioning of the centrosome (Cheng et al., *Nature* 2008). Dr. Yamashita expanded this work to further characterize the function and the mechanisms of the centrosome orientation checkpoint, yielding several significant publications (Inaba et al., *PLoS ONE* 2010; Yuan et al., *Dev Biol* 2012; Roth et al., *Mol Biol Cell* 2012; Venkei and Yamashita, *Development* 2015; Inaba et al, *eLife* 2015). In addition to these studies, Dr. Yamashita discovered finger-like cellular protrusions that function to communicate signals between adjacent cells (Inaba et al., *Nature* 2015) and mechanisms for cell maintenance (Yang and Yamashita, *Development* 2015) in the stem cell niche. These and other studies from Dr. Yamashita's laboratory demonstrate that she is a highly creative thinker and is highly effective at determining correct paths to answer critical questions. Dr. Yamashita's research is highly regarded. The most recent evidence for her standing in the field was her receipt of a MacArthur Fellow Award in 2011 and her appointment as a Howard Hughes Medical Institute investigator in 2014. In 2009, she received the highly competitive Women in Cell Biology's Junior Award for Excellence in Research from the American Society for Cell Biology. Dr. Yamashita routinely publishes in high-impact journals, including *Nature* and *eLife,* and is frequently requested to write review articles as a thought-leader in the field *(e.g. Current Opinion, Trends in Cell Biology)*. She is also widely sought out as a speaker at international and national conferences as well as at top-tier academic institutions.

Recent and Significant Publications:

Yadlapalli S, Yamashita YM: Chromosome-specific nonrandom sister chromatid segregation during stem-cell division. *Nature* 498:251-254, 2013.

Inaba M, Buszczak M, Yamashita YM: Nanotubes mediate niche-stem-cell signaling in the Drosophila testis. *Nature* 523:329-332, 2015.

Yang H, Yamashita YM: The regulated elimination of transit-amplifying cells preserves tissue homeostasis during protein starvation in Drosophila testis. *Development* 142:1756-1766, 2015.

Inaba M, Venkei ZG, Yamashita YM: The polarity protein Baz forms a platform for the centrosome orientation during asymmetric stem cell division in the Drosophila male germline. *Elife.* 20;4, 2015.

Venkei ZG, Yamashita YM: The centrosome orientation checkpoint is germline stem cell specific and operates prior to the spindle assembly checkpoint in Drosophila testis. *Development* 142:62-69, 2015.

Service: Dr. Yamashita has served on the Center for Stem Cell Biology, the Biological Sciences Scholars Program, and the CDB Faculty Search Committees. She is a long-standing member of the CDB Seminar Committee and also serves on the Reproductive Science Program seminar committee. She also served on the CDB graduate admissions committee. Dr. Yamashita is a member of the American Society of Cell Biology, the Genetic Society of America, the International Society for Stem Cell Research, and the Society for Developmental Biology. Dr. Yamashita is also highly sought after for service at the national level. She is on the editorial boards of *eLife*, *PLoS Biology*, *Molecular Biology of the Cell* and *Scientific Reports*. She is a reviewing member of F1000. I n addition, she performs peer-review of manuscripts for a large number of journals. Dr. Yamashita has served as an ad hoc reviewer for the NIH, NSF, Cancer Research UK, Wellcome Trust, the NYSTEM program, the Hungarian Scientific Research Fund (OTKA), American Federation for Aging Research, and for the European Research Council.

External Reviewers:

Reviewer A: "Yukiko's drive springs from a unique intellect that is as rigorous as it is inquisitive. This can be measured by both the manifest respect from her peers and the caliber and groundbreaking quality of her publications… In sum, Dr. Yamashita is the kind of colleague anyone would love to have: intelligent, dedicated, driven, rigorous, and innovative."

Reviewer B: "In summary, Yukiko is unique. She has an outstanding research background, she is creative and has the capacity to produce high quality scientific work that documents her commitment to research. In my view, Yukiko is a leader in her field..."

Reviewer C: "Dr. Yamashita is at the top of her peer group. The field of stem cell asymmetric cell division is highly competitive with many superb researchers vying to address key questions. Dr. Yamashita has continuously been at the forefront. Consistent with that position, she was selected as an HHMI Investigator in 2014, is well funded by NIH and is selected to present her findings at some of the most prestigious meetings around the world, with a Keynote Talk slated at the Royal Society in London this fall."

Reviewer D: "…her work exemplifies a very high level of scholarship that is a great example to all of us. She has made many original, important and exciting advances, and I expect that Dr. Yamashita will make significant progress in the near future in fully understanding how different pathways that she has uncovered work. She is in a crowded and competitive field, but her work stands above much of the rest particularly in terms of novelty."

Reviewer E: "…Prof. Yamashita has done everything one expects of the best faculty at major research universities. She has published impactful, innovative work in the top journals in her field. She has been consistently well funded in this extremely challenging funding climate. Reflecting the esteem in which she is held in the field, she has been the recipient of many prestigious awards, most notably being named a MacArthur Fellow and an investigator of the Howard Hughes Medical Institute. She has been actively engaged in service to both the campus and the wider scientific community."

Reviewer F: "She is much in demand to give lectures, seminars and take part in advisory and peer review panels. Her peer-review funding record is exceptional and very stable, and she is clearly much in demand as a teacher and advisor to undergraduate and graduate trainees at the University… But above all, she is an outstanding researcher with work of wide impact and the potential to continue to make insightful contributions to the field."

Summary of Recommendation:

Dr. Yamashita has a record of truly exceptional scholarship since coming to Michigan. The high quality of her research and her expertise are broadly recognized by colleagues here as well as at other premier institutions, and has led to her recognition through the acquisition of several prestigious awards, including the MacArthur "genius" award. She is an excellent teacher and mentor. I am pleased to recommend Yukiko Yamashita, Ph.D. for promotion to professor of cell and developmental biology, with tenure, Department of Cell and Developmental Biology, Medical School.

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

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