

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF CARDIAC SURGERY

Zhong Wang, Ph.D., associate professor of cardiac surgery, with tenure, Department of Cardiac Surgery, Medical School, is recommended for promotion to professor of cardiac surgery, with tenure, Department of Cardiac Surgery, Medical School.

Academic Degrees:

Ph.D.	1999	Oregon Health and Science University
M.S.	1993	Chinese Academy of Sciences, Beijing, China
B.S.	1990	Fudan University, Shanghai, China

Professional Record:

2015-Present	Associate Professor of Cardiac Surgery, with tenure, University of Michigan
2013-2015	Assistant Professor of Cardiac Surgery, University of Michigan
2011-2015	Honorary Assistant Professor, University of Hong Kong
2008-2013	Principal Faculty Member, Harvard Stem Cell Institute
2008-2013	Assistant Professor of Medicine, Harvard Medical School
2005-2007	Instructor, Harvard Medical School

Summary of Evaluation:

Teaching: Dr. Wang has been actively involved in teaching the next generation of biologists and medical scientists. He has mentored faculty members, graduate students, post-doctoral fellows, and undergraduate students, as well as hosted several visiting international scholars extensively throughout his career, leading them to success in their own paths to becoming established scientists. Many have gone on to become principal investigators and funded researchers for prestigious universities. Dr. Wang's teaching in the lab emphasizes the principles of experimental design, the interpretation of data, critical analysis for problem-solving, and the fine art of research presentation. He also teaches scientific writing and has even expanded the topics he covers to include areas outside of research to provide diverse perspectives. Dr. Wang is an active presenter as well as giving numerous lectures nationally and internationally. He presently serves on several committees dedicated to mentoring, instructing, and evaluating research fellows and candidates and is passionate about preparing them for a successful research career.

Research: Dr. Wang's research focuses on epigenetic regulation in heart disease, heart repair, and heart regeneration with the overarching aim to develop heart therapies to effectively prolong and improve the lives of patients with cardiovascular disease. He has a strong record of funding including current funding from the National Institutes of Health (NIH) and several smaller institutional grants. Over the course of his research career, Dr. Wang has made several important discoveries such as the establishment of cross-talks between histone acetylation and acetyl-CoA mediated metabolism for heart repair and regeneration and the establishment of specific epigenetic regulatory mechanisms in mediating cardiac cell lineage conversion. A significant achievement was his lab's invention of a poly(l-lactic acid)-b-poly(ethylene glycol)-b-poly(N-

Iso-propylacrylamide) copolymer with its self-assembly into nanofibrous gelling microspheres (NF-GMS). This led to a patent on Tri-Block Copolymers and Nanofibrous Gelling Microspheres, D2019-0195, in 2020. Dr. Wang's past work with Isl-1 progenitor cells in heart regeneration, and his work in cardiac myocyte reprogramming from fibroblasts, in addition to his recent work on cardiac epigenetics and energy metabolism of heart tissues is well known and respected among his research colleagues. His research work will continue to produce innovative discoveries that will benefit patients with cardiovascular disease for years to come. He has authored 66 peer-reviewed publications in high-impact journals such as the *Journal of Thoracic and Cardiovascular Surgery*, *Cells*, and *Elife*. He has given 74 extramural invited talks nationally and internationally including in Canada, China, Germany, and Mexico.

Recent and Significant Publications:

- Lei I, Tian S, Gao W, Liu L, Guo Y, Tang P, Chen E, Wang Z, "Acetyl-CoA production by specific metabolites promotes cardiac repair after myocardial infarction via histone acetylation," *Elife* 10: 2021. PM34939931
- Zhao C, Tian S, Liu Q, Xiu K, Lei I, Wang Z, Ma PX, "Biodegradable nanofibrous temperature-responsive gelling microspheres for heart regeneration," *Adv Funct Mater* 30(21): 2020. PM33071711/PMC7567402
- Tian S, Lei I, Gao W, Liu L, Guo Y, Creech J, Herron TJ, Xian S, Ma PX, Eugene Chen Y, Li Y, Alam HB, Wang Z, "HDAC inhibitor valproic acid protects heart function through Foxm1 pathway after acute myocardial infarction," *EBioMedicine* 39: 83-94, 2019. PM30552062
- Liu L, Lei I, Karatas H, Li Y, Wang L, Gnatovskiy L, Dou Y, Wang S, Qian L, Wang Z, "Targeting Mll1 H3K4 methyltransferase activity to guide cardiac lineage specific reprogramming of fibroblasts," *Cell Discov* 2: 16036, 2016. PMC5113048
- Lei I, West J, Yan Z, Gao X, Fang P, Dennis JH, Gnatovskiy L, Wang W, Kingston RE, Wang Z, "BAF250a regulates nucleosome occupancy and histone modifications in priming embryonic stem cell differentiation," *J Biol Chem* 290(31): 19343-19352, 2015. PM26070559

Service: Dr. Wang has a strong service record. Internationally, he was the co-organizer and section chair for the Michigan China Biomedical Forum. He has provided study section reviews for the United Kingdom Medical Research Council, the Research Grants Council of Hong King, and the China National Natural Science Foundation. Nationally, he has been on the oral presentation evaluation and poster presentation evaluation committees for the Academy of Cardiovascular Research Excellence and the Chinese American Academy of Cardiology Annual Meeting. He has been a study section reviewer for the American Heart Association, an ad hoc study section reviewer for the NIH therapeutic development and preclinical studies study section, NIH Myocardial Physiology Pathophysiology B (MPPB) study section, and an NIH special emphasis panel. Institutionally, he participates in several committees including the review committee for the Frankel Cardiovascular Center Summer Student Fellowship Program, and the DEI committee for the Cardiac Surgery department, and is a member of the access committee for the Cardiovascular Health Improvement Project, among others. He reviews for the Frankel Cardiovascular Research Center Grants and the University of Michigan Medical School Biomedical Research Council Grants. Dr. Wang has served as guest editor for three journals including *Journal Stem Cells International*, *Frontiers in Cardiovascular Medicine*, and *Frontiers*

in Cell and Developmental Biology. He performs ad hoc peer reviews for 36 journals and is a member of six professional societies.

External Reviewers:

Reviewer A: "...I am well qualified to evaluate the excellent scientific contributions that Dr. Wang made to the molecular mechanisms of epigenetic regulation in heart repair and regeneration because he has published many excellent work[s] in high profiling journals... Dr. Wang is also an excellent mentor for his students and postdoctoral fellows. Most of the fellows trained in his laboratory have gone on to become professors and principal scientists in both academia and industry."

Reviewer B: "...Dr. Wang is an integral member of your greater cardiovascular research program in the Department of Surgery. He has a highly functional laboratory that routinely makes strong contributions to the literature and provides key technical acumen. He is also well-known nationally and held in high regard by all his colleagues...His laboratory has pioneered numerous critical scientific concepts that the entire community has embraced...Dr. Wang's other scholarly activities also appear to be outstanding, such as attracting abundant funding from many sources, including NIH R01 funding, and he is routinely asked to speak at international and national conferences and universities. He also sits on NIH study section and is on the editorial boards of many high impact journals."

Reviewer C: "...Zhong Wang is a creative cardiovascular scientist and an outside-the-box thinker. He occupies an important intellectual niche intersecting nuclear biochemistry and cardiac disease. There are only a few scientists worldwide with his expertise."

Reviewer D: "...has successfully followed the lead from his discovery as a post-doc and established an independent lab whose scientific goals are directed toward understanding cardiac biology...has carved out a unique niche for himself with exceptional skills, knowledge, and tools... based on his publications of solid papers in high-quality journals and extensive network of collaborators, Dr. Wong continues to expand his footing..."

Reviewer E: "Dr. Wang is well qualified for full professorship at most universities in the US...I have known Dr. Wang and his research based on his leading publications and presentations at international and national scientific meetings and seminars and through personal communications during these meetings and seminars. Dr. Wang has published about 40 peer reviewed papers since he got his tenure. In my assessment, Dr. Wang has made three major significant contributions to heart repair and regeneration since he became a tenured associate professor at [the] University of Michigan. These contributions establish Dr. Wang as a national and international leader in the field of cardiovascular repair and regeneration."

Reviewer F: "As for services, he has been actively serving as reviewers for NIH and AHA. He also served as cooperating editors for Cell and Tissue Research and guest editors for journals. In addition, he has served on a number of university committees and helped with a number of activities. In terms of teaching and mentoring, Dr. Wang has limited classroom teaching which is normal for medical school faculty. He has done ample mentoring of students at all levels and

postdoctoral fellows. Overall his teaching record is satisfactory.”

Summary of Recommendation:

Dr. Wang is a nationally and internationally recognized scientist in the study of post-translational modifications of cardiac reprogramming factors and epigenetic regulation and cardiac reprogramming. He is an excellent collaborator and scholar and has made significant contributions to teaching and service. I am pleased to recommend Zhong Wang, Ph.D. as professor of cardiac surgery, with tenure, Department of Cardiac Surgery, Medical School.



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

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