Approved by the Regents
May 16, 2019

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

Bo Yang, M.D., Ph.D., assistant professor of surgery, Department of Cardiac Surgery, Medical School, is recommended for promotion to associate professor of surgery, Department of Cardiac Surgery, Medical School.

Academic Record :

Ph.D.	2008	University of Arizona
M.D.	1995	Xiangya Medical School

Professional Record:

2017-present	Assistant Professor of Cardiac Surgery, University of Michigan
2011-2017	Clinical Assistant Professor of Cardiac Surgery, University of Michigan

Summary of Evaluation:

Teaching: Dr. Yang has been active in the education of medical students and residents throughout the past seven years in his appointment. Currently, he is the primary mentor to two cardiothoracic surgery fellows as well as providing ongoing education to 14 additional fellows in training. Dr. Yang also provides mentorship for one to two medical students that rotate through Cardiac Surgery on a periodic basis. He regularly participates in the Thoracic Surgery Didactic Conference schedule, teaching in the operating rooms, patient rounds, and lectures in interdisciplinary venues such as the Cardiovascular Center Intensive Care Unit lecture series at the University of Michigan and the Veterans Administration Ann Arbor Health Center.

Research: Dr. Yang's research focus is using patient specific induced pluripotent stem cells (iPSC) to develop patient specific tissue engineered vascular grafts. He collaborates closely with Dr. Eugene Chen in this research in which engineered vascular material with patient iPSCs is seeded into scaffolds. They are also using this technique to develop an in vivo animal model which hosts patient mutant blood vessels generated from patient iPSC- smooth muscle cells (SMC). Dr. Yang's Ph.D. in pharmacology and toxicology has been a major asset in his research activities to date, with several internal grants and foundation grants to his credit. He was awarded a K08 in 2016 and most recently, an R01 focused on the mechanisms of aortopathy in bicuspid aortic valve patients. Dr. Yang has also been permitted by the NIH to continue his K08 alongside his R01 award. He has published 37 peer-reviewed articles, and has been invited to present his research on 37 occasions nationally and internationally.

Recent and Significant Publications:

Yang B, Patel H, Sorek C, Hornsby W, Wu X, Ward S, Thomas M, Driscoll A, Waidley VA, Norton E, Likosky D, Deeb G: 16-Year Experience of David and Bentall Procedures in Acute Type A Aortic Dissection. *Ann of Thor Surg* 105(3): 779-784, 2018.

Yang B, Malik A, Waidley V, Wu, X, Norton E, Williams D, Khaja M, Hornsby W: Short-term Outcomes of a Simple and Effective Approach to Aortic Root and Arch Repair in Acute Type A Aortic Dissection. *J Thorac Cardiovasc Surg S* (17):32851-32859, 2017.

Yang B, Zhou W, Jiao J, Nielsen J, Mathis M, Heydarpour M, Lettre G, Folkersen L, Prakash S, Schurmann C, Fritsche L, Farnum GA, Lin M, Othman M, Hornsby W, Driscoll A, Levasseur A, Thomas M, Farhat L, Dubé M, Isselbacher E, Franco-Cereceda A, Guo D, Bottinger E, Deeb G, Booher A, Kheterpal S, Chen Y, Kang H, Kitzman J, Cordell H, Keavney B, Goodship J, Ganesh S, Abecasis G, Eagle K, Boyle A, Loos R, Eriksson P, Tardif J, Brummett C, Milewicz D, Body S, Willer C: Protein-altering and regulatory genetic variants near GATA4 implicated in bicuspid aortic valve. *Nat Commun* 8:15481, 2017.

Jiao J, Xiong W, Wang L, Yang J, Qiu P, Hirai H, Shao L, Milewicz D, Chen YE, Yang B: Differentiation defect in neural crest-derived smooth muscle cells in patients with aortopathy associated with bicuspid aortic valves. *EBioMedicine*: Aug 10:282-290, 2016.

Wang Y, Hu J, Jiao J, Liu Z, Zhou Z, Zhao C, Chang L, Chen Y, Ma P, Yang B: Engineering vascular tissue with functional smooth muscle cells derived from human iPS cells and nanofibrous scaffolds. *Biomaterials* 35(32): 8960-8969, 2014.

Service: Dr. Yang has been involved in a number of professional organizations throughout his career and is currently a member of the American College of Surgeons, American College of Cardiology, Society of Thoracic Surgeons, American Heart Association, Western Thoracic Surgical Association, and Chinese American Heart Association. He is an ad hoc reviewer for numerous journals including the *Journal of Cardiovascular Development and Disease*, *The Annals of Thoracic Surgery*, and the *American College of Cardiology*. Nationally, Dr. Yang serves on the American Association for Thoracic Surgeons Workforce on Research Development and the Council on Cardiovascular Surgery and Anesthesia. Institutionally, he serves on the Program Evaluation Committee for the Department of Cardiac Surgery.

External Reviewers:
Reviewer A: "He has secured substantial support for his investigative work, both from industry and the NIH, as well as his Department. His work on smooth muscle biology related to aneurysm formation is timely, relevant, and sophisticated. His publication record of nearly 40 peer-reviewed applications is also impressive...He has distinguished himself in particular by his contributions in the management of malperfusion syndromes in acute aortic dissection...I have had first-hand experience and witness to his energy, intellectual curiosity, and technical proficiency, consistent with his reputation as a first rate academic surgeon, researcher and teacher...There is no doubt he would be promoted to associate professor at my current institution … and well as my former institution of 32 years …"

Reviewer B: "Dr. Yang's academic accomplishments clearly warrant advancement...Dr. Yang is a superb clinician and he is widely recognized in the cardiac surgical community for his excellent track record of publications on both clinical and laboratory research topics...He has a passion for research...I believe that Dr. Yang meets the criteria for the advancement to the rank of Associate Professor with Tenure."

Reviewer C: "His extraordinary accomplishments and his growth as a true academic cardiothoracic surgeon have been impressive. The quality of his work as well as his reputation as an excellent clinical surgeon has resulted in Dr. Yang becoming one of the rising superstars in our specialty...From a scholarship and research perspective, Dr. Yang represents the classic surgeon scientist...a well-respected thoracic aortic surgeon...He remains intimately involved with the development of our specialty...remains committed to resident and fellow education...I do respectfully conclude that he meets the criteria for promotion to Associate Professor."

Reviewer D: "Dr. Yang has had a thorough career that embodies the many pillars of academic medicine...he has created and achieved supreme technical skills and expertise in thoracic aorta surgery...with excellent outcomes and significant experience with very complex patients...His recent securing of NIH R01, particularly after the completion of an NIH K08, makes him one of the very few R01 funded surgeon scientists in the cardiothoracic surgery field...I highly support of your consideration for Dr. Yang promotion to Associate Professor."

Reviewer E: "Bo's contribution to science and medicine is his research of bicuspid aortic valve (BAV) and associated aortopathy...His research provides a solid piece of evidence of BAV aortopathy contributing to the thoracic aortic aneurysm...It is very rare to see a busy cardiac surgeon receiving K08 and R01 awards and doing excellent basic science research at the same time...I would rank Dr. Yang among the top 1% of his peers in cardiac surgery at this stage of his career...Dr. Yang's clinical reputation and expertise has been well recognized...Dr. Yang is an outstanding cardiac surgeon and outstanding physician scientist...He definitely meet the requirements for someone being considered for promotion at [my institution]."

Summary of Recommendations:
Dr. Yang is establishing himself as an expert in the field of engineered vascular tissue grafts and complex cardiac surgery. His reputation continues to grow in both his clinical and academic accomplishments. He is an extremely competent surgeon scientist and successfully balances his busy clinical practice with his research activities to an impressive degree. I am pleased, therefore, to recommend Bo Yang, M.D., Ph.D. for promotion to associate professor of surgery, Department of Cardiac Surgery, Medical School.

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

May 2019