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

Bo Yang, M.D., PhD, 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 Record:

| | | |
|---|---|---|
| Ph.D. | 2003 | University of Arizona |
| B.S./M.D. | 1995 | Xiangya Medical School, Central South University, China |

Professional Record:

| | |
|---|---|
| 2019 - present | Associate Professor of Cardiac Surgery, University of Michigan |
| 2017 - 2019 | Assistant Professor of Cardiac Surgery, University of Michigan |
| 2011 - 2017 | Clinical Assistant Professor, Department of Cardiac Surgery, University of Michigan |

Summary of Evaluation:

Teaching: Dr. Yang has been a mentor and educator to clinical fellows, residents, medical students and undergraduate students across the spectrum of his clinical and laboratory activities. He teaches novel techniques, and is active in teaching fourth year medical students in the operating room and the clinic on anatomy, physiology, and pre and postoperative care. He is further involved extensively with our I-6 residents and traditional trackfellows which spans from hands on surgical training to didactic lectures with the goal of graduating the finest cardiac surgeons in the profession. Dr. Yang is also passionate about teaching outside surgeons through such methods as hands on wet labs, as demonstrated by a recent event in which he taught a novel aortic annulus enlargement technique to eight visiting physicians. His teaching efforts extend to basic science research and training for undergraduate students, medical students, visiting scholars, and post-doctoral fellows.

Research: Dr. Yang's research focus is using patient specific induced pluripotent stem cells (iPSCs) to develop patient specific tissue engineered vascular grafts and building databases of aortic disease for long-term outcomes research. 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-SMCs. His 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. His numerous publications and presentations point to his continuing interest in academic research and medicine. Dr. Yang was awarded a K08 in 2016, and is the current holder of two R01 grants, in addition to many foundation awards. Beyond his basic science research, Dr. Yang is active in clinical outcome research through the Bicuspid Aortic Valve registry which is the foundation for research on long term outcomes of BAV with thoracic aortic aneurysm. Another database he manages, allows for long-term follow-up for patients with aortic

disease and is an integral part of his MI-AORTA leadership role. Academically, Dr. Yang is prolific with 104 peer-reviewed publications, six book chapters, and 37 abstracts.

Recent and Significant Publications:

Zhou D, Feng H, Yang Y, Huang T, Qiu P, Zhang C, Olsen T, Zhang J, Chen YE, Mizrak D, Yang B: hiPSC Modeling of Lineage-Specific Smooth Muscle Cell Defects Caused by TGFBR1A230T Variant, and its Therapeutic Implications for Loeys-Dietz Syndrome. *Circulation* [Online ahead of print]: 054744, 08/2021. PM34346740/PM34346740

Navarro RS, Jiang L, Ouyang Y, Luo J, Liu Z, Yang Y, Qiu P, Kuroda K, Chen YE, Ma PX, Yang B: Biomimetic tubular scaffold with heparin conjugation for rapid degradation in in situ regeneration of a small diameter neoartery. *Biomaterials* 274: 120874, 07/2021. PM34051629/PM34051629

Yang B: A novel simple technique to enlarge the aortic annulus by two valve sizes. *JTCVS Tech* 5: 13-16,02/2021. PM33623928/PM33623928

Norton EL, Hornsby WE, Wu X, Wolford BN, Graham SE, Willer CJ, Yang B: Aortic progression and reintervention in patients with pathogenic variants after a thoracic aorticdissection. *J Thorac Cardiovasc Surg* S0022-5223(20): 30471-2, 02/2020. PM32199657/PM32199657

Yang B, Norton EL, Rosati CM, Wu X, Kim KM, Khaja MS, Deeb GM, Williams DM, PatelHJ: Managing patients with acute type A aortic dissection and mesenteric malperfusion syndrome: A 20-year experience. *J Thorac Cardiovasc Surg* 158(3): 675-687.e4, 09/2019. PM30711274/PM30711274

Service: Dr. Yang has been very active across a broad spectrum of activities that have been impactful to his profession. He has been involved in numerous 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 currently a journal reviewer for numerous journals, including *Aorta*, the *Journal of Cardiovascular Development and Disease*, and the *Annals of Thoracic Surgery*. Internationally, Dr. Yang participates on committees for the Association of Chinese Professors and the International Bicuspid Aortic Valve Consortium. Nationally, he has contributed meaningfully by participating in major NIH committees and study sections, and by his involvement with the Society of Thoracic Surgeons and the American Association for Thoracic Surgery. At the institutional level, Dr. Yang is active with Global Reach, the University of Michigan Health System-Peking University Health Science Center, and serves as the director of research for the Department of Cardiac Surgery and is the director of the MI-Aorta program for Michigan Medicine.

External Reviewers:

Reviewer A: "Dr. Yang has published several insightful studies as senior author on smooth muscle populations, including in journals such as *Arteriosclerosis, Thrombosis, and Vascular Biology and Circulation*…This has been followed by many other high impact publications that are routinely published in top tier journals…Overall, Dr. Yang's prolific publications are considered to be of

high quality that have a focus on several unifying themes of aortic disease, which have had an impact on the direction of this field of investigation…There are very few cardiac surgeons in the country with any R01 grants, so having two of these grants places Dr. Yang in a very exclusive club!...The number of academic surgeons that have NIH funding, and can cross the divide of basic and clinical research, is vanishingly small. Hence, Dr. Yang is a rare and highly valued investigator…Overall, my assessment of Dr. Yang is that he is an incredibly impressive academic surgeon who has the immense drive and intellect to enable him to continue an upward trajectory for him to become an aspirational leader for others to follow."

Reviewer B: "Dr. Yang is an outstanding surgeon scientist with expertise in complex aortic procedures, as well as adult cardiac surgery and minimally invasive approaches to disease management…He currently has numerous extramural funding sources from the NIH where he is studying the mechanisms ofaortic root aneurysm in Loeys-Dietz Syndrome using patient-induced pluripotent stem cells and genome editing. He has received numerous other extramural funding for this work and has been extraordinarily productive in this regard during his tenure at the University of Michigan…He is amember of our most prestigious professional association, the American Association of Thoracic Surgery, and serves on the study section for the NIH Atherosclerosis and Inflammation of Cardiovascular Systems…Above all else, Dr. Yang is a consummate academic surgeon, an outstanding leader in our field, a great mentor and sponsor for many young, aspiring cardiothoracic surgeons…I support his promotion without reservations and encourage you to consider him as among the leaders in the field of cardiovascular medicine and surgery."

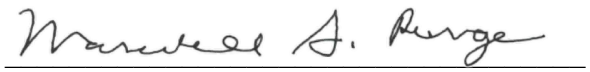
Reviewer C: "He impressed me as being extremely bright, creative, innovative, and passionate about his research. I particularly liked his mutagenesis studies in iPS cell derived SMC as a means to study aortic aneurysms and dissections. He is well funded, an excellent surgeon, andhas published extensively in medium to high impact journals in his field…his research programis already excellent and is still on the rise…I support his promotion to full professor with high enthusiasm."

Reviewer D: "Dr. Yang is widely recognized in the cardiac surgical community as having contributed significantly to the basic and clinical science of aortic disease…Dr. Yang's membership in the American Association for Thoracic Surgery, the premier academic organization in our subspecialty, as well as the Western Thoracic, the Society of Thoracic Surgeons, American College of Surgeons and American College of Cardiology are all evidence of the high regarding in which he is held nationally…has contributed to our specialty at a national level through his participation in committees…I believe Dr. Yang is one of the mostoutstanding individuals of his generation in the field of cardiac surgery today in the United States. I would rank him among the top 5% of [junior] surgeons in academic practice today."

Reviewer E: "I have been impressed with the progress and accomplishments of Dr. Yang during his career as a cardiovascular surgeon…His clinical expertise and interests remains in complex thoracic aortic surgical procedures. He has been a leader in this space and has published significantly over the last two decades…The quality of his clinical contribution is one of the highest standards…He has been a leader in a field of cardiovascular surgery for advancements in complex thoracic aortic surgery…His contribution includes seminal and important work in the

area of acute Type A aortic dissection with malperfusion syndrome and its management… Dr. Yang has been tremendously successful with multiple NIH R01 funding…research initiatives that Dr. Yang has led has been extremely important…The quality of this basic science researchhas been exceptional…is a tremendous leader and superstar in our field…I fully support and humbly recommend his promotion…"

Summary of Recommendation:
Dr. Yang is an outstanding surgeon and an expert in the field of engineered vascular tissue grafts and complex cardiac surgery. He is an extremely competent physician scientist and successfully balances his busy clinical practice with his research activities to an impressive degree. I am pleased to recommend Bo Yang, M.D., Ph.D. for promotion to professor of cardiac surgery, with tenure, Department of Cardiac Surgery, Medical School.



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

May 2022