

Bo Yang, M.D., Ph.D., the J. Maxwell Chamberlain, M.D. Collegiate Professor of Cardiac Surgery, treats aortic conditions like familial thoracic aortic aneurysms, complications of Marfan and Loeys-Dietz syndromes, and more. He has expertise in valve-sparing aortic root replacement using the David and Bentall procedures, aortic dissection and thoracic and thoracoabdominal aneurysm repair, aortic valve repair. He invented new procedures to enlarge the aortic annulus by 3-4 valve sizes.

His research has been supported by government grants including several from the National Institutes of Health. Using induced pluripotent stem cells to model thoracic aortic aneurysms, he hopes to better understand their underlying mechanisms to develop preventative therapies. He also conducts outcomes research on aortic and adult cardiac surgeries, such as surgical treatment of acute type A aortic dissection, especially those with malperfusion syndrome, aortic valve repair and David procedure, BAV with aortic aneurysm, infectious endocarditis, and small roots in aortic valve replacement.

Basic Science Research: Dr. Yang's current lab research focuses on the mechanisms of thoracic aortic aneurysms, which is largely unknown, especially in those with unknown mutations (such as bicuspid aortic valve) and developing novel therapies to prevent aortic aneurysms. He and his team generate patient specific induced pluripotent stem cells (iPSCs) to model the thoracic aortic aneurysm to study the mechanisms of aneurysm formation in bicuspid aortic valve (BAV), Loeys-Dietz Syndrome, Marfan syndrome. CRISPR Cas 9 technology is used to create and correct the mutations causing thoracic aortic aneurysms in both control and patients iPSCs. This allows Dr. Yang and his team to study the biological mechanisms of gene mutations causing thoracic aortic aneurysm. He also collaborating with bioengineers and to create tissue engineered vascular graft with patients iPSCs.

Clinical Research: He and his teamwork have focused on outcome research of aortic surgery and adult cardiac surgery. Such as valve sparing aortic root replacement (David procedure) in acute type A dissection patients; Long-term outcome of valve sparing aortic root replacement (David procedure); aortic root, arch, and malperfusion management in acute type A dissection patients; long-term outcome surgical treatment of active endocarditis.

Dr. Yang has won numerous research award: such as AHA Vivien Thomas Young Investigator Award, finalist; Young investigator of Loeys-Dietz syndrome foundation, and several research projects supported by NIH grants.

Dr. Yang joined U-M's Department of Cardiac Surgery in 2011. Today he serves as the department's director of research, aortic surgery, and advanced aortic fellowship. He is executive director of MI-AORTA.

Dr. Yang was an AHA Vivien Thomas Young Investigator Award finalist, and he received the Young Investigator Award from the Loeys-Dietz Syndrome Foundation, as well as the American Heart Association's Sarns Innovative Excellence Award for his "courage to take on the unknown in search of new answers, better solutions, and resources significantly impacting our ability to live longer, healthier lives."