2025

WYLIE SCHOLAR PROGRAM REPORT

“The Wylie Scholar program is an incredible opportunity for early career vascular surgeon scientists to not only obtain funding for promising research and innovations but also to cultivate collaborations with other leading scientists all around the world.” – Patric Liang, MD, Assistant Professor of Surgery, Harvard Medical School, Attending Vascular Surgeon, Beth Israel Deaconess Medical Center, Wylie Scholar Award 2024 Recipient

“I can say I knew Jack Wylie, and I think Jack would be very pleased with Patrick as someone who is likely to make a lifelong contribution to the advancement of vascular surgery.” – Frank W. Logerfo, M.D., William McDermott Distinguished Professor of Surgery, Retired Chief of Vascular Surgery and Chair of the Department of Surgery at the Beth Israel Deaconess Medical Center.

Wylie Scholar Program Award

INVESTING IN LEADERS FOR A LIFETIME OF IMPACT

The Wylie Scholar award provides support for young surgeon-scientists to pursue innovative, patient-centered research projects, helping them successfully compete for subsequent grant funding and achieve leadership roles. This enables a lifetime of impact to improve the lives of patients. At a time of sharp decline in research funding, it plays an increasingly unique and vital role in the development of promising young surgeons-scientists who bring the real-world problems of patients to their research.

Each year, the Foundation to Advance Vascular Cures, with the support of a review committee made up of previous Wylie Scholar Award recipients, selects an outstanding early-career surgeon-scientist with a demonstrated aptitude in vascular research, leadership, and promise in vascular surgery to receive the Wylie Scholar Award. To date, the Foundation to Advance Vascular Cures has supported over 25 surgeon-scientists at more than 16 of the most highly regarded medical institutions in the United States and Canada. Wylie Scholars have made exceptional achievements, and their research has significantly improved patient lives. Many are chiefs or past chiefs of their divisions at world-class institutions, serve in leadership positions at non-profits, and hold roles in professional organizations dedicated to vascular medicine. Seven are “second generation” awardees, mentored by previous Wylie Scholars in the early years of their training. A number of them serve as advisors to the Foundation to Advance Vascular Cures. Wylie Scholars have collectively generated $133 million dollars in research funding over the life of the program. At least 50% of Wylie Scholars have received K08 or other early-career awards as a result of the support provided by the Wylie funds. This translates into more discoveries and innovations in patient care, transforming the lives of patients.

The award is named in honor of Edwin Jack Wylie, MD, a renowned pioneer in vascular surgery. This would not have been possible without the dedication of Dr. Wylie, other leaders in vascular surgery, and donors who are committed to supporting early-career scientists understand that such support stimulates new discoveries and advancements. Many thanks to the philanthropists who have contributed to this program over the years, and to the Society for Vascular Surgery for its support of the Wylie Scholar Award from 2014-2021.

“There are few Foundations in the world like Vascular Cures that are uniquely focused on Vascular Health Innovation, and we are very fortunate, as Vascular Surgeons, to have the support of such a fantastic organization to help advance our surgical specialty, support new innovative therapies and ultimately help provide better and more durable options to our patients and their families.” – Patric Liang, MD, Assistant Professor of Surgery, Harvard Medical School, Attending Vascular Surgeon, Beth Israel Deaconess Medical Center, Wylie Scholar Award 2024 Recipient

2025 WYLIE SCHOLAR

Sara “Mimi” Gaines, MD

Assistant Professor of Surgery, Section of Vascular Surgery

Associate Program Director, General Surgery

“My research aims to uncover how harmful toxins produced by imbalanced gut bacteria contribute to complications in arteriovenous fistulas (AVFs), an essential tool for dialysis in patients with chronic kidney disease. By developing innovative, preclinical models and exploring therapeutic strategies to address AVF dysfunction, my goal is to translate these findings into novel approaches that improve AVF maturation, function, and long-term outcomes. This work has the potential to enhance vascular surgical care and directly impact the lives of dialysis patients by reducing complications and improving treatment efficacy.”

Dr. Sara Gaines, MD, Assistant Professor of Surgery in the Section of Vascular Surgery and Associate Program Director of General Surgery at the University of Chicago Pritzker School of Medicine, has been selected as the 2025 Wylie Scholar Award recipient for her proposed project, “The Role of Microbial Uremic Toxins on Endothelial and Smooth Muscle Cell Regulation of Neointimal Formation in Arteriovenous Fistulas.”

Dr. Gaines’ research focuses on a critical and underexplored aspect of chronic kidney disease (CKD), a condition affecting millions of individuals worldwide and profoundly impacting both gut and vascular health. Elevated urea levels in CKD disrupt the gut microbiome, leading to the overproduction of harmful microbial uremic toxins that circulate through the bloodstream and cause systemic inflammation and vascular injury. These processes contribute to arteriovenous fistula (AVF) failure, a major complication for patients who rely on dialysis for survival. AVFs—surgically created connections that enable blood filtration—often fail due to dysfunctional vessel remodeling and narrowing over time.

Through her project, Dr. Gaines aims to uncover how gut-derived toxins impair vascular health and hinder AVF function. She will employ animal models and advanced 3D vascular tissue systems to examine the interactions between these toxins, endothelial cells, and smooth muscle cells. By recreating the physiological conditions of CKD, this research seeks to identify how microbial toxins drive pathological signaling pathways, including endothelial-to-mesenchymal transition, that lead to vessel thickening, scarring, and failure of the AVF.

By uncovering how the gut microbiome influences vascular disease, Dr. Gaines’ findings could pave the way for innovative microbiome-based therapies that improve AVF function, reduce complications, and enhance dialysis efficiency. Such discoveries may lead to targeted interventions—like probiotics, dietary strategies, or pharmacologic treatments—that protect against vascular damage and promote healthier outcomes for CKD patients.

Ultimately, this research has the power to transform how clinicians approach vascular access in dialysis care. Dr. Gaines’s work offers a new paradigm for treating vascular complications of kidney disease and exemplifies the spirit of the Wylie Scholar Award—advancing translational research that improves both the quality of care and quality of life for patients worldwide.

2024 WYLIE SCHOLAR

Patric Liang, MD

Assistant Professor of Surgery,
Harvard Medical School
Attending Vascular Surgeon, Beth Israel Deaconess Medical Center

Dr. Patric Liang, MD, received the 2024 Wylie Scholar Award for his project, "Biodegradable Hydrogels for Perivascular Delivery of Targeted Gene Therapy to Improve Prosthetic Bypass Graft Patency."

Dr. Liang investigated the clinical translation and applicability of a novel gel developed by his team, designed for application to the artery during bypass surgery. This gel delivers siRNA therapeutics, which safely and effectively block specific genes responsible for driving prosthetic graft failure. His research currently focuses on optimizing the efficiency and efficacy of his hydrogel delivery platform by increasing the duration of sustained siRNA delivery, enhancing gel adherence to the vessel wall to prevent mechanical disruption, and promoting unidirectional vascular delivery to minimize off-target effects on surrounding tissues. Implementation of this gel has the potential to reduce the incidence of prosthetic bypass graft failure, a condition strongly linked to adverse molecular responses.

Dr. Liang's research is driven by his clinical experience in limb salvage and the critical need to improve outcomes for patients suffering from early vein graft failure and poor prosthetic graft patency. Drawing on insights from his daily practice in the operating room, he develops innovative research strategies to address unmet clinical needs in vascular surgery and ensures the translatability of his findings into clinical practice. Through the Wylie Scholar grant, Dr. Liang aims to advance basic science research, foster collaborations, and contribute impactful discoveries to the field of surgical science, particularly in the realm of biomaterials and targeted gene therapy.

"Our goal is to improve the durability of prosthetic grafts used in lower extremity bypass surgery. Our research investigations will ultimately give patients a safer and better long-term option for treatment of their peripheral arterial disease, thus reducing the risk of limb loss."

2022 WYLIE SCHOLAR

Tammy T. Nguyen, MD, PhD

Assistant Professor of Surgery
Medical Director of Lower Extremity Wound Clinic, Division of Vascular and Endovascular Surgery, University of Massachusetts

Dr. Tammy Nguyen received the 2022 Wylie Scholar Award for her project, "Exploring How the Diabetic Immune System Contributes to Non-Healing Ulcers." Type 2 diabetic (T2D) patients have a thirty-fold increased lifetime risk of developing a foot ulcer, 50% of which will lead to a lower extremity amputation and subsequently a 40% increased mortality risk. Diabetic foot ulcers are associated with impaired bone marrow-derived immune function.

To study the effect of T2D on the development of the human immune system and design targeted therapies to combat poor wound healing in T2D, Dr. Nguyen has developed a novel method to collect and expand human stem cells directly from the bone marrow of T2D and non-T2D donors who underwent lower extremity amputation for non-healing wounds.

Dr. Nguyen received her PhD in Biochemistry from the University of Utah. She attended medical school at the University of Utah and completed an Integrated Vascular Surgery Residency at the University of Massachusetts. Throughout her career, she has received training support from the Howard Hughes Medical Institute, American Heart Association, National Institutes of Health, and most recently the Vascular and Endovascular Surgery Society Early Career Award. Her clinical practice as the Medical Director of the Lower Extremity Wound Clinic uniquely positions her to be at the forefront of patient-oriented wound care. Her surgical and bench lab skills have allowed her to develop clinically relevant translational research models that will facilitate testing for new therapeutics to better care for the 10 million Americans with diabetic foot ulcers who are at risk for a major lower extremity amputation.

"The Wylie Scholar Award has provided me with a unique opportunity to connect with other vascular surgeon-scientists who share my goal of combating vascular disease through translational science. I am honored to part of an environment that nurtures scientific creativity, promotes patient-oriented research and has an impact on disease outcome and quality of life."

2021 WYLIE SCHOLAR

Kevin W. Southerland, MD

Assistant Professor of Surgery
Division of Vascular & Endovascular Surgery, Duke University

Dr. Kevin Southerland received the 2021 Wylie Scholar Award for his project, "Transcriptional Dynamics and Heterogeneity of Macrophages in Chronic Limb Threatening Ischemia".

Chronic limb-threatening ischemia (CLTI) is the most severe manifestation of peripheral arterial disease. Patients with CLTI are at high risk for limb loss and death. A significant number of CLTI patients suffer limb loss despite successful restoration of arterial flow. Novel approaches to treat CLTI remain an unmet clinical need. The goal of Dr. Southerland's lab is to understand the communication signals between the various cell types in the ischemic limb. He is particularly interested in how macrophages (a type of immune cell) interact with muscle stem cells. He believes that understanding these mechanisms will lay the groundwork for the development of new therapies for CLTI patients.

"The Wylie Scholar Award is a tremendous honor. I am humbled to be part of such an amazing community of surgeon-scientists. My primary clinical and investigative interest is Chronic Limb Threatening Ischemia (CLTI). The goal of my lab is to understand the cellular mechanisms responsible for CLTI and to develop molecular therapeutics to improve limb salvage. The Wylie Scholar program is providing me with the resources to pursue this research program. I am truly grateful for this opportunity."

"My work lays the foundation for the development of new therapies that can save the limbs of patients with chronic limb-threatening ischemia."

2020 WYLIE SCHOLAR

Kathryn Howe, MD, PhD, FRCSC

Surgeon-Scientist at UHN, Div. of Vascular Surgery & Toronto General Hospital Research Institute; Assistant Professor, Dept. of Surgery, University of Toronto

Dr. Kathryn Howe received the 2020 Wylie Scholar Award for her project, "Role of endothelial extracellular vesicle microRNA release and paracrine cellular communication in vulnerable carotid atherosclerotic plaques: a new paradigm for stroke."

Many people have atherosclerotic plaques in the carotid arteries, but only some cause strokes. The problem is that scientists don't know which ones. Dr. Howe's laboratory is trying to understand how cells within blood vessels communicate with one another in diseases such as atherosclerosis using secreted vesicles containing genetic code. The main goal of this research is to better understand these cellular communication signals in order to identify and treat plaques that may cause a problem, thus preventing a stroke

Dr. Howe received her PhD in Molecular Immunology, Virology, and Inflammation from McMaster University. She attended medical school at the University of Toronto and completed a post-doctoral fellowship at SickKids. Throughout her research career, she has been awarded competitive fellowships from the Canadian Institutes of Health Research & national scholarships. During her Vascular Surgery residency at McMaster, Dr. Howe was a fellow at Stanford University, where she established her own bench research program investigating the role of endothelial microRNA in vascular disease. Her clinical interests include carotid revascularization & stroke prevention, aneurysm repair, and peripheral vascular disease.

"The Wylie Scholar Award is allowing me to pursue an ambitious research program to find new targets to prevent stroke. Stroke has affected my family and many of my patients. This mission is personal – on behalf of all our loved ones. We've already had some early transformative discoveries that set the foundation for new therapies unlike any that currently exist."

2019 WYLIE SCHOLAR

Andrea Obi, MD

Assistant Professor of Vascular Surgery
University of Michigan

Dr. Andrea Obi received the 2019 Wylie Scholar Award for her work on "Impact of bone marrow progenitor cells epigenetic memory on venous thrombus formation and resolution." Her lab seeks to better understand how blood clots in our veins form, the root cause of life-threatening conditions known as Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE).

Acute infection is incredibly common and increases the risk of DVT and death from PE. These conditions affect 1 in 1000 adults and lead to approximately 200,000-300,000 deaths per year. Blood thinners, the only available options for treatment and prevention, come with serious risks and cannot be used by everyone. Dr. Obi's lab has established a link between infection, thrombosis, and changes in the bone marrow programming of immune cells. She and her team are working on understanding the interplay between the immune system and thrombosis to help identify new, non-blood-thinning techniques for preventing and treating DVT in the future.

Dr. Obi's clinical interests include vascular surgery, aneurysmal and occlusive diseases of the arterial system, and the surgical management of superficial venous disease.

"The Wylie Award has been a tremendous ignitor in expanding on our laboratory's exploration of a major unexplained problem in modern healthcare: the link between deep vein thrombosis and infection. Very few other researchers are trying to solve this problem and the Wylie award provides the necessary resources, a shared vision, and recognition of the challenges faced by our patients which can best be solved by taking the clinical problem back to the benchtop. It is an honor to join the legacy of the surgeon-scientists who have won the Wylie Award in the past and we will do our best to leverage it to the same degree of success in obtaining external funding and advancing the knowledge of thrombosis biology."

"My lab helps identify new ways to prevent and treat blood-clotting conditions without the use of blood thinners."

2018 WYLIE SCHOLAR

John Byrne, MB BCh, MD

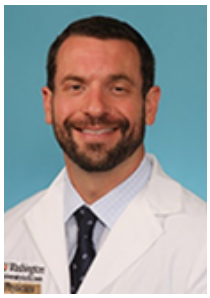
Vascular Surgeon Vascular & Interventional Radiology Division
William Osler Health System Toronto, Canada

Dr. John Byrne received the 2018 Wylie Scholar Award for his work on "Characterization of Macrophage Biology in the Pathogenesis of Abdominal Aortic Aneurysms." His research studied the inflammatory process of abdominal aortic aneurysm (AAA) development, which could improve the prediction and treatment of aortic aneurysms at high risk of fatal rupture.

AAA is a swelling in the largest artery of the body, the aorta, most commonly occurring in the abdomen. As the aneurysm swells, there is a risk of rupture that can lead to rapid and fatal internal bleeding. There are currently no medications to prevent or slow down the growth of an aneurysm. Studies show that a type of white blood cell called a macrophage is present in excess in aneurysms. It is thought that macrophages contribute to the enlargement of AAA by weakening the walls of the aorta. Since receiving this award, Dr. Byrne demonstrated that two newly discovered populations of aortic macrophages differentially contribute to AAA -- one population worsens the disease, while the other helps maintain aortic integrity. His work was accepted for oral presentation at the American Heart Association Scientific Sessions conference in November 2019, and Dr. Byrne was invited to contribute to an Early Career Research event during the conference.

"Future progress in the medical treatment of small aortic aneurysms will not take place until we, as physicians and scientists, improve our understanding of aortic biology. I am honored as a Wylie Scholar to be able to contribute to this lofty but realistic goal, which will improve the outlook for patients with this disease. Looking back at the giants of vascular surgery that make up the previous winners of this award, I am humbled and excited to be funded by Vascular Cures."

The 2018 Wylie Scholar Award was supported by the Society for Vascular Surgery



2017 WYLIE SCHOLAR

Sean English, MD

Former Assistant Professor of Surgery
Vascular Surgery Section
Washington University in St. Louis

Dr. Sean English became the 20th Wylie Scholar for his research project aimed at neutralizing the body's signaling mechanisms that cause abdominal aortic aneurysms (AAA) to grow.

Abdominal aortic aneurysm (AAA) is a dangerous condition, and AAA rupture often results in death. Without an accepted medical therapy, treatment requires surgery and long-term follow-up imaging. Yet diagnostic and surveillance methods used for the assessment of AAAs are limited.

The inflammation associated with AAA development is multifaceted; however, Dr. English identified a particular signaling molecule that plays an integral role in both AAA development and rupture. His goal was to assess the ability of a positron emission tomography (PET) radiotracer to neutralize this signaling molecule in an effort to limit AAA development and decrease the risk of rupture. He aimed to demonstrate inflammation predictive of growth/rupture in an animal model that he developed. Dr. English's research evaluated the ability of this radiotracer to noninvasively characterize human AAA-associated inflammation.

"I am honored to be acknowledged in this manner as a surgeon-scientist, and I am incredibly humbled to be in the company of the prior recipients. We share the same passion and vision to evolve the way we diagnose, survey, and treat vascular disease in a more patient-specific fashion."

2016 WYLIE SCHOLAR

Ryan McEnaney, MD

Assistant Professor of Surgery
University of Pittsburgh School of Medicine, VA Pittsburgh Healthcare System

Dr. Ryan McEnaney received the 2016 Wylie Scholar Award for his research aimed at improving collateral artery development, known as arteriogenesis. His lab has demonstrated that growing better collateral circulation is possible. The physical forces of flowing blood acting on the vessel wall are important determinants of the size and capacity that collateral vessels will achieve. Dr. McEnaney seeks to understand the molecular signals in the vessel wall that communicate changes in blood flow. Identifying these secondary molecular signals could lead to pharmaceutical therapies to improve collateral circulation for patients unable to undergo surgery.

Additionally, for pre-existing arteries to grow into collaterals, the matrix structure must be reorganized and sometimes rebuilt. Unfortunately, some of the critical components of an artery's structure are limited -- created in early life but seemingly irreplaceable if destroyed. Key to arterial remodeling is the careful reorganization and redistribution of certain structural components so that the vessel may enlarge without deteriorating. Dr. McEnaney's lab has been using advanced imaging modalities to investigate the extracellular matrix reorganization of enlarging collateral vessels. Understanding these processes has implications not only for arteriogenesis and collateral development but also for arterial aneurysmal disease. With the support from the Wylie Award, Dr. McEnaney has been awarded federal funding via the VA CDA mechanism.

"The Wylie Scholar Award has been a major milestone in my career and truly instrumental in advancing my research. The Award has led to my successful application for funding through the VA. I look forward to continuing the mission of Vascular Cures by my research to advance care of vascular disease."

The 2016 Wylie Scholar Award was supported by the Society for Vascular Surgery

2015 WYLIE SCHOLAR

Mohamed Zayed, MD, PHD, MBA, FACS

Associate Professor of Surgery, Radiology, Molecular Cell Biology, & Biomedical Engineering, Washington University in St. Louis; Staff Physician, Dept. of Surgery, St. Louis VA Health Care System

Mohamed Zayed, MD, PhD, is the Director of Vascular Surgery Research at Washington University School of Medicine in St. Louis. He leads a multi-pronged research program investigating the mechanisms of arterial disease progression. With a multidisciplinary background in pharmacology, molecular biology, genetics, and lipid research, Dr. Zayed and his team focus on creative approaches to explore the underlying causes of peripheral arterial atheroprogression, aortic aneurysms, and the impact of metabolic disorders such as diabetes on arterial disease. Since receiving the Wylie Scholar Award, Dr. Zayed has been awarded a 5-year K08 career development award, an American Surgical Association research fellowship, and a Society for Vascular Surgery investigator award. As his translational research program matured, this led to additional major NIH funding, including 7 R01 grants and multiple foundation grants.

Dr. Zayed is also the Director of the CardioVascular Research Innovation in Surgery & Engineering (CVISE) center, which fosters collaboration between surgical and engineering disciplines. This multidisciplinary center has led to numerous biomedical innovations, multiple filed/issued U.S. patents, and several startup ventures aimed at commercializing new biomedical diagnostics and treatments. The innovation team is partially funded by an NIH R41/R42 grant. Dr. Zayed was recently awarded the Academy of Science of St. Louis Innovator Award, which recognizes an investigator with exceptional potential for future accomplishments in science, engineering, and technology.

"The Wylie Fellowship was a catalyst to my research program at a critical early phase of my career as a surgeon-scientist. The fellowship immediately connected me with a network of accomplished prior fellows and scientists. This award allowed me to build the foundation for many critical activities that followed."

The 2015 Wylie Scholar Award was supported by the Society for Vascular Surgery

2014 WYLIE SCHOLAR

Matthew A . Corriere, MD, MS

Director of the Division of Vascular Diseases and Surgery, Ohio State University

Matthew A. Corriere, MD, MS, is the director of the Division of Vascular Diseases and Surgery at Ohio State University Wexner Medical Center. He served as the Medical Director of the Operating Room at the Michigan Medicine Frankel Cardiovascular Center and co-leads the Multidisciplinary Peripheral Artery Disease Clinic.

Dr. Corriere is also affiliated with several University of Michigan research initiatives, including the Institute for Health Policy and Innovation, the Center for Health Outcomes and Policy, the Center for Bioethics and Social Sciences in Medicine, and the Biosocial Methods Collaborative.

Dr. Corriere specializes in the treatment of aortic, carotid, mesenteric, renal, and peripheral artery disease. His research focuses on patient preference elicitation, doctor-patient communication, risk stratification, and clinical outcomes in peripheral artery disease.

He has received research support from the U.S. Food and Drug Administration, the American Heart Association, the Vascular Cures Foundation, the Society for Vascular Surgery Foundation, the Vascular and Endovascular Surgery Society, the Frankel Cardiovascular Center Innovation Challenge, the Frankel Cardiovascular Center Inaugural Grant, and the University of Michigan MCubed program. Dr. Corriere is a past president of the Vascular & Endovascular Surgery Society and previously chaired the Society for Vascular Surgery Clinical Research Committee.

"The Wylie Scholar Award has allowed me to move forward with work that I believe is truly innovative and has potential to redefine interactions between patients and providers. As a vascular surgeon treating patients with PAD, I am excited about the potential for this research to positively impact care through development of more patient-centered approaches."

"My research focuses on finding ways for doctors to understand patient goals and improve shared decision-making in vascular treatment. The goal is to increase patients' engagement in their own care."

The 2014 Wylie Scholar Award was supported by the Society for Vascular Surgery

2013 WYLIE SCHOLAR

Thomas Monahan, MD

1975-2019 Former Assistant Professor of Surgery University of Maryland

The Wylie grant supported the late Dr. Monahan's research on the mechanisms behind vein graft, angioplasty, and stent failure. His work focused on the body's abnormal healing response to surgery, known as intimal hyperplasia or restenosis.

As a vascular surgeon, Dr. Monahan performed both bypass surgery and angioplasty -- procedures designed to relieve arterial blockages. Each year, over seven million cardiovascular bypass and angioplasty procedures are performed in the U.S. However, restenosis, or the recurrent narrowing of treated vessels, remains a significant challenge, affecting up to 30–40% of cases within six months. This persistent issue underscores the need for improved treatments to enhance long-term outcomes.

Dr. Monahan's work focused on methods of specifically inhibiting vascular smooth muscle cell migration and proliferation. Present treatments for the prevention of intimal hyperplasia are limited because they inhibit both smooth muscle and endothelial cell migration and proliferation. Dr. Monahan identified a protein, MARCKS, that, when knocked down, inhibited smooth muscle cell migration and proliferation with no effect on endothelial cells. This protein was potentially a powerful target for the prevention of intimal hyperplasia.

"Dr. Monahan had a personal commitment to providing much needed surgical care for the most vulnerable in our society: the poor, uninsured, veterans and persons with no advocates…His patients and colleagues remember him as a tireless advocate for the chronically ill and disadvantaged, as well as a dedicated teacher and scientist."
-Raj Sarkar, 2005 Wylie Scholar and mentor to Dr. Monahan

2012 WYLIE SCHOLAR

Katherine Gallagher, MD

John R. Pfeifer Collegiate Professor of Vascular Surgery Professor of Microbiology & Immunology University of Michigan

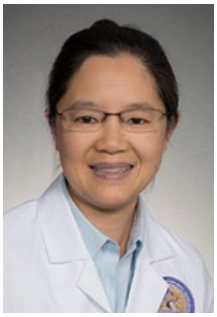
The goal of Dr. Gallagher's research is to improve wound healing in patients with Type 2 diabetes, a severe problem that frequently leads to amputation. Although the concept that chronic inflammation is associated with impaired diabetic wound healing has been well-accepted, no approach to date has been clinically effective in restoring the normal wound healing cascade in Type 2 diabetic wounds. These findings will improve our understanding of the chronic inflammation associated with diabetic wounds and enable development of new therapeutics.

In 2022, Dr. Gallagher was elected to the National Academy of Medicine for her innovative research on epigenetic regulation of immune cells. She is a fellow in the American Surgical Association and Vice Chair of Basic and Translational Science at the University of Michigan. In addition, she is a mentor to the 2019 Wylie Scholar, Andrea Obi, MD; the 2021 Wylie Scholar, Kevin Southerland, MD; and the 2022 Wylie Scholar, Tammy Nguyen, MD, PhD.

Dr. Gallagher has received major funding from the NIH (R01, U01), American Diabetes Association, and Doris Duke Charitable Foundation. She most recently won the American Heart Association ATVB Werner Risau Early Career Investigator Award in Vascular Biology. She has been awarded over $19 million in funding since becoming a Wylie Scholar.

"Due to the critical start-up funding from the Wylie Scholarship Program, we have identified that epigenetic changes in the bone marrow predispose peripheral macrophages towards an inflammatory phenotype. Funding from the Wylie Scholarship Program has been instrumental in allowing me to gather preliminary data to secure much- needed funding from the National Institutes of Health and others."

"I study how to improve inflammation in cardiovascular disease, a severe problem that frequently leads to many pathologies, with the goal of developing new treatments."



2011 WYLIE SCHOLAR

Gale Tang , MD, FACS, RPVI

Associate Professor, Div. of Vascular Surgery VA Puget Sound Health Care System University of Washington

The Wylie grant was awarded to support Dr. Tang's research in understanding the mechanisms that promote blood vessel growth, and to develop new non-surgical therapies for people suffering from an advanced form of peripheral artery disease (PAD).

Dr. Tang's original research focused on creating new vessels to carry the blood that blocked arteries can no longer transport, evaluating the syndecan-1 protein encoded by the SDC1 gene. Dr. Tang subsequently shifted her research to focus on the role of p27Kip1 in collateral artery development. This built on work performed by the late Dr. Alec Clowes (UW) and Dr. Michael Conte (UCSF) on the role of p27 in healing following leg bypass surgeries. Her current work continues Dr. Alec Clowes' studies on vein graft healing.

Dr. Tang is an excellent example of the synergy of Vascular Cures' programs made possible by generous donors. Prior to receiving the 2011 Wylie Scholar award, Dr. Tang studied mechanisms of blood vessel growth at the Laboratory for Accelerated Vascular Research (LAVR) from 2001–2003. LAVR was established at UCSF with grants from Vascular Cures and the Wayne and Gladys Valley Foundation. She also worked under the mentorship of the late Alec Clowes, MD, a leader of the Vascular Cures Research Network. Dr. Tang was just awarded a VA Merit grant to study the effect of adventitial cells on vein graft neointimal hyperplasia.

"Since being awarded the Wylie Scholar award and directly related to the work I have been able to achieve using the award funds, I have received $991,219 of competitive internal and external funding since the award tenure."

"I am studying arteriogenesis to better develop artery development in patients with chronic limb threatening ischemia. I am also studying the process of vascular reaction to injury by looking at how vein grafts remodel by putting human veins into rats and developing an in vitro perfused vein graft model."

2010 WYLIE SCHOLAR

Bryan Tillman, MD, PhD, FACS

Associate Professor of Surgery, Director of Vascular Research at Ohio State University at the Wexner Medical Center

Dr. Tillman's laboratory is currently involved in the development of novel endovascular devices. To address lethal vascular injuries on the battlefield and after civilian trauma, Dr. Tillman developed a novel magnetic sensor positioned, retrievable stent device (Rescue Stent) to allow virtually any emergency physician to rapidly stop bleeding until patients can reach proper vascular expertise and imaging. He currently directs a Department of Defense funded research study and recently demonstrated that the Rescue stent offers superior survival to current approaches in a model of lethal hemorrhage.

In addition, motivated by the critical shortage of available organs for transplant, he has also designed and developed a novel dual-chambered stent to increase the number and quality of donor organs for transplant by improving organ perfusion during recovery, a project funded by the National Institutes of Health. Most recently, his laboratory has been developing large animal models of aortic aneurysms, examining the Rescue Stent to make elective open aortic surgery safer, and developing a new platform to facilitate drug delivery to the spinal cord.

"The Wylie Scholar award allowed me to develop my research interests at a critical time of my research career. As a result of this funding, I was able to explore several novel high-risk projects which now have each blossomed into federally funded studies. Our progress to improve the care of patients has generated interest both at the national and international levels."

"I develop minimally invasive vascular devices in my laboratory. The Rescue Stent is a device to stop bleeding after trauma of the torso and a dual chambered stent is being explored to improve outcomes after major aortic surgery and for targeted delivery of therapeutic drugs"

2008 WYLIE SCHOLAR

Ulka Sachdev, MD

Associate Professor of Surgery, University of Pittsburgh Chief of Vascular Services. Magee Womens Hospital of UPMC

Dr. Sachdev's research involves understanding the mechanisms that promote blood vessel growth and developing new therapies for people suffering from peripheral arterial disease and critical limb ischemia. Often, these patients are unable to undergo treatments to open blocked vessels and face amputation as a result. Her more recent research program focuses not only on new blood vessel growth but also on the mechanisms by which muscle tissue itself responds to ischemic injury and promotes repair. Specifically, she is studying how an inflammatory molecule called caspase-1 initiates the release of HMGB1, a nuclear protein that helps promote new blood vessel growth. Caspase-1 is present in muscle cells and is protective in animal models of limb ischemia. Interestingly, similar protective effects of caspase-1 are also noted in liver tissue, and she is collaborating with other members of the Department of Surgery whose research focuses on liver disease.

Dr. Sachdev was able to successfully convert her K08 mentored clinical science award from the NHLBI to independent R01 funding in 2018, worth close to $2 million. She has also been able to initiate a very exciting research project evaluating inflammation in varicose vein disease. In particular, she and her collaborators, who have expertise in computational modeling, have shown a unique pattern of inflammatory mediator expression in varicose veins. She was awarded an SVS Foundation award for this work and is pursuing research funding from the NIH to advance the project. Her total funding since the Wylie award was granted is over $3 million.

"Since receiving the Wylie award, I have been able to obtain a Mentored Clinical Scientist Award through the NHLBI, which was matched by the SVS foundation and American college of surgeons. I was then able to transition to independent R01 funding from NHLBI to study mechanisms of HMGB1 release from ischemic muscle cells. I have also had the opportunity to expand my research focus to venous disease and received funding from SVS foundation to complete a pilot project on inflammation in varicose veins. The funding I received from the Wylie award was absolutely instrumental in propelling my research programs forward. In addition to research and clinical work, I continue to mentor medical students both locally and nationally through the SVS mentoring program and I always emphasize that my research success really started with funding through the Wylie program."

2007 WYLIE SCHOLAR

Matthew Eagleton, MD

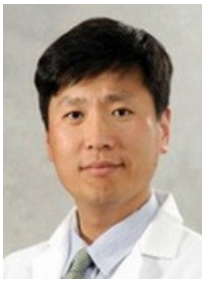
Chief, Division of Vascular and Endovascular Surgery and Co-Director, Fireman Vascular Center, Massachusetts General Hospital Professor, Harvard Medical School

Dr. Eagleton's initial interest when receiving his award was to investigate the processes leading to the development of an aortic aneurysm, a potentially fatal bulge or ballooning of the main artery leading from the heart to the lower portions of the body. Currently, the only available treatment for aortic aneurysm disease is surgical repair. Dr. Eagleton's goal is to develop a drug therapy that will limit the growth of an aneurysm or prevent it from forming.

Since that time, Dr. Eagleton's interest has shifted, with much of his focus on the development of technology and the application of this technology toward the treatment of aortic and vascular disease. Dr. Eagleton is the sponsor and principal investigator on several Investigational Device Exemption studies evaluating the use of branched and fenestrated aortic endografts to treat complex aortic pathology. In addition to the above research, Dr. Eagleton is involved in the development and commercialization of an imaging and navigation system to allow the performance of endovascular procedures without the use of ionizing radiation. Dr. Eagleton serves as the Director of the Scientific Advisory Board for Centerline Biomedical, which recently received 510(k) approval from the FDA for this technology.

Dr. Eagleton's Wylie award led to the opportunity for several leadership positions, including becoming Chief of the Division of Vascular and Endovascular Surgery and Co-Director of the Fireman Vascular Center at Massachusetts General Hospital. In addition, he currently serves as the Vice President of the Society for Vascular Surgery.

"One of the greatest assets of this award is the opportunity to meet and share ideas with several of my peers with whom I might not have done so previously. These interactions have helped fuel ideas that contributed to hypothesis development and establishment of clinical and translational research programs. I have received about $6.8 million in research funding since the Wylie award."



2006 WYLIE SCHOLAR

Eric Choi, MD, FACS

Vice Chairman, Department of Surgery St. Joseph's Health, Paterson NJ

Dr. Choi is investigating ways to grow new blood vessels as a therapy for treating critical limb ischemia (CLI), in which the legs and feet do not receive blood due to severe blockage in the arteries, potentially resulting in amputation.

Dr. Choi's research involves vein and artery complications in patients undergoing dialysis due to kidney failure. Dialysis requires a surgically created artery-to-vein direct connection in the patient's arm or leg. This artificial circuit often fails due to abnormal scarring and thickening of the lining of the vein that receives blood from the artery, requiring surgical repair. Dr. Choi is researching the cellular and molecular mechanisms that cause this abnormality, a significant step in developing new treatments to prevent this vascular problem.

Experts are becoming increasingly concerned about the growing number of people in their 20s and 30s coping with Type 2 diabetes. The longer people live with diabetes, the more likely they are to develop complications such as high blood pressure, high cholesterol, kidney failure, blindness, and reduced blood flow to the legs, which can lead to amputation.

"It's alarming how many young adults are on the verge of amputation," stated Dr. Choi. "About 20% of the amputations that we did last year were in patients 45 or under." Dr. Choi does everything in his power to save a limb.

2005 WYLIE SCHOLAR

Rajabrata Sarkar, MD, PhD

Division Head, Vascular Surgery Barbara Baur Dunlap Professor of Surgery & Physiology University of Maryland

Dr. Sarkar is an expert in treating blood vessel disorders and a nationally known researcher in blood vessel growth and development. He is investigating the genetic mechanisms regulating the growth of new arteries and ways to prevent damage from blood clots in the veins. He is also studying how certain risk factors, including smoking, diabetes, high cholesterol, and high blood pressure -- all prevalent among Americans today -- prohibit the growth of new vessels.

Another focus of his research is how and why blood clots in veins fail to resolve in many people, leading to poor circulation. 'We have identified key genes and proteins that help the body resolve clots, and we are targeting drug therapy to these genes with the goal of finding new treatments for the millions of people with deep vein thrombosis,' says Dr. Sarkar.

Dr. Sarkar has also studied members of the armed forces with vascular problems and tissue damage due to blast injuries. He is investigating the use of gene therapy to stimulate the growth of arteries and capillaries damaged by traumatic injuries. Such research would not only benefit patients with traumatic injuries but also help people with poor blood flow due to the hardening of the arteries.

Dr. Sarkar was the mentor to the recipient of the 2013 Wylie Scholar award, the late Dr. Thomas Monahan.

"The Wylie Scholar award allowed my laboratory to flourish and receive significant extramural funding from the NIH totaling $1.8 million."

2004 WYLIE SCHOLAR

Michael Watkins, MD

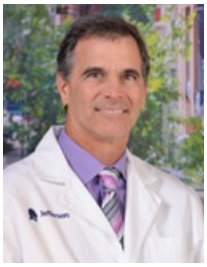
Former Associate Professor of Surgery Harvard University Former Associate Director Massachusetts General Hospital

Dr. Watkins developed new ways to repair thoracic aortic aneurysms and addressed complications that occur after restoring blood flow in patients with critical limb ischemia. Surgery is the primary treatment for these conditions but can cause spinal cord injury. Dr. Watkins' experimental treatments showed promise in understanding and potentially preventing the paralysis that may occur after surgery to repair aortic aneurysms.

Dr. Watkins also researched why tissues become damaged after blood flow is restored in patients with peripheral artery disease, a condition that can cause chronic inflammation and even strokes. Dr. Watkins hoped to develop new treatments that would save patients' limbs without complications.

Since receiving the Wylie Scholar award, Dr. Watkins has served as Director of the Vascular Research Laboratory at Massachusetts General Hospital, which received grants from the NIH and the American Diabetes Association. Dr. Watkins was awarded the Joint Services Commendation from the Department of Defense, the Care and Compassion Award from the VA Boston Healthcare System, and teaching awards from the University of Rochester and Boston University. He was a member of the Research Council of the Society of Vascular Surgery.

"My greatest success has been developing an exciting translational non-invasive tool with collaborators at the Massachusetts General Hospital to detect spinal cord injury prior to the onset of neurologic symptoms. This has significant clinical potential as a tool to help patients undergo vascular surgery procedures on the thoracoabdominal aorta safely. Since receiving the award I have obtained $300,000 from the American Diabetes Association and $2.4 million from the NIH."



2003 WYLIE SCHOLAR

Paul DiMuzio, MD, MBA, FACS

Professor of Surgery Director, Division of Vascular and Endovascular Surgery Co-Director, Jefferson Vascular Center Thomas Jefferson University

Dr. DiMuzio's research focus involved using adult stem cells and advanced tissue-engineering technology to create new blood vessels for bypass grafts. Although veins are usually used for bypass grafts, not all patients have enough of their own tissue to use in this way. Dr. DiMuzio has successfully created grafts in larger animals and is working to make this innovative treatment option available to people.

This treatment offers hope for patients with limited options, including those with coronary artery disease, peripheral artery disease, and kidney disease that requires hemodialysis access. Dr. DiMuzio is currently working with industry partners to bring this work to clinical use.

Since receiving the Wylie Scholar award, Dr. DiMuzio has received funding from the NIH, American Heart Association, American Vascular Association, and industry. With multiple teaching and research awards, Dr. DiMuzio was listed in Philadelphia Magazine's 'Top Doctors' in 2008, 2011, 2012, and 2013.

Dr. DiMuzio says that persistence is a key attribute for anyone, but particularly for vascular surgeons, who often address situations requiring them to work through complex problems faced by their patients.

"If I'm presented with a problem, I keep working at it until it's solved. Funding from the Wylie award legitimized the work I have performed using adult stem cells to create an artificial blood vessel ... this important springboard allowed me to obtain over $1.3 million in funding from national organizations such as the NIH and the American Diabetes Association."

2002 WYLIE SCHOLAR

Alan Dardik, MD, PhD, FACS, DFSVS, FAHA

Professor of Surgery and of Cellular and Molecular Physiology; Vice Chair for Faculty Affairs, Yale University
Editor-in-Chief, JVS-Vascular Science

Dr. Alan Dardik is a surgeon-scientist who harnesses the power of molecular biology to achieve a modern understanding of vascular disease and then uses the basic science laboratory to ultimately benefit patients with vascular diseases.

Dr. Dardik trained at Yale, the University of Pennsylvania, and Johns Hopkins Hospital before his appointment to the Yale faculty in 2001. He focuses his clinical practice on teaching at the VA Connecticut, where he was formerly the Chief of Vascular Surgery. He has received the C. Elton Cahow Award for Outstanding Faculty Teaching from Yale's Department of Surgery and the Faculty Teaching Award from St. Mary's Hospital. Dr. Dardik is also the Vice Chair of Yale's Department of Surgery, where he is responsible for Faculty Affairs, and he has served as Yale's Interim Division Chief of Vascular and Endovascular Surgery.

The Dardik lab focuses on the healing and function of blood vessels, fistulae, and vessel patches used in vascular surgery. The lab aims to understand the fundamental molecular mechanisms by which vein graft adaptation and arteriovenous fistula maturation lead to positive remodeling and successful adaptation to the arterial environment, while often progressing, in the long term, to neointimal hyperplasia and failure. Additionally, the lab investigates novel methods for delivering stem cells to diabetic wounds. The laboratory is funded by the NIH as well as Yale's Department of Surgery.

Dr. Dardik currently serves as the Editor for the newly launched journal JVS-Vascular Science. He has also served as the President of the New England Society for Vascular Surgery, the Association of VA Surgeons, and the International Society for Vascular Surgery. Dr. Dardik has organized several national and international meetings, including the Society for Vascular Surgery Vascular Research Initiatives Conference, and has served on numerous peer review committees, including reviews for the NIH, the VA, the American Heart Association, and Vascular Cures. Dr. Dardik has edited several textbooks, including Vascular Surgery: A Global Perspective and Stem Cell Therapy for Vascular Diseases.

"My two greatest successes were leveraging the Wylie Scholar award into over $2 million dollars of NIH research funding, and using the stature of the award to gain a voice at the table when vascular research priorities are being determined at a national level by the SVS and the National Heart, Lung, and Blood Institute."

2001 WYLIE SCHOLAR

Edith Tzeng, MD, FACS

Chief of Vascular Surgery, VAPHCS
UPMC Chair and Professor of Surgery
Program Director, Vascular Surgery T32 Training Program, Division of Vascular Surgery, University of Pittsburgh UPMC Heart and Vascular Institute

Dr. Tzeng is focused on translational studies of vascular and wound healing and is developing treatments to address abnormal cell growth following angioplasty. Her research involves studying the effects of carbon monoxide and nitric oxide in preventing inflammation and injury after angioplasty procedures. Dr. Tzeng is exploring ways to reduce inflammation and has shown significant positive outcomes in the healing process in animals. The ultimate goal of her research is to bring these agents to clinical application.

Since receiving the Wylie Scholar award, Dr. Tzeng has established a vascular laboratory that has mentored dozens of researchers, including 2008 Wylie Scholar Ulka Sachdev, MD, 2010 Wylie Scholar Bryan Tillman, MD, and 2016 Scholar Ryan McEnaney, MD. Dr. Tzeng, Dr. Sachdev, and their team at the University of Pittsburgh discovered a novel method by which nuclear proteins may promote the growth of new blood vessels to restore blood flow.

Dr. Tzeng has been the Program Director of the VascTrain NIH T32 program at the University of Pittsburgh since 2010. She is also a member of the Advisory Board of Vascular Cures. In 2018, Dr. Tzeng was named Chair of the American College of Surgeons Scientific Forum Committee and Chair of the Research Council for the Society for Vascular Surgery. Additionally, she serves as the Treasurer for the Association for VA Surgeons. Dr. Tzeng has been a standing member of the NHLBI National Institute of Training Mechanisms study section since 2018 and is also a member of the AHA Strategically Focused Research Network Oversight Advisory Committee.

"My greatest achievement since being awarded the Wylie Scholarship is maintaining national funding in these very difficult times. In the 20 years since the award, I have had a total of $17 million of funding between the American Heart Association, VA Merit Award, and the National Institutes of Health. My other achievement that I am very proud of is my mentorship role for three of my junior partners who have also been Wylie Scholars, helping them achieve the next level in their research careers."

1999 WYLIE SCHOLAR

Richard Powell, MD

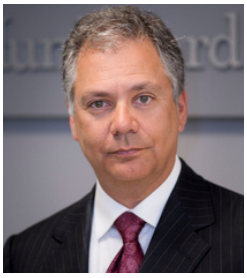
Section Chief, Vascular Surgery
Dartmouth- Hitchcock Medical Center
Professor of Surgery & Professor of Radiology Geisel School of Medicine, Dartmouth

Dr. Powell is currently the principal investigator for multiple national stem cell therapy and plasmid gene therapy trials aimed at treating critical limb ischemia. He is also the principal investigator for a study evaluating the addition of a drug to standard care treatment to reduce the incidence of clots and complications in the heart, brain, or legs following procedures designed to improve blood flow to the legs.

Dr. Powell's research for the Wylie Scholar award laid the foundation for further studies in atherosclerosis, angiogenesis (the growth of new blood vessels), and restenosis (the re-narrowing of blood vessels after angioplasty and stenting). His work focused on investigating blood vessel dysfunction and growth as treatments for ischemic heart disease and critical limb ischemia.

Dr. Powell's Wylie Scholar award led to securing multiple NIH grants, establishing a vascular research laboratory at Dartmouth-Hitchcock Medical Center, and becoming the Section Chief of Vascular Surgery.

"My greatest accomplishment was becoming section chief of vascular surgery at Dartmouth and facilitating the research careers of the faculty in our section. I have secured approximately $8 million in additional funding since receiving the Wylie award."



1998 WYLIE SCHOLAR

Barry Rubin, MD, PhD, FACS, FRCSC

Professor of Surgery, University of Toronto Chair & Program Medical Director, Peter Munk Cardiac Center University Health Network

Dr. Rubin's academic research focuses on how the heart responds to injury and the regulation of the immune response to infection. His research has been widely published in high-impact journals. Dr. Rubin and his lab continue to investigate the role of prostaglandins in left ventricular remodeling after myocardial infarction, as well as the role of phospholipase A2 enzymes in the innate immune response to bacterial infection.

Since receiving the Wylie Scholar award, Dr. Rubin has received 19 years of continuous funding from the Canadian Institutes of Health Research and is the Senior Scientist at the Toronto General Research Institute. He is also the Chair and Program Medical Director of the Peter Munk Cardiac Centre.

Dr. Rubin was Head of Vascular Surgery at Toronto General Hospital from 2001 to 2010 and has been the Medical Director of the Peter Munk Cardiac Program at Toronto General Hospital since 2011. He is the Lead of the Provincial Alternate Funding Plan, which allocates $270 million to 17 Academic Health Science Centres to support clinical services, teaching, research, and innovation carried out by 8,000 academic physicians in Ontario. He is also the Chair of the Ontario New Technologies Planning Committee, which advises the Government of Ontario on funding for new devices used in the management of patients with vascular or cardiac diseases or stroke.

Aligned with his evolving interest in the impact of clinician burnout, Dr. Rubin is co-chair of the U.S. National Academy of Medicine Clinician Wellbeing Implementation Working Group. He is also a member of the steering committee collaborating with the U.S. Surgeon General to develop a national plan for health workforce wellbeing in the U.S. Additionally, he serves as a Wellness Advisor to the Royal College of Physicians and Surgeons of Canada.

"There is no question that my greatest success is the 19 years of national level peer-reviewed funding for basic research that I have been able to attract. The seed money for this research was from the Wylie Scholar award. My total peer-reviewed research funding to date is approximately $4.2 million."

1997 WYLIE SCHOLAR

Larry W. Kraiss, MD

Professor of Surgery Vice-Chair for Discovery & Innovation Medical Director, Non-invasive Vascular Laboratory University of Utah Medical Center

Dr. Larry Kraiss is a senior academic surgeon at the University of Utah. Throughout his career, he has conducted both basic science and clinical research on various vascular conditions. His Wylie Scholarship focused on basic endothelial cell biology, and the work supported by this award was instrumental in securing NIH funding to study translational control mechanisms in endothelial cells subjected to stress. His more recent research interests include hemodialysis access, frailty, and shared decision-making in vascular surgery. He is the Principal Investigator for the multicenter Frailty4Sight study, funded by Vascular Cures. This study has recently completed enrollment and is currently being analyzed.

Dr. Kraiss served as Chief of Vascular Surgery at the University of Utah from 2003 to 2015 and as Director of the Vascular Surgery Fellowship from 2003 to 2012. He is currently the Medical Director of the Non-Invasive Vascular Laboratory at the University of Utah Hospitals & Clinics. He maintains a broad-based vascular surgery practice in Salt Lake City, treating patients from throughout the Intermountain West.

"My two greatest successes were leveraging the Wylie Scholar award into over $2 million dollars of NIH research funding, and using the stature of the award to gain a voice at the table when vascular research priorities are being determined at a national level by the Society for Vascular Surgery and the National Heart, Lung, and Blood Institute."

1996 WYLIE SCHOLAR

Robert W. Thompson, MD

Professor of Surgery (Vascular Surgery), Radiology, and Cell Biology and Physiology Director of the Center for Thoracic Outlet Syndrome Washington University in St. Louis

Dr. Robert Thompson's research focused on the cellular and molecular mechanisms responsible for the growth of abdominal aortic aneurysms. With the support of the Wylie Scholar award, he identified a group of enzymes that break down the connective tissue in the wall of the blood vessel. These findings advanced research to develop new treatments to suppress aneurysm growth, including the basis for a recently completed multicenter clinical trial.

In addition to his research, Dr. Thompson is an expert on thoracic outlet syndrome (TOS), a group of conditions caused by compression of nerves and blood vessels that can result in pain or weakness in the arm, numbness in the hands and fingers, and sudden swelling and discoloration of the arm. TOS is most common in active, otherwise healthy individuals and can cause substantial disability.

Dr. Thompson directs the multidisciplinary Center for Thoracic Outlet Syndrome at Washington University in St. Louis, one of the few such centers in the country, and is a consulting vascular surgeon for many collegiate and professional sports teams. His leadership in the department facilitated the mentorship of Dr. Mohamed Zayed, winner of the 2015 Wylie Scholar Award, and Dr. Sean English, winner of the 2017 award.

"The Wylie award was the most pivotal award I received early in my academic surgery career. It is provided recognition of the research program I had proposed and gave me confidence that I was on the right track in gaining interest from funding sources. It supported the first steps of a laboratory research project that soon grew into a major NIH grant. That project spurred 15 years of continuous NIH funding, with over $5 million of grant support, and has allowed development toward a drug treatment for abdominal aortic aneurysms. It's hard to be sure that any of that would have occurred if not for that crucial first funding stimulus and the recognition that was provided by the Wylie award, for which I will always be grateful."

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