

ANNUAL REPORT



Sarver Heart Center



MESSAGE FROM THE DIRECTOR

As I reflect on my first year as Director of the Sarver Heart Center and Chief of Cardiology at the University of Arizona, I am proud of the strides we have made in our clinical, research, and educational missions. Over the past year, we have strengthened our commitment to delivering world-class cardiovascular care, expanded our research portfolio, and launched innovative training programs to shape the next generation of leaders in cardiology. We've made significant progress in advancing patient care through our partnership with Banner — University Medical Center, where innovative treatments and a patient-centered approach continue to transform lives. The Center has grown in both reach and impact—securing new funding, and forging partnerships with academic institutions in the U.S. and across the globe.

These achievements would not have been possible without the dedication and support of our faculty, our staff, our volunteers, and our donors. Your passion, philanthropy, and collaboration have been instrumental in helping us elevate our role as a regional and national leader in cardiovascular health and research. I am deeply grateful for your continued partnership as we look ahead to even greater accomplishments in the years to come.

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HESHAM A. SADEK, MD, PHD ALLAN C. HUDSON & HELEN LOVAAS – ENDOWED CHAIR OF CARDIOVASCULAR MEDICINE DIRECTOR, SARVER HEART CENTER PROFESSOR, MEDICINE AND CELLULAR AND MOLECULAR MEDICINE CHIEF, DIVISION OF CARDIOLOGY





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SHC LEADERSHIP



Hesham A. Sadek, MD, PhD Professor, Medicine | Cellular & Molecular Medicine Chief, Division of Cardiology Director, Sarver Heart Center Allan C. Hudson & Helen Lovaas - Endowed Chair of Cardiovascular Medicine



Jil C. Tardiff, MD, PhD

Professor, Medicine | Cellular and Molecular Medicine Steven M. Gootter Endowed Chair for the Prevention of Sudden Cardiac Death Associate Director, Sarver Heart Center



Sakthivel Sadayappan, PhD

Professor & Department Head, Cellular and Molecular Medicine Associate Director, Sarver Heart Center Czarina M. & Humberto S. Lopez Endowed Chair



Hossein Ardehali, MD, PhD

Associate Dean, Translational Research College of Medicine - Tucson Director, Medical Science Training Program Associate Director, Sarver Heart Center

SHC EXECUTIVE TEAM



Mia Gonzales Administrative Manager & Special Assistant to the Director



Cara Deery, MPH Senior Program Manager, Outreach & Education





Sparking Innovation

Research Faculty & Labs







NEW RESEARCH FACULTY



Tara Tassin, PhD Instructor, Department of Medicine



Luke Szweda, PhD Professor, Medicine



Waleed Elhelaly, MD, PhD Instructor, Department of Medicinew



Iván Menéndez-Montes, PhD

Instructor, Department of Medicine



Ayman Farag, PhD Instructor,

Instructor, Department of Medicine



Asaithamby Aroumougame, MD, PhD





Shibani Mukherjee, PhD Assistant Professor, Medicine



Nicholas Lam, PhD Instructor, Department of Medicine



Hossein Ardehali, MD, PhD

Associate Dean, Translational Research College of Medicine - Tucson Director, Medical Science Training Program Associate Director, Sarver Heart Center





RESEARCH FACULTY



Qin Chen, PhD Professor | Director | Holsclaw Endowed Chair - Pharmacogenomics



Jared Churko, PhD

Associate Professor, Cellular and Molecular Medicine Director, iPSC Core



Brett Colson, PhD

Associate Professor, Cellular and Molecular Medicine



Steven Goldman, MD

Professor, Medicine C. Leonard Pfieffer Chair, Cardiovascular Medicine



Samantha Harris, PhD

Professor, Physiology Associate Professor, Cellular and Molecular Medicine



Henk Granzier, PhD Professor, Cellular and Molecular Medicine | Molecular and Cellular Biology | Physiology Norville Endowed Chair



John Konhilas, PhD

Professor, Physiology Associate Professor, Cellular and I Molecular Medicine | Nutritional Sciences



Shanna Hamilton, PhD

Assistant Professor, Cellular and Molecular Medicine



Mingyu Liang, MB, PhD

Chair, Physiology Director, Molecular Systems Medicine Initiative Professor, Physiological Sciences





RESEARCH FACULTY A TO Z



Coen Ottenheijm, PhD Associate Professor, Cellular and Molecular Medicine



Christopher Pappas, PhD Assistant Research Professor, Cellular and Molecular Medicine



Paolo Pires, PhD Assistant Professor, Physiology | Surgery



Benjamin Renquist, PhD Associate Professor, Animal & Comparative Biomedical Sciences



Casey Romanoski, PhD Associate Professor, Cellular and Molecular Medicine



Nikola Sladojevic, MD, PhD Assistant Research Professor



Marvin Slepian, MD Regents Professor, Medicine | Medical Imaging, Biomedical Engineering



Taejong Song, PhD Assistant Research Professor, Cellular and Molecular Medicine



Craig Weinkauf, MD, PhD Associate Professor, Surgery Member of the Graduate Faculty



Andreia Zago Chignalia, PhD, PharmD

Associate Professor, Physiology | Clinical Translational Sciences





NEW RESEARCH LABS

Ardehali Lab

The Ardehali lab works on two major projects: 1) role of iron in cardiovascular disease and how this element alters the function of immune cells, and 2) how hexokinase enzymes regulate the fate of glucose through their complex structure.

Sadayappan Lab

The Sadayappan lab focuses on the role of myosin binding protein-C (MyBP-C) in the structure, regulation, and function of striated muscles in both cardiac and skeletal tissues.

Aroumougame Lab

The Aroumougame lab studies mechanisms of DNA damage in cardiac pathologies and investigates methods of preventing and reversing DNA damage.

Sadek Lab

The Sadek lab focuses broadly on heart failure, including regulation of cardiomyocyte cell cycle as a path to heart regeneration, and mechanisms and therapeutics of genetic cardiomyopathies.

Szweda Lab

The Szweda laboratory investigates mechanisms by which cardiac glucose and fatty acid oxidation are regulated in response to changes in nutritional status, energetic demand, and time-of-day. These studies provide a foundation for identifying metabolic determinants of heart disease and interventions to promote heart health.





SHC CLINICAL RESEARCHERS



Lizzette Cruz, MS, RN

Associate Director Cardiovascular Clinical Research



Cindy Schrag

Research Specialist, Cardiovascular Clinical Research



Karina Carillo *Clinical Research Coordinator I*



Kitsie Johnson Coordinator, Cardiovascular Research





Lifesaving Care Clinical Faculty







CLINICAL LEADERSHIP



James K. Liao, MD, FACP, FACC Professor, Medicine

Chair, Department of Medicine The Robert S. and Irene Flinn Endowed Chair in Medicine Member of the Graduate Faculty



Hesham A. Sadek, MD, PhD Professor, Medicine | Cellular & Molecular Medicine Chief, Division of Cardiology Director, Sarver Heart Center Allan C. Hudson & Helen Lovaas -Endowed Chair of Cardiovascular Medicine



Mat Hutchinson, MD

Professor Vice Chair, Clinical Operations Director, Cardiac Electrophysiology



Elizabeth Juneman, MD

Professor, Medicine Director, Heart Failure Medical Director, Cardiovascular Service





NEW CLINICAL FACULTY



Hossein Ardehali, MD, PhD

Associate Dean, Translational Research College of Medicine - Tucson Director, Medical Science Training Program Associate Director, Sarver Heart Center



Dexter DeLeon, MD

Assistant Clinical Professor General Cardiology



Iniya Rajendran, MD

Assistant Clinical Professor General Cardiology



Sulaiman Rathore, MD Assistant Clinical Professor Interventional Cardiology





CLINICAL FACULTY CARDIAC ELECTROPHYSIOLOGY



Mat Hutchinson, MD Professor Director, Cardiac Electrophysiology



Julia Indik, MD, PhD Professor



Peter Ott, MD Associate Professor



Talal Moukabary, MD Director, Cardiac Rehabilitation Program Associate Professor



Aadhavi, Sridharan, MD Assistant Professor



Sarah Voll, APP





CLINICAL FACULTY ADVANCED HEART FAILURE



Elizabeth Juneman, MD Professor Director, Advanced Heart Failure & Cardiac Transplant Medical Director, Cardiovascular Service



Deepak Acharya, MD Professor



Sharon Gregoire, APP



Saad Kubba, MD Assistant Professor



Alexandra McGlamery, APP Sharon Powell, APP



Juvel-lou Velasco, NP



Anne P. Flanagan, APP







CLINICAL FACULTY INTERVENTIONAL CARDIOLOGY



Madhan Sundaram, MD Associate Professor Director, Interventional Cardiology



Deepak Acharya, MD Professor



Arka Chatterjee, MD Associate Professor



Michel Corban, MD Associate Professor



Craig Hoover, MD *Clinical Assistant Professor*



Allison Klatt, FNP



Keng Pineda, MD Assistant Professor



Nanda Pullela, MD Assistant Professor



Ravi Vuthoori, MD Assistant Professor







Tushar Acharya, MD Assistant Professor Director, General Cardiology



Joseph Alpert, MD Professor



Olivia Hung, MD, PhD Associate Professor



Amitoj Singh, MD Assistant Professor



Gerald Wolff, MD Associate Professor



Satinder Singh, MD Assistant Professor



Jerome Yatskowitz, MD Associate Professor



Rajesh Janardhanan, MD Professor Director, Cardiovascular Imaging



Marvin Slepian, MD Professor



Judith Lyle, FNP Rachel Ramirez, AGACNP



Saad Kubba, MD Assistant Professor



Jil Tardiff, MD, PhD Professor







CLINICAL FACULTY CARDIOTHORACIC SURGERY



Scott Silvestry, MD, FACS Clinical Associate Professor Division Chief, Cardiothoracic Surgery



Kenneth Fox, MD, FACS Clinical Associate Professor



Jonathan Rice, MD, PhD Clinical Assistant Professor



Toshinobu Kazui, MD, PhD Associate Professor



Praveen Sridhar, MD Clinical Assistant Professor



Christopher Komanapalli, MD

Clinical Associate Professor



Stephanie Worrell, MD, FACS Associate Professor





DEPARTMENT OF MEDICINE EXECUTIVE TEAM



Pat Chen

Department Administrator



Cynthia Campas Associate Administrator



Nicole Contreras Division Manager



Naphtali Kahl Director, Cardiology Banner



Scott Hall Associate Director, Clinical Division - Banner Endocrinology, Nephrology, and Cardiology

CARDIOLOGY ADMINISTRATIVE SUPPORT STAFF



Dawn Henderson Administrative Staff Lead



Tonya Carney Office Coordinator Banner



Leilani Garcia Administrative Assistant Banner



Veronica Meredith Administrative Assistant Banner

COLLEGE OF MEDICINE - TUCSON FINANCE AND BUSINESS AFFAIRS PODS - SARVER HEART CENTER TEAM



Christa Hamilton Administrative Operations Manager



Laura Doerr Admnistrative Support Assistant







CLINICAL EXCELLENCE







INCREASE IN ADVANCED HEART FAILURE REFERRALS 120%

MCREASE IN LVAD/DURABL

90.3%

PROVIDER LIKELIHOOD TO RECOMMEND 16

AVG HOURS TO ECHOCARDIOGRAPH TURNAROUND





CLINICAL EXCELLENCE

GENERAL CARDIOLOGY

- Opening of Tanque Verde Cardiology Clinic including echo services.
- 33,000 clinic visits in 2024
- Over 600 new patient visits per month



ECHO

- 10% increase in echo lab volumes as compared to prior year.
- Record setting monthly > 1000 echo performed in March 2025.
- Perform most echos annual in Banner system annually.
- Expanded echo services to multiple ambulatory sites in Southern Arizona.
- Complete upgrade of software and all new hardware at all Banner sites in Southern Arizona

INTERVENTIONAL CARDIOLOGY

- 28% increase in total cath lab volumes as compared to prior year.
- Opening of Cardiovascular Ambulatory Surgery Center
- Increase in transvalvular aortic valve replacement (TAVR) (109 vs. 94) and mitral valve clip (25 vs. 6) volumes with strong clinical outcomes and star ratings.
- Increased cath cases at South Campus with plan to hire dedicated staff in 2025.

CLINICAL ACHIEVEMENTS

Dr. Arka Chatterjee completed the first TriClip (Tricuspid Clip) procedure.

Extracorporal mechanical oxygenation (ECMO) program lead by Dr. Deepak Acharya recognized for best outcomes in Banner system. ECMO is a life support technology that provides temporary assistant to heart and lungs when they are unable to function properly.





CLINICAL EXCELLENCE



ELECTROPHYSIOLOGY

- Increase in year-over-year ablation volume 22% for 2023 and 48% for 2024.
- EP exceeded 7500 ambulatory visits at North and 3 outreach clinics
- Increased growth in 3 ambulatory device clinics
- First pulsed field AF ablation in Tucson April 2024
- First atrial leadless and dual chamber leadless pacemakers in Tucson March 2025



ADVANCED HEART FAILURE

- Largest comprehensive CardioMems program in Arizona.
- Initiation of comprehensive barostimulator program in Southern Arizona
- Increase in Advanced Heart Failure referrals (43% increase) and ambulatory clinic visits for heart failure (114% growth)
- Increase in Durable MCS / LVAD referrals (120 % increase)



PREVENTIVE CARDIOLOGY

- 5% increase ini cardiac rehab volume as compared to prior year.
- 600–700 visits/month, sustaining high clinical throughput.
- Productivity consistently >100%, indicating full operational capacity and high demand.



CLINICAL PROMOTIONS

- Dr. Elizabeth Juneman was promoted to Professor, Clinical Scholar
- Dr. Michel Corban was promoted to Associate Professor, Clinical Scholar
- Dr. Olivia Hung was promoted to Associate Clinical Professor





Advancing Science Research

Publications







FY25 PUBLICATIONS

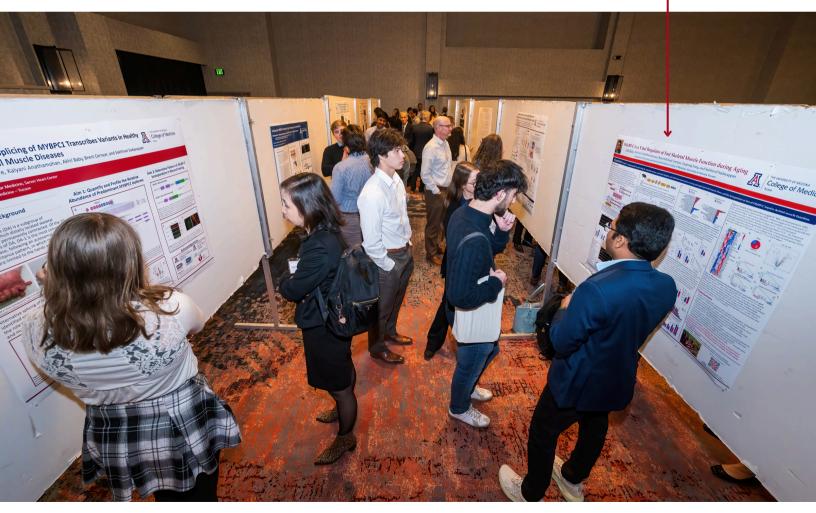
118 TOTAL PUBLICATIONS HIGHLIGHTS INCLUDE:

- 1. Awad, I. A., Alcazar-Felix, R. J., Stadnik, A., Kinkade, S., Jhaveri, A., Lee, J., Liao, J. K., ... Hanley, D. F. (2025). Safety and efficacy of atorvastatin for rebleeding in cerebral cavernous malformations (AT CASH EPOC): a phase 1/2a, randomised placebo-controlled trial. The Lancet Neurology, 24(4), 295–304. https://doi.org/10.1016/S1474-4422(25)00036-5 (*Impact Factor: 46.5*)
- 2. Butters, A., Thomson, K., Harrington, F., Henden, N., McGuire, K., Byrne, A. B., Tardiff, J. C., ... Ingles, J. (2025). A rare splice-site variant in TNNT2: the need for ancestral diversity in genomic reference data sets. European Heart Journal. Advance online publication. https://doi.org/10.1093/eurheartj/ehaf001 (Impact Factor: 38.1)
- 3. Fahim, S. A., Ragheb, M., Fayed, I. H., Osama, A., Karam, A., Magdeldin, S., Sadek, H. A., ... Abdelaziz, A. I. (2025). Interaction Between Malat1 and miR-499-5p Regulates Meis1 Expression and Function with a Net Impact on Cell Proliferation. Cells, 14(2), 125. https://doi.org/10.3390/cells14020125 (Impact Factor: 66.9)
- 4. Lancaster, J. J., Grijalva, A., Fink, J., Ref, J., Daugherty, S., Whitman, S., ... Goldman, S. (2023). Biologically Derived Epicardial Patch Induces Macrophage Mediated Pathophysiologic Repair in Chronically Infarcted Swine Hearts. Nature Biologic Communications. Advance online publication. https://doi.org/10.1038/s42003-023-05564-w (Impact Factor: 5.9)
- 5. French, S. R., Meyer, B. P., Arias, J. C., Levendovzsky, S. R., & Weinkauf, C. C. (2025). Biomarkers of blood-brain barrier and neurovascular unit integrity in human cognitive impairment and dementia. Alzheimer's & dementia : the journal of the Alzheimer's Association, 21(3), e70104. https://doi.org/10.1002/alz.70104 *(Impact Factor: 16.7)*
- 6. Van der Pijl R. J., Ma W., Lewis C. T. A., Haar L., Buhl A., Farman G. P., Rhodehamel M., Jani V. P., Nelson O. L., Zhang C., ... Granzier, H. (2024) Increased cardiac myosin super-relaxation as an energy saving mechanism in hibernating grizzly bears. Mol Metab 92: 102084 Doi 10.1016/j.molmet.2024.102084 (*Impact Factor: 7.0*)
- 7. Tryon, D., Corban, M. T., Alkhouli, M., Prasad, A., Raphael, C. E., Rihal, C. S., Reeder, G. S., Lewis, B., Albers, D., Gulati, R., & Lerman, A. (2024). Coronary Sinus Reducer Improves Angina, Quality of Life, and Coronary Flow Reserve in Microvascular Dysfunction. JACC. Cardiovascular interventions, 17(24), 2893–2904. https://doi.org/10.1016/j.jcin.2024.09.018 (Impact Factor: 11.7)
- 8. Sukhavasi, K., Mocci, G., Ma, L., Hodonsky, C. J., Diez Benevante, E., Muhl, L., Liu, J., Gustafsson, S., Buyandelger, B., Koplev, S., Lendahl, U., Vanlandewijck, M., Singha, P., Örd, T., Beter, M., Selvarajan, I., Laakkonen, J. P., Väli, M., den Ruijter, H. M., Civelek, M., Romanoski, C.,... Björkegren, J. L. M. (2025). Single-cell RNA sequencing reveals sex differences in the subcellular composition and associated gene-regulatory network activity of human carotid plaques. Nature cardiovascular research, 4(4), 412–432. https://doi.org/10.1038/s44161-025-00628-y (*Impact Factor: 9.4*)
- 9. Silva, J. F., Polk, F. D., Martin, P. E., Thai, S. H., Savu, A., Gonzales, M., Kath, A. M., Gee, M. T., & Pires, P. W. (2025). Sex-specific mechanisms of cerebral microvascular BKCa dysfunction in a mouse model of Alzheimer's disease. Alzheimer's & dementia : the journal of the Alzheimer's Association, 21(2), e14438. https://doi.org/10.1002/alz.14438 (Impact Factor: 13)
- 10. Liu, Y., Yi, J., Wu, P., Zhang, J., Li, X., Li, J., Zhou, L., Liu, Y., Xu, H., Chen, E., Zhang, H., Liang, M., Liu, P., Pan, X., & Lu, Y. (2024). Wemics: A Single-Base Resolution Methylation Quantification Method for Enhanced Prediction of Epigenetic Regulation. Advanced science (Weinheim, Baden-Wurttemberg, Germany), 11(21), e2308884. https://doi.org/10.1002/advs.202308884 (Impact Factor: 14.1)





Advancing Science Scientific Education Programs









Myofilament Meeting

The 16th biennial meeting took place in Madison, Wisconsin, supported by the Sarver Heart Center's Molecular Cardiovascular Research Program. SHC faculty members Henk Granzier, PhD, Brett Colson, PhD, Jil Tardiff, MD, PhD, and 17 SHC trainees were selected to present at the meeting. As outgoing director, Rick Moss, PhD, appointed Dr. Granzier to lead future meetings, which will now be hosted in Tucson by the Sarver Heart Center.



Stanford-Morehouse-UAB-UA Symposium

The 2024 Stanford-UAB-Morehouse-UA Cardiovascular Research Symposium united researchers, clinicians, and trainees to share cutting-edge advancements in cardiovascular science at Stanford University. Six University of Arizona researchers presented, including Michael Abecassis, MD, Dean of the College of Medicine – Tucson, Jim Liao, MD, Chair of the Department of Medicine, Hesham A. Sadek, MD, PhD, Director of the Sarver Heart Center, Jil Tardiff, MD, PhD, Associate Director of the Sarver Heart Center, and others. The event fostered collaboration and mentorship for early career investigators across institutions.





Inaugural Cardiovascular Research Symposium



The inaugural **Sarver Heart Center Cardiovascular Research Symposium** showcased groundbreaking research with expert speakers from the University of Arizona, UT Southwestern, and CNIC Madrid. Through lectures and poster presentations, the event promoted collaboration and advanced dialogue in cardiovascular science, propelling the Sarver Heart Center into a new chapter of scientific leadership under Dr. Hesham A. Sadek's direction.

The event included:

- 118 attendees
- Opening Keynote event featuring one-hour talk from UT Southwestern's Eric Olson, PhD, with introductory remarks from Dean Michael Abecassis, MD, MBA, hosted at UArizona Health Sciences Innovation Building
- Talks from 18 speakers from UA, UTSW, and Spanish National Center for Cardiovascular Research
- Poster session featuring 54 trainees and early career investigators
- Guided hike with Henk Granzier, PhD, through Sabino Canyon
- · Conference dinner for speakers and special guests





Sarver Grand Rounds

In January 2025, Sarver Heart Center Grand Rounds was revitalized by the fellows and fellowship program coordinator, featuring internal speakers to present 60-minute CME sessions on various topics in cardiology. This program provides opportunities for faculty and trainees to hone their presentation skills while deepening their knowledge on cardiovascular topics by learning from their colleagues.

Schedule of Presenters:

- 7-Jan: QI/MM, Dr. Rajendran
- 14-Jan: The Hope and Hype of Heart Regeneration, Dr. Sadek
- 21-Jan: Statistics: Basic Concepts and Testing, Dr. Indik.
- 28-Jan: Transcatheter Aortic Valve Replacement and Conduction Abnormalities, *Fellow Josh Epstein*
- 11-Feb: Cancer Therapeutics Related Cardiac Dysfunction, Fellow Matthew Wu
- 18-Feb: Outcomes of Anticoagulation in Post Operative Atrial Fibrillation following Non-Cardiac Surgery, *Fellow Abdul Olagunju*
- 25-Feb: NSTEMI in elderly presentation, Fellow Alvaro Altamirano Ufion
- 4-Mar: Basics of Regression Analysis, Dr. Indik
- 11-Mar: Presenting at Journal Club, Fellow Christy Lougheed
- 25-Mar: Carotid artery pathology/PAD, Dr. Zhou
- 1-Apr: New Treatment for Heart Failure: Immune Modulation, Dr. Goldman
- 8-Apr: Hypertrophic Cardiology in 2025: Linking Molecular Mechanisms to Patient Management - the Search for Novel Targets, *Dr. Tardiff*
- 15-Apr: Sarver Grand rounds lecture, Fellow Pallabi Shrestha
- 22-Apr: Sleep disorders and cardiovascular disease, Dr. Salma Patel
- 29-Apr: Peripartum Cardiomyopathy, Dr. Juneman
- 6-May: Pulmonary disorders impacting CV system, Dr. Richard
- 13-May: CTEPH, Dr. Seckler
- 20-May: Image QI/MM, Dr. Rajendran
- 27-May: Imaging QI, Dr. Richard





MCRP: Molecular Cardiovascular Research Program



Henk Granzier, PhD Director, MCRP

The **Molecular Cardiovascular Research Program (MCRP) focuses** on advancing knowledge of the biological and molecular mechanisms underlying heart and skeletal muscle function, cardiovascular disease, and related conditions. Founded in 2006, MCRP operates from the 3rd floor of the Medical Research Building on the Arizona Health Sciences Center Campus. The program emphasizes both basic and translational research, striving to transform scientific discoveries into clinical applications to improve the treatment and prevention of cardiovascular diseases.

In its collaborative "open-lab" environment, researchers employ a wide range of interdisciplinary methods, including Developmental Biology, Cellular, and Molecular Biology, Biophysics, Physiology, Genetics, Bioengineering, Proteomics, live-cell imaging, and computational biology.

MCRP integrates its expertise with other leading research entities at the University of Arizona, including the Sarver Heart Center, the BIO5 Research Institute, and various departments within the Arizona Health Sciences Center.

MCRP provides a robust training environment for undergraduates, medical students, graduate students, postdoctoral fellows, and residents. Its research is supported by the National Institutes of Health (10 R01 grants, F31/32), the American Heart Association (preand post-doctoral training grants, career development grants), private donations, and other granting agencies.

MCRP Research Labs:

Churko | Colson | Granzier | Hamilton | Harris | Konhilas | Ottenheijm Pappas | Sadayappan | Tardiff

MCRP Core Facilities:

- University of Arizona Phenotyping Core (UAPC): provides resources to investigate phenotypes of genetically altered animal models of disease. The phenotyping core offers investigators full-service support of in vivo cardiovascular and physiology studies. Dr. Marloes van der Berg is the scientist who runs the core.
- Genetic Engineering of Mouse Models (GEMM) Core: provides full service Gene to Whiskersmouse genetic engineering services to MCRP researchers and beyond. As a full-service University Core, the GEMM Core provides guide RNA or vector design & construction, prior to production of the mice. Dr. Georgiva is the scientist who runs the core.
- Viral Vector Core (VCC): functions as a full-service unit for construct design and production, viral purification and titer quantification. It produces custom recombinant adenovirus, adeno-associated virus, and lentivirus. The core provides specialized knowledge and skills, and offers access to gene transfer, from isolated primary cell to whole animal levels. The core is run by a dedicated PhD-level Research Specialist (**Dr. Olga Alekhina**).





SHC SCIENTIFIC ADVISORY BOARD



Roger Hajjar, MD Harvard Medical School



Litsa Kranias, PhD University of Cincinnati College of Medicine



Leslie Leinwand, PhD University of Colorado Boulder



Elizabeth McNally, MD, PhD Northwestern University



Eric Olson, PhD UT Southwestern Medical Center



Joe Wu, MD, PhD Stanford Medicine





Educating Leaders

Cardiovascular Fellowship Programs







Program Overview:

• Cardiovascular Disease:

- Three-year program established in 1988
- 18 current fellows

• Interventional Cardiology

- One-year program established in 2003
- 2 current fellows

• Clinical Cardiac Electrophysiology

- Two-year program established in 2017
- 1 fellow

Advanced Cardiovascular Imaging

- One-year program established in 2024
- 1 fellow

Program Lead:



Christeana B. Castro Lead, Medical Education Program Program Coordinator, Cardiovascular Disease Fellowship





New Fellowship Leadership Team

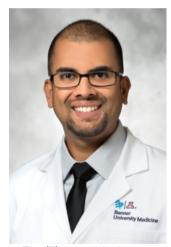
2024 saw revitalization of the cardiology fellowship program, with new leadership under **Dr. Madhan Sundaram**, the launch of the new Sarver Grand Rounds, and a restructuring of the fellowship training program to include built-in research rotations for all fellows. **Associate Directors, Dr. Julia Indik and Dr. Tushar Acharya,** are launching new educational opportunities, with Dr. Acharya heading a new Advanced Cardiovascular Imaging Fellowship program, which will train one advanced imaging fellow annually.



Dr. Madhan Sundaram Program Director, Cardiology Fellowship



Dr. Julia Indik Associate Director, Cardiology Fellowship



Dr. Tushar Acharya Associate Director, Cardiology Fellowship



Dr. Deepak Acharya

Dr. Deepak Acharya has started a Research Initiative to create a centralized repository for all current and upcoming research projects. This initiative aims to facilitate easy access for staff and fellows, enabling them to quickly identify available research opportunities.





Incoming Match Class

New Matches:

In the 2024 fellowship match, the Sarver Heart Center recruited top candidates, including 3 MD, PhD physician-scientists. Overall, the program enrolled 9 new fellows in general cardiology, interventional cardiology and cardiovascular imaging.

Cardiovascular Disease: 6 fellows

- Song Peng Ang, MD from Rutgers Health/Community Medical Center, Toms River, NJ
- Wisam Beauti, MD from University of Cincinnati, Cincinnati, OH
- Ikeotunye Chinyere, MD, PhD from University of Arizona, College of Medicine Tucson
- Ajay Kerai, MD from MedStar Health/Georgetown-Washington Hospital Center Program, Washington, DC, University of Alabama at Birmingham Hospital, Birmingham, AL (Advanced Heart Failure and Transplant Cardiology fellowship)
- Gargya Malla, MBBS, PhD, MPH from University of Arizona, College of Medicine Tucson
- Simar Singh, MD, PHD, MS from University of Arizona, College of Medicine Tucson

Interventional Cardiology: 2 fellows

- Muhammad Ijaz Pervez, MBBS- from University of Arizona, College of Medicine Tucson
- Sanjay Polisetty, MBBS from University of Arizona, College of Medicine Tucson

Advanced Cardiovascular Imaging: 1 fellow

• Khurram Butt, MBBS - from University of Arizona, College of Medicine - Tucson





Current Fellows

36

Cardiovascular Diseases: PGY 4



Alvaro Altamirano Ufion, MD Han Hanh, MD

from Advocate Illinois Masonic Medical Center, Chicago, IL



Pallabi Shrestha, MD

from University of Arizona, College of Medicine - Tucson



from University of Arizona,

College of Medicine - Tucson

Matthew Wu, MD from University of Washington, Seattle, WA

Cardiovascular Diseases: PGY 5



Joshua Epstein, MD from University of Utah, Salt Lake City, UT



Dennis Fong, MD I from University of Arizona, College of Medicine - Tucson



Heidi Messiha, MD

from Medical College of Wisconsin Affiliated Hospitals, Milwaukee, WI



Mahima Zandu, MBBS from University of Arizona College of Medicine- Tucson



Bryant Hammershaimb, MD

from Kaiser Permanente Los Angeles Medical Center, Los Angeles, CA





Current Fellows

Cardiovascular Diseases: PGY 5







Nathaniel Kim, MD from Northwest Georgia Medical Center, Gainesville, GA

Christy Lougheed, MDAbdulbaril Olagunju, MDfrom University of Arizona,
College of Medicine - Tucsonfrom Creighton University
School of Medicine, Phoenix,
AZ

Cardiovascular Diseases: PGY 6



Joshua Beverly, MD

from Harbor-UCLA, Torrance, CA



Sanjay Polisetty, MBBS

from University of Arizona, College of Medicine - Tucson



Khurram Butt, MBBS Muhammad Ijaz Pervez, MBBS

from Advent Health Orlando, from Jacobi Medical Center/Albert Orlando, FL Einstein College of Medicine





Sharanyah Srinivasan, MBBSSai Vanam, MDfrom University of Arizona,
College of Medicine - Tucsonfrom University of California
San Diego, San Diego, CA







Current Fellows

38

Interventional Cardiology



Seyedeh Maryam Hosseini, MD

from University of Arizona, College of Medicine - Tucson & Fellowship – Mayo Clinic, Phoenix, AZ

Clinical Cardiac Electrophysiology



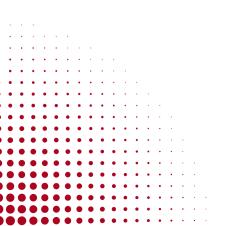
D Kishor Khanal, MD

from Advent Health Orlando, Orlando, FL & Memorial HealthCare System, Hollywood, FL



Jacob Klewer, MD from University of Utah, Salt Lake City, UT & University of Arizona, College of Medicine – Tucson

Advanced Cardiovascular Imaging





Iniya Rajendran, MBBS, MPH

from Boston Medical Center, Boston, MA & University of Arizona, College of Medicine - Tucson





Graduating Class:

Next Steps

Cardiovascular Disease:

- **Dr. Joshua Beverly** will pursue interventional cardiology fellowship training at Johns Hopkins University School of Medicine
- **Dr. Khurram Butt** will pursue advanced cardiovascular imaging fellowship training at the University of Arizona, College of Medicine Tucson
- Dr. Muhammad Ijaz Pervez will pursue interventional cardiology fellowship training at the University of Arizona, College of Medicine Tucson
- **Dr. Sanjay Polisetty** will pursue interventional cardiology fellowship training at the University of Arizona, College of Medicine Tucson
- **Dr. Sharanyah Srinivasan** will join the General Cardiology faculty at Banner University Medical Center South
- Dr. Sai Vanam will join the General Cardiology faculty at Novant Hospital, Charlotte, NC

Interventional Cardiology:

- Dr. Seyedeh Maryam Hosseini will join the Interventional Cardiology faculty at Kaiser Hospital, Santa Rosa, CA
- **Dr. Kishor Khanal** will pursue structural fellowship training at Oregon Health and Science University, Portland, OR

Advanced Cardiovascular Imaging:

• Dr. Iniya Rajendran will join the Non-invasive General Cardiology faculty at Washington State





Recognizing Success Felows Awards



The winning team and their supporters: Drs. Muhammad "Ijaz" Pervez (far left), Khurram Butt (far right), and Abdulbaril Olagunju (second from right); joined by Sharanyah Srinivasan, MBBS, and Iniya Rajendran, MBBS, MPH.

The University of Arizona Division of Cardiology fellows team achieved notable success in the 2025 American College of Cardiology (ACC) Fellows-in-Training (FIT) Jeopardy competitions.

In January, the team - comprising Drs. Khurram Butt, Abdulbaril Olagunju, and Muhammad "Ijaz" Pervez secured first place at the ACC Arizona Chapter FIT Jeopardy competition in Phoenix, outperforming other general cardiovascular fellowship teams in the state.

Their victory qualified them to represent Arizona at the national **ACC.25 FIT Jeopardy** competition held in March in Chicago. There, they advanced to the final round and finished as runners-up.

This accomplishment highlights the team's dedication and the strength of the University of Arizona's cardiology training program.











GRANT FUNDING

\$51,076,952.00 GRANT SUPPORT RECEIVED.

BASIC AND TRANSLATIONAL RESEARCH

\$156,913 GRANT SUPPORT RECEIVED, CLINICAL RESEARCH

MAJOR SOURCES OF FUNDING:

- NATIONAL INSTITUTES OF HEALTH
- AMERICAN HEART ASSOCIATION
- FOUNDATIONS AND TRUSTS
- INDUSTRY

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Philanthropy Fuels Wonder



In 2025, over \$10.8 million was raised to support Sarver Heart Center activities through the generosity of our local donors.

We are deeply grateful to our donors, who have supported the Sarver Heart Center for over 40 years, and are continuing to support our research and education missions. It is not an exaggeration to say that the Sarver Heart Center would not exist without their generous support, which is even more critical now during these uncertain times for biomedical research

\$10,858,130 DONOR CONTRIBUTIONS IN FY25





Giving Back to Science



From left, Dean Michael Abecassis, Ginny L. Clements, Tom Rogers, Director Hesham Sadek, and Humberto "Bert" S. Lopez

The Sarver Heart Center has entered a **bold new chapter** - one defined by collaboration, innovation, and a relentless pursuit of excellence in cardiovascular science. We are incredibly thankful to our donors for their continual support of our mission.

We are also proud to announce the **inaugural Jack Sarver Prizes in Clinical Science and Basic Science.** These awards support scientific advancement for a future free of heart disease by awarding funds to leading researchers in cardiovascular medicine and basic science research.

Jack Sarver Prize in Clinical or Basic Science:



- These awards support independent cardiovascular researchers actively working in the fields of basic and clinical cardiovascular science.
- Awards includes \$3,500 honorarium and \$25,000 awarded to winners' institutions. Each runner up receives a \$1,200 honorarium and an engraved plaque.
- **To apply:** interested applicants should visit **www.heart.org** and search for the relevant Jack Sarver Prize for application instructions, deadlines, and more.





Engaging Communities

Community Outreach







Leading the Way in CPR

In 2003, researchers at the Sarver Heart Center pioneered chest-compression-only CPR, a lifesaving technique now recognized by the American Heart Association as the gold standard for bystander response.

Building on this legacy, our Center continues to lead impactful CPR education and outreach efforts across Arizona. Through community partnerships and public training events, we are committed to empowering individuals with the skills and confidence to save lives.

Leveraging partnerships with student groups at the University of Arizona- including the medical student-led group **REACT** (Resuscitation Education and CPR Training) and CPR trainers from **UA EMS**- the Sarver Heart Center provides free education throughout Greater Tucson, resulting in reports of lives saved with bystander intervention each year. Our partnership with the Tucson Roadrunners Hockey Team has included participation at their annual First Responders Night (seen above) where thousands have the opportunity to learn and practice hands-only CPR.

In 2025, the SHC will team up with the Southern AZ American Heart Association to develop cardiac emergency preparedness plans and train lifesavers at all 437 schools in Greater Tucson.





Lauren Heathcock, MS1 REACT Co-President, FY25



Jasmine Cooper, MS1 REACT Co-President, FY25

REACT (Resuscitation Education and CPR Training Group) is a student-led organization at the University of Arizona College of Medicine – Tucson, dedicated to providing free CPR training to the community. Supported by faculty advisor **Dr. Dan Beskind, MD, MPH**, who joined the UA Department of Emergency Medicine in 2002, REACT promotes life-saving skills throughout Southern Arizona to increase emergency preparedness. Dr. Beskind, a member of the Sarver Heart Center Resuscitation Research Group, helped discover chest-compression-only CPR in 2003. As an associate professor, EMS Director for Banner-UMC South Base Hospital, and Medical Director for Arizona Ambulance, Dr. Beskind also oversees REACT, guiding student leaders like Lauren and Jasmine who champion the Sarver Heart Center's mission to reduce sudden cardiac death. Through REACT, medical students gain valuable experience interacting with the community, fostering a culture of preparedness and engagement.



A Daniel Beskind, MD, MPH, FACEP Faculty Advisor, REACT Associate Professor EMS Director, Banner-UMC South Base Hospital Medical Director, Arizona Ambulance







Community Engagement

May 2024:

• 2024 American Heart Association Heart Walk: 25 Sarver Heart members walked to promote cardiovascular research and show their support of the AHA

• Heart Healthy Camp for Kids: SHC taught heart health basics to summer campers at the Tucson Village Farm. June 2024:

- **Dr. Karl Kern on KVOA:** Sarver Heart Center member and co-founder of chest-compression only CPR, Dr. Karl Kern, interviewed on KVOA to share the lifesaving skill with the Greater Tucson community.
- Dr. Ike Chinyere at AHA Breakfast in Red: COM-T Resident and SHC research collaborator Ike Chinyere, MD, PhD, was a featured speaker at the 2024 Southern Arizona AHA Breakfast in Red, presenting "Updates in Cardiac Technology".

October 2024:

• **SHC at AHA STEM goes Red:** SHC provided an interactive exhibit at a STEM event for high school girls at Pima Community College to increase awareness and interest in STEM careers.

November 2024:

• Free CPR for UA Employees: SHC collaborators in REACT taught CPR to roughly 50 UA employees December 2024:

- AHA Circle of Red Tour: special tour developed for AHA Circle of Red donors to introduce Sarver Heart Center Director, priority areas, and key researchers, including Chair of Department of Medicine.
- Free CPR Training for Gootter-Jensen Foundation AED Donation Recipients: REACT CPR trainers offered free CCO CPR training to 3 organizations receiving AED donations from the Gootter-Jensen Foundation.

January 2025:

- Southern AZ AHA Heart Ball: the Sarver Heart Center purchased 2 tables, donating \$10,000 to the AHA. SHC clinicians, researchers, and staff attended the event to show support for the AHA and its initiatives.
- Arizona Horizon Interview: Dr. Sadek appeared live on Arizona Horizon at 5 PM and 10 PM from the PBS Studio at ASU's downtown Phoenix campus, Walter Cronkite School of Journalism. During the interview, he discussed his current research at the University of Arizona Sarver Heart Center.



Cardiology fellow Dr. Sharanyah Srinivasan teaches chest-compression only CPR to high school students at Pima Community College





Community Engagement, Continued

February 2025:

- National Wear Red Day: Sarver Heart Center members dressed up in red to show their support for cardiovascular research and the American Heart Association's mission to cure heart disease.
- John Konhilas, PhD at Foothills Forum: Dr. John Konhilas, a member of the SHC Molecular Cardiovascular Research Program, presented research on cardiovascular disease and the microbiome at the Foothills Forum, a Tucson church-based group of senior men.
- SHC at Fuel Wonder: Researchers from the Sadek Lab and Dr. Sadek shared groundbreaking insights on cardiac regeneration with community members in Scottsdale, AZ at this Development event hosted at the Phoenix Biltmore Hotel.
- Sarver Steppers at La Encantada: the Sarver Heart Center launched a walking group in partnership with La
 Encantada Shopping Center, providing a safe and accessible exercise opportunity for Tucson community
 members. The group features regular "Doc Walks", enabling participants to connect and learn from SHC
 cardiologists in an informal setting.

March 2025:

- Luke Szweda, PhD at Green Valley Recreation: Dr. Szweda presented "Daily Rhythms in Cardiac Metabolism" at the Green Valley Recreation Center during a free event for adults 55 and older to learn about preventing heart disease.
- SHC at Roadrunners First Responders Night: the Sarver Heart Center joined REACT CPR trainers at the Tucson AHL Roadrunners annual First Responders Night for the third consecutive year to lead hands-on CPR training. A video demonstration of CCO CPR by Dr. Karl Kern was screened on the Jumbotron between periods. Estimated reach: 3,500
- **CPR at Tucson Festival of Books:** the Sarver Heart Center joined REACT CPR trainers at the annual Tucson Festival of Books, an event that attracted 130,000 visitors, to lead hands-on CPR training. An estimated 500 people were trained in CPR and AED implementation.
- Raj Janardhanan, MD at Sarver Steppers Doc Walks: (March 28th, 2025) SHC member and cardiologist, Dr. Rajesh Janardhanan, will host Doc Walks for the SHC walking group, the Sarver Steppers at La Encantada Shopping Center.



Luke Szweda, PhD presents on daily rhythms in cardiac metabolism at Green Valley Recreation Center

Community Engagement, Continued

April 2025:

- AHA Breakfast in Red: Shanna Hamilton, PhD gave a keynote talk on her research and career as a woman in STEM for community leaders at this annual AHA event.
- 2025 Southern Arizona AHA Heart Walk: Sarver Heart members walked to promote cardiovascular research and show their support of the AHA.

Shanna Hamilton, PhD, gave the keynote talk at the 2025 AHA Breakfast in Red

FUTURE DIRECTIONS:

- Arizona Heart Study: modeled after the Dallas Heart Study, the Arizona Heart Study is a planned, population-based research initiative aiming to uncover genetic, environmental, and social determinants of cardiovascular disease across diverse communities in Arizona.
- **New Partnerships:** SHC will collaborate with faculty at the College of Public Health and the Andrew Weil Center for Integrative Medicine on impactful new health programs.
- Edge Learning: Cara Deery, MPH, is collaborating with MEZCOPH's Bridget Murphy, PhD, REACT (including faculty advisor, Dan Beskind, MD, MPH), and UA EMS to develop a free online training module integratings Stop the Bleed, Narcan, and CPR/AED implementation. This training will be available to all University affiliates, enhancing emergency preparedness across Arizona and potentially nationwide.
- South Asian Community Outreach: Dr. Hesham Sadek, Dr. Sakthivel Sadayappan, and Cara Deery, MPH, will develop targeted heart health promotion strategies for the South Asian community in Southern Arizona, who face elevated risk for cardiovascular disease.











Faculty & Staff Awards



Standing alongside Dean Michael Abecassis, Bert and Czarina Lopez, Dr. Sadayappan was named the Humberto and Czarina Lopez Endowed Chair for Excellence in Cardiovascular Research





Jil Tardiff, MD, PhD recognized as AAAS Fellow



Jil Tardiff, MD, PhD Associate Director, Sarver Heart Center

Dr. Jil C. Tardiff, Professor of Biomedical Engineering, Professor of Medicine, and Steven M. Gootter Endowed Chair for the Prevention of Sudden Cardiac Death, was named a Fellow of the American Association for the Advancement of Science (AAAS) as part of its 2024 class. This prestigious recognition is awarded by the world's largest general scientific society, which also publishes the Science family of journals.

Dr. Tardiff, who also holds a secondary appointment in the College of Medicine - Tucson and maintains an active clinical practice, was honored for her pioneering research into the molecular mechanisms of hypertrophic cardiomyopathy - a genetic heart condition that can lead to heart failure and sudden cardiac death.

"One of the greatest mysteries of hypertrophic cardiomyopathy has always been understanding how genetics result in this complex, progressive disorder," Dr. Tardiff noted.

She is one of four University of Arizona faculty members named AAAS Fellows in 2024.





Faculty Awards

- Tushar Acharya, MD, MSPH received the 2025 College of Medicine Faculty Mentoring award and the 2024 Consult Attending of the Year award
- Joseph Alpert, MD earned the title of lifetime Fellow of the Royal Society of Medicine, London and was elected to the Chairman's Leadership Committee, Department of Medicine, University of Arizona
- Khurram Butt, MD was the winner of ACC Jeopardy Arizona, representing Arizona at the national ACC Jeopardy, Chicago 2025
- Michel Corban, MD was recognized as #6 scholar worldwide in endothelial dysfunction by ScholarGPS
- Steven Goldman, MD, had his lab featured in the Arizona Daily Star article "UA Jumps in Ranking for Inventions Leading to Patents" for contributions to innovation of cardiac patch, and was also recognized for excellence in mentorship through "Student Contributions to Science" initiatives
- Elizabeth Juneman, MD, was recognized as a Tucson Top Doctor for the 8th year in a row
- Henk Granzier, PhD, earned the Marion J. Siegman Annual Award Lectureship at the American Physiology Summit in Long Beach, CA and was the 2024 Founders Day Speaker, College of Medicine Tucson
- Shanna Hamilton, PhD, was made Co-Chair of the Cardiac Muscle Society Early Career Committee, the keynote speaker at the AHA Southern Arizona Breakfast in Red, and will mentor, Cole Bauer, an undergraduate student winning a spot on the AHA SURF program for a paid summer fellowship. He will present his work at the international AHA BCVS conference in July.
- Raj Janardhanan, MD, MRCP, FACC, FASE was the 2024 American Society of Echocardiography Social Media Champion





Awards, Continued

FACULTY AWARDS, CONTINUED:

- **Talal Moukabary, MD,** delivered the 2024 keynote lecture at the American Society for Cardiovascular and Pulmonary Rehabilitation
- Nicholas Lam, PhD, earned the American Heart Association Second Century Early Faculty Independence Award
- **Paolo Pires, PhD,** mentored researcher Felipe Polk, a PhD candidate who won the Best Graduate Student Abstract Award at the 2024 North American Vascular Biology Organization (NAVBO) Annual Conference in Monterey, CA
- Amitoj Singh, MD, was selected as Arizona leader on INCAPS 4 study, International Atomic Energy Aency and earned the title of Fellow of the American College of Cardiology
- Marvin Slepian, MD, PhD, earned the University Distinguished Innovation & Entrepreneurship Award from Interim Provost Marx
- Jil Tardiff, MD, PhD, was elected a Fellow of the American Association for the Advancement of Science (AAAS)

STAFF AWARDS

- Mia Gonzales earned the Brian Bateman Superb Award in recognition of her outstanding dedication and service to the Sarver Heart Center.
- **Cara Deery, MPH,** was accepted to pursue her PhD in Health Promotion Sciences at the University of Arizona and promoted to Senior Program Manager of Outreach and Education at the Sarver Heart Center.





Thank You



Dr. Henk Granzier and Dr. Hesham Sadek enjoying the beauty of Sabino Canyon during "Hiking with Henk," a highlight of the SHC Cardiovascular Research Symposium



This annual report is dedicated to **Charlotte Todd**

in recognition of her 14 years of tireless service to the Sarver Heart Center. We thank her for her many contributions and wish her all the best in retirement.

Contact us : 520 - 626 - 2000 www.heart.arizona.edu heart@arizona.edu

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Open your phone's camera and tap to scan the QR code to contribute to Sarver Heart Center success in 2026



Thank you for supporting innovation!





DESIGNED AND CREATED BY: Cara Deery, MPH & Mia Gonzales