



UAMS

RESEARCH WINS

VOL. 5
2024-2025



Mission

The UAMS Division of Research & Innovation provides leadership in formulating and enacting strategies to expand research activities across UAMS.

Our researchers are supported by the National Institutes of Health, Department of Defense, National Science Foundation, and other national and international agencies to better the health of Arkansans.

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Vice Chancellor's Update



Dear Colleagues,

What a year it has been! I have been honored to continue serving as vice chancellor for Research and Innovation as I watch you all doing amazing things. Due to your perseverance and adaptability, UAMS had a banner year, with nearly \$175 million in extramural funding obtained in FY2025. This success has allowed us to remain one of the leading National Institutes of Health (NIH)-funded Institutional Development Award (IDeA) institutions in the country. This incredible feat was achieved through your hard work, patience and ambition during a time of many changes at the federal level. Throughout every change, new policy and new guideline, you remained committed to growing your research programs, and I could not be more impressed by your achievements over the past year.

The discoveries that you are making every day continue to enhance the health and well-being of Arkansans and keep UAMS on track to reach our long-term goals. UAMS continues to support multiple Centers of Biomedical Research Excellence, with focuses on infectious disease, musculoskeletal disease, radiation therapy and molecular interactions in cancer. In 2025, a new center was initiated with a focus on maternal health, an area of great need in our state. In addition to these centers, our multiple institutes and research groups continue pushing basic science discovery into translational and clinical research in areas including community health, cancer, clinical trials and aging. These efforts are having real-world impacts on our ability to improve the health of our state. We also saw the improvement of our infrastructure in the form of multiple renovations that will support our research enterprise for many years to come.

I want to sincerely congratulate you all on your many amazing accomplishments and thank you for your continued dedication to UAMS and Arkansas. The following pages showcase your impact on a wide spectrum of human health while performing the critical service of training our next generation of researchers. Without you, we would not be able to maintain our drive to enhance the health and health care of our state and region. Your work continues to change lives, and UAMS and Arkansas are better because you are here.

Wishing you the best,

Daniel E. Voth, Ph.D.

*Vice Chancellor for Research and Innovation
Professor, Department of Microbiology and Immunology*



New Leaders in Research



Eric Peterson, Ph.D., professor in the College of Medicine, Department of Pharmacology and Toxicology, was named president of **BioVentures LLC**, the technology licensing office and business incubator at UAMS. Peterson aims to bring new discoveries and inventions to market, manage intellectual property, and promote a culture of innovation at UAMS. [Learn more...](#)

Research Events

The Division of Research and Innovation hosted its first ***Sip & Science*** event at a brewery in Little Rock. The event brings together UAMS researchers and community members to learn more about research at UAMS. This installment featured the research of **Nicola Edge, Ph.D.**, and **Craig Forrest, Ph.D.**, and was moderated by Daniel Voth, Ph.D., vice chancellor of Research and Innovation.

The Division of Research and Innovation hosts the ***Showcase of Medical Discoveries*** throughout the year — an event that highlights different UAMS research programs and focus areas and promotes collaboration among researchers. Recent showcases featured BioVentures LLC, Arkansas INBRE (IDeA Network of Biomedical Research Excellence), UAMS Core Facilities, Digital Health and Innovation, Mental Health Research and Treatment, and the Arkansas Center for Birth Defects Research and Prevention.

National Postdoc Appreciation Week was celebrated September 15-20, 2025. The week, which celebrates the significant contribution of postdocs to research at UAMS, included social events, such as hiking and bowling, and professional development opportunities, such as a grant-writing workshop and professional headshots.

Rising Stars



Katherine Deck, a doctoral student in the Department of Pharmacology and Toxicology, received a **Ruth L. Kirschstein Predoctoral Individual National Research Service Award** from the National Institutes of Health (NIH). The fellowship will support her dissertation research investigating how a specific population of immune cells in the kidney contributes to high blood pressure, with the goal of improving outcomes for patients suffering from this leading cause of heart disease. Shengyu Mu, Ph.D., will serve as mentor. [Learn more...](#)



Jessica Kelliher, Ph.D., a postdoctoral fellow in the Department of Biochemistry and Molecular Biology, received a highly competitive **fellowship award** from the **American Cancer Society**. Kelliher will use the \$217,500 award to study how DNA damage affects the ability of T cells to kill cancer cells. Brian Koss, Ph.D., and Alan Tackett, Ph.D., will serve as mentors. [Learn more...](#)



Reham Sewilam is the first graduate student in Arkansas to receive the highly competitive **Predoctoral to Postdoctoral Fellow Transition Award** from the **National Cancer Institute**, which will support the final stage of her doctoral research, as well as cancer-focused postdoctoral research. Her research focuses on understanding how aggressive cancers survive treatment and become resistant to future therapy. Ultimately, this work could improve the efficacy of existing treatments for some of the deadliest forms of cancer. Sewilam is a doctoral student in the UAMS Graduate Program for Interdisciplinary Biomedical Sciences, under the mentorship of Robert Eoff, Ph.D. [Learn more...](#)



Two trainees received funding to study the role of an enzyme called histone deacetylase 3 in a condition called diabetic retinopathy, which is a leading cause of blindness in adults. **Rami Shahrer, Ph.D.**, a postdoctoral fellow in the Department of Pharmacology and Toxicology, received a fellowship award from the **American Heart Association**. Abdel Fouda, Ph.D., and Nancy Rusch, Ph.D., will serve as mentors. [Learn more...](#)



Esraa Shosha, Ph.D., assistant professor in the Department of Pharmacology and Toxicology, received a Career Development Award from the **American Heart Association**. [Learn more...](#)



Sydnye Shuttleworth received the prestigious **Ruth L. Kirschstein National Research Service Award** from the **National Cancer Institute**. She is a student in UAMS' rigorous M.D./Ph.D. program, pursuing her goal of becoming both a physician and a cancer researcher. Shuttleworth's research is aimed at understanding how to overcome biological barriers that currently limit the effectiveness of immunotherapies, particularly in solid tumors, which are responsible for the vast majority of cancer cases. Brian Koss, Ph.D., will serve as her mentor. [Learn more...](#)

The **Fellowship Initiative for Research Excellence (FIRE)** program was established in 2024 to encourage graduate students and postdoctoral fellows to apply for extramural research funding. A collaborative effort between the UAMS Graduate School and Division of Research and Innovation, the program awards a one-time scholarship when the student or fellow submits a competitive application, followed by an additional scholarship if the application results in research funding. During its first year, **34** proposals were submitted as part of the FIRE program, and **seven** of those proposals received extramural funding. [Learn more...](#)

Rising Stars



Four early-career researchers were selected to receive **K12 Scholar Awards** from the **UAMS Translational Research Institute**, which receives funding from the National Institutes of Health. K12 awards provide two years of funding for mentored translational research training. Translational research takes discoveries made in the laboratory, clinic or community and turns them into interventions that improve human health. The following researchers make up the 2025-2027 cohort:



Meghan Breckling, Pharm.D., will conduct the project titled, "Improving opioid education and naloxone use in rural community pharmacies."



Maegan Calvert, Ph.D., will conduct the project titled, "Neural patterns of affect in parent-child interactions."

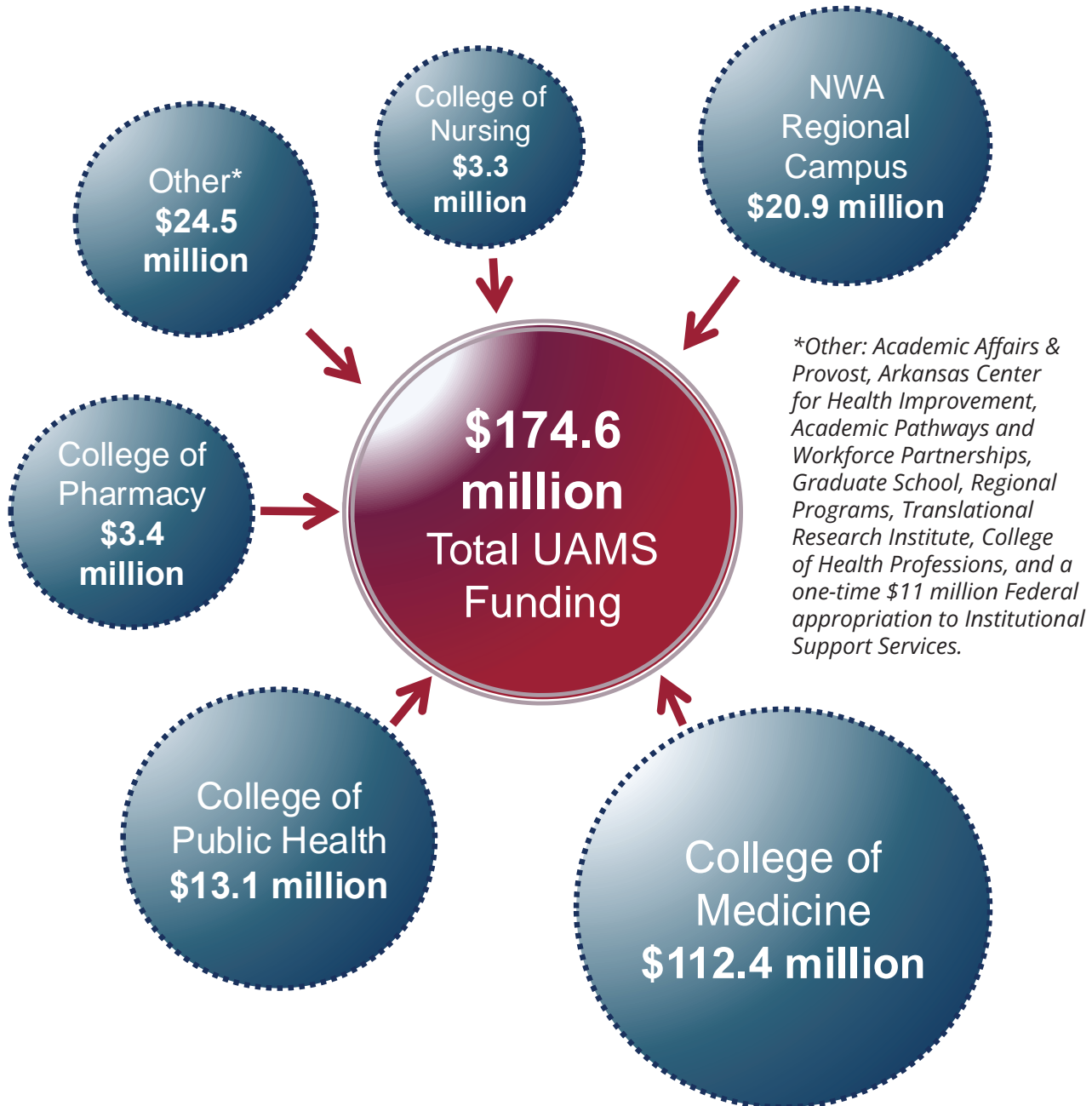


Mokarram Hossain, Ph.D., will conduct the project titled, "Novel immunotherapy for pancreatic cancer: Extracellular matrix-targeting myeloid engager."



Whitney Norris, Ph.D., will conduct the project titled, "Multivariate coherence neurofeedback for trauma treatment: A mechanistic and feasibility pilot trial using high-density EEG."

Notable Grants



Breakdown of UAMS extramural research funding in fiscal year 2025. The majority of funds were awarded to the College of Medicine and the Northwest Arkansas (NWA) Regional Campus.

Notable Grants



Craig Forrest, Ph.D., received funding from the National Institutes of Health (NIH) to study a protein that helps Kaposi sarcoma-associated herpesvirus (KSHV) avoid detection by the human immune system. KSHV is a gamma herpesvirus that causes several aggressive cancers, including Kaposi sarcoma, especially in people with weakened immune systems. Forrest hopes that results of his work will uncover new ways to prevent or treat cancers that are associated with KSHV and other herpesviruses. [Learn more...](#)



Speech-language pathologist **Kristen Muller, Ph.D.**, received more than \$575,000 from the NIH to explore whether eye-tracking technology can help test how well minimally verbal or non-speaking children with autism understand language. The three-year study will observe how children look at pictures or objects when they hear certain words to determine whether their eye movements can reveal what they comprehend without requiring them to speak or move. The ultimate aim of this work is to develop a child-friendly way to measure language understanding in minimally verbal or non-speaking children with autism so they can be included in more autism studies. [Learn more...](#)



UAMS received a five-year, almost \$5.8-million grant from the National Institutes of Health (NIH) to continue a long-running research program that studies the often-overlooked side effects of cancer treatments, such as chemotherapy and radiation. This funding supports the third phase of the UAMS **Center for Studies of Host Response to Cancer Therapy**, which is a Centers of Biomedical Research Excellence (COBRE) initiative. This COBRE has now secured over \$27 million in federal support since its start in 2015. Led by **Marjan Boerma, Ph.D.**, the center brings together doctors, biologists, chemists and public health researchers to better understand, predict and reduce treatment side-effects so that cancer therapies can be safer and more effective and improve patients' quality of life. [Learn more...](#)



Nakita Lovelady, Ph.D., MPH, received a three-year, \$3.8-million grant from the NIH to test a new program involving a hospital and community partnership that helps violent assault survivors in central Arkansas move forward with their lives and reduce risky firearm behaviors. Lovelady will work with Little Rock's Center for Healing Hearts and Spirits on a study called **Project Heal**, which is built on a collaboration between hospitals, community organizations and people with lived experience of violence. Over the next three years, the study will test different combinations of four support services — hospital bedside support, peer counseling, case-management and virtual group therapy — to determine which mix works best to prevent reinjury or risky firearm behavior and to help survivors heal mentally and emotionally. The broader goal of this research is to break cycles of violence in neighborhoods hardest hit by assault by offering practical, real-world solutions to help individuals and communities recover and stay safer. [Learn more...](#)

Nakita Lovelady, Ph.D. (right), and Joyce Raynor discussed their Project Heal research program at the 2024 Community Partner Celebration sponsored by the UAMS Translational Research Institute.



Notable Grants



Pearl McElfish, Ph.D., MBA, director of the UAMS Institute for Community Health and Innovation, was awarded a five-year, \$11.7-million grant from the NIH Centers of Biomedical Research Excellence (COBRE) program to establish the **Maternal and Reproductive Community Health Excellence (MaRCH)** center. The MaRCH center will support and train at least three new researchers every year who will come up with new ideas and solutions to problems in maternal and reproductive health. The center's goal is to bring together the community and researchers to help mothers and families, especially in rural or underserved areas, get safer and better care before, during and after pregnancy. [Learn more...](#)



Martin Cannon, Ph.D., was awarded a three-year, nearly \$215,000 grant from the NIH to study how a dendritic cell vaccine works with immunotherapy drugs to effectively treat ovarian cancer. Historically, immunotherapy drugs that block the PD-1 checkpoint (the "off" switch that ensures T cells do not attack healthy cells), do not effectively treat ovarian cancer. However, Cannon and his team found that combining an anti-PD-1 drug with a Th17-inducing dendritic cell (Th17-DC) vaccine treated ovarian cancer in mice more effectively than an anti-PD-1 drug alone. With this funding, they will work to determine whether B cells, another type of immune cell, are required for this combined treatment to work effectively. They will also examine whether successful treatment is linked to the development of structures within the tumors called tertiary lymphoid structures. The results of these studies could significantly change how immunotherapy drugs are used to treat ovarian cancer in the future. [Learn more...](#)



Analiz Rodriguez, M.D., Ph.D., received funding to develop a new tool to improve treatment for patients with melanoma that spreads to the brain. Such metastatic disease is the main cause of death for patients with melanoma. However, immunotherapy drugs called immune checkpoint inhibitors (ICIs) help about half of these patients live longer by working with the body's own immune system to attack the cancer. While ICIs are promising drugs, scientists do not fully understand how immune cells behave inside brain tumors, and there are no laboratory models that accurately represent this environment. Without such models, it is difficult to test new or improved treatments. Rodriguez and her team will use cells from patients to create a "mini brain-tumor model," called an organoid, that includes both cancer cells and the immune cells surrounding them. There is evidence that key immune cells (T cells) inside these tumors become worn out and blocked by the cancer, suggesting that treatments designed to reactivate them could be especially helpful. With this new organoid model, researchers will be able to study how immune cells and tumor cells communicate, discover early signals for whether a therapy will work, and test new immunotherapy strategies before they reach patients. [Learn more...](#)



Gunnar Boysen, Ph.D., was awarded a five-year, nearly \$750,000 grant from the NIH to study how exposure to harmful chemicals in the environment can damage our DNA. Such DNA damage can lead to mutations in genes that eventually cause cancer. However, researchers do not always know *how* these mutations happen. For example, some mutations result directly from the damage caused to DNA by a chemical. Other times, the body's DNA-repair systems make a mistake while trying to fix the damage, which results in a mutation. Boysen's lab will use three known harmful chemicals —1,2,3-trichloropropane, bromochloroacetic acid, and furan — and study how exposure to these chemicals causes DNA damage and mutations. This research will help scientists understand the exact process of how environmental exposures cause cancer. [Learn more...](#)

Research in Action



Cholesterol Drug Has Potential to Treat Alzheimer's, Other Dementia

UAMS researchers discovered that **ezetimibe**, an FDA-approved cholesterol-lowering drug, may significantly reduce the risk of Alzheimer's disease and dementia by disrupting the generation of harmful protein clusters, which are linked to cognitive decline. The researchers, led by **Srinivas Ayyadevara, Ph.D.**, and **Robert J. Shmookler Reis, Ph.D.**, used computer simulations and lab tests to show that ezetimibe prevents these proteins from clumping. Analysis of nearly 950,000 patient records revealed that those taking the drug had an almost eight-fold lower risk of developing Alzheimer's disease. These findings suggest that ezetimibe could be repurposed as a powerful preventive therapy for different types of dementia. Further controlled clinical trials are pending to confirm its effectiveness in high-risk groups, such as patients with heart disease or mild cognitive impairment. [Learn more...](#)

Remote Patient Monitoring Reaches Arkansans Living in Rural Areas

UAMS researchers, led by **Jennifer A. Andersen, Ph.D.**, found that expanding remote patient monitoring (RPM) programs could improve health outcomes for rural Arkansans by allowing providers to track patients at home with digital devices. Barriers, such as limited technology access, slow internet, language differences and mistrust of how the data are used, still hinder adoption. Their **study** showed that older and non-white populations were less receptive to RPM, highlighting the need to address these obstacles to reach underserved groups. Supported by CDC recommendations, UAMS researchers emphasize that RPM is a promising tool for managing chronic diseases and temporary medical conditions like pregnancy. RPM also offers a way to improve care for patients who struggle to attend regular appointments, especially in rural communities. [Learn more...](#)





Dewey Hickey was amazed at how his prosthetic hand system helped him repair his bait casting reel.

After 75 Years, UAMS Surgeons and I³R Researchers Restore Arkansas Pastor's Ability to Use Hand

Retired pastor Dewey Hickey, 85, became the first Arkansan and only the second person in the world to receive an experimental prosthetic hand developed through a collaboration between the **University of Arkansas Institute for Integrative and Innovative Research (I³R)** and **UAMS**. The device was implanted by UAMS neurosurgeon **Erika Petersen, M.D.**, and uses ultra-thin electrodes and a neurostimulator to allow the prosthesis to communicate with Hickey's median and ulnar nerves and his brain, restoring his sense of touch and grip-force decades after losing his hand in childhood. Supported by the U.S. Department of Defense and NIH, the ongoing FDA-approved clinical trial has already given Hickey breakthrough experiences, including recognizing phantom sensations of his missing fingers and feeling handshakes through the prosthesis. Researchers see his case as a major step toward advancing neuroprosthetic technology for amputees worldwide, with trials continuing to recruit participants. [Learn more...](#)

BioVentures LLC Awards Accelerator Grants

BioVentures LLC awarded three UAMS researchers with \$50,000 grants through the 2025 AR Health Ventures Accelerator (ARHVA) program to advance innovative medical technologies. **John Arthur, M.D., Ph.D.**, is developing a patented urine-based test to predict severe acute kidney injury; **Marie Burdine, Ph.D.**, is creating a new drug to prevent delayed graft function in kidney transplants by blocking harmful gene activity; and **Zachary Waldrip, Ph.D.**, is engineering a probiotic yeast that neutralizes toxic proteins from bacterial infections in the gastrointestinal tract. The ARHVA program aims to accelerate the translation of UAMS research into accessible drugs, diagnostics and health technologies for patients. [Learn more...](#)

Myeloma Center Celebrates 35 Years

The UAMS Myeloma Center, part of the Winthrop P. Rockefeller Cancer Institute, has been a global leader in multiple myeloma care since 1989, pioneering approaches such as Total Therapy, tandem transplants and now cutting-edge immunotherapies. Multiple myeloma is a cancer that forms from immune cells in the bone marrow. Under the leadership of Frits van Rhee, M.D., Ph.D., the center combines advanced research with personalized patient care. Innovations like bispecific antibodies (constructed to help the immune system identify and kill myeloma cells) and CAR T-cell therapy (where a patient's T cells are modified to recognize and kill myeloma cells) have transformed treatment for relapsed and high-risk patients. With nearly 100 CAR T-cell patients treated, and ongoing clinical trials exploring whether these therapies can replace stem cell transplants, UAMS continues to push toward cures while tailoring care to each patient's needs. [Learn more...](#)

UAMS Presents Research to Marshallese Community

Researchers and staff of the UAMS **Institute for Community Health Innovation** shared their progress and ongoing work for the **Marshallese** community at a town hall meeting in Springdale, Arkansas, where they highlighted successes in maternal health, diabetes and cardiometabolic disease interventions. Efforts like the Family-Model Diabetes Self-Management Education and Support program have improved A1c levels and lifestyle habits, while the Healthy Start initiative has reduced preterm births and expanded access to prenatal and postpartum care for over 1,700 women since 2019. UAMS also operates the student-led North Street Clinic to provide free care for uninsured patients. The institute has expanded outreach across multiple states and the Marshall Islands. [Learn more...](#)



Training for the Future



Summer Symposium Showcases Undergraduate Research

UAMS hosted more than 125 students from 39 institutions at the **11th Annual Arkansas Undergraduate Summer Research Symposium**, where undergraduates and high school students presented their research in biomedical sciences, plant science, informatics and more. Organized by the UAMS Department of Biochemistry and Molecular Biology with support from the UAMS Graduate School and the Arkansas IDeA Network of Biomedical Research Excellence (INBRE), the event featured oral presentations from 12 competitively selected students, interactive poster sessions, and a keynote address by Trinity University professor Christina Cooley, Ph.D. Faculty emphasized the symposium's role in developing future scientists and strengthening the pipeline of students who later attend UAMS. The day concluded with awards for the top 10 poster presentations and recognition of the many volunteers and programs that comprised the statewide research showcase. [Learn more...](#)

Partnership in Cancer Research Prepares Students for Careers in Oncology

The UAMS Winthrop P. Rockefeller Cancer Institute expanded its research and training efforts through the Partnership in Cancer Research (PCAR) summer internship, an NIH-funded, eight-week program designed to inspire first-year medical students to pursue careers in oncology and cancer research. Now in its fourth year, PCAR selects up to 12 students annually from UAMS and other medical schools nationwide, pairing them with leading UAMS cancer researchers for hands-on laboratory, clinical and community-based projects. Interns engaged in cutting-edge studies, attended seminars, participated in patient-centered activities and presented their findings, which contributed to scientific publications and strengthened the pipeline of future cancer specialists as UAMS works toward National Cancer Institute designation. [Learn more...](#)

Student Research Day Celebrates Next Generation of UAMS Researchers

UAMS celebrated its annual **Student Research Day** on April 17, 2025, with simultaneous events in Little Rock and Fayetteville. More than 290 research posters were showcased, as was the Three Minute Thesis (3MT) competition, in which all five colleges and the graduate school were represented. Students presented work in basic science, clinical research, public health and innovation, and faculty leaders emphasized the event's role in shaping future scientists. Highlights included 3MT wins by Lokesh Akana in Little Rock and Alex Maldonado-Lopez in Fayetteville, along with numerous poster and specialty awards recognizing excellence across disciplines. The growing Northwest event, now in its third year, underscored the expanding research culture across UAMS, with students and faculty alike praising the opportunity for collaboration, feedback and professional development. [Learn more...](#)

Researchers-in-Training Excel at Local, National Competitions

High school students conducting research at UAMS earned major recognition for their work in biomedical science, reflecting the institution's commitment to nurturing young scientific talent. Under the mentorship of UAMS scientists and graduate students, **Nyera Ali**, **Akshara Chevireddy**, **Carmella Lewis** and **Meera Patel** excelled at regional and state science fairs. Ali and Chevireddy, investigating genome editing efficiency, and Lewis, examining cancer-targeting protein inhibitors, qualified for the prestigious Regeneron International Science and Engineering Fair. Patel, exploring cancer risk-reduction strategies, advanced to the National Junior Science and Humanities Symposium. Their projects earned multiple first-place awards and praise from their mentors for their dedication, curiosity and professionalism. [Learn more...](#)

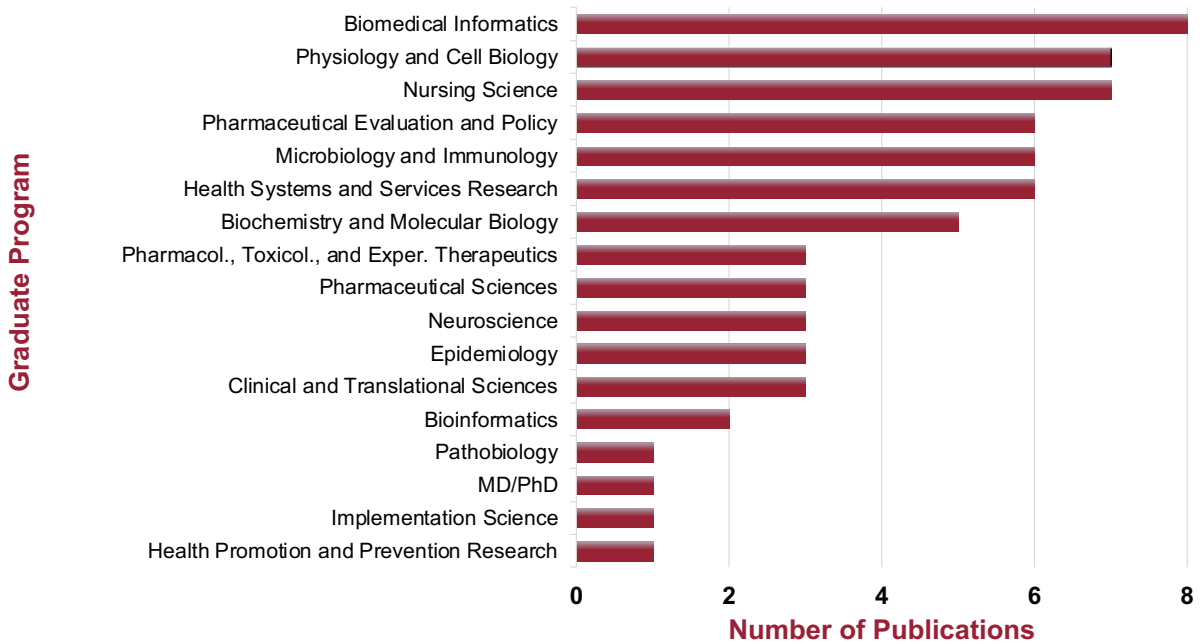
Undergraduate Students Explore Cancer Research at 'Bench to Bedside' Workshop

UAMS hosted nearly 30 undergraduate students from 14 colleges for the Arkansas IDeA Network of Biomedical Research Excellence (INBRE) "Bench to Bedside" cancer research workshop, giving students an inside look at careers in biomedical science and oncology. Faculty from the Winthrop P. Rockefeller Cancer Institute led roundtable discussions on topics about brain tumor diagnostics and improving immunotherapy. Participants also learned about UAMS' new cancer-focused graduate curriculum, which blends hands-on lab training with foundational coursework to prepare future scientists. Supported by the NIH's IDeA program, Arkansas INBRE continues to build research capacity statewide and inspire the next generation of biomedical researchers. [Learn more...](#)

Excellence in Publishing



Graduate Student Publications 2024-2025



UAMS Winthrop P. Rockefeller Cancer Institute researcher **Tudor Moldoveanu, Ph.D.**, and colleagues used structural biology approaches to determine the structure of MCL-1:BAK, a protein complex that keeps cancer cells alive. This newly characterized MCL-1:BAK protein structure can help drug makers develop better MCL-1:BAK inhibitors, thus improving cancer treatments that specifically target cancer cells. This study was **published** in the high-impact journal ***Molecular Cell***. Moldoveanu is an associate professor in the UAMS College of Medicine Department of Biochemistry and Molecular Biology and co-leader of the Cancer Institute's Cancer Therapeutics Research Program. [Learn more...](#)

Researchers from the **UAMS Institute of Community Health Innovation** and the **UAMS Donald W. Reynolds Institute on Aging** examined tiny molecules in the blood called microRNAs that may play a role in the development of certain diseases, such as diabetes. By studying microRNAs from adults in the Marshallese community in Arkansas, researchers identified differential microRNA patterns in men and women that were linked to the development of Type 2 diabetes and other chronic diseases. This research identified new markers of chronic disease that could be used to develop tools for early detection and treatment. This research was **published** in ***PLOS One***. [Learn more...](#)

UAMS is the state's only health sciences university, with colleges of Medicine, Nursing, Pharmacy, Health Professions and Public Health; a graduate school; a hospital; a main campus in Little Rock; a Northwest Arkansas regional campus in Fayetteville; a statewide network of regional campuses; and eight institutes: the Winthrop P. Rockefeller Cancer Institute, Jackson T. Stephens Spine & Neurosciences Institute, Harvey & Bernice Jones Eye Institute, Psychiatric Research Institute, Donald W. Reynolds Institute on Aging, Translational Research Institute, Institute for Digital Health & Innovation and the Institute for Community Health Innovation. UAMS includes UAMS Health, a statewide health system that encompasses all of UAMS' clinical enterprise. UAMS is the only adult Level 1 trauma center in the state. UAMS has 3,485 students, 915 medical residents and fellows, and seven dental residents. It is the state's largest public employer with more than 11,000 employees, including 1,200 physicians who provide care to patients at UAMS, its regional campuses, Arkansas Children's, the VA Medical Center and Baptist Health.



UAMS Division of Research and Innovation

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Compiled and edited by the UAMS Science Communication Group.

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