



**UAMS**  
**RESEARCH  
WINS**  
VOL. 4  
2023-2024



## **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,

I am excited to share my first thoughts about the “research wins” at UAMS since I moved into the role of vice chancellor for Research and Innovation. Due to your hard work and creativity, UAMS continues to shine and grow in the research arena, with more than \$173 million in extramural funding obtained in FY2024. Over the past seven years (FY2018 to FY2024), our total extramural funding has nearly doubled, allowing us to maintain our position as one of the leading National Institutes of Health (NIH)-funded Institutional Development Award (IDeA) institutions in the country, with roughly \$75 million in NIH funding alone in FY2024.

Our research successes are due entirely to the innovative and creative approaches that you, our investigators, take to research, resulting in amazing discoveries that continue to enhance the health and well-being of Arkansans. This incredible research productivity has kept us on track to accomplish our “Vision 2029” strategic 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 addition to these centers, our multiple institutes and research groups continue pushing the envelope of discovery in areas including community and rural disparities, maternal health, clinical trials, aging and multiple types of cancer. Finally, our amazing research growth is the focus of renovation and improvement projects that will expand disease modeling, human sample analysis and pandemic preparedness.

I want to congratulate you all on your many incredible research accomplishments and sincerely thank you for your dedication to UAMS. The following pages showcase the amazing impact you have on improving human health while training the next generation of researchers. Without your continual discoveries, we would not be able to maintain our drive to enhance the health and health care of our state and region. Your efforts are truly changing lives, and Arkansas is better for having you all here.

Wishing you a great year,

**Daniel E. Voth, Ph.D.**

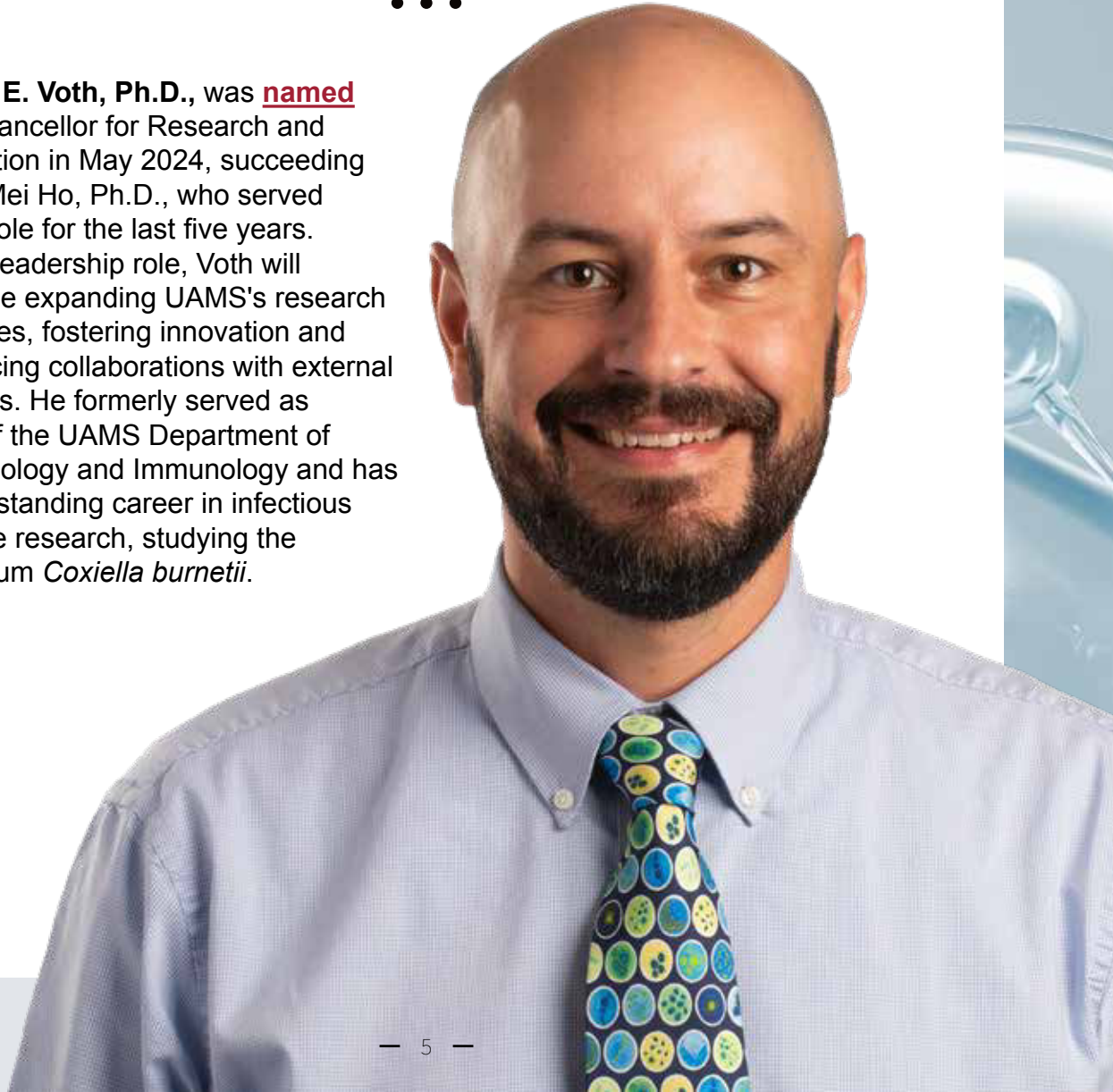
*Vice Chancellor for Research and Innovation  
Professor, Department of Microbiology and Immunology*

# New Leadership

## UAMS WELCOMED NEW LEADERSHIP IN RESEARCH



**Daniel E. Voth, Ph.D.**, was named vice chancellor for Research and Innovation in May 2024, succeeding Shuk-Mei Ho, Ph.D., who served in the role for the last five years. In this leadership role, Voth will prioritize expanding UAMS's research initiatives, fostering innovation and enhancing collaborations with external partners. He formerly served as chair of the UAMS Department of Microbiology and Immunology and has a long-standing career in infectious disease research, studying the bacterium *Coxiella burnetii*.



# Rising Stars



Six early-career researchers were selected to receive KL2 Scholar Awards from the UAMS Translational Research Institute (TRI), which receives funding from the NIH, with the goal of improving the amount and quality of clinical and translational research at UAMS. These awards provide funding for mentored translational research training. The 2023-2024 cohort was comprised of the following researchers:



**Mary "Katy" Allison, Ph.D., MPH**, optimized strategies to implement pregnancy-related remote patient monitoring.



**Michail Mavros, M.D.**, investigated risk factors and preventive treatments for blood clots in patients with pancreatic cancer who have their pancreas removed.



**Brian D. Piccolo, Ph.D.**, studied how culturally specific foods influence gut development and barrier function in infants.



**Megha Sharma, M.D.**, assessed the relationship between skin color and pulse oximeter readings in critically ill infants.



**Ankita Shukla, M.D.**, studied how intrauterine growth restriction affects brain development in infants.



**Alicja Urbaniak, Ph.D.**, tested whether the antibiotic monensin can increase the effectiveness of drugs called immune checkpoint inhibitors to treat metastatic breast cancer.



**Melissa Zielinski, Ph.D.**, received **funding** from the NIH to study whether incarcerated individuals benefit from cognitive processing therapy. Specifically, she aims to determine whether this therapy reduces the rate at which individuals use drugs, experience mental health symptoms and commit crimes after being released from prison. Zielinski is an assistant professor and clinical psychologist in the Department of Psychiatry.



**Mandana Rezaeiahari, Ph.D.**, received **funding** from the NIH to study how to increase the use of diabetes self-management education and support (DSMES) among healthcare providers and their patients with diabetes. Participation in DSMES improves health outcomes, but only around 6% of patients use it. Rezaeiahari is an assistant professor in the Fay W. Boozman College of Public Health.



**Yong-Moon “Mark” Park, M.D., Ph.D.**, received **funding** from the NIH to study how damage to the cardiovascular system caused by cancer therapy affects female patients with breast cancer in Arkansas, particularly patients from marginalized racial, ethnic and socioeconomic groups. The research will establish ways to identify and treat patients at high risk for cardiovascular toxicity. Park is an assistant professor in the Fay W. Boozman College of Public Health.

## Rising Stars



**Matthew Jorgenson, Ph.D.**, received **funding** from the NIH to study how the bacterium *Escherichia coli* uses undecaprenyl phosphate (Und-P) to build its protective cell envelope, which is a structure that many kinds of bacteria need to live. By uncovering how Und-P is used, this study's results may identify new ways to disrupt the cell envelope, potentially leading to new antibacterial treatments. Jorgenson is an assistant professor in the Department of Microbiology and Immunology.



**Lin-Xi Li, Ph.D.**, received **funding** from the NIH to study how the immune system responds to chlamydia, with the goal of contributing to the development of a chlamydia vaccine. Caused by the bacterium *Chlamydia trachomatis*, chlamydia is one of the most common sexually transmitted infections in the US. Chlamydia can cause pelvic inflammatory disease and infertility in females, but there are currently no vaccines available to prevent the disease. Li is an associate professor in the Department of Microbiology and Immunology.





**Tremaine Williams, Ed.D.**, received **funding** from the NIH to develop a nurse-led program to improve care for Black patients with congestive heart failure. Rates of congestive heart failure are disproportionately high among Black patients, especially men, and this study aims to develop a framework to equitably deliver care to the patients who need it most. Williams is an assistant professor in the Department of Biomedical Informatics.



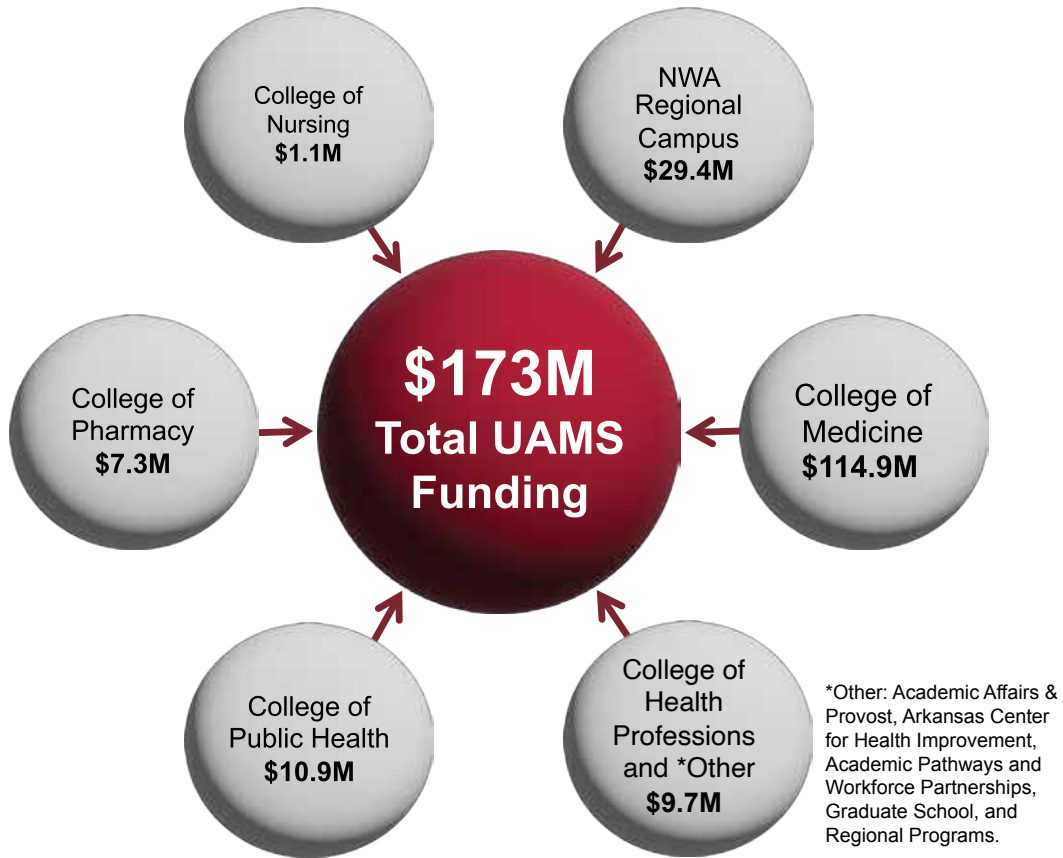
**Stefanie Kennon-McGill, Ph.D.**, received **funding** from the Department of Health and Human Services to establish the Delta Maternal Outreach and Transformational Health Education Resource (Delta MOTHER) project. This work will establish and track community-level health initiatives to prevent the deaths of mothers and infants in the Delta, where Black women are nearly two times more likely than non-Hispanic, white women to have pregnancy-related deaths. The Delta MOTHER project is a collaboration between BioVentures LLC, the UAMS Institute for Digital Health & Innovation and the UAMS Division for Academic Pathways and Workforce Partnerships.



**Jaimi "Mimi" Allen, Ph.D.**, received **funding** from the NIH to study how physical activity can help breast cancer survivors who are Black, particularly those living in the rural South, maintain employment and improve overall quality of life. Allen is an assistant professor in the Fay W. Boozman College of Public Health.

# Notable Grants

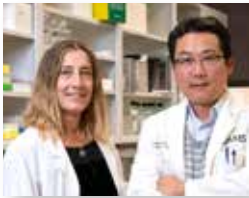
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*Breakdown of UAMS extramural research funding in fiscal year 2024. The majority of funds were awarded to the College of Medicine and the Northwest Arkansas (NWA) Regional Campus.*



**Robert Eoff, Ph.D.**, was **awarded** nearly \$12 million to establish the **Center for Molecular Interactions in Cancer**. The NIH-funded center will work toward understanding the molecular details of how cancer develops and progresses. This research aims to improve cancer treatments by exploring how molecular changes in cells impact the behavior of the disease. It will use cutting-edge technologies, such as high-resolution imaging and artificial intelligence, to study cancer at the molecular level. Researchers also will mentor early-career scientists to advance future cancer studies. Eoff is a professor in the Department of Biochemistry and Molecular Biology. The center is funded by the NIH Centers of Biomedical Research Excellence (COBRE) program.



**Maria Schuller Almeida, Ph.D.**, and **Ha-Neui “Hans” Kim, Ph.D.**, received **funding** from the NIH to study how estrogen prevents bone loss and osteoporosis. Aging and estrogen deficiency increase the risk of bone fractures for females, and results of their work could lead to better treatments for osteoporosis. Almeida is a professor in the departments of Internal Medicine and Orthopaedic Surgery. Kim is an assistant professor in the Department of Internal Medicine.



**Shengyu Mu, Ph.D.**, was **awarded** \$3.7 million by the NIH to continue studying the link between cells of the immune system and high blood pressure. One goal of the work is to identify new ways to treat high blood pressure, which is a widespread and serious health condition in the United States. Mu is an associate professor in the Department of Pharmacology and Toxicology.

## Notable Grants



**Taren Massey-Swindle, Ph.D.**, **received** funding from the NIH to cultivate healthier feeding practices at 80 early childcare and education centers in Arkansas and Louisiana. Massey-Swindle and her collaborator at Louisiana Tech University, Julie Rutledge, Ph.D., will work to decrease the use of inappropriate feeding practices, such as hurrying children and encouraging them to eat more, because these practices can lead to poor eating habits in the future. Massey-Swindle is an associate professor in the departments of Pediatrics and Family and Preventive Medicine.



*Melissa  
Zielinski, Ph.D.*

The UAMS **Addiction Research Training Program** received its third **renewal** of NIH grant funding. Each year, the program provides tuition, stipends and other support for up to 12 predoctoral and postdoctoral trainees working in addiction research. Its summer program provides support for medical students to train in addiction research. Over the last 15 years, the program has supported the development of 104 trainees working in addiction-related research. The program is directed by **Melissa Zielinski, Ph.D.**, an associate professor in the Department of Psychiatry, and **William Fantegrossi, Ph.D.**, a professor in the Department of Pharmacology and Toxicology.



*William  
Fantegrossi, Ph.D.*



**Marius Nagalo, Ph.D., received** a prestigious New Innovator Award from the Office of the Director at NIH. Nagalo is the first researcher in Arkansas to receive this award. The \$2.3 million grant will support his research on pancreatic cancer, which is very difficult to treat. His team studies how viruses can be used to break down the tough barriers of pancreatic tumors, allowing the immune system to kill the cancer cells. Nagalo is an assistant professor in the Department of Pathology.



UAMS, the University of Arkansas, and Arkansas Children's Research Institute (ACRI) have teamed up to enhance women's health research in Arkansas. An **award** from the NIH, through the **Arkansas IDeA Networks of Biomedical Research Excellence** program, will allow researchers from the three institutions to collaborate and develop software and analytical tools to analyze decades of maternal health research data collected at ACRI, with the overarching goal of improving the health of mothers and their children.

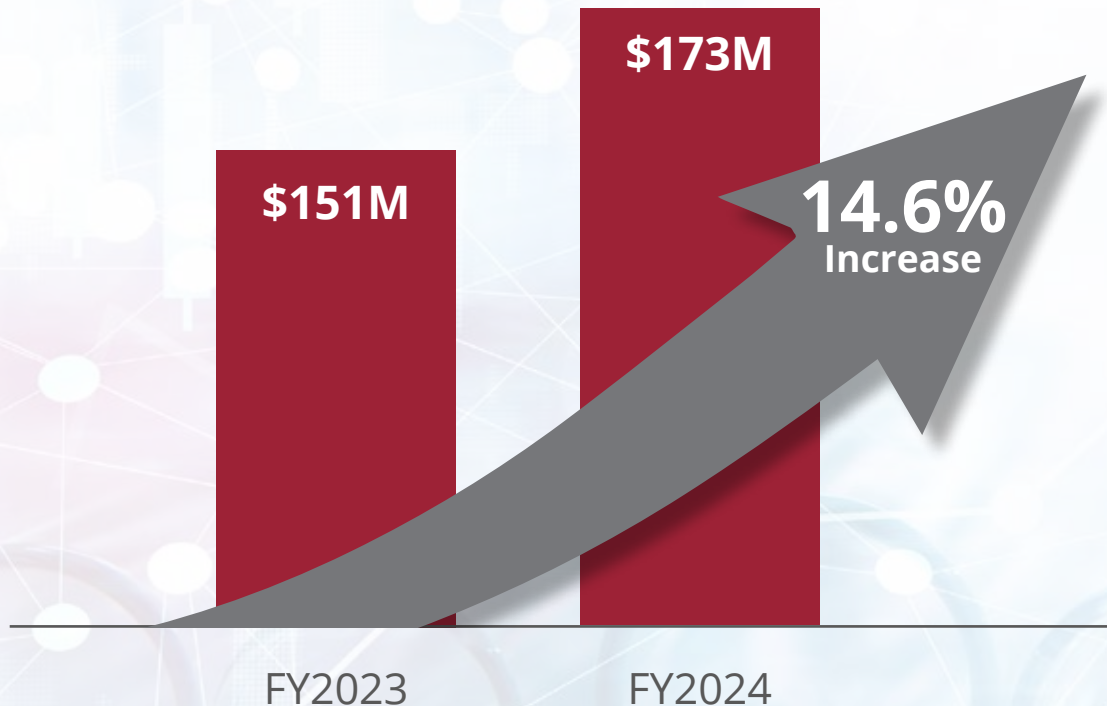


The UAMS **Translational Research Institute**, directed by **Laura James, M.D.**, was **awarded** just over \$31 million from the NIH to continue supporting translational research in Arkansas. Translational research takes discoveries made in the laboratory, clinic or community and turns them into interventions that improve human health. The funding is provided by the NIH Clinical and Translational Science Awards program, through the NIH National Center for Advancing Translational Sciences. James is a professor in the Department of Pediatrics.

## Research Funding



### Total Research Funds at UAMS



*Data are shown as total funds from all extramural sources, rounded to the nearest million dollars*

# Training for the Future



UAMS students and trainees presented their research at the annual **Student Research Day**, with events held at the main campus in Little Rock and at the Northwest Regional Campus in Fayetteville. Participants engaged in research poster and “Three Minute Thesis” competitions, and they heard a presentation from Nobel Prize winner Craig C. Mello, Ph.D., as part of the Robert E. McGehee Jr., Ph.D., Distinguished Lectureship in Biomedical Research.

UAMS was awarded over \$1.8 million by the NIH to continue the **Initiative for Maximizing Student Development (IMSD)** program. The goal of the IMSD program is to increase the number of doctoral students at UAMS from underrepresented groups. To achieve this goal, the program provides the students with resources and mentorship to support their research training and career development. The program is led by **Billy Thomas, M.D.**, a professor in the Department of Pediatrics, and **Antiño Allen, Ph.D.**, a professor in the College of Pharmacy.

The **Fellowship Initiative for Research Excellence (FIRE)** program was established to encourage graduate students and postdoctoral fellows to apply for extramural research funding. The program awards a one-time scholarship when students or postdoctoral fellows submit a competitive application, followed by an additional scholarship if the application results in research funding. Research fellowships give trainees a competitive edge when they begin their professional careers. The FIRE program is a collaborative effort between the UAMS Graduate School and Division of Research and Innovation.

## Research in Action



UAMS researchers **Meenakshisundaram Balasubramaniam, Ph.D.**, and **Sue Griffin, Ph.D.**, **identified** a potential new drug to prevent Alzheimer's disease. The drug blocks the harmful effects of *APOEε4*, a gene that increases the risk of developing Alzheimer's disease. Balasubramaniam and Griffin are faculty in the Department of Geriatrics.



*Sue Griffin, Ph.D.*



*Meenakshisundaram  
Balasubramaniam, Ph.D.*

A team of researchers, led by **Melissa Zielinski, Ph.D.**, received funding from the Patient-Centered Outcomes Research Institute to **establish** the **Women's Justice-Health Alliance**. The work will establish an alliance of organizations in Arkansas that provide services to women who have been incarcerated. Zielinski is an associate professor in the Department of Psychiatry.

A Little Rock man, Dwight Hamilton, who had advanced kidney cancer, was **cancer-free** after **receiving** an experimental treatment as part of a clinical trial at UAMS. The drug is an antibody known as JTX-8064, and his treatment was overseen by **Michael Birrer, M.D., Ph.D.**, at the **Winthrop P. Rockefeller Cancer Institute**. Birrer is vice chancellor of UAMS and director of the Cancer Institute.

Nine current and former physicians from UAMS were **recognized** as **Healthcare Research All-Stars** by Avant-garde Health for their significant contributions to health care research. The All-Star physicians, who published an average of 11 articles per year, were in the top 5% of approximately 90,000 physicians who published health care research during 2021 and 2022. The following physicians are UAMS' All-Stars:



- Orthopaedic surgeons **Lowry Barnes, M.D., Jeffrey Stambough, M.D., Benjamin Stronach, M.D.,** and **Simon Mears, M.D.** (formerly of UAMS)
- Gastroenterologists **Sumant Inamdar, M.D., Shashank Garg, M.D.** (formerly of UAMS), and **Benjamin Tharian, M.D.** (formerly of UAMS)
- Cardiologist **Subhi Al'Aref, M.D.**
- General and transplant surgeon **Emmanouil Giorgakis, M.D.,** (formerly of UAMS)



**Laura Hays, Ph.D., APRN, received** a grant from the Health Resources and Services Administration to enhance Arkansas' newborn screening program, which tests newborns for dozens of medical conditions that can be life-threatening if not treated. Notably, the funding will make it possible to hire a full-time social worker to communicate with families and connect them with follow-up care for any health problems that are identified by the tests. Hays is an associate professor in the College of Nursing.

**BioVentures LLC**, the technology transfer office for UAMS, received funding from the U.S. Department of Commerce to establish the **Arkansas Collaborative for Technological and Innovative Venture Equality (ACTIVE)**. The ACTIVE program is a partnership of several Arkansas institutions and organizations. It annually supports 25 health technology start-up companies led by socially and economically disadvantaged individuals in Arkansas. ACTIVE participants receive personalized support — mentorship, education, training and networking opportunities — with the goal of turning innovative ideas into health advances for Arkansans.

# Excellence in Publishing



## Graduate Student Publications 2023-2024



UAMS researchers published results of a **study** in *JAMA Network Open* that reveal how patients used digital health services for prenatal care before, during and after the COVID-19 pandemic. The work could be used to develop models of prenatal care that combine virtual visits and in-person visits.



*Hari Eswaran, Ph.D. Mahip Acharya, Ph.D.*

The study was led by **Mahip Acharya, Ph.D.**, and **Hari Eswaran, Ph.D.**, who are faculty in the Department of Obstetrics and Gynecology.

The **UAMS Myeloma Center** **published** its 1,000<sup>th</sup> article in July 2023, marking significant contributions to the field of multiple myeloma research; the center's first article was published in 1989. UAMS continues to be a leader in the treatment of multiple myeloma.



**Rachel Hale, M.A.**, a doctoral student in the Fay W. Boozman College of Public Health, published a **study** about how Arkansas farmers perceive the health risks associated with climate change. The research highlights the unique health challenges faced by farmers. The study was published in *International Journal of Environmental Research and Public Health*.



**Michael Birrer, M.D., Ph.D.**, and colleagues **published** results of a clinical trial that investigated using an antibody called bintrafusp alfa to treat recurrent or metastatic cervical cancer. The reported work supports the safety and potential effectiveness of the drug for treating cervical cancer. Cervical cancer is a leading cause of death for women in Arkansas and worldwide, and better treatments are urgently needed. The study was published in *JAMA Oncology*. Birrer is vice chancellor of UAMS and director of the UAMS Winthrop P. Rockefeller Cancer Institute.

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.



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