



UAMS[®]

Research Wins



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

I am so proud to see UAMS continue to grow its research enterprise at an accelerating pace. Clearly, the innovative and impactful advances in research and discoveries from our talented faculty are paying huge dividends for improving health and health care in Arkansas and around the nation.

As Arkansas's only academic health center, No. 1 public biomedical research institution, and "Best Hospital," UAMS enjoyed another year of double-digit growth (~14%) in competitive research awards in FY2021. Our faculty won 326 grants and contracts, totaling \$143 million from extramural sponsors in FY2021. This follows an astounding 55% increase in FY2020 to \$126 million over FY2019.

The resilience and dedication of our researchers and administrative staff during the historic COVID-19 pandemic has been astounding. Their determination to win the battle against the coronavirus brought in nearly \$38.8 million in state and federal funds for new discoveries. Additionally, UAMS seed funding sparked amazing breakthroughs, including the discovery of a potential cause of "long-haul" COVID-19.

In closing, I congratulate our faculty, staff, and students who have achieved significant wins in improving health, saving lives, and making discoveries with long-lasting impacts.



Shuk-Mei Ho, Ph.D.

*Vice Chancellor of Research
and Innovation*

Notable New Hires

UAMS WELCOMED NEW LEADERS IN RESEARCH



Teresita Bellido, Ph.D., joined UAMS as [professor and chair of the Department of Physiology and Cell Biology](#). Internationally known for her research on bone, her lab focuses on the role of bone cells in health and disease. Bellido returns to UAMS after a productive career at Indiana University.



Michael J. Birrer, M.D., Ph.D., joined UAMS as [director of the Winthrop P. Rockefeller Cancer Institute](#). In this role, he leads efforts to achieve National Cancer Institute designation. His lab studies ovarian cancers that become resistant to platinum-based chemotherapy, with the goal of finding new treatments. Birrer also enjoys hunting, gardening and raising chickens.



Susan Smyth, M.D., Ph.D., joined UAMS as [dean of the college of Medicine](#). Smyth is a nationally known cardiologist and translational scientist and an expert in managing the use of blood thinners for blood clotting conditions. Smyth is an avid gardener and recently transplanted 500 daffodil bulbs as a result of her move from Kentucky to Little Rock.



Edward T. Yeh, M.D., joined UAMS as the [chair of the Department of Internal Medicine](#). Yeh is a renowned cardiologist and an expert in onco-cardiology. He also enjoys spending time in nature, taking leisurely walks on the Arkansas River Trail system.



Fenghuang "Frank" Zhan, M.D., Ph.D., joined the [UAMS Myeloma Center as the research director](#). Zhan works to identify and target myeloma stem cells to develop treatments for multiple myeloma. In his free time, he enjoys swimming, fishing and playing basketball.

COVID Research & Funding

UAMS RESEARCHERS HAVE CONTRIBUTED SIGNIFICANTLY TO RESEARCH ON THE SARS-COV-2 VIRUS, WHICH CAUSES THE DISEASE COVID-19.

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Aline Andres, Ph.D., RD, and **Laxmi Yeruva, Ph.D.,** found that antibodies specific for SARS-CoV-2 can be transmitted through breast milk of mothers with COVID-19, potentially providing protection for infants.

Tina S. Ipe, M.D., MPH, spearheaded the use of convalescent plasma to treat COVID-19 patients in Arkansas.

Craig Forrest, Ph.D., investigated antibodies produced by the immune system in response to SARS-CoV-2, with the potential to use such antibodies as a treatment for COVID-19.

Xuming Zhang, Ph.D., and **Roger Pechous, Ph.D.,** used a novel human lung tissue model to study COVID-19 pathogenesis and for antiviral drug discovery.

Chenghui Li, Ph.D., explored social network messaging to understand public attitudes and behaviors during the COVID-19 outbreak.

John Arthur, M.D., Ph.D., collaborated with the National Center for Toxicological Research to develop a mass-spectroscopy-based test for COVID-19 infection. The system could be used in underserved communities to provide near real-time testing results.

B. Alison Caballero, MPH, Katherine J. Leath, MPH, and **Jamie C. Watson, Ph.D.,** with the UAMS Center for Health Literacy, determined that much of the consumer health information on COVID-19 was not readable or actionable for people at highest risk for severe COVID-19.

Keneshia Bryant, Ph.D., established the COVID-19 Emotional Wellness Task Force to study the impact of the COVID-19 pandemic on populations at greater risk for experiencing a mental health crisis.

Faculty in the **College of Public Health** and the **College of Medicine** conducted a statewide COVID-19 antibody study and found that by the end of 2020, 7.4% of Arkansans had antibodies to the virus, indicating that they had been infected. The work was supported by federal funding allocated by the Arkansas CARES Act Steering Committee.

Pearl McElfish, Ph.D., MBA; Pebbles Fagan, Ph.D., MPH; and Laura James, M.D., received NIH funding to establish a Community Engagement Alliance (CEAL Team) against COVID-19 disparities in Arkansas. UAMS is one of 11 teams that are part of this national alliance. They will work to understand why COVID-19 disproportionately affects minority communities and how best to increase vaccination rates in these groups.

Pearl McElfish, Ph.D., MBA, and colleagues investigated Arkansans' preferences for COVID-19 testing sites and found that race and ethnicity are important factors to consider when deciding where to offer COVID-19 testing.

Transplant surgeon **Emmanouil Giorgakis, M.D.**, led UAMS in participating in a global study on mortality and lung complications in COVID-19 patients undergoing surgery. Lung complications occurred in 51% of patients, and 23% of patients died within 30 days of surgery.

Gastroenterologist **Suman Indamar, MBBS**, found that patients with COVID-19 may be at greater risk of developing pancreatitis. This work suggests that physicians should consider abdominal pain as a symptom of COVID-19 and test for pancreatitis.

John Arthur, M.D., Ph.D., and colleagues identified a potential cause of "long-haul" COVID symptoms. The group found that blood samples from a majority of COVID-19 patients contained antibodies to the enzyme ACE2, which helps regulate the immune system.

Research Academy



The UAMS Research Academy was instituted by the Division of Research and Innovation in early 2020. The Research Academy's mission is to enhance the UAMS research community, create innovative and sustainable care models, enable transformative medical breakthroughs and elevate UAMS's overall research excellence.

The Research Academy and UAMS Translational Research Institute co-sponsored a Mentored Grant-Writing Program presented by the AtKisson Training Group. Over 40 faculty attended the grant-writing workshop offered in 2021. Eleven faculty applied to be mentored grant-writing scholars to work one-on-one with the AtKisson Training Group, and eight are currently developing their grant proposals.

The quarterly Showcase of Medical Discoveries highlights the accomplishments of UAMS researchers in various fields.

- Four Research Showcases 2020-2021
 - Bone 2020
 - COVID 2020
 - Digital Health & Innovation 2021
 - Cardiovascular Research 2021
- A monthly Research Antipasto series promotes online networking between researchers and mentors over lunch.

The Research Academy has sponsored 13 seminars since its establishment, including:

- Understanding and Applying for NIH Career Development (K) Awards
- Understanding and Applying for NIH Individual Fellowships (F Grants)
- Research Onboarding - UAMS Research Resources
- Discovering and Utilizing UAMS Library Research Services
- The Pitfalls of Research Misconduct
- Finding and Writing Foundation Research Grants
- Understanding and Applying for NIH T32 Training Grants
- Financial Disclosures and Conflict of Interest
- Good Publishing Practices (finding quality journals and how to avoid predatory publishers)
- Health Literacy: Plain & Inclusive Language
- Institutional Biosafety Committee Approvals, Biosafety & You
- Annual Research Roundup (State of Campus Research)
- Navigating the UAMS Research & Innovation Website



For more information about any of these presentations, visit
<https://research.uams.edu>

Notable Grants



- Four faculty received inaugural Provost's Innovator Awards to support groundbreaking, innovative, high-impact projects likely to establish new clinical approaches or achieve rapid commercialization.



Giulia Baldini, M.D., Ph.D., is using nanoparticles to target a specific receptor in the hypothalamus as a way to treat obesity.



David Bumpass, M.D., is using a 3D-printed, patient-specific distal femur fixation plate to improve outcomes in patients who receive this device.



Robert Griffin, Ph.D., is working to make tumors more susceptible to radiation therapy by using photosensitizers and gold nanoparticles.



Amanda Stolarz, Pharm.D., Ph.D., is working to prevent vascular graft failure by developing a more robust, infection-resistant graft.

- UAMS received a 5-year, \$18.9 million award from the National Institute on Minority Health and Health Disparities (NIMHD) to reduce cancer and cardiovascular disease disparities among people living in rural areas and African American populations across Arkansas. The funding establishes the [Center for Research, Health and Social Justice](#)—one of only 11 Multiple Chronic Disease Centers funded in the US. The work will be led by Fay W. Boozman College of Public Health faculty members **Carol Cornell, Ph.D.**, and **Pebbles Fagan, Ph.D., MPH**.

- The COBRE Center for Studies of Host Response to Cancer Therapy in the College of Pharmacy was granted \$11.4 million to continue the study of cancer therapy side effects. The center is funded by the Centers of Biomedical Research Excellence (COBRE) program of the National Institute of General Medical Sciences. The center was established in 2015 under the leadership of **Martin Hauer-Jensen, M.D., Ph.D.**, and is now led by **Marjan Boerma, Ph.D.** A special focus of the COBRE program is to mentor junior investigators to establish independent research programs under the center's research focus.
- The **Arkansas Central Cancer Registry** was designated as a Surveillance, Epidemiology and End Results (SEER) registry. The SEER program provides information on cancer statistics to reduce the burden of cancer in the U.S. This designation allows the registry to apply for grants and contracts available exclusively to SEER registries.
- A \$10.6 million grant from the NIH established the **IDEA National Resource for Quantitative Proteomics**, directed by **Alan Tackett, Ph.D.** This is the first NIH National Resource in Arkansas. Proteomics is the large-scale study of proteins toward developing new diagnostic tests or medical treatments.
- The **Center for Childhood Obesity Prevention** at Arkansas Children's Research Institute was granted \$11.5 million for a second phase of funding from the Centers of Biomedical Research Excellence (COBRE) program through the National Institute of General Medical Sciences. The center, directed by **Judith Weber, Ph.D., RD**, supports researchers focused on understanding the origins of pediatric obesity and developing interventions.

Notable Grants



- UAMS received \$39 million from the NIH to continue supporting the [Data Coordinating and Operations Center \(DCOC\)](#) for the Environmental Influences on Child Health Outcomes (ECHO) Institutional Development Award (IDeA) States Pediatric Clinical Trials Network (ISPCTN). The center is led by **Jeannette Lee, Ph.D.**, and **Jessica Snowden, M.D.**, and oversees an 18-site pediatric clinical trial network that provides children in underserved, rural areas with access to clinical trials.
- **Thomas Kelly, Ph.D.**, and **Richard Nicholas, M.D.**, received \$780,000 from the National Cancer Institute to establish the [Partnership in Cancer Research](#), a summer cancer research experience for UAMS medical students.
- The [Arkansas INBRE](#), which promotes biomedical research at undergraduate institutions in Arkansas, received \$18.4 million in renewed funding from the NIH. The program, which has been funded for nearly 20 years, is directed by **Lawrence Cornett, Ph.D.**
- [UAMS received \\$2.5 million](#) from the NIH to determine if deliveries of healthy food can help rural Arkansans manage their Type 2 diabetes. **Chris Long, Ph.D.**, is the principal investigator.
- UAMS launched its first [phase 1 clinical trial](#) in the newly opened UAMS Winthrop P. Rockefeller Cancer Institute Phase 1 Cancer Clinical Trial Unit. The study leader, **Hui-Ming Chang, M.D., MPH**, is working to optimize use of the drug dexrazoxane, which protects the heart during cancer treatment but can also make that treatment less effective. The study will test a specific dosing regimen for dexrazoxane that should both protect the heart and maintain the effectiveness of cancer treatment.

Rising Stars



Taren Swindle, Ph.D., received additional support from the NIH to support a preschool intervention to reduce obesity and cancer in Arkansas and Louisiana. The NIH upgraded the \$3.1 million, five-year R01 to an R37 MERIT award, which gives Swindle the opportunity to continue the study for an additional two years. The MERIT program is only open to outstanding Early-Stage Investigators.



Brian Koss, Ph.D., is Arkansas's first recipient of the National Institutes of Health Director's Early Independence Award. The award allows outstanding junior scientists to bypass traditional postdoctoral training and proceed to independent research careers. His research focuses on stimulating the immune system to recognize and eliminate tumors from the body.

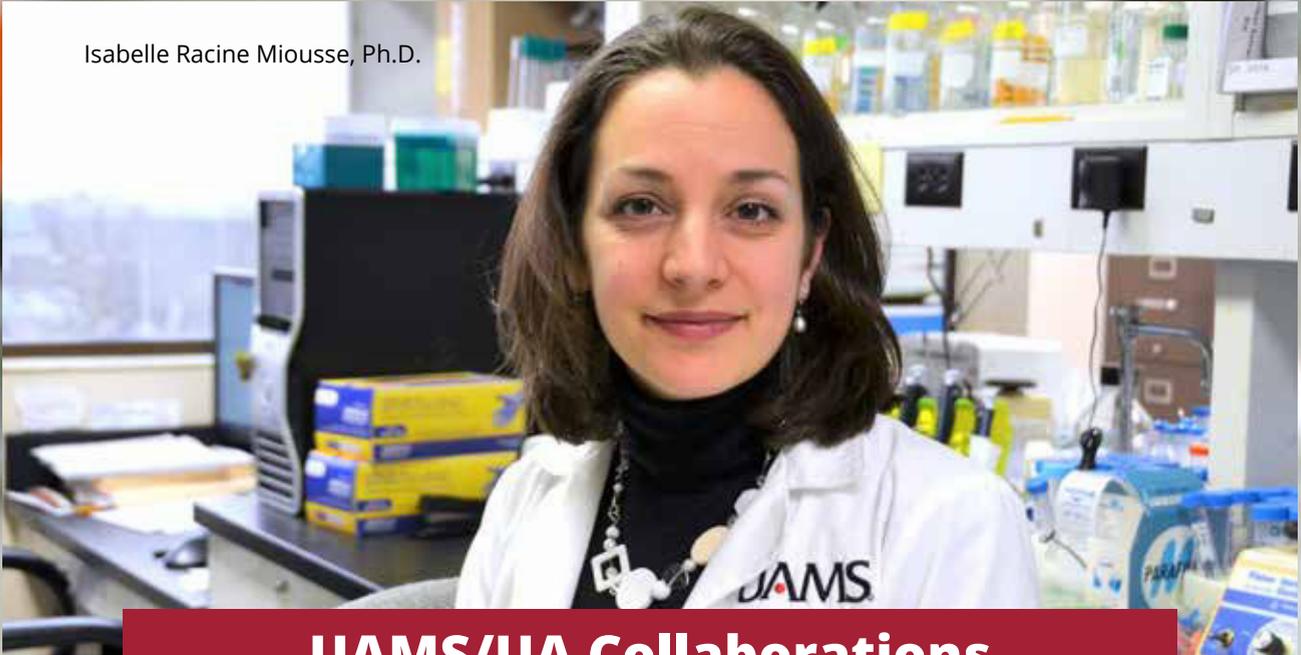


Jesus Delgado-Calle, Ph.D., received an R37 MERIT award, which allows him to extend an existing five-year award for an additional two years. His lab studies how myeloma cancer cells alter the biology of other cells in the bone marrow, with the goal of identifying new ways to treat bone cancers.



Justin Leung, Ph.D., an assistant professor in the Department of Radiation Oncology, received a \$1.47 million grant from the National Cancer Institute to study how DNA damage is repaired. Leung will collaborate with Robert Eoff, Ph.D., a professor in the Department of Biochemistry and Molecular Biology.

Isabelle Racine Miousse, Ph.D.



UAMS/UA Collaborations

- A collaboration between researchers at UAMS and the University of Arkansas at Fayetteville produced a [long-lasting disinfectant spray](#) for surfaces. The spray combines nano-sized cellulose and antiseptic agents, creating a disinfectant that acts against both bacteria and viruses, including the virus that causes COVID-19. The research team was led by **Peter Crooks, Ph.D.**, of UAMS and **Jamie Hestekin, Ph.D.**, of the University of Arkansas.
- UAMS cancer researcher **Isabelle Racine Miousse, Ph.D.**, received \$1.1 million as a project leader at the [Arkansas Integrative Metabolic Research Center](#) at the University of Arkansas at Fayetteville. The center is funded by the NIH Centers of Biomedical Research Excellence program. Miousse will study how methionine in the diet can improve cancer treatment.

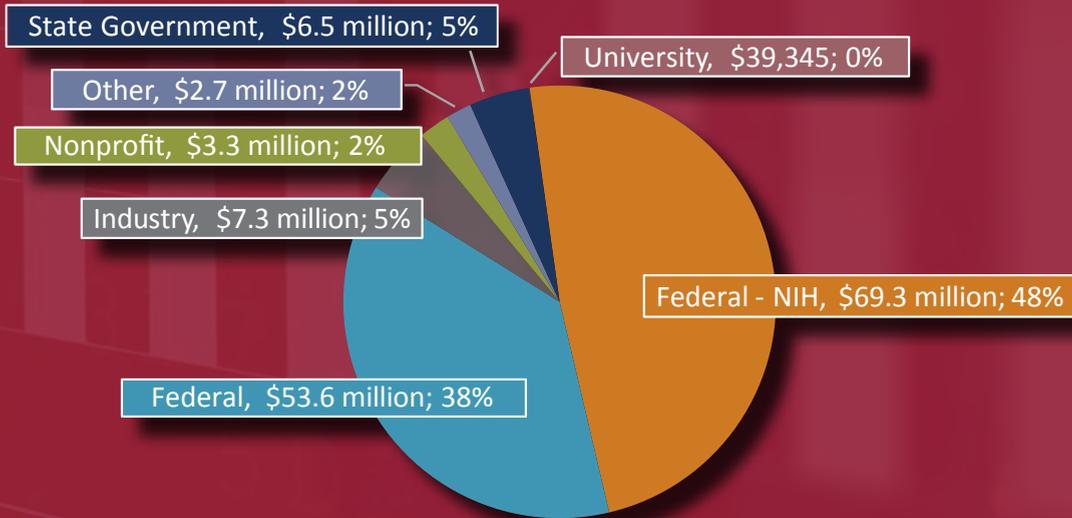
Overall Funding Trends

Currently funded research portfolio = **\$142.8M total, \$69.3M NIH**

FY2021 NIH = **\$69.3M (48.5% of total)**

FY2020 NIH = **\$54.8M (43.7% of total)**

FUNDING SOURCE



FY2021 = \$142.8M v FY2020 = **\$125.5M (13.8% increase)**

FY2020 = \$125.5M v FY2019 = **\$81.1M (54.7% increase)**

#AWARDS

FY2021 = 326

FY2020 = 358

FY2019 = 329



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UAMS Division of Research and Innovation

4301 W. Markham St.

Little Rock, AR 72205

research.UAMS.edu

