

THE TRIBUNE

JUNE/JULY 2021

Call to Arms

COVID-19 Seroprevalence Study Reveals Best of UAMS Research



COVID-19 seroprevalence study collaborators have included: front row, l-r, Mark Williams, Ph.D., Joshua Kennedy, M.D., Laura James, M.D., and Katherine Caid, M.D.; middle row, Sandra McCullough, Justin Bean, Veronica Smith, Ben Amick, Ph.D., Moya Kouassi, Hoda Hagrass, M.D., Ph.D., Nathan Petty, Shana Owens, Victor Cardenas, M.D., Ph.D., and Jing Jin; back row: Ericka Olgaard, D.O., Karl Boehme, Ph.D., Craig Forrest, Ph.D., and Ryan Mann.

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UAMS Showcases its Collaborative Spirit



Dear Colleagues,

The summer break could not come at a better time for our research community. As we catch a collective breath, it is a great opportunity to reflect on the beauty of collaboration.

In this issue, we are recalling what it took to complete the statewide COVID-19 seroprevalence survey. The team spirit was evident from the beginning, with Drs. Josh Kennedy, Karl Boehme and Craig Forrest

setting the tone. It turned into one of UAMS' largest collaborations, involving not just researchers, but institutional leaders, policymakers, including Gov. Asa Hutchinson's office, and other organizations.

We get our best results when everyone is contributing their unique skills to a team effort, and this is an excellent case study.

We are also excited to announce (page 3) our newest cohorts of Career Development Scholars and Health Science Innovation and Entrepreneurship Scholars.

As you are likely aware, we lost our friend and colleague Dr. Nancy Gray on June 2. She was a member of TRI's Leadership Council and one of UAMS' brightest lights. She helped lead our entrepreneurship program with the same passion that she led BioVentures. Her joy permeated every meeting, and I always admired her ability to laugh and make the best of a situation. May we all remember her and her family during this time.

Sincerely,

Laura James, M.D.
Director, TRI Associate Vice Chancellor for Clinical
and Translational Research, UAMS

Call to Arms (continued from page 1)

Possibly the largest research collaboration in UAMS' history started with a phone call in early March 2020 to UAMS clinician-scientist Joshua Kennedy, M.D., from Atul Kothari, M.D., at the Arkansas Department of Health.

"The state was in need of an assay for SARS-CoV-2 antibodies to give us an idea how many people were infected across the state," said Kennedy, an associate professor in the College of Medicine Department of Pediatrics based at Arkansas Children's Research Institute. "I didn't have one, but because of relationships I had formed through other work at UAMS, I knew people who could help."

From there, collaborations came together quickly. Kennedy, a 2015 graduate of the TRI KL2 Mentored Research Career Development program, contacted UAMS colleagues Karl Boehme, Ph.D., and Craig Forrest, Ph.D., both associate professors in the College of Medicine Department of Microbiology and Immunology.

At the time, Boehme and Forrest were already developing an assay to detect SARS-CoV-2 antibodies. Kennedy added a key piece that was needed to validate the assay – blood samples from COVID-19 patients.

Important funding support also came with a Time Sensitive COVID-19 award through the office of UAMS Vice Chancellor for Research and Innovation, Shuk Mei-Ho, Ph.D., to help establish a Four Antigen Confirmation Test (FACT) enzyme-linked immunosorbent assay (ELISA) – a test that measures antibodies to multiple SARS-CoV-2 proteins in a patient's blood. The team also received assistance from the UAMS Department of Pathology and UAMS Center for Microbial Pathogenesis and Host Inflammatory Responses.

As they began validating and refining their high-accuracy assay, Kennedy consulted TRI Director Laura James, M.D., who would become principal investigator of the statewide Arkansas Coronavirus Antibodies Seroprevalence Survey.

At the UAMS Fay W. Boozman College of Public Health (COPH), Dean Mark Williams, Ph.D., and Ben Amick, Ph.D., associate dean for Research, oversaw the substantial epidemiology component of the study, which included the challenging task of recruiting research participants willing to provide blood samples. Research participants were identified through the COPH call center, an effort initially organized to track COVID-19 related concerns of Arkansans. Other partners, including the Arkansas Foundation for Medical Care (AFMC), and UAMS Regional Campuses in Pine Bluff, Fayetteville, and Fort Smith, provided significant and rapid support for blood sample collection.

Another early team member was Paula Roberson, Ph.D., professor and chair of the UAMS Department of Biostatistics, who leads TRI's Biostatistics, Epidemiology and Research Design (BERD) program. The biostatistics collaboration was important from the start, guiding the team through the study design and providing data analysis along the way.

Significantly, UAMS Chancellor Cam Patterson, M.D., MBA, and Stephanie Gardner, Pharm.D., Ed.D., provost, chief academic officer and chief strategist, quickly lent their support to the project, marshalling resources and helping acquire \$3.4 million in federal aid allocated by the Arkansas Coronavirus Aid, Relief and Economic Security (CARES) Act Steering Committee created by Gov. Asa Hutchinson.

The funding helped purchase a robotic system to speed blood sample analysis for SARS-CoV-2 antibodies.

In all, the project involved nearly 30 people across multiple UAMS entities and from outside the institution. "It was a Herculean effort, but we found ourselves with the right people at the right time," Kennedy said.

In addition to TRI, the collaborating entities included:

- Arkansas Children's Research Institute
- College of Medicine departments of Pediatrics; Microbiology and Immunology; Internal Medicine; Pathology; Pharmacology and Toxicology; and Biomedical Informatics
- Fay W. Boozman College of Public Health
- UAMS Department of Biostatistics
- UAMS Regional Campuses and affiliated UAMS Rural Research Network
- Arkansas Department of Health
- Arkansas Foundation for Medical Care (AFMC).

"The antibody study showcases the expertise, leadership and collaboration that UAMS and its partners can bring to bear for essential disease surveillance in a pandemic," said UAMS Chancellor Cam Patterson, M.D., MBA. "It took extraordinary effort, and everyone involved deserves recognition."

STUDY FINDINGS

The team collected more than 10,000 blood samples from children and adults in three waves, from August to December 2020. For the adult samples, they found low rates of SARS-CoV-2 antibodies, averaging from 2.6% in the first wave (July / August 2020) to 7.4% by the third wave (November / December 2020).

The low percentages are concerning, Kennedy said, given the high numbers of hospitalizations and deaths in Arkansas.

"If we had had a higher percentage of infections, how much worse might our hospitalizations and deaths have been?" he said.

Also troubling, he said, is that while the overall antibody rate was low, that was not the case for specific racial and ethnic groups. Hispanic populations were almost 19 times more likely to have SARS-CoV-2 antibodies than whites, and Blacks were five times more likely to have antibodies as whites during the course of the study.

"Our findings underscore the need for everyone to get vaccinated as soon as they can," Kennedy said.

The team found little difference in antibody rates between rural and urban residents, which surprised researchers who thought rural residents might be less exposed.

The team shared its findings in real time with UAMS leadership, the College of Public Health, and the state Department of Health.

TRI Names Six HSIE Scholars

TRI's Health Sciences Innovation and Entrepreneurship (HSIE) Postdoctoral Training Program has named six postdoctoral scholars for its class of 2023. The scholars, selected in a competitive application process, will begin two years of mentored entrepreneurship training July 1.

The program includes stipends up to \$57,000 per year and is designed to help promising scientists more quickly move their discoveries into everyday practice by teaching them commercialization and team science skills.

The HSIE Postdoctoral Scholars – all from the UAMS College of Medicine – their research project plans and mentors are:



Laura Ewing, Ph.D., Department of Biochemistry and Molecular Biology and Winthrop P. Rockefeller Cancer Institute. Her project will focus on identifying predictors of the development, progression or recurrence of different types of ovarian cancer. Mentor: Michael Birrer, M.D., Ph.D.



Thomas Nienaber, M.D., Department of Pediatrics - Division of Neonatology. His project will address improving the neonatal mechanical ventilation by optimizing the endotracheal tube. Mentor: Kevin Sexton, M.D.



Kindann Fawcett, Ph.D., Department of Pediatric Neurology at Arkansas Children's Hospital (ACH). Her project will focus on development of a tool to assess risk and best practices in regards to nutrition and its role in the standard care provided for patients at ACH and UAMS. Secondly, she will focus on the creation of a digital media and virtual, interactive learning platform for nutrition and exercise curriculum to educate the youth of Arkansas. Mentor: Aravindhan Veerapandiyam, M.D.



Megan Reed, Ph.D., Department of Biochemistry and Molecular Biology. Her project will focus on the use of comparative transcriptomics pipeline to generate and validate patient-specific treatment options for glioblastoma tumors. Mentors: Alan Tackett, Ph.D., and Analiz Rodriguez, M.D., Ph.D.



Julia Tobacyk, Ph.D., Department of Pharmacology and Toxicology. Her project will focus on the development of new treatments for opioid use disorder in pregnancy. Mentor: Lisa Brents, Ph.D.



Tiffany Miles, Ph.D., Department of Neurobiology and Developmental Sciences. Her project will focus on hormonal deficiencies related to obesity and then establishing a platform to educate Arkansans on the impact of maternal nutrition in offspring development. Mentor: Angus MacNicol, Ph.D.

TRI Study of the Month



(L-R) TRI research coordinator Alicia DeAgüero, M.S., is assisting Johnathan Goree, M.D., on the clinical trial.

- **UAMS Principal Investigator:** Johnathan Goree, M.D., Associate Professor, Department of Anesthesiology; Director, UAMS Chronic Pain Division
- **Summary:** A multi-center clinical trial on the treatment of post-operative pain following orthopaedic surgery with SPRINT® Peripheral Nerve Stimulation (PNS) System
- **Significance:** This study is gathering information about whether temporary delivery of electricity to the nerves of the upper leg will relieve chronic knee pain after a total knee replacement.
- **TRI Services:** Medicare coverage analysis, study budget development, IRB submission and regulatory startup, training for study staff/investigators, oversight of enrollment startup, and research nurse coordinator services.
- **Sponsor:** SPR Therapeutics Inc.

VA Support Adds Career Development Scholar to 2021 Cohort

TRI's Career Development Scholars Program added a scholar to its cohort of 2021 scholars thanks to funding from the Central Arkansas Veterans Healthcare System (CAVHS).

The now five early-career researchers will receive two years of funded support and mentored translational research training. The program selects scholars through a competitive application process and provides 75% salary support and up to \$25,000 a year for research, tuition, travel and education.

Three scholars are supported by TRI's Clinical and Translational Science Award (CTSA), and two are supported institutionally, by CAVHS and the Winthrop P. Rockefeller Cancer Institute (WPRCI).

The two Institutional Career Development Scholars are:



Joseph Holthoff, M.D., Ph.D.,
Nephrology Fellow Physician,
Department of Internal Medicine

Project title: Investigation of the Role of IGFBP-1 in a Murine Model of Acute Kidney Injury (CAVHS)



Yong-Chen "William" Lu, Ph.D., Assistant Professor in the Department of Pathology

Project Title: A pilot study of developing T cell-based cancer immunotherapies for African American and Hispanic populations (WPRCI)

The CTSA-funded KL2 Career Development Scholars are:



Maryam Y. Garza, Ph.D., M.P.H., M.M.Ci., Instructor in the Department of Biomedical Informatics

Project Title: Innovative Solutions to Streamline Data Collection, Exchange, and Utilization in Translational Research



Adam Wolfe, M.D., Ph.D., Assistant Professor of Radiation Oncology

Project Title: "Targeting Homologous Repair to Overcome Genotoxic Therapy Resistance in Pancreatic Cancer"



Tremaine Williams, Ed.D., Assistant Professor in the Department of Biomedical Informatics

Project Title: Quantifying Clinical Team Social Network Influences on Care of Medically Complex Patients Using an Electronic Medical Record (EMR)

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