

Announcements

For Bioinformatics Core support, please contact either Drs. [Galina Glazko, Ph.D.](#) (UAMS) or [Phil Williams](#) (UALR). The [Bioinformatics Core Support Request Form](#) can be found on the [INBRE website](#).

Fellowship opportunities are available through NIH for students and postdocs from underrepresented populations. For more information, visit the [iCURE website](#).

The NIH Office of Intramural Training and Education (OITE) offers many free online workshops and webinars for all levels of training. Below are a few links, but please be sure to take a look at the schedule for additional webinars that may be of interest:

- June 16, 1-2:30 p.m.** [What Can You Do in College to Enhance Your Chances of Getting into Medical or Graduate School](#)
- June 23, 1-2:30 p.m.** [Choosing and Applying to Medical School](#)
- June 24, 1-2 p.m.** [Networking, Informational Interview, and Using LinkedIn for Career Advancement](#)
- June 30, 1-2:30 p.m.** [Choosing and Applying to Graduate School](#)

NIH has a new #COVID [website](#).

Upcoming Meetings

RI-INBRE Northeast Regional IDeA Virtual Conference

August 16 - August 18, 2021

Southeast Regional IDeA Conference

Tentatively scheduled for November 12-14, 2021 in San Juan, Puerto Rico

INBRE Fall Conference

October 22 & 23, 2021

NISBRE Conference

Washington, DC, in 2022

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Message from the PI



With the end of the Spring Semester and the beginning of the summer, the last two weeks have been a busy time for the Arkansas INBRE. It started off May 17th with the Health Sciences Entrepreneurship Boot Camp. The Boot Camp is a week-long immersive experience in which undergraduate and graduate students learn about what it takes to successfully launch a small business focused on an aspect of improving human health. This year's camp was led by Jeff Standridge from Conductor. In addition to the Arkansas INBRE, the Boot Camp is sponsored by UAMS, BioVentures, Conductor, University of Central Arkansas, and Conway Regional Health System. On the last day of the Boot Camp, I had the pleasure of judging presentations from the four teams that described their idea for a start-up company. The winning team proposed a company that would assimilate data from multiple sources in order to assess the

degree of social isolation that individuals with chronic disease have and from the data make predictions about interventions that might improve outcomes for individual patients. I was impressed with all the teams, especially with the effort that was put into "researching" the problem that the team chose to address and the contributions made by individuals from the sponsoring institutions who passed on their knowledge about entrepreneurship to the students.

On May 19th, the Arkansas INBRE presented a virtual workshop on Infectious Diseases that was targeted to undergraduate students. The workshop is the third in a series that are designed to introduce undergraduate students to "cutting-edge" research areas. The first two workshops were focused on cancer and substance abuse research. Dr. Tom Kelly organized the infectious disease workshop that was attended by 20 students. In addition to Dr. Kelly, nine faculty from UAMS and a clinician from Baptist Health participated in the workshop.

Finally, the Arkansas INBRE Summer Research Program for Undergraduates started on May 24th. You may recall that last year due to the Covid-19 pandemic we had to cancel the Summer Research Program. However, to those students who were accepted into the Program last year, but were unable to participate, we extended an invitation to be part of this year's Program. Consequently, we have a record number of students in the Program. Kudos to Dr. Feng Wang (Director of the Outreach Core) and especially Diane McKinstry (Outreach Program Coordinator) for all their hard work in putting together this year's Summer Research Program.

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Faculty Spotlight



Laura MacDonald, PhD

Assistant Professor

*Department of Biology and Health Sciences, Director, Hendrix College STEM Scholars
Hendrix College*

I initially got into research as an undergrad because I really thought I wanted to go to veterinary school. I had decided to major in Biochemistry and Molecular Biology (not realizing that it was heavy in Chemistry, which I was terrible at). My sophomore year, I had to take organic chemistry and nearly failed out of it. It was only because my teacher at the time, Dr. Goodwin, had seen that I could work hard in a previous summer internship that I passed the class at all, and he took me under his wing, took me into his lab, and then helped me do research in South Africa. That trip really changed my life, and I came back realizing that I didn't want to go to vet school. I wasn't sure what I wanted to do, but I took a fantastic immunology class my senior year that really got me excited about the possibility of doing research and going to graduate school.

I have two major research interests. I am really excited about exploring how the tumor microenvironment impacts progression of thyroid cancer, but my most recent research has turned to developing inclusive practices in higher education to drive equity in the sciences. These efforts are close to my heart and I hope will contribute to the development of a more socially just scientific workforce. My current research focuses on developing teaching approaches that are inclusive and equitable. In addition, I'm really interested in altering systems within colleges and universities that privilege some and disadvantage others through a variety of investigative approaches.

I currently have a National Science Foundation Scholarships in STEM (S-STEM) grant from the Department of Undergraduate Education (~\$650,000). We started the Hendrix College STEM Scholars program in 2018 and currently are working with 18 students who are all exceptional people. They are studying everything from data analytics to biochemistry, but what's most important is how they support each other as part of our community.

INBRE was huge for me because it gave me the opportunity and confidence in writing grants. The grant-writing workshop was so well done and gave me a step by step instruction guide for writing an effective grant, and I really don't think I'd be where I am now without that fantastic professional development opportunity.

What you might not know about Dr. MacDonald...

Last year I had the privilege to start a podcast with one of my students, Jayla King. It's called "Scientists for Social Justice" and can be found on anchor (<https://anchor.fm/sfsj>). We had a ton of fun working on this and it was definitely a stretch out of my comfort zone.

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Development Research Project Program

Jerry Ware, PhD, Program Director



New NIH Policies and Awards

The NIH has announced two significant and recent changes. The first is an implementation of changes to the NIH Biographical Sketch (Biosketch) and Other Support Pages. The second is a new NIH funding mechanism, the R16 - Research Excellence Award, a mechanism that seems particularly tailored to PUI faculty seeking extramural support.

NIH Biosketch Changes -

Effective May 25, 2021, the NIH has revised the format for NIH biosketches. Since Arkansas INBRE funded projects receive final approval from the NIH, all biosketches going forward will need to adopt the new format. Specific details on the changes and related announcements can be found on the NIH website ([link](#)). However, a convenient tool to insure any newly created biosketch is up-to-date, is to use SciENCv ([link](#)), an NIH web-based site specifically designed to help applicants complete biosketches efficiently. SciENCv eliminates the need to enter repeatedly the same information and only edit content as needed. SciENCv allows you to create multiple profiles that can be modified to support the required information and outputs the biosketch as a Word or .pdf file. Creating a biosketch using SciENCv should insure the format and necessary information complies with the new guidelines.

R16 – Research Excellence Award –

Support for Research Excellence (SuRE) is a newly announced building research capacity mechanism available to institutions that serve students from underrepresented groups in biomedical research. Referred to as an “R16”, the mechanism differs from the “R15” on several levels but a major difference is the R16 award must be awarded to institutions that enroll a minimum of 25% undergraduate students supported by Pell grants ([link](#)). This makes the majority of Arkansas PUIs eligible for the R16. The awards can be up to \$100k/year in direct costs for up to 4 years and the award is renewable. A similar award, First Independent Research (SuRE-First, [link](#)), is restricted to faculty who have not had prior independent external research grants. Individuals who have received support from the Arkansas INBRE are eligible to apply for a SuRE-First award. The SuRE-First award can be up to \$125k/year for 4 years, but is not renewable. Both of these mechanisms highlight an NIH commitment to building and expanding a biomedical workforce and the recognition of the still untapped potential residing within PUIs.

As always, if you have questions about the biosketch changes or the new R16 mechanism, feel free to reach out at any time (jware@uams.edu).

Summer Manuscript Support Awards

The recent solicitation for summer manuscript writing support was met with an unexpected level of enthusiasm. Twenty-five proposals were submitted representing most of the institutions within the Arkansas INBRE network. Twelve proposals were awarded. Summer meetings via Zoom will be held to discuss progress and strategies to turn the data into manuscript submissions. A possible win-win for faculty, the Arkansas INBRE, and perhaps the first published paper for worthy undergraduates.

Have a safe, enjoyable, and productive summer!

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Student Spotlight



Christina Cooley, PhD
2002 and 2003 Former INBRE Student

I am Dr. Christina Cooley, and I'm originally from Conway, Arkansas. I attended Hendrix College, graduating with a degree in Chemistry in 2005. I was fortunate to get involved early with the INBRE program, starting in its inaugural year in 2002. I worked with Dr. Robert Skinner and Dr. Nancy Reese at the University of Arkansas for Medical Sciences studying "Combinative Therapies for Spinal Cord Injuries," where I helped explore how muscle exercise, drug treatment and spinal cord stimulation in a rat model could combine therapeutically to help patients heal and regain function following spinal cord injuries.

Although fairly far from my chosen field, Chemistry, this summer was formative in helping me fall in love with research and the research process. I loved the neurobiology lab so much that I returned for a second INBRE summer in 2003, moving to a more molecular-based project with Dr. Edgar Garcia-Rill and studying "Intracellular Recording of Pedunculo-pontine Neurons *in vitro*". In this project, I learned the technique of electrophysiology in order to study how neurons change to stimuli across development. This work was very challenging yet so exciting that I didn't want to leave when the summer was over, so I came back for an additional summer on my own to continue the project.

Through the INBRE program and these summer research opportunities, I became educated on how top-notch research is conducted. I was allowed to participate throughout the process, from reading literature and project design, training in experimental techniques and communicating findings in a scientific fashion, which was extremely beneficial. I also became fascinated by biology and neuroscience. Combining these experiences with Organic Chemistry research at Hendrix College in the lab of Dr. Tom Goodwin solidified my career goal to work at the interface of chemistry and biology in order to help solve problems related to human health. I took all of the skills I learned to Stanford University, where I worked with Dr. Paul Wender in the interdisciplinary area of drug delivery, and ultimately graduated with a PhD in Organic Chemistry in 2011. I then selected The Scripps Research Institute for a Postdoctoral Research Fellowship in the lab of Dr. Jeffery Kelly, where I studied Chemical Biology to discover therapeutic agents for the treatment of amyloid disease.

I started my independent career as an Assistant Professor of Chemistry at Trinity University in San Antonio in 2015. At Trinity, my lab uses the tools of organic and polymer chemistry to design and test new approaches for the detection and treatment of disease, continuing in the tradition of interdisciplinary science that started with my INBRE experience. This year, I was granted tenure, which came with a promotion to Associate Professor of Chemistry. I was also the recipient of an NSF CAREER nationwide award and an Early Career Award for Distinguished Research at Teaching at Trinity University. I am passionate about teaching and mentoring the next generation of budding young scientists who will take the tools of research forward to change the world. I also want to provide undergraduates a start in science and research the way the INBRE program did for me!

What you might not know about Dr. Cooley...

She was a Music minor at Hendrix, and has continued this hobby, playing flute regularly through graduate school as a member of the Stanford Flute Ensemble and since then through her church. She and her husband, Scott, have two children, Cohen and Claire, ages 8 and 6.

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Recent Publications

Alnufaie R, Ali MA, Alkhaibari IS, Roy S, Day VW, **Alam MA**. Benign Synthesis of Fused-thiazoles with Enone-based Natural Products and Drugs for Lead Discovery. *New J Chem*. 2021 Apr 7;45(13):6001-6017. doi: 10.1039/D1NJ00380A. Epub 2021 Mar 2. PubMed PMID: 33840994; PubMed Central PMCID: PMC8026163.

Hansa RK, Khan MMK, Frangie MM, Gilmore DF, Shelton RS, Savenka AV, Basnakian AG, Shuttleworth SL, Smeltzer MS, **Alam MA**. 4-4-(Anilinomethyl)-3-[4-(trifluoromethyl)phenyl]-1H-pyrazol-1-ylbenzoic acid derivatives as potent anti-gram-positive bacterial agents. *Eur J Med Chem*. 2021 Jul 5;219:113402. doi: 10.1016/j.ejmech.2021.113402. Epub 2021 Apr 4. PubMed PMID: 33845234; PubMed Central PMCID: PMC8165011.

#sharingnews

Dr. Kyle Quinn, Associate Professor of Biomedical Engineering at the University of Arkansas at Fayetteville is part of a team who received a \$10.8 million grant from the National Institute of General Medical Sciences (NIGMS) and the National Institutes of Health (NIH). This Centers of Biomedical Research Excellence (COBRE) grant will enable an interdisciplinary team of researchers at the U of A and University of Arkansas for Medical Sciences to address the role of cell and tissue metabolism in rare and common diseases such as cancer, diabetes, obesity and mitochondrial disorders. The five-year award, establishes the Arkansas Integrative Metabolic Research Center as an NIH-designated Center of Biomedical Research Excellence. The center will support important scientific contributions not only in specific biomedical fields associated with metabolic diseases, but also broader contemporary research on metabolism, exploring issues such as the sensitivity of mitochondrial biomarkers to explain the onset and progression of rare and common diseases. The center will also help cultivate a critical mass of researchers determined to solve multiple human health problems with metabolic underpinnings that have been particularly devastating in Arkansas and the southeastern United States, such as cancer, diabetes and obesity. Dr. Quinn, who specializes in metabolic imaging and biomedical optics, will serve as the center's director. The center will have three research cores focused on providing complementary, state-of-the-art research tools to aid researchers in studying cell and tissue metabolism.

Samantha Jones, a biology student at Southern Arkansas University (SAU), recently presented her research at the 104th Annual Meeting of the Arkansas Academy of Sciences, where she came away as the first place winner in the Medical Science and Parasitology division.

Ms. Jones presented research she conducted in the laboratory of Dr. James Hyde in the Department of Biology at SAU. Her research focuses on keeping pituitary cells alive outside the body to allow for further studies of the cells' structure, communication, and genetics. Her work focuses on microscopic techniques and imaging and uses newly acquired microscopy equipment obtained through an INBRE grant that was awarded to Dr. Hyde.

Ms. Jones will be graduating from SAU next year and plans to attend medical school at the University of Arkansas for Medical Sciences.

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