Arkansas INBRE
IDeA Network of Biomedical Research Excellence

INBRE Newsletter **August 2022**
Volume 3 Issue 2

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.

INBRE Funding Opportunities
Collaborative Research Grant (CRG) Awards for faculty at the Arkansas INBRE network of Primarily Undergraduate Institutions (PUI). This FOA is directed to PUI faculty with an intent to foster synergistic and collaborative approaches between PUI faculty from different institutions, or between PUI faculty and faculty at either of the two Arkansas INBRE lead institutions, the University of Arkansas, Fayetteville or the University of Arkansas for Medical Sciences.

Summer Research Grant (SRG) Awards, for the 2023 Summer. The funding of Summer Research Grants is designed to help faculty at the PUIs in Arkansas to either launch a new research project or make significant progress with ongoing research that would not be possible with teaching commitments during the academic year. Please see the INBRE website for details.

Applications are due, by October 25, 2022.
Additional information can be found on the INBRE website.
If you need more information, please contact Dr. Jerry Ware.

INBRE Research Technology Core Voucher Opportunity
Due: September 1
https://inbre.uams.edu/funding-opportunities/research-vouchers/.

As a reminder the voucher process allows faculty at the PUIs to gain access to the Core Facilities at the lead institutions for both research and teaching. Please contact the Core Facility Director or Dr. Alan Tackett at least two weeks prior to the due date to obtain a quote.

Tips for a successful application: have your samples ready for submission to the core because vouchers expire; involve multiple undergraduate students; write a concise description of the project; outline how the data obtained will enable publications involving undergraduate students and grant submissions.

SBIR/STTR Readiness Program for Historically Black Colleges and Universities (HBCUs) and Minority Serving Institutions (MSIs) in the Southeast IDeA Region
XlerateHealth, Jackson State University and University of Kentucky have initiated a new program designed to help faculty and students from HBCUs and MSIs with applications for SBIR and STTR grants. More information about the program can be found on the XLerateHealth website: https://xleratornetwork.com/sbir-sttr-readiness-program-for-hbcus-msis/.

Upcoming Meetings

Arkansas INBRE Grant Writing Workshop (*will be held virtually*)
September 9, 2022
2:00 - 4:30 pm
Registration link.
As a reminder, faculty are required to attend at least one Grant Writing Workshop prior to submitting a research grant proposal to the INBRE.

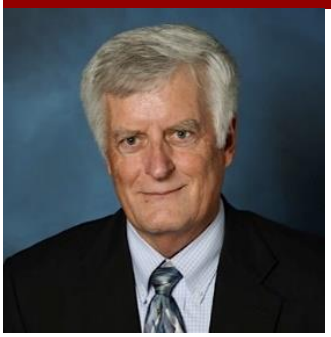
NSF EPSCoR EOD Conference
September 11-14, 2022
Isle of Palms, South Carolina

2022 Arkansas INBRE Fall Research Conference
October 21-22, 2022
Fayetteville, Arkansas
Registration link. Registration deadline is September 19th.

Arkansas INBRE Steering Committee Meeting
October 21, 2022
Fayetteville, Arkansas

2022 NISBRE Conference (*will be held virtually*)
December 7-9, 2022

Message from the PI



In many sports, the number “four” is especially significant. Baseball has the grand slam—a home run with three runners on base resulting in four runs scored with a single swing of the bat. In both men’s and women’s tennis, a grand slam is the achievement of a player winning all four major championships (Australian Open, French Open, Wimbledon, and U.S. Open) in a calendar year. In the past year, the Arkansas INBRE made its mark by applying for and subsequently obtaining four supplements that support a wide array of biomedical research projects across the state. Together, the four supplements amount to a little over $600,000.

Funds from supplement #1 support a project led by Dr. Pearl McElfish, an associate professor at UAMS Northwest. Dr. McElfish and her team are investigating COVID-19 vaccine hesitancy among Arkansans. A paper reporting the team’s findings was recently submitted to the *American Journal of Public Health*. Supplement #2, led by Drs. Justin Zhan and Kyle Quinn, supports a project that will convert training curriculum in artificial intelligence and machine learning into cloud-based learning modules that will be widely available to investigators and students in IDeA states. Dr. Zhan is a professor of data science at the University of Arkansas and Dr. Quinn is an associate professor of biomedical engineering at the University of Arkansas. Dr. Quinn is also the director of the COBRE-funded Arkansas Integrative Metabolic Research Center. Supplement #3 supports a collaborative research project involving a COBRE-funded investigator and an INBRE-funded investigator. The goal of the project is to develop a new class of compounds, short chain disquaramides, that show promise in treating leishmaniasis, a parasitic disease found in mainly in tropical and subtropical regions. Dr. Tiffany Weinkopff, an assistant professor of microbiology and immunology at UAMS and Dr. Greg Naumiec, an associate professor of chemistry at the University of Central Arkansas bring complementary expertise to bear on this line of research that promises to improve the lives of millions of people living in countries where the disease is endemic. Finally, supplement #4, led by Dr. Donald Johann who is an associate professor of internal medicine, supports the purchase of an Illumina NextSeq 2000 Next Generation Sequencing (NGS) System that will be housed in the UAMS Winthrop P. Rockefeller Cancer Institute Genomics Core Facility. The addition of the Illumina NextSeq 2000 will greatly expanded the capabilities of the Genomics Core Facility which is widely used by Arkansas INBRE-funded investigators and students across the state.

I’m fairly certain that the Arkansas INBRE’s “grand slam” won’t be reported in the sports pages of the Arkansas Democrat. However, it is still a significant accomplishment and reflects a growing diversification of the research supported by the Arkansas INBRE. Thanks to everyone who made the “grand slam” possible.

Development Research Project Program

Jerry Ware, PhD, Program Director

Funding Opportunity Deadlines – October 25, 2022

2023 Summer Research Grant (SRG)

2023 Collaborative Research Grant (CRG)

(*All applicants are required to attend one of the INBRE Grant Writing Workshops in order to be eligible to submit a proposal*)

Arkansas INBRE Grant Writing Workshop – September 9, 2022 (2 – 4:30 pm)

Grant Writing Workshop Registration Link: (*click here*)

The Funding Opportunity Announcements (FOAs) for the SRG and CRG proposals can be found on the Arkansas INBRE website (*click here*). If you have questions about either funding mechanism, please reach out to Dr. Ware (jware@uams.edu) or Dr. Kelly (kellythomasJ@uams.edu).

Good Publishing Practices - August 4, 2022

The Arkansas INBRE hosted a virtual presentation/workshop by librarian and Professor Susan Steelman, Head of the UAMS Education and Research Services. The topic was an overview of the evolving landscape of biomedical publishing. A foundation in biomedical research is communication with the peer review system establishing a trust that scholarly work is vetted. Yes, the system is not perfect, but it has withstood the test of time. However, with a changing landscape, such as predatory journals, there has been some erosion of trust and in the past 2 years we have seen firsthand how disinformation creates confusion and leads to skepticism and more distrust.

Ms. Steelman introduced the type of publishers available to the research community, i.e., the traditional journal, open access journals, and the predatory journals. She highlighted a number of red-flags for identifying the less trusted journals and introduced a valuable tool, https://thinkchecksubmit.org/, to aid in identifying an appropriate venue to publish your research. She also introduced the value of free auto-alert servers available at pubmed.org or Google Scholar, to stay up to date with the most recent publications for an area of interest. She ended with a brief overview of the current NIH public access policies and obligations for appropriate acknowledgement to the NIH.

Approximately 35 attendees were then able to ask questions of Ms. Steelman and lively discussion followed that hopefully benefits our INBRE network. We look forward to hosting more virtual workshops and welcome any suggestions for future topics that might be relevant for the PUI faculty.

Student Spotlight

Luke Shackelford
2018 INBRE Fellow

As an undergraduate student at Lyon College, I was eager to find opportunities that would hone my critical thinking both on and off campus. Partaking in the research process would turn out to be one of the most influential aspects of my education and I continue to utilize the skills and deepen the relationships that I developed during my time as a student. INBRE was integral to this process through providing funding to my undergraduate lab and hosting the summer research fellowship. I was first introduced to biomedical research as a freshman, working in the lab of Dr. Alexander Beeser, which received funds from INBRE to investigate promoting factors of cytoplasmic ribosome maturation. This introduction to biomedical research ultimately led to my participation in the INBRE summer research fellowship, where I continued to learn about the scientific process.

In the summer of 2018, I worked with Dr. Robert Eoff at UAMS, where we studied the role of a human DNA polymerase in an aggressive brain cancer and its potential inhibition with a novel chemical derivative. It was my first time working with human tissue cultures or CRISPR-Cas9 so the project was daunting but the support I received from Dr. Eoff, his lab team, and the other INBRE students was incredible. I developed skills in specific lab techniques, analytical thought, and communication that I continue to rely on. Additionally, I was interested in clinical sciences so on weekends and after hours, I volunteered at the UAMS Rockefeller Cancer Institute and the UAMS 12th Street Health Center. Being at UAMS opened these unique opportunities where I learned advanced patient care strategies and developed my own passion for applying biomedical research.

After finishing the INBRE summer fellowship, I continued in research and the next summer accepted a research experience at the University of Chicago in the lab of Dr. Robert Carrillo. While there I collaborated on a project aimed to optogenetically activate molecular signaling proteins to study their role in neuronal development. My time in INBRE gave me the ability to approach this project with confidence. The fall of my senior year in 2019, I was invited to attend the Council of Undergraduate Research symposium in Washington, DC where I discussed my research experiences and advocated for continued funding of student research opportunities. When I graduated, I accepted a position on the board of trustees of my undergraduate institution, Lyon College, so I could continue advocating for research and opportunities for other students.

Currently, I am in my last year as a Doctor of Chiropractic student at Logan University. Although I ultimately pursued a career in the clinical sciences, the knowledge I gained as a biomedical research student remains a major part of my foundation for evidence informed patient care. My passion for the scientific process remains, however, as I participate in clinical research in a field where it has been traditionally lacking. Most recently, I was selected by the Federation of International Sports Chiropractors to assist in a research project analyzing treatment efficacy provided at the 2022 World Games. I look forward to building on my clinical and research experience that began with INBRE, and I am forever grateful for the vision and hard work of those that make these opportunities possible for Arkansas students.

What you might not know about Luke…

I love the outdoors and recently started mountain biking to explore more of the Ozarks.

Recent Publications

Alam MA. Domino/Cascade and Multicomponent Reactions for the Synthesis of Thiazole Derivatives. Curr Org Chem. 2022;26(4):343-347. doi: 10.2174/1385272826666220214110118. Epub 2022 Mar 24. PMID: 35936384; PMCID: PMC9351285.

Ipe TS, Ugwumba B, Spencer HJ, Le T, Ridenour T, Armitage J, Ryan S, Pearson S, Kothari A, Patil N, Dare R, Crescencio JCR, Venkata A, Laudadio J, Mohammad K, Jamal N, Thompson J, McNew H, Gibbs M, Hennigan S, Kellar S, Reitzel K, Walser BE, Novak A, Quinn B. Treatment of COVID-19 Patients with Two Units of Convalescent Plasma in a Resource-Constrained State. Lab Med. 2022 Jun 30: lmac055. doi: 10.1093/labmed/lmac055. Epub ahead of print. Erratum in: Lab Med. 2022 Aug 22: PMID: 35771890; PMCID: PMC9278218.

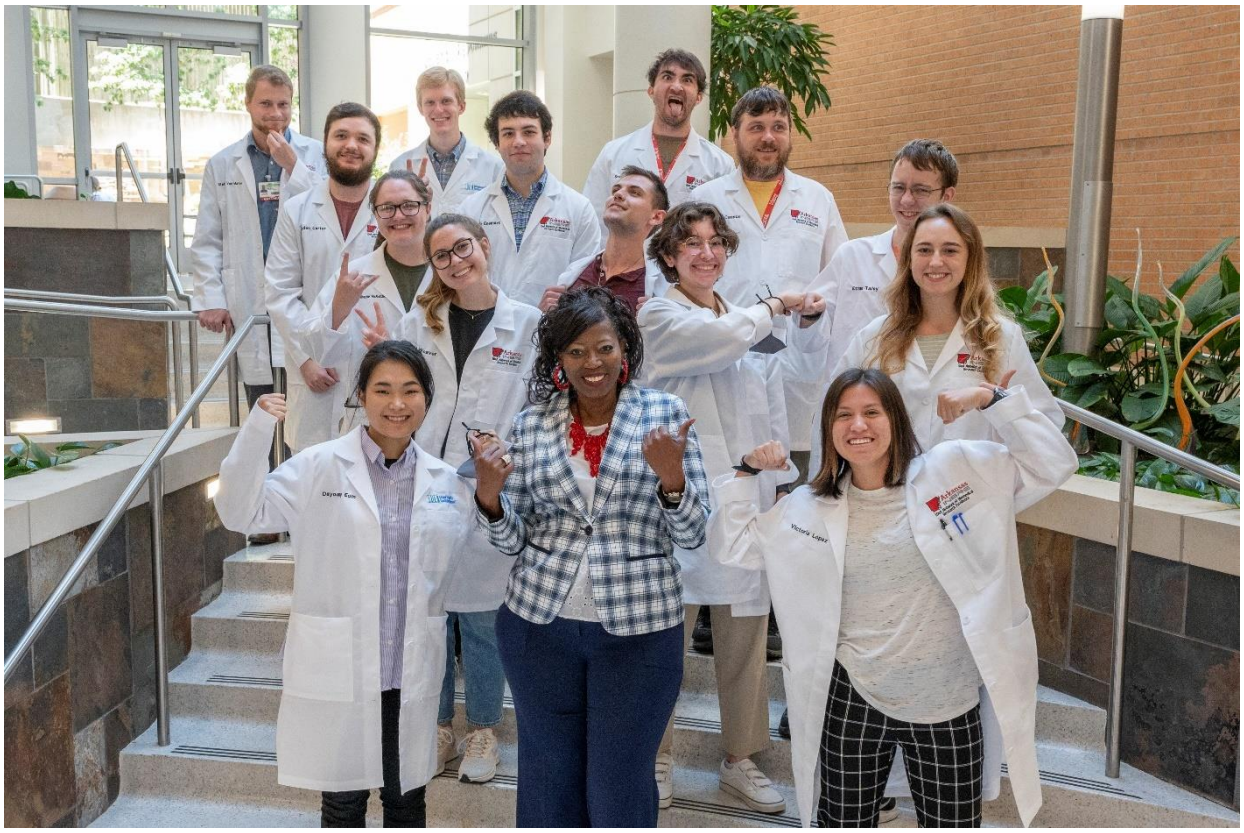
Li D, Yu X, Kottur J, Gong W, Zhang Z, Storey AJ, Tsai YH, Uryu H, Shen Y, Byrum SD, Edmondson RD, Mackintosh SG, Cai L, Liu Z, Aggarwal AK, Tackett AJ, Liu J, Jin J, Wang GG. Discovery of a dual WDR5 and Ikaros PROTAC degrader as an anti-cancer therapeutic. Oncogene. 2022 Jun;41(24):3328-3340. doi: 10.1038/s41388-022-02340-8. Epub 2022 May 7. PMID: 35525905; PMCID: PMC9189076.

Mohammadhosseinpour S, Ho LC, Fang L, Xu J, Medina-Bolivar F. Arachidin-1, a Prenylated Stilbenoid from Peanut, Induces Apoptosis in Triple-Negative Breast Cancer Cells. Int J Mol Sci. 2022 Jan 20;23(3):1139. doi: 10.3390/ijms23031139. PMID: 35163062; PMCID: PMC8835363.

Xu C, Meng F, Park KS, Storey AJ, Gong W, Tsai YH, Gibson E, Byrum SD, Li D, Edmondson RD, Mackintosh SG, Vedadi M, Cai L, Tackett AJ, Kaniskan HÜ, Jin J, Wang GG. A NSD3-targeted PROTAC suppresses NSD3 and cMyc oncogenic nodes in cancer cells. Cell Chem Biol. 2022 Mar 17;29(3):386-397.e9. doi: 10.1016/j.chembiol.2021.08.004. Epub 2021 Aug 31. PMID: 34469831; PMCID: PMC8882712.

Poudel H, Sanford K, Szwedo PK, Pathak R, Ghosh A. Synthetic Matrices for Intestinal Organoid Culture: Implications for Better Performance. ACS Omega. 2021 Dec 25;7(1):38-47. doi: 10.1021/acsomega.1c05136. PMID: 35036676; PMCID: PMC8756583.

2022 INBRE Summer Fellows



UAMS Fellows (l-r) 1st row: Dayoung Eom, University of Central Arkansas; Diane McKinstry, UAMS; Victoria Lopez, University of the Ozarks.
2nd row: Alexx Weaver, Arkansas State University; Vcitoria Ortega, Hendrix College; BreeAnna Scott, University of Arkansas, Fayetteville.
3rd row: Mary Katherine McKenzie, Henderson State University; Jackson Gill, Henderson State University, Ethan Talley, University of Arkansas, Fayetteville.
4th row: Jayden Carter, University of Central Arkansas, Luke Enemark, John Hopkins University; Dustin Cannon, Lyon College.
5th row: Stetson Van Matre, University of Central Arkansas; Walker Hendricks, Harding University; Robert Shaver, University of Arkansas, Fayetteville.
Not pictured: Jomeeka Meeks, University of Central Arkansas.

UARK Fellows (l-r): Joseph Chrisman, University of the Ozarks; Morganne Browning, Arkansas Tech University; Nathaniel Gonzales, University of Arkansas, Fort Smith; Kñeisha McDonald, University of the Ozarks; Cody Funk, John Brown University; Ragan Edison, Harding University. Not pictured: Caroline House, John Brown University.