

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:

April 12, 3-5 p.m. [The Academic Job Search: Evaluating Positions and Negotiating Offers](#)

April 14, 2-4 p.m. [Succeeding In Graduate School \(For Future & Early Graduate Students\)](#)

May 3, 10 a.m. - 4 p.m. [14th Annual NIH Career Symposium- An ONLINE event](#)

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

Upcoming Meetings

The Arkansas INBRE is continuing its partnership with the Conductor and BioVentures to offer the Health Sciences Entrepreneurship Boot Camp in **May16-22, 2021 at the University of Central Arkansas**. This Boot Camp, which was offered for four years until disrupted by COVID-19 last year, has gone from pilot project to national award winner, recently earning a second place Innovations in Research and Research Education Award from the Association of American Medical Colleges. Sixty-nine students have completed the Boot Camp, representing 15 different colleges and universities within Arkansas, and the course ratings have been consistently exceptional. Participation in the camp is free and is open to all undergraduate and graduate students. Please help us keep this valuable program running by recommending the Camp to your students. **More information about the Camp and the link to the registration can be found at <https://www.arconductor.org/bootcamp>. If you or your students have any questions, please contact Dr. Nancy Gray (nmgray@uams.edu).**

The National Institutes of Health (NIH) Office of Data Science Strategy (ODSS) will be offering a virtual **Data Science for Science Teachers Boot Camp, July 12-16, 2021**. The boot camp is an intensive research training course designed specifically for STEM educators working with students in underserved communities. Applicants should be U.S.-based, STEM educators working with high school or post-secondary students who are considered [underserved](#). This may include students at:

- Rural high schools or community colleges
- Tribal colleges

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- Historically Black Colleges and Universities
- Hispanic Serving Institutions
- Minority Institutions
- Other (applicants will be asked to define)

[Apply here \(link is external\)](#) by April 9, 2021. Applicants will be notified of their acceptance by May 10. For more information, please contact ds-outreach@nih.gov (link sends e-mail). The main website can be found here: <https://datascience.nih.gov/data-science-science-teachers-boot-camp>.

An invitation is open to the entire IDeA community to attend the [8th Annual LBRN Conference on Computational Biology and Bioinformatics](#). It will be held virtually from **April 15 -17** and registration is free. All Faculty, graduate and undergraduate students are encouraged to submit a related abstract for an oral/poster presentation.

Arkansas Academy of Science

Tentatively scheduled for April 9-10, 2021

Southeast Regional IDeA Conference

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

RI-INBRE Northeast Regional IDeA Virtual Conference

August 16 - August 18, 2021

NISBRE Conference

Washington, DC, in 2022

Message from the PI



For those of you who are basketball fans, this is an exciting time of year. I am talking about the NCAA men's and women's tournaments. There have been many exciting games including several that ended with a proverbial "buzzer-beater" basket. Unfortunately, in the women's tournament, the University of Arkansas lost in the second round. However, the University of Arkansas men made it to the Elite Eight. This year, the NIGMS IDeA Program has its own version of March Madness in the form of a plethora of supplement opportunities.

I am pleased to report that the Arkansas INBRE will have at least five "teams" competing in the NIGMS IDeA "Supplement Tournament", winners to be decided in May/June 2021. Two proposals will be submitted within the next month that address Sars-CoV-2 pandemic issues. In partnership with the COBRE-funded Center for Translational Pediatric Research, the Arkansas INBRE is co-sponsoring an application led by Dr. Joshua Kennedy (UAMS/Arkansas Children's Hospital) to conduct SARS-CoV-2 variant surveillance studies in Arkansas. From the Arkansas INBRE, Drs. Alan Tackett, Stephanie Byrum and Eric Siegel are involved. The second Sars-CoV-2 pandemic supplement will be submitted by Dr. Pearl McElfish (UAMS Northwest Arkansas). This project addresses vaccine hesitancy in Pacific Islanders. A submission in response to a supplement opportunity that addresses women's health issues is being prepared by Dr. Nathan Reyna (OBU) in partnership with Drs. Rob Griffin and Issam Makhoul (UAMS). The project will investigate novel markers that predict reoccurrence of breast

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cancer. Dr. Tiffany Weinkopff (UAMS) and Dr. Gregory Naumiec (UCA) will be submitting a proposal in response to a supplement opportunity that supports collaborations between COBRE- and INBRE- investigators. Drs. Weinkopff and Naumiec plan to develop and test drugs that target *Trypanosoma cruzi*, the parasite that causes Chagas disease. Finally, Dr. Josh Sakon (UAF) is preparing a proposal in response to a supplement opportunity that funds new instrumentation for IDEa program-supported centers. If successful, Dr. Sakon plans to purchase equipment that will expand capabilities of the X-ray Crystallography Laboratory.

All together, the five proposals involve eleven investigators from four different Arkansas INBRE network institutions. The total requested funding amount exceeds \$1.25 million. I am not sure about the quality of the other “teams” from around the nation that will be in the NIGMS IDEa Supplement Tournament, but I like our chances. Good luck to everyone!

Faculty Spotlight



Paul Adams, PhD

Associate Professor

*Chemistry & Biochemistry and Cellular & Molecular Biology Departments
University of Arkansas at Fayetteville*

Dr. Paul D. Adams is a native of Baton Rouge, Louisiana. He earned a B.S. in biochemistry from Louisiana State University, and a Ph.D. in biophysical chemistry from Case Western Reserve University. His decision to pursue a career in research was born out of watching his mother, the late Carol Jean Adams, succumb to cancer while Dr. Adams was in his mid 20's. Dr. Adams' research interests are focused on understanding structure and function relationships of Ras-related proteins involved in signal transduction processes that can lead to diseased-states such as cancer. His research objectives continue to focus on the characterization of molecular details of Ras-effector Protein-Protein Interactions (PPIs) that show dynamic differences in key regions. Research efforts also seek to characterize small molecule targets that interact directly with Ras proteins and may potentially disturb PPIs involving the Ras model proteins with deleterious effects. In collaboration with Professor T.K.S. Kumar at the University of Arkansas, the Adams laboratory is also interested in developing novel approaches for rapid, efficient, yet simple purification of recombinant proteins using heat treatment methods that do not alter the stability, structure or activity of the proteins. He has recently entered into a collaboration with colleagues at the University of Texas at Arlington, Penn State University and the University of Medical Sciences in Philadelphia, PA, where his laboratory will employ biophysical approaches to measure the binding thermodynamics of enantiomers of ruthenium-based compounds towards microtubules. Understanding the interactions of these enantiomeric molecules to microtubules are expected to help decipher the interplay of forces that underlie the recognition and specificity of this protein-small molecule interaction and its role(s) in cellular events leading to disease states. Overall, his research focuses on the use of molecular biology, biophysical and biochemical techniques in the design of strategies to study molecular details of protein interactions to investigate the role(s) these interactions play in regulating abnormal cell signaling.

INBRE provided support to Dr. Adams early in his research efforts and facilitated the recruitment of undergraduate students to the laboratory to learn molecular biological and biochemical techniques involving protein purification, isolation and characterization. Dr. Adams has received federal funding from the National Institutes of Health, the National Science Foundation, as well as from State agencies such as the Arkansas Biosciences Institute, the Arkansas Science and Technology Authority, and the Winthrop P. Rockefeller Foundation at the University of Arkansas for Medical Sciences. He has directed research projects of over 50

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Honors, undergraduate, graduate and postdoctoral students in his laboratory at the University, and has mentored many other students since arriving to the University of Arkansas at Fayetteville. Dr. Adams has served as a principal investigator of an NSF grant that funded the Path to Graduation Program, which recruits talented high school students from underrepresented populations to help them thrive and succeed at the university. Approximately forty percent of these students have become honors students and 100% have graduated.

Dr. Adams has served as an INBRE mentor for approximately 12 years. He has also served in several capacities (Workshop organizer, Introduction of INBRE Keynote speaker, judge for student oral and poster presentations) for the annual INBRE symposium held each fall. While working with undergraduates, Dr. Adams says his most satisfying moment is when the students realize they possess the skills, intellect and perseverance needed to do scientific research. He also enjoys mentoring the development of what he calls the skill of “*Critical thought*” in his students. He defines this as the development of the skill to stop looking for the “Correct” answer, but instead, critically thinking through the results gained to develop a novel answer.

As a researcher, Dr. Adams says he would like to think that his lab has contributed some solid work toward a better understanding of Ras-related protein structure and function. In his career, he says “we have made an impact in using our research efforts to broaden the scope of student learning in biochemistry and biophysics”. As a teacher, he feels his biggest impact has been to show that, with a focus work ethic, drive and determination, scientific research is a viable career opportunity for all. As a mentor, Dr. Adams feels his career has shown to many of his students that it does not matter how you look, but what you have to offer and can contribute through research, teaching and service to your institution, your community, your state, nation, and beyond.

In September 2020, Dr. Adams was presented with the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Dr. Tyrone Mitchell Mentor on the Map Award (<https://www.nobcche2020.com/awards-1/mentor-on-the-map>). In October 2020 Dr. Adams was elected to the Executive Board of Directors of the NOBCChE. The mission of the NOBCChE is to build an eminent cadre of successful diverse global leaders in STEM and advance their professional endeavors by adding value to their academic, development, leadership, and philanthropic endeavors throughout the life cycle of their careers. Educational partnerships with school districts, municipalities, businesses, universities, and other organizations in the public and private sectors have been established to provide and support local, regional, national, and global programs that assist people of color in fully realizing their potential in academic, professional, and entrepreneurial pursuits in chemistry, chemical engineering, and allied fields.

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

He is still very active with his fraternity, Omega Psi Phi Fraternity, Inc., where he has the opportunity to have fun with his fraternity brothers while helping in his community. He loves supporting all three of his children in their activities both academic and athletically. He is a serious “*Law and Order*” fan and watches all versions of the show whenever he can.

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Development Research Project Program

Jerry Ware, PhD, Program Director



The DRPP has two active Funding Opportunity Announcements (FOAs) with due dates in April. The first is an opportunity for PUI faculty to request funds to facilitate manuscript-writing during the summer. This first time offering, entitled “Summer Manuscript Support or SMS”, is designed to support the preparation of a manuscript for publication. Details and the FOA can be found on the [Arkansas INBRE website](#) (An email intent to apply was **due April 5**, application **due April 12**).

The second FOA is for Collaborative Research Grants (CRGs) and this represents the second year of this mechanism to support collaborative research between different PUI faculty or PUI faculty and lead institution faculty. Undergraduate student involvement is required and details can be found within the FOA (application **due April 19**).

The DRPP recently reviewed outstanding proposals for Summer Research Grants for the upcoming summer months. The reviews were held via an NIH-like Zoom format over a 2-day period. PUI faculty, UAMS faculty, and COBRE Project Leaders from UAMS and Arkansas Children’s Research Institute (ACRI) were included in the “study section”. COBRE participants included Alicia Byrd and Samrat Choudhury (UAMS, Biochemistry and Molecular Biology); and Craig Porter, Emir Tas, Shannon Rose, and Taren Swindle (ACRI, Pediatrics). The Arkansas INBRE is grateful for the time and effort of all reviewers.

Undoubtedly, the hardest part of proposal reviewing is not being able to be supportive of every application. As an applicant, it begs the question is the effort that goes into the unsuccessful application worth the time? A recent paper further highlights the frustration with a clear message in the title; “*Low agreement among reviewers evaluating the same NIH application*” ([Proc Natl Acad Sci. 2018;115:2952](#)). Indeed, subjectivity in the reviewers’ evaluation underscores the difficulty when more than two people offer opinions on the same proposal. How do we cope as applicants? Having dealt with this for 35 years, I offer one of the biggest lessons. We learn as much as we can from the reviewers’ perspective and we remain persistent. We try, we fail, we try, we fail, we try, and **WE WIN**.

Student Spotlight



Dustin Brown

2016 Former INBRE Student

My name is Dustin Brown and I am from Hermitage, Arkansas. I received my undergraduate degrees in Biology and Interdisciplinary Studies at the University of Arkansas at Little Rock in 2017. I participated in the Arkansas INBRE program in the summer of 2016. I completed my research on “Metformin and its Effect on the Expression of Anti-Tumor Biomarkers in Human Endometrial Cancer Cells” in Dr. Rosalia Simmen’s laboratory at the University of Arkansas for Medical Sciences. I chose this subject and laboratory because I was interested in the relationship of research and its role in the advancement of human medicine.

The INBRE research project I worked on involved using immunohistochemistry to identify the immunopositive cells for proliferation, apoptosis, and nuclear expressions of estrogen receptor α , progesterone receptor,

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phosphatase and tensin homolog (PTEN), and kruppel-like factor 9 (KLF9) in tumor glandular epithelial and stromal cells. Before starting my project, I had very limited laboratory bench work experience. In Dr. Simmen's lab, I was able to learn how to perform immunohistochemistry, cell culture, and PCR experiments. My summer in the INBRE program gave me the opportunity to work on a manuscript and present my research findings at many local research symposiums.

Upon completion of the summer INBRE program, I was offered a full-time research technician position in the laboratory of Dr. Simmen. During my last year of undergraduate studies, I worked on two separate research projects. One of the studies was a continuation of the metformin research and the other was the role in which activation of the notch-1 signaling pathway played in human endometriosis. Both of these research studies concluded with publications in the *Journal of Endocrinology* and *Reproductive Sciences*.

At the end of my undergraduate studies, I knew I wanted to work in medicine and assist in providing better access to healthcare for marginalized communities. My experience in INBRE solidified my desire to work with people and to implement evidence based medicine. As such, I enrolled in medical school at the University of Arkansas for Medical Sciences in 2017. I am now a senior medical student and will graduate in May. I selected emergency medicine as my specialty of choice and will continue my education at Rush University in Chicago as a resident physician.

In the future, I plan to acquire my master's in public health. I want to study population health in relationship to the emergency department to better serve our patient populations and provide better services. Likewise, LGBTQ+ healthcare is a passion of mine and I plan to work in academics to create more holistic LGBTQ+ curriculum for medical providers and trainees.

What you might not know about Dustin...

He likes paddle boarding, cycling, sampling new brunch spots and traveling with friends.

Recent Publication

Shaver, J M; Bellis, E S; Iwaki, C; Qualls, J; Randolph, J; Smith, J. Massard Prairie Restoration and Soil Microbiome Succession. *Journal of the Arkansas Academy of Science* 2020; 74 (1).

Amaral, Raquel; **Fawley, Karen P**; Němcová, Yvonne; Ševčíková, Tereza; Lukešová, Alena; Fawley, Marvin W; Santos, Lília M A; Eliáš, Marek. Toward Modern Classification of Eustigmatophytes, Including the Description of Neomonodaceae Fam. Nov. and Three New Genera1. *Journal of phycology* 2020 06; 56 (3) 630-648.

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