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Arkansas BIOSCIENCES INSTITUTE



Arkansas Biosciences Institute, the agricultural and biomedical research program of the Arkansas Tobacco Settlement Proceeds Act of 2000, is a partnership of scientists from:

- Arkansas Children's Research Institute
- Arkansas State University
- University of Arkansas – Division of Agriculture
- University of Arkansas, Fayetteville
- University of Arkansas for Medical Sciences



As outlined in the Act, the purpose of the Arkansas Biosciences Institute is to conduct:

- **Agricultural research** with medical implications;
- **Bioengineering research** that expands genetic knowledge and creates new potential applications in the agricultural-medical fields;
- **Tobacco-related research** that identifies and applies behavioral, diagnostic, and therapeutic knowledge to address the high level of tobacco-related illnesses in Arkansas;
- **Nutritional and other research** that is aimed at preventing and treating cancer, congenital and hereditary conditions, or other related conditions; and
- **Other areas of developing research** that are related or complementary to primary ABI-supported programs.



COVER IMAGES:

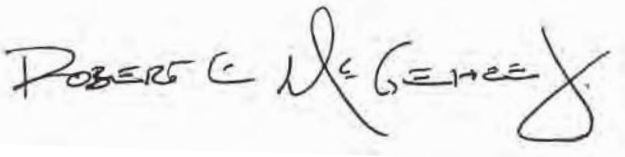
As part of an international artificial intelligence (AI) competition, the 2019 Kidney Tumor Segmentation Challenge (KITS19), a multi-institutional team from the Arkansas Artificial Intelligence (AI) Campus participated as one of over 800 competitors. The challenge was to take standard human abdominal computed tomography (CT) images and build computational AI programs that would scan the digital CT images and autonomously identify the kidneys and any solid tumors within the kidneys. The teams were initially given 210 images to use as a training set from patients with kidney tumors identified by a team of radiologists at the University of Minnesota Medical Center. Using the training set, each team constructed programs to identify tumors and were graded by how well their programs performed on a separate testing set of 90 patients. The teams were scored by how closely the tumor and kidney tissue identified by their programs matched tumor tissue identified by the experienced radiologists. The image on the top is a single slice from one patient's CT scan. The lower left image shows the outlines of the kidney and tumor as identified by radiologists, while the lower right image shows the same outline as identified by the AI-Campus program. At the time of judging, the Arkansas Team placed 50th overall, and among the top five participants from the US. The Arkansas AI Campus team included Jonathan Stubblefield MD (ASU), Jason Causey PhD (ASU), Jake Qualls PhD (ASU), Tomonori Yoshino (ASU), Alejandro Torrico (UAF), Clay Heern (ASU), and Xiuzhen Huang PhD (ASU).

I am pleased to forward to you the 2019 Arkansas Biosciences Institute Annual Report. Fiscal year 2019 has been a productive year for the ABI institutions and research investigators. Funding from ABI supported 128 research projects in diverse areas such as cancer detection and treatment, heart health, animal research, and childhood diseases. An additional 82 on-going research projects received funding from extramural sources such as the National Institutes of Health, the National Science Foundation, and the US Department of Agriculture. Many of these 210 projects brought together research investigators from the five research institutions, so that 25% of all projects in 2019 were ABI-collaborative research projects.

The Arkansas Biosciences Institute is a collaboration in every sense of the word. Investigators at the five member institutions are increasingly finding research partners not only within their institutions, but also other ABI institutions. This issue of the ABI Annual Report shares just a few of the research projects supported by funding from the Arkansas Tobacco Settlement Proceeds Act and from subsequent funding from extramural sources.

As in past years, extramural funding continues to play a large role in supporting research in Arkansas. For 2019, extramural funding for ABI research investigators totaled more than \$50.5 million from agencies and foundations. This translates to a leverage factor of \$4.27 in extramural funding for every \$1 in ABI funding for 2019. With this return on investment, we very much appreciate the dedication and the resourcefulness of all ABI research investigators.

At Arkansas Biosciences Institute, our research investigators work on complex health issues every day. Because of your support for biomedical and agricultural research here in Arkansas, ABI investigators will continue their collaborative approach to addressing health issues of Arkansans. As always, we welcome your comments, suggestions, and ideas on moving research forward in our state.



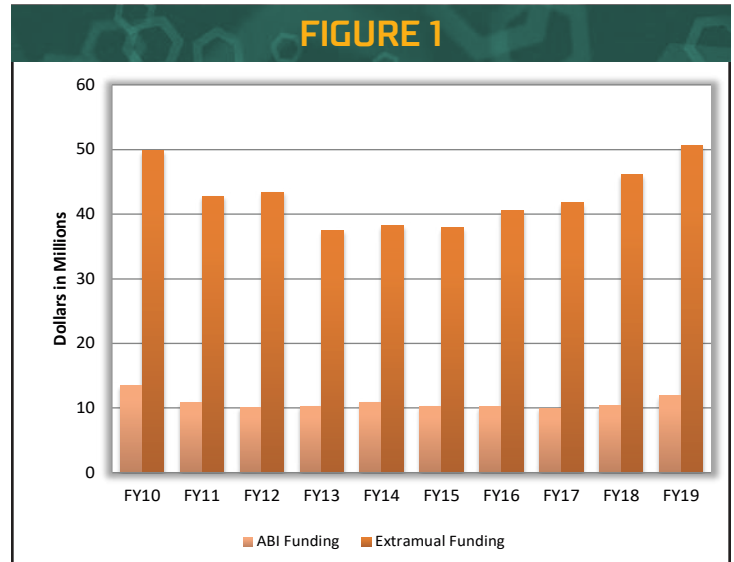
Robert E. McGehee, Jr., Ph.D.
Executive Director, Arkansas Biosciences Institute
Dean, UAMS Graduate School
Distinguished Professor, UAMS College of Medicine
Department of Pediatrics, Division of Neonatology



At a Glance: The 2019 Executive Summary reviews five key performance indicators for the long-term agricultural and biomedical research projects at the five ABI member institutions. These indicators include: Extramural Grant Funding; Research Publications; Research Personnel; New Faculty; and Patent Activity. The following graphs provide data for each of these metrics for the past ten years with FY2019 to the right.

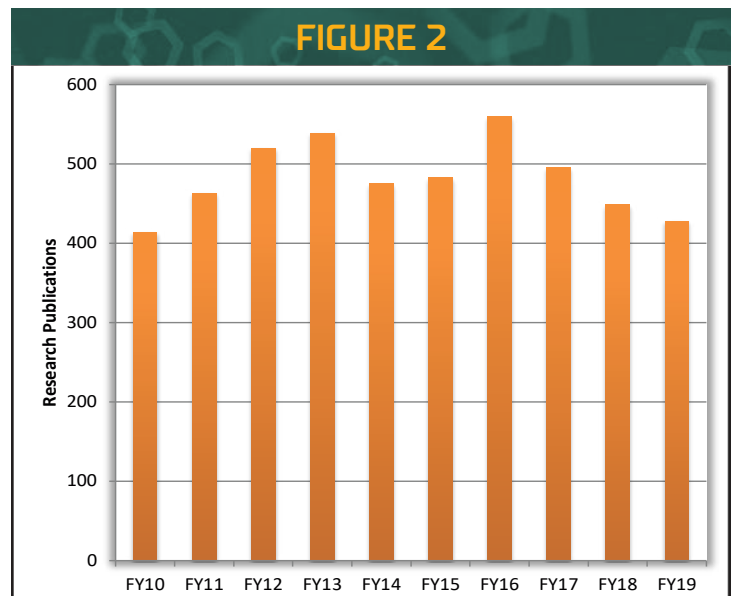
ABI AND RELATED EXTRAMURAL FUNDING

Research investigators at the five ABI member institutions leverage their ABI funding to generate additional funding support from extramural sources like the US Department of Agriculture, the Department of Defense, the National Institutes of Health, and from foundations like the American Heart Association. When compared to ABI funding for the year, extramural funding totaled \$4.27 for every \$1 in ABI funding. This return on investment has been trending up since 2015, and provides much-needed funding for the long-term agricultural and biomedical research at the ABI institutions. Figure 1 shows the funding trend for both ABI and related extramural funding for the past ten years.



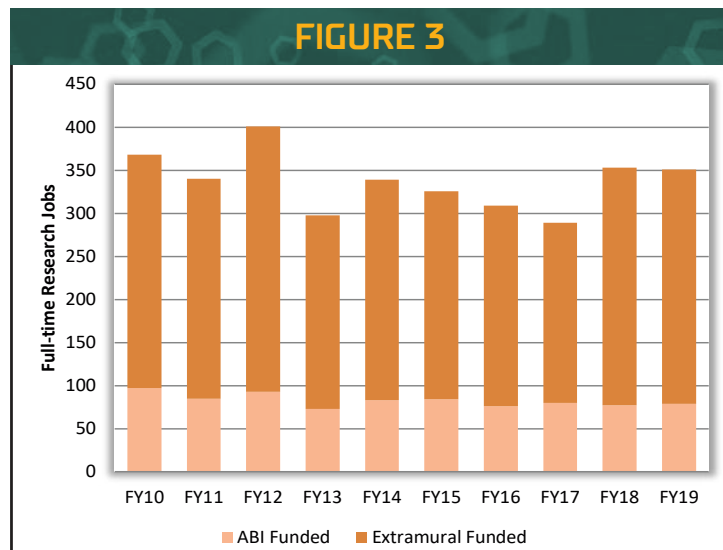
ABI-SUPPORTED RESEARCH PUBLICATIONS

Another measure of research success is the publication of research results. ABI-supported research investigators publish their research findings in peer-reviewed scientific and medical journals or as book chapters. These national and international publications are the primary mechanism for disseminating research results to the scientific community. Since FY2010, ABI research investigators have published more than 4,800 original manuscripts, books, and book chapters. Figure 2 shows the trend for the past ten years; a complete listing for individual publications for 2019 can be found in Appendix 3.



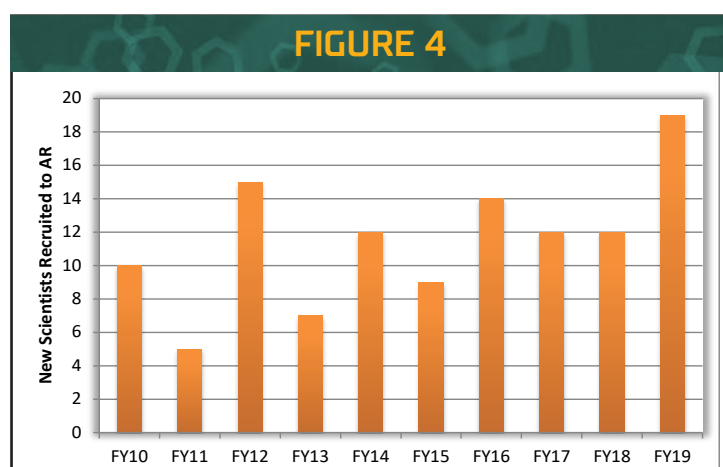
FTE EMPLOYMENT SUPPORTED BY ABI AND EXTRAMURAL FUNDING

Since inception, ABI has tracked the number of full-time equivalent jobs that are supported by both ABI funding and related extramural funding. These knowledge-based positions include laboratory and technical support personnel, animal care technicians, and post-doctoral research fellows. Looking at the average for the past ten years, ABI and related extramural funding have supported 337 jobs annually at the five member institutions. Figure 3 shows the employment trend for the past ten years; for 2019, there were 351 full-time equivalent jobs related to ABI, and 78% of those were funded with extramural dollars from grants awarded to ABI investigators.



ABI-SUPPORTED RECRUITMENT OF NEW RESEARCH SCIENTISTS TO ARKANSAS

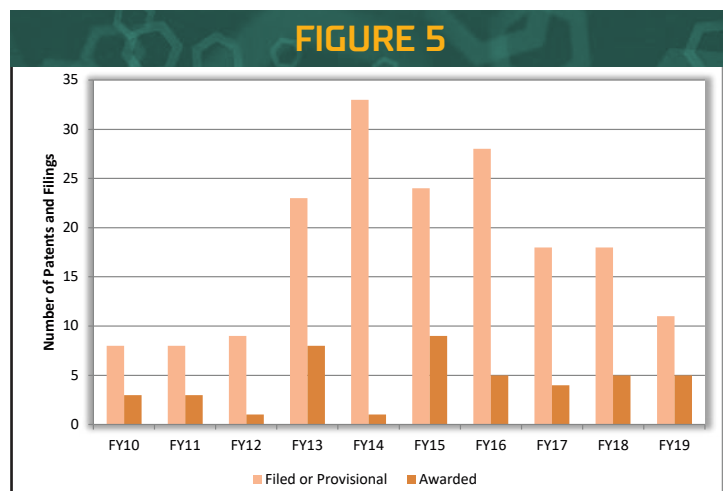
ABI funding is also used to augment recruitment packages for new research faculty to relocate to Arkansas. Over the past ten years, ABI support has helped to recruit, on average, eleven new investigators each year. In 2019, there were 19 experienced scientists recruited to Arkansas, with research specialties in diverse health areas such as pediatric otolaryngology research, TB detection, addiction behaviors research, and biomedical engineering. Figure 4 shows the new research investigator numbers over the past ten years.



ABI PATENT ACTIVITY

ABI-supported research investigators continue to develop highly innovated ideas and devices that are protected as intellectual property. Patent filings and patent awards serve as key performance indicators of the scientific research conducted at ABI institutions, moving research discoveries from the laboratories to potential commercial opportunities.

Since inception, ABI-supported research investigators have been awarded 53 patents for their work in areas such as cancer research, plant production yields, pathogens detection, and addiction research. For 2019, there were eleven patent filings and five patent awards. Figure 5 shows the trend in patent activity for the past ten years. Individual information on patents and filings for 2019 can be found in Appendix 1.



2019 INVESTIGATORS OF THE YEAR

Investigator of the Year Awards were established in 2013 to recognize ABI research investigators for exemplary research based on relevance to ABI's five research areas, contributions to respective field of study, and the potential for extramural funding. The new investigator award is open to research investigators with fewer than four years of support from ABI, while the established award is for four or more years of ABI funding support.

2019 ABI NEW INVESTIGATOR OF THE YEAR

NARASIMHAN RAJARAM, PH.D.

Assistant Professor

Department of Biomedical Engineering

University of Arkansas, Fayetteville

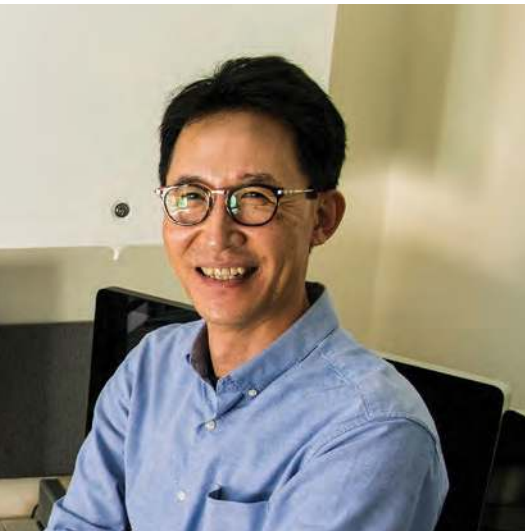


TRIPLE THREAT

Dr. Narasimhan Rajaram joined the University of Arkansas in Fayetteville in 2014 as an assistant professor in the Department of Biomedical Engineering. Since his arrival, he has set up his laboratory, established multiple collaborations, and integrated himself fully in the educational and research mission of the university and ABI. His work is predominantly focused on cancer biology, and more specifically investigates the relationship between tumor oxygenation and metabolism and how this relationship plays a role in promoting cancer progression, metastasis, and resistance to therapy. To study this relationship, he has developed optical imaging technologies that can be used in preclinical animal models as well as cancer patients. This technology is game-changing because it delivers quantitative status of tissue and tumors through noninvasive methods. These highly collaborative projects and clinical trials have garnered much attention, and, in what is a first in the state of Arkansas, he currently serves as the Principal Investigator on major awards from three national agencies, the National Institutes of Health, the National Science Foundation, and the Department of Defense.

- Outstanding Teacher Award, Biomedical Engineering, 2018-2019
- Mentored over 25 students, currently 4 undergraduate and 4 graduate students
- Currently PI on 3 Extramural Awards, NIH R01/NCI; NSF Career Award; DoD Concept Award
- Co-Investigator on 3 additional NIH R15 awards
- PI on intramural pilot grant from the Arkansas Breast Cancer Research Program
- 24 peer reviewed manuscripts since arrival at UAF, and 13 of those in 2018-19

2019 ABI ESTABLISHED INVESTIGATOR OF THE YEAR



JIN-WOO KIM, PH.D.

Professor

Department of Biological and Agricultural Engineering

Department of Biomedical Engineering

University of Arkansas, Fayetteville

CREATING A LEGACY

For 19 years, Dr. Jin-Woo Kim, professor in the Department of Biological and Agricultural Engineering at the University of Arkansas, Fayetteville, has been a remarkable teacher, researcher, and leader not only at UAF and the state, but also nationally and internationally. Dr. Kim joined the UAF faculty in 2001, the same year ABI began distributing funds from the Master Tobacco Settlement Agreement, and is one of the ABI's longest serving affiliated investigators. He has established himself as an internationally recognized authority in his field of research of biologically inspired nanotechnology, namely "Bio/Nano Technology", that spans interdisciplinary fields of biological engineering, biomedical engineering, biology, chemistry and nanotechnology. With over 50 publications, two recent manuscripts in Nature Nanotechnology were recognized as being in the top 1% of publications in Materials Science by the Web of Science. Dr. Kim continues to be highly funded and currently is the Co-Director of NSF EPSCoR ASSET III Center for Advanced Surface Engineering.

Dr. Kim is a consummate educator and has served as a research mentor to over 40 undergraduate students, 15 MS students, 8 PhD students and 6 postdoctoral students. He has been recognized as a UAF Outstanding Researcher in 2004, 2013 and 2018; the College of Engineering Imhoff Outstanding Research Award in 2005 and 2013; the John W. White Outstanding Research Award in 2014 from the UA System Division of Agriculture; the Distinguished Achievement Award for Research in 2015 by the UA Alumni Association; and in 2016 was awarded the Most Engaging Research Faculty Award by the College of Engineering.

- Joined faculty in 2001 and has been awarded ABI funding continuously since 2004 by the University of Arkansas System Division of Agriculture as both a PI and multiple collaborations
- Total funding: \$28.5 M. (\$23.7 M federal; \$4.8 M state)
- Highly engaged in National/International Societies; Vice President for Publications-IEEE Nanotechnology Council, Conference Chair 9th and 13th IEEE-NANOMED, Editor or Editor in Chief of 3 IEEE journals
- Fellow, American Institute of Medical and Biological Engineering
- Over 50 manuscripts/book chapters and has been awarded three patents

ARTIFICIAL INTELLIGENCE IN THE NATURAL STATE

If you happen to know what self-driving cars, soybean research, and financial fraud detection in Arkansas have in common, then you are probably well-versed on the ins and outs of artificial intelligence (AI). This relatively new (c. 1956) field of study is not futuristic research; instead, it is tangible and ongoing research worldwide, and in our state, incorporating computer science, medicine, engineering, agriculture, and other fields of research. At Arkansas State University in Jonesboro, researchers have taken the lead in developing the Arkansas Artificial Intelligence (AI) Campus. The AI Campus is designed to create and foster training programs for Arkansas scientists and students in the areas of machine learning, artificial intelligence, and deep learning. Headed by Dr. Xiuzhen Huang, professor of computer science in the College of Engineering and Computer Sciences at Arkansas State University, the AI Campus comprises seven Arkansas colleges and universities: Arkansas State University, Arkansas Tech University, Philander Smith College, University of Arkansas, Fayetteville, University of Arkansas Little Rock, the University of Arkansas for Medical Sciences, and the University of Arkansas at Pine Bluff.

Startup for the Arkansas AI Campus (2018-2019) consisted of two 4-month research phases, with Phase I concluding in February 2019 at the AI Campus Showcase held in Little Rock. The showcase featured eight projects, highlighting the work of 30 participants across seven cross-institutional teams (both undergraduate and graduate students, post-doctoral fellows, and junior faculty) representing seven universities and colleges across Arkansas. Select

participants from Phase I were chosen to move forward in Phase II with a coach to participate in national and international machine learning competitions, as well as focused research projects, all of which were demonstrated in the Phase II showcase held September 2019 on the ASU campus. The research conducted in Phase II was at the forefront of AI research and highlighted the strong connections across the state for projects such as biomedical imaging, self-driving cars, translational research, and business analytics.

As part of the training process and to better sharpen their skills, AI Campus teams have competed –and excelled– in national and international machine learning competitions. The Phase II research resulted in placing the AI Campus team in the top five teams in the United States in the Grand Challenge Biomedical Imaging Kidney and Tumor Segmentation international competition, ahead of larger institutions such as Harvard, MIT, and Stanford (see

cover story). Next up for the AI Campus was the Multiple Myeloma DREAM Challenge, organized by Celgene, the Multiple Myeloma Research Foundation, and Sage Bionetworks. With 290 teams participating, the AI Campus group was pleased with their third-place finish.

According to Dr. Huang, AI Campus researchers regularly meet with coaches to further AI research in varied areas such as agricultural data analysis, genomics, and medical imaging. It is this collaboration of various research interests that sustains, and hopefully grows, the AI Campus program in Arkansas. The coaching and collaborations without regard to traditional academic silos bring together researchers with an interest in big data that is specific to their area of expertise with experts in machine learning and AI. The outcomes help advance the development of next-generation scientists and researchers and push the frontier of research for all disciplines.

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ASU INVESTIGATOR IS LEADING THE FIELD IN AI RESEARCH

When potential artificial intelligence research projects come into focus, all eyes turn to Dr. Xiuzhen Huang, professor of computer science in the College of Engineering and Computer Science at Arkansas State University. Dr. Huang's vision in bioinformatics, machine learning, artificial intelligence and deep learning has resulted in multi-layered networks bringing together research scientists at the five ABI research institutions, as well as leading scientists throughout the US. To date, Dr. Huang has been the lead scientist in establishing the Joint Translational Research Lab in conjunction with St. Bernards Medical Center in Jonesboro; the Arkansas Artificial Intelligence (AI) Campus, a state-wide AI training program; and the No-Boundary Thinking research center on the campus of ASU.

Dr. Huang's current National Science Foundation grants include research in no-boundary education and creation of the research network, and early diagnosis of Alzheimer's disease based on MRI neuroimaging via high-dimensional image feature identification. She is currently a multiple primary investigator on a National Institutes of Health (NIH) grant with the University of Pennsylvania for biomedical computing and informatics strategies for precision medicine, along with serving as a co-investigator on an NIH grant with UAMS seeking resources for development and validation of radiomic analyses and adaptive therapy.

Prior to joining ASU, Dr. Huang completed her doctorate in computer science in 2004 at Texas A&M University. She was named an Arkansas Research Alliance (ARA) Fellow in 2018, joining the prestigious group of world-class researchers in Arkansas whose work strengthens the competitiveness of the state through university-based research. Dr. Huang's knack for collaborative research pulls in scientists from many different departments at ASU, as well as scientists from colleges and universities across Arkansas.

Selected Research Support:

- National Science Foundation; CISE/IIS #1723529; 2017-2020
-EAGER: New Approach: Early diagnosis of Alzheimer's disease based on MRI neuroimaging via high-dimensional image feature identification
- National Science Foundation; CISE/IIS #1452211; 2014-2020
-Building a Starting Core for No-Boundary Education and Research Network

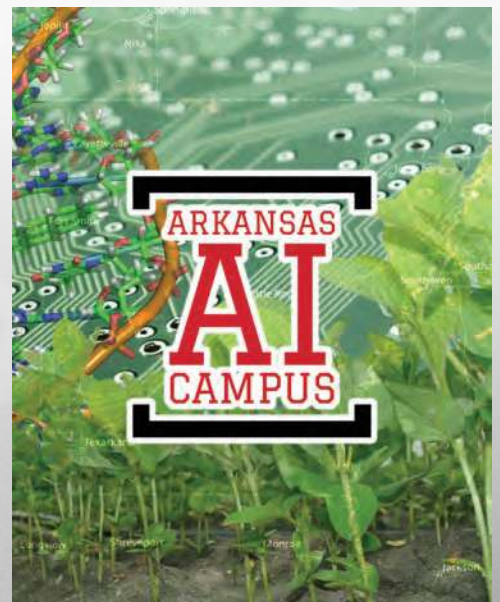
Selected Publications:

- Highly Accurate Model for Prediction of Lung Nodule Malignancy with CT Scan. (2018) Scientific Reports, 2018:8
- runbic: A Bioconductor Package for Parallel Row-Based Biclustering of Gene Expression Data. (2018) Bioinformatics; 34:4302-4304.

Current ABI Research Project:

- Develop Novel Informatics Algorithms for Lung Cancer Early Screening with CT Scans

ABI Funding Support since FY2009.



ARKANSAS INVESTIGATORS TACKLE THE COMPLEX HEALTH ISSUES

Arkansas Biosciences Institute supports approximately 200 research projects annually. With our annual report, we take an inside look at the innovation, the discoveries, and the successes of just a few of the research investigators around Arkansas. Thanks to ABI funding via the Arkansas Tobacco Settlement Proceeds Act of 2000, Arkansas investigators are making inroads into complex health issues such as cancer detection, nutrition, nicotine and opioid addiction, and maternal obesity.

KICKING THE TOBACCO HABIT

Mood and brain functions may hold the key to success rates in smoking cessation.

Dr. Merideth Addicott, an assistant professor in the UAMS College of Medicine, Department of Psychiatry, dedicates her career to researching the chronic effects of tobacco and nicotine on the brain. Dr. Addicott's work measures cognition, mood, and brain function with functional magnetic resonance imaging (fMRI), with particular attention to smoking cessation results. When it comes to success rates in smoking cessation, Dr. Addicott wants to know why some smokers succeed in kicking their tobacco habit while others relapse.

Dr. Addicott explains that her research investigates how tobacco addiction affects the brain's response to stress. "This research is important because it shows how using tobacco can affect someone's ability to tolerate stress," notes Addicott. "Smokers, who often report that smoking relieves stress, are faced not only with everyday emotional stress – job, family, health issues – but also have the added stress of tobacco withdrawal and cravings when they try to quit smoking. We are especially interested in using functional MRI to study stress tolerance levels of smokers."

Dr. Addicott's research just received funding support to expand her research program. In October, the National Institute on Drug Abuse (NIDA) announced a 5-year, \$1.7 million extramural grant to study how smokers respond to emotional distress while attempting to quit smoking. This five year grant will recruit adult (age range of 18-55 years) participants for the research study. In order to understand how smokers tolerate stress while trying to kick the habit, Dr. Addicott and her team will use fMRI to study how different brain regions respond to emotional and mental stress. "At UAMS, we want to do everything we can to understand the stress of quitting so that we can help as many smokers as possible," says Addicott.

Selected Research Support:

- NIH/National Institute on Drug Abuse: 1 R01 DA048948; \$1.7M, 2019-2024 -Distress Tolerance and Smoking Cessation
- NIH/National Institute on Drug Abuse: 1 R21 DA045970; \$500K, 2019-2021 -Neural Correlates of Distress Tolerance in Tobacco Addiction

Selected Publications:

- Low and High Frequency Repetitive Transcranial Magnetic Stimulation Effects on Resting State Functional Connectivity Between the Postcentral Gyrus and the Insula. (2019) Brain Connect; 9:322-328
- The Effects of Nicotine and Tobacco Use on Brain Reward Function: Interaction with Nicotine Dependence Severity. (2019) Nicotine and Tobacco Research; 21:764-771

Current ABI Research Project:

- Effects of Nicotine on the Brain and Decision Making

ABI Funding Support since FY2018.



BIOMEDICAL INNOVATION AND DESIGN

Medicine meets engineering for children with special needs.

You should be able to locate Dr. Tara Johnson quickly when you visit Arkansas Children's Hospital; she will be standing at the intersection of biomedical engineering and pediatric care. Dr. Johnson joined the UAMS College of Medicine Department of Pediatrics in the Division of Pediatric Neurology in 2019 and has established her laboratory at the Arkansas Children's Research Institute (ACRI). Dr. Johnson combines her engineering background in the design and development of medical devices with her training in pediatric neurodevelopmental disabilities, and the results include a unique approach to helping children with movement dysfunction develop independence. It was this type of cross-discipline approach that led Dr. Johnson and her team at Johns Hopkins University to develop a spill-proof cup for young adults with cerebral palsy.

Dr. Johnson's laboratory at ACRI looks more like a machine shop than a traditional medical research lab. In addition to her medical degree, Dr. Johnson recently completed her Ph.D. in biomedical engineering at Johns Hopkins University. Dr. Johnson is also the founder and director of the Arkansas Children's Biomedical Innovations Program, where she works with multidisciplinary teams to assess motor skills and general movement and to provide comprehensive care to children who may be at high risk for neurodevelopmental disabilities.

When seeing patients at Arkansas Children's Hospital, Dr. Johnson is able to assess neurodevelopmental disabilities in infants using Precht's General Movement Assessment (GMA), an analytical test that is highly predictive of future motor and cognitive dysfunction in infants. By incorporating the GMA into the overall evaluation of infants, Dr. Johnson and her team hope to provide at-risk infants to earlier access to developmental therapies. "We have a unique set-up here with ABI," says Johnson. "We can quickly and easily collaborate with researchers in the Department of Biomedical Engineering at the University of Arkansas for design support as we evaluate and assess infants at Arkansas Children's Hospital. This type of research collaboration is not available just everywhere, but ABI makes it possible."

Selected Research Support:

- NIH/National Center for Advancing Translational Sciences; 1UL1TR003107; 2019-2021
-UAMS TRI Institute KL2 Scholar
- ACH Innovation Award

Selected Publications:

- GaitAssist: A Novel Technology to Mitigate Scissoring Gait in Cerebral Palsy Patients. *Journal of Medical Devices*; 10:030935
- Chapter 21: Cerebral Palsy. In: *Children with Disabilities*, 8th edition; pp 423-456

Selected Patents:

- Obstructed Delivery Simulation System; U.S. patent no. 8,197,259
- Brachial Plexus Simulator; U.S. patent no. 7,632,100

Current ABI Research Project:

- Pediatric Neurology Research

ABI Funding Support since FY2019.



HOT TOPICS IN CANCER RESEARCH

Using nanotechnology for early diagnosis.

You probably already know that early detection of cancer cells greatly improves a patient's outcomes. According to cancer researchers, the early stages of cancer are easier to treat and provide better success rates for patients. At the University of Arkansas, Fayetteville, Dr. Hassan Beyzavi is focused on improving certain cancer detection methods and timelines through the use of nanomaterials developed in the laboratory. In support of these efforts, Dr. Beyzavi was recently awarded funding from the National Institutes of Health to advance his cancer diagnosis research.

Dr. Beyzavi, an assistant professor of chemistry at UAF, wants to improve both the accuracy and the time involved in early cancer detection using positron-emission tomography, more commonly referred to as PET imaging. PET imaging is routinely used in cancer detection; it is a non-invasive procedure to detect tumor cells, where the tumors are visualized by PET imaging after the patient has been injected with fluorine-18 and tracers that bind with tumor cell receptors. The porous nanomaterials developed by Dr. Beyzavi are designed to boost PET imaging results by speeding up the process to more quickly attach to tumor cells. With support from NIH, Dr. Beyzavi and his research team have been able to significantly expand their nanomaterials cancer research projects.

In addition to his work in early cancer detection, Dr. Beyzavi researches drug combinations to alleviate some of the harmful side effects of chemotherapy for cancer patients. Dr. Beyzavi creates drugs with gold- and platinum-bases and tests them on cancer cells created in his lab with the hopes that lower doses of toxic materials will result in fewer adverse side effects while retaining the same level of effectiveness. "Our lab team works to develop anti-cancer drug options. We realize that it could take 10 years or even longer for approval, but we are committed to the research and appreciate the support we have received from the university, ABI, NIH, and the other funding sources," says Beyzavi.



Selected Research Support:

- NIH/National Institute of General Medical Sciences: 1 R15 GM132906; \$428K, 2019-2022
-Late-stage [¹⁸F]Fluorination: A Tandem Approach for the Synthesis of Positron Emission Tomography (PET) Radiotracers using Metal-Organic Frameworks (MOFs)
- US Department of Defense, SBIR (Sub-Award): \$10K, 2018-2019
-Biomimetic Covalent Organic Framework (COF) Design for Explosive Remediation in Drinking Water
- NSF-MAST: \$60K, 2019-2020
-Covalent Organic Frameworks as Novel Tools for Bioseparation

Selected Publications:

- trans-Platinum(II) Thionate Complexes: Synthesis, Structural Characterization, and in vitro Biological Assessment as Potent Anticancer Agents. (2019) ChemPlusChem; 84:1525-1535
- Straightforward, and Expeditious One-Pot Tandem Synthesis of Selenadiazoles from Aryl Nitriles. (2019) Synthesis; 51:4279-4283
- Metal-free and Benign Approach for the Synthesis of Dihydro-5'h-spiro[benzo[c]chromene-8,4'-oxazole]-5',6(7h)-dione Scaffold as Masked Amino Acids. (2019) Green Chemistry; 21:2656-2661

Current ABI Research Project:

- Late-stage [¹⁸F]Fluorination: A Tandem Approach for the Synthesis of Positron Emission Tomography (PET) Radiotracers Using Metal-Organic Frameworks

ABI Funding Support since FY2018.

CANCER RESEARCH COLLABORATIONS

Partnership in Arkansas targets cancer treatment response rates.

Research collaborations bring together scientists from different disciplines, different institutions, or even different countries. While the differences are evident, the research goal is always the same: to develop an innovative approach to complex health issues. This collaborative approach to healthcare research has been the roadmap used by Dr. Narasimhan Rajaram for his entire career. As an assistant professor in the Department of Biomedical Engineering at the University of Arkansas, Fayetteville, Dr. Rajaram's research network includes engineers, pathologists, oncologists, and poultry scientists, to name just a few of his collaborators.

The Rajaram laboratory at UAF builds and uses optical imaging technologies to study cancer progression, metastasis, and the resistance of the cancer to treatment. Dr. Rajaram's lab is specifically interested in tumor metabolism and how that helps tumors become more resilient. To test some of his theories on cancer treatment responses, Dr. Rajaram teamed with three research scientists at the University of Arkansas for Medical Sciences: Mauricio Moreno, MD, Ruud Dings, PhD, and Robert Griffin, PhD. Together the UAMS team creates unique cell lines to test for disease-resistance patterns. Dr. Rajaram has engineered a thin fiber optic probe that is used to assess a tumor's sensitivity to treatment based on how much oxygen is present. Since not all tumors will respond to treatment, Dr. Rajaram's goal is to develop a monitoring system for a patient's cancer treatment so that modifications to a treatment plan can be made quickly and early in the treatment timeline. By touching the optical probe to a tumor, the light patterns can be used to identify whether a tumor will be responsive to treatment. Dr. Rajaram's collaborative cancer research has resulted in a five-year, \$2 million grant from the National Cancer Institute. "Nearly all of the preliminary data for this grant and for the NSF award were generated with support from ABI," says Rajaram. "I started my position at UAF in 2014 and we finally saw success from extramural sources in 2019. Without ABI support over the years, it would have been extremely challenging to collect the data necessary to pull off this large collaborative grant."

We might not normally include engineers in the cancer research narrative, but the field of biomedical engineering is a key research component. The Rajaram lab consists of four undergraduate and five Ph.D. students who play a key role in the advancement of this research program. Dr. Rajaram notes that, "it helps to have excellent students and great collaborators at UAMS who have been really invested in the progress and success of our projects. For an engineering lab, collaborations with biologists and oncologists is really critical in making a strong case for clinical translational potential to funding agencies."

Selected Research Support:

- US Department of Defense, Lung Cancer Research Program: \$145k, 2019-2020
-Identifying Metabolic Hallmarks of Cancer Initiation in Lung Tumor-adjacent Normal Tissue
- National Science Foundation: 1847347; \$500K, 2019-2024 -CAREER: A multimodal imaging platform to investigate spatiotemporal changes in tumor bioenergetics that drive treatment resistance
- NIH/National Cancer Institute: 1 R01 CA238025; \$2.03M, 2019-2024
-Determination of Functional and Molecular Biomarkers of Treatment Resistance with Multimodal Optical Spectroscopy

Selected Publications:

- Label-free Raman Spectroscopy Reveals Signatures of Radiation Resistance in the Tumor Microenvironment. (2019) Cancer Research; 29:2054-2064
- Optical Imaging Approaches to Investigating Radiation Resistance. (2019) Front Oncol; 9:1152

Current ABI Research Project:

- Optic Metabolic Imaging of Biomarkers of Tumor Recurrence and Treatment Resistance in Human Lung Cancer Specimens

ABI Funding Support since FY2016.



AGRICULTURAL RESEARCH IN ARKANSAS

USDA grant focuses on water use and sustainability in poultry production.

At the University of Arkansas System's Division of Agriculture, the primary goal is strengthening agriculture through comprehensive research. And one of their newest, large-scale research projects tackles sustainability and nutrition in poultry production through a multi-university grant from the US Department of Agriculture.

Dr. Walter Bottje, professor of poultry science at the University of Arkansas at Fayetteville, is the Project Director along with Dr. Sami Dridi (Co PD) and Dr. Xingen Lei (Co PD) from Cornell University on a \$10 million research grant to study water efficiency/use, poultry nutritional needs, and agricultural training. Partner institutions, in addition to Cornell and the U of A System Division of Agriculture, include the University of Arkansas at Pine Bluff, Mississippi State University, and Iowa State University. "With this stellar level of collaboration, we hope that some of what we do will have an impact not just here, but in poultry production around the world," notes Bottje. "And we are especially interested in the training and career opportunities for students, interns, and the next generation of farmers."

Dr. Bottje, who has close to four decades in agricultural research in Arkansas, has had continual funding over the years from USDA, NIH, NSF, and foundations and industry partners. His work in the area of feed efficiency and oxidative stress has resulted in numerous patents and publications, and his lab has routinely hosted post-doctoral fellows and visiting scholars.

In addition to foundation, agency, and industry support, Dr. Bottje has received ABI funding support for his research since 2009. "ABI research support has been a lifesaver. I think the track record of publications helped with our ability to land our latest, and one of our largest, awards from USDA," says Bottje. "Whether it's poultry research, plant research, or research in the areas of food sciences and nutrition, ABI has been a strong supporter of the agricultural research going on across Arkansas." Through a Chancellor Innovation Fund grant, Dr. Bottje was able to obtain, in conjunction with UAMS, two years of an unlimited site license for Ingenuity Pathway Analysis for interpretation of global expression data.

Selected Research Support:

- US Department of Agriculture NIFA-SAS: ARK02647; \$9.95M, 2019-2024
-Empowering the Broiler Industry for Transformation and Sustainability

Selected Publications:

- Oxidative Stress and Efficiency: The Tightrope Act of Mitochondria in Health and Disease. (2019) Journal of Animal Science; 97:3169-3179
- Comparison of Liver Gene Expression by RNAseq and PCT Analysis After 8 Weeks of Feeding Soy Protein Isolate- or Casein-Based Diets in an Obese Liver Steatosis Rat Model. (2019) Food Funct; 10:8218-8229

Selected Patents:

- Compositions and Methods of Enhancing Immune Responses; U.S. patent no. 8,604,178 and European patent no. 12165985.8-2403

Current ABI Research Project:

- Role of Mitochondrial Hormone Receptors in Bioenergetics and Obesity

ABI Funding Support since FY2009.



INFANT BRAIN IMAGING

How prenatal environment influences infant brain development.

Is there a connection between maternal obesity during pregnancy and a baby's brain development? According to Dr. Xiawei Ou and his research team at Arkansas Children's Research Institute (ACRI), infant brain development can be adversely impacted by prenatal exposure to maternal obesity. Dr. Ou's research on effects of maternal obesity on infant brain development was recently supported with a five-year, \$3.1 million award from the National Institutes of Health. Dr. Ou is the Director of the Brain Imaging Laboratory at the Arkansas Children's Nutrition Center and is also an associate professor of radiology and pediatrics at the University of Arkansas for Medical Sciences.

"We know that maternal obesity is a growing health concern not only in Arkansas, but also throughout the U.S. One of our main goals is to understand how maternal obesity affects the baby's brain," explains Ou. Using advanced magnetic resonance imaging (MRI) tests at Arkansas Children's Hospital, Dr. Ou and his research team will study changes in brain structural and functional development in infants associated with their moms being obese during pregnancy. The research team will also explore what might be the underlying mechanisms causing these changes. By understanding more about how maternal obesity during pregnancy is linked to unfavorable brain development in infants, researchers can do more to combat the negative effects of maternal obesity on offspring health.

Other areas of newborn development are also of interest to Dr. Ou, who has recently teamed with Dr. Ashley Acheson, associate professor of psychiatry at UAMS. Drs. Ou and Acheson investigate the effects of prenatal opioid exposure on the infant brain development. By utilizing advanced MRI scans, their research team is hoping to identify disruption of fetal brain development due to prenatal opioid exposure and consequences to neurodevelopmental outcomes. Both Ou and Acheson recognize that recruiting participants who will continue in the study for several years will be difficult, but given the pervasiveness of opioids in Arkansas and throughout the US, they have assembled a strong research team across UAMS and ACH to tackle this problem, and their research team is ready to develop the trust of the participants and go the extra mile to help families affected by opioid addiction.

Selected Research Support:

- NIH/National Institute of General Medical Sciences: 5 P20 121293; \$134M, 2017-2022
-Effects of Maternal Obesity and Inflammation on Offspring Brain Development
- NIH/National Institute of Child Health and Development: 1 R01 099099; \$3.1M, 2019-2024.
-Effects of Maternal Obesity and Inflammation on Offspring Brain Development
- NIH/National Institute of Drug Abuse: 1 R34 DA050261; \$516K, 2019-2021
-HEAL Consortium: Establishing Innovative Approaches for the HEALTHY Brain and Child Development Study.

Selected Publications:

- Maternal Adiposity Influences Neonatal Brain Function Connectivity. (2019) *Frontiers in Human Neuroscience*; 12:514
- Diffusion Tensor MRI of White Matter of Healthy Full-Term Newborns: Relationship to Neurodevelopmental Outcomes. (2019) *Radiology*; 292:179-187

Current ABI Research Project:

- Effects of C-Section Delivery on Offspring Brain Development

ABI Funding Support since FY2017.



RESEARCH COLLABORATIONS: ARKANSAS ALL PAYER CLAIMS DATABASE

In 2015, the state of Arkansas created the All-Payer Claims Database (APCD) as the centerpiece of the Healthcare Transparency Initiative Act. The APCD is a large-scale, state-wide database, containing healthcare claims data from private and public payers. This comprehensive database can support research projects as well as quality improvement projects, and Arkansas Biosciences Institute investigators can now gain access via an approved data management plan.

In just two years, ABI researchers have developed fifteen research projects, with health issues covering areas such as tobacco cessation treatments, infant and maternal health, opioid use, and pediatric dentistry. In this year's report, we highlight two research projects that demonstrate the value of the APCD and how Arkansas investigators are putting this resource to work.

PAIN MANAGEMENT WITHOUT LONG-TERM OPIOID USE

Dr. Bradley Martin has been combing through databases and evaluating healthcare outcomes for thirty years. As a professor of pharmacy in the UAMS Department Pharmacy Practice, Dr. Martin's research focus has been on examining prescribing and dispensing factors and identifying possible predictors for opioid adverse events. With the Arkansas All Payer Claims Database, Dr. Martin's current research project will investigate ways to improve pain management for individuals with lower back pain and possibly prevent long-term opioid use.

Dr. Martin is especially interested in pain management decisions early in the course of care. "When we talk about improving pain management, we are interested in key decisions made early, typically in primary care. We want to identify potentially modifiable factors such as how opioids are prescribed and other management decisions, including physical therapy," notes Martin. "Improved decision-making around these modifiable factors at the initiation of care may provide the best opportunity to prevent long-term opioid use."

With access to the APCD, Dr. Martin and colleagues will be able to identify and estimate the prevalence of risk-factors for long-term opioid use. Dr. Martin has shown in previous research projects that there is a link between the number of days for the initial opioid prescription and a likelihood of long-term opioid use. His research shows that limiting initial opioid prescriptions for 5 or fewer days reduces the risk of long term use which leads to addiction and potential abuse. According to Martin, "we think we have an excellent source of patient information with the APCD that will help us identify how opioids are prescribed. The aim of our research is to pinpoint factors that decrease risky opioid use and find alternatives for patients who suffer from chronic pain."

Selected Research Support:

- NIH/National Cancer Institute: 1 R21 CA231189; \$275K (Co-I); 1R21CA231189, 2019-2021 -Improving HPV Vaccination using Implementation Strategies in Community Pharmacies
- NIH/National Institute of Drug Abuse: 1 R36 DA046717 (Mentor); \$74K, 2018-2019 -Impact of Opioid Dosing Strategies on Pain Scores and Adverse or Unintended Clinical Outcomes
- Arkansas Department of Health and Human Services: 7356209; \$155K, 2017-2020 Evaluation of the High

Selected Publications:

- Cost-Effectiveness of Intranasal Naloxone Distribution to High-Risk Prescription Opioid Users. (2020) Value in Health; epub
- Impact of opioid dose escalation on pain intensity: a retrospective cohort study. Pain; epub
- Impact of Medical Marijuana Legalization on Opioid Use, Chronic Opioid Use, and High-Risk Opioid Use. (2019) J Gen Int Med; 34:1419-1426
- Communication between Pharmacists and Primary Care Physicians in the Midst of a US Opioid Crisis. (2019) Res Social Adm Pharm; 15:974-985

Current APCD Research Project:

- Early Care Decisions and the Risk of Long-Term Opioid Use in Patients with Low Back Pain

ABI Funding Support since FY2017.



OPIOID AND MEDICAL CANNABIS USE AMONG OLDER ADULTS IN ARKANSAS

In her work as research scientist in the UAMS College of Pharmacy, Dr. Nalin Payakachat studies healthcare outcomes and efficiencies in healthcare delivery systems. Dr. Payakachat, associate professor in pharmacy, has two ongoing research projects utilizing the APCD:

- Opioid Use and Healthcare Resource Utilization among Older Adults with Arkansas Medical Cannabis Identification Cards; and
- Examining Impact of Medical Cannabis on Opioid Prescription Rates among Arkansas Cancer Survivors: Early Implementation Phase Data from the APCD.

Dr. Payakachat uses APCD data to study the relationship of medical cannabis (MC) to opioid usage in older (age 50 and older) Arkansans and also among Arkansas cancer survivors. Past research has shown that MC usage may lower the rate of opioid utilization; however more recent research shows that the trend may have reversed over time. In other words, does MC usage increase or decrease opioid usage over time?

Arkansas's APCD is especially relevant to the healthcare research conducted by Dr. Payakachat and other research scientists. "As far as we can tell, Arkansas is the only state in the US that provides an encrypted patient identifier to indicate MC cardholder status in an all-payer claims database," notes Dr. Payakachat. "This unique opportunity of having a data set with an indicator for MC cardholders allows researchers to examine the impact of MC on opioid prescription rates."

Another area of research focuses on the treatment of cancer-related pain. Dr. Payakachat explains that opioids are routinely prescribed to treat cancer-related pain. However, if the prescriptions continue for years after the initial treatment, opioid misuse and abuse can develop. "There is emerging evidence that medical cannabis may facilitate substitution of cannabis for opioids," says Payakachat. Research conducted by Dr. Payakachat and her team will be used to evaluate the Arkansas medical cannabis laws on the health outcomes of Arkansans.

Selected Research Support:

- Arkansas Department of Health and Human Services: 7356209; \$155K, 2017-2020
-Evaluation of the High-Risk Pregnancy Program, UAMS Institute for Digital Health & Innovation (Evaluator)
- NIH/National Institute of Minority Health and Health Disparities: \$3.76M (Co-I); 2019-2024
-The Effectiveness of Family Model of Diabetes Self-Management Education among Marshallese with Type 2 Diabetes in Faith-Based Organizations

Selected Publications:

- Arkansas Community's Attitudes toward the Regulation of Medical Cannabis and the Pharmacist's Involvement in Arkansas Medical Cannabis. (2019) J Am Pharm Assoc; <https://doi.org/10.1016/j.japh.2019.11.005>
- Evaluation of Opioid Use among Patients with Back Disorders and Arthritis. (2018) Qual Life Res; 27:3021-3035

Current APCD Research Project:

- Opioid Use and Healthcare Resource Utilization among Older Adults with Arkansas Medical Cannabis Identification Cards
- Examining Impact of Medical Cannabis on Opioid Prescription Rates among Arkansas Cancer Survivors: Early Implementation Phase Data from the APCD
- **ABI Funding Support since FY2018.**



**APPENDIX 1:
PATENT ACTIVITY FOR 2019**

Patent Activity

Patents filed or awarded July 1, 2018, to June 30, 2019

A. Patent applications and provisional patents:

Ainechi A, Allen R, Faqih N, **Johnson T**, Leon N, Nair P, Ruiz M, Seabrooke A, Schick J, Wang K, Xin K. Orthosis to Mitigate Scissoring Gait in Cerebral Palsy Patients. PCTUS 2018/0140453 A1.

Al-Ogali AS, Jiang T, Vuong CN, **LiyanaR**, **Lay JO**, **Kumar TKS**, **Kwon YM**, **Hargis BM**. CD40 Specific DNA Aptamers as Vaccine Adjuvants. (2019) US provisional patent 62/832,725.

Byrum S, Mahmoud F, Shalin S, Shields B, **Tackett A**. Methods for Predicting Responsiveness of a Cancer to an Immunotherapeutic Agent and Methods of Treating Cancer. Provisional patent submitted.

De la Vega A, **Johnson T**, Leon N, Xu Y. Spill-Proof Cup. PCTUS 2018/0160829 A1.

Eoff RL, Crooks PA, Penthala NR. Naphthoyl, Naphthalenylmethyl, and Naphthalenylsulfonfyl Indole Aminoguanidine Analogs as DNA Polymerase Kappa Inhibitors Targeting Glioblastoma. US provisional patent 67/792,226.

Griffin R. Nanogriddle Approach for Characterizing Biomedical Applications of Nanoparticles. Provisional patent submitted.

Griffin R. Psoralen Based Upconverting Nanoparticle Therapy for Tumor Selective Drug Delivery and Improved Outcomes. Provisional patent submitted.

Jobin C, **Sun, X**. Materials and Methods for the Treatment of Enteric Bacterial Infections and Associated Pathologies including Colorectal Cancer. PCTUS 2018/195180.

Rojas CM, Morawicki RO, **Pinto I**. Burkholderia Cenocepacia and Pseudomonas Fluorescens Compositions and Methods of Using the Same. US provisional patent 62/727,095.

Striegler S, Sharma B, Pickens JB. Templated Antimicrobial Microgels and Methods of Making and Using the Same. US provisional patent 62/801,358.

Wang Y. Mechanically-strained Oligonucleotide Constructs and Methods of Using the Same. Provisional patent submitted.

B. Patents awarded:

Jeong K. Condensing Heat Exchanger System. US patent 10,010,810 B1.

Medina-Bolivar F, Yang T. Method to Increase the Yield of Products in Plant Material. US patent 10,144,913.

Sakon J, Matsushita O, Ponnappakkam T, Gensure RC. Fusion Proteins of Collagen-binding Domain and Parathyroid Hormone. European patent EP3091075 B1.

Sakon J, Philominathan STL, Katikaneni R, Matsushita O, Ponnappakkam T, Koide T, Gensure RC, Nishi N. Delivery of Therapeutic Agents by a Collagen Binding Protein. European patent EP2790717 B1; US patent 10,213,488.

Srivastava V. Method, Vectors, Cells, Seeds and Kits for Stacking Genes into a Single Genomic Site. US patent 10,233,456.

APPENDIX 2: ABI SUPPORTED RESEARCH 2018 – 2019

See ARBiosciences.org

APPENDIX 3: ABI SUPPORTED PUBLICATIONS, GRANTS, AND CLINICAL TRIALS FY 2019

See ARBiosciences.org

Photography:

Bryan Clifton, UAMS

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Lawson & Company

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APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
AR Children's Research Institute									
1. Fundamental Processes Underlying Metabolic Health	S. Adams			\$7,627,894	53.15	USDA	4, 5	UAMS	
2. Family Support and Educational Reintegration for Children with Special Health Care Needs	M. Aitken			\$428,233	3.00	NIH	5	UAMS	Ohio State University
3. The Fetal Basis of Toxicant-Induced Autoimmunity	S. Blossom			\$141,781	1.20	NIH	5	UAMS	
4. Effect of Amino Acids on Regional Lipid Metabolism	E. Borsheim, A. Andres			\$350,744	1.75	NIH	4, 5	UAMS	Johns Hopkins University University of Kansas Medical Center Research Institute
				\$60,567	0.04	NIH			
				\$11,187	0.05	NIH			
5. Development of Systems Biology Approaches for Developmental Diseases	S. Byrum	\$3,000	0.08	\$586,500	1.73	NIH	5	UAMS	
6. Vascular Anomaly Collaborative Research Program	S. Crary			\$2,738		NIH	5	UAMS	Johns Hopkins
				\$5,537		Bayer			
				\$38,764		Pfizer			
				\$23,662		Pfizer			
				\$82,985		uniQure			
				\$29,629		Luitpold			
				\$49,421		Agios			
				\$13,441		AMAG			
		\$5,222		Novartis Pharmaceuticals Corporation					
7. Plasma Biomarkers in Anthracycline Cardiotoxicity	D. Douglass	\$15,000					5		

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
8. Integrative Genomics in Pediatric AML	J. Farrar			\$1,726		ACT	5	UAMS	The Feinstein Institute for Medical Research
				\$75,000	0.01	COG Foundation			
				\$50,000	0.01	Rally Foundation for Childhood Cancer Research			
				\$245,970		COG Foundation			
				\$15,657		Novartis			
9. Prevention of Adolescent Obesity-Associated Liver Steatosis via Metformin-Induced Alteration in the Gut Microbiota	R. Hakkak	\$75,000	0.23				4, 5		
10. Biomarkers of Acetaminophen Toxicity	L. James			\$8,553		NIH	5	UAMS	Duke University
				\$134,592		NIH			
				\$9,861		NIH			
				\$18,995		NIH			
				\$3,900		GlaxoSmithKline			
				\$3,343		Janssen			
				\$9,472		Cumberland			
				\$1,761		Bayer			
\$9,804		Forest Labs							
11. Pediatric Neurology Research	T. Johnson	\$50,000					5	UAMS	
12. Community Intervention and Case Management Strategies Targeted at High-risk Asthmatic Children	S. Jones			\$17,840	0.05	NIH	5	UAMS	Johns Hopkins
				\$48,536		NIH			
				\$235,000	1.10	NIH			
				\$108,007	2.36	NIH			
				\$9,047		Benaroya Research Institute			
				\$10,204		Allergen Research Corporation			
\$44,294		DBV							
\$22,547		DBV							

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
				\$32,138		DBV			
				\$41,467		DBV			
				\$48,869		Aimmune			
				\$52,549		DBV			
				\$177,859		Regeneron			
				\$98,860		DBV			
				\$2,274		Food Allergy & Anaphylaxis Network			
				\$111,225		Sanofi Pharmaceuticals, Inc.			
13. Identifying Critical Pathways for Therapeutic Development in Pediatric Diffuse Large B-cell Lymphoma	S. Kendrick	\$75,000	1.34	\$586,500	1.73	NIH	5	UAMS	
14. A Systems Analysis of Airway Hyper-responsiveness in Precision Cut Slices from Donors with Asthma	J. Kennedy			\$193,320	1.31	NIH	5	UAMS	
15. Prenatal Neuromagnetic Biomarkers for Neurdevelopmental Disorders	R. Kurten			\$100,763	0.50	NIH	5	UAMS	U of California San Diego
				\$149,000	1.42	NIH			U of California San Diego
				\$58,266	0.35	NIH			La Jolla Institute for Allergy and Immunology
				\$90,395	0.20	NIH			U of California San Diego
16. Prospective Crossover Comparison of Tidal Volume Delivery During Nasal Intermittent Positive Pressure Ventilation in Preterm Infants: Infant Cannula vs. Nasal Continuous Positive Airway Pressure Prongs	A. Lynch	\$13,630	0.03				5	UAMS	
17. Biomarkers Discovery to Detect Metabolic Subtypes within the Autism Spectrum Disorder	S. Melnyk			\$38,730	0.21	NIH	4, 5	UAMS	Drexel University

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
18. Etiology and Outcomes Associated with Congenital Heart Defects	W. Nembhard			\$464,240	2.00	CDC	4, 5	UAMS	Arkansas Department of Health
				\$139,017	0.52	CDC		UAMS	
				\$192,500	1.81	CDC			
				\$56,250	0.46	CDC		UAMS	
19. Effects of C-section Delivery on Offspring Brain Development	X. Ou			\$267,750	1.58	NIH	4, 5	UAMS	
20. Complement, Heat Shock Proteins, and Proteasome Function During Renal Cold Storage plus Transportation	N. Parajuli	\$60,000	0.75	\$77,000	1.50	American Heart Association	5	UAMS	
				\$586,500	1.73	NIH			
21. Telehealth Enhanced Asthma Management (TEAM)	T. Perry		0.29	\$14,980	0.05	NIH	3, 5	UAMS	University of Rochester
				\$32,213		NIH			
				\$61,312		DBV			
				\$587,255	2.06	NIH			
				\$17,511	0.05	NIH			University of Rochester
22. Pediatric Emergency Medicine Research	L. Quang	\$50,000	0.25				5	UAMS	
23. Finding Treatments for Arteriovenous Malformations Through Sequencing and Data Mining	G. Richter			\$11,696		Grace Medical	5	UAMS	
24. Establishing the Presence of Mitochondrial Dysfunction and Oxidative Stress and the Relationships with Resting Energy Expenditure and Fatty Acid Oxidation in Childhood Obesity	S. Rose			\$54,130		GW Pharmaceuticals	5	UAMS	
				\$27,456		GW Pharmaceuticals		UAMS	
				\$217,292	2.00	NIH		UAMS	
25. Metabolic and Immunologic Networks in Peanut Allergy	A. Scurlock			\$98,969		Aimmune	5	UAMS	
				\$129,778		Aimmune			

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
				\$59,119		Aimmune			
				\$427,100		Aimmune			
26. A Dietary Intervention to Modify Breast Milk Content in Obese Lactating Women	C. Sims	\$14,925	0.15				4, 5	UAMS	
27. Pediatric Otolaryngology Research	G. Strub	\$50,000					5	UAMS	
28. Etiological Study of Pediatric Septic Arthritis Cases in the Arkansas Region using Mass Spectrometry	A. Storey	\$15,000					5	UAMS	
29. Program for Bleeding Disorders and Thrombosis in Arkansas	K. Stine			\$19,957	0.23	CDC	5	UAMS	Univ. of Texas
				\$4,535		Bioverative			
				\$34,128		Sangamo Therapeutics, Inc			
				\$8,893		Ultragenyx Pharmaceutical, Inc			
				\$576	0.06	Cookies for Kids Cancer			
				\$1,333	0.03	Histiocytosis Association			St. Jude's
				\$9,653	0.15	Maternal Child Health Bureau			Univ. of Texas
				\$6,965	0.01	St. Baldrick's Foundation			St. Jude's
				\$823		Biogen Idec Inc.			
				\$239,219		Bayer, Inc.			
				\$11,299		Pfizer			
30. And the Beat Goes On: Heartbeat Music Therapy for Children with Progressive Neurodegenerative Illnesses	M. Walden			\$5,560	0.02	Association of Women's Health, Obstetric and Neonatal Nurses	5		
31. Health Impact Assessment of Farm to School on Childhood Obesity Rates in Arkansas	J. Weber			\$400,000	3.00	USDA	4, 5	UAMS, UAF, UA-Agri	Baylor

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
				\$4,500	0.02	National Farm to School Network			
				\$36,848	0.40	Americorps			
				\$1,204,769	6.00	NIH			
				\$186,066	2.00	NIH			
				\$279,592	1.00	NIH			
				\$1,250		Bank of America			
32. Chlamydial Pathogenesis in Mouse Model: Markers to Predict Upper Tract Pathology	V.L. Yeruva			\$19,018	1.70	NIH	5	UAMS	
				\$267,750	1.50	NIH			
Totals ACRI		\$421,555	3.12	\$18,589,427	100.05				
Arkansas State University									
1. Synthesis and Anti-breast Cancer Activity of Novel Thiazolo-Androstenone Derivatives	M.A. Alam	\$51,311	1.25				4		
2. Novel Pyrazole Derivatives as Antibacterial Agents	M.A. Alam			\$139,730	0.50	NIH-INBRE	1	UAMS	
3. Bhattacharyya Startup Lab	S. Bhattacharyya	\$7,939					1,5		
4. Exploring Symbiotic Relationships in a Changing World: Mites and Birds Year 2	T. Boves			\$5,000		NSF/NASA			
5. Developing Novel Informatics Algorithms for Lung Cancer Early Screening with CT Scans	J. Causey	\$17,621	0.60				4		
6. Dolan Startup Lab	M. Dolan	\$20,138	0.30				1,2		
7. Novel Protein-Based Therapy for Managing Disease the Stimulates Catfish Antimicrobial Immunity and Tissue Repair Systems	M. Dolan			\$250,000	3.50	USDA-NIFA	1,2		

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
8. Novel Edge-of-Field Practices for Nutrient and Pesticide Runoff Mitigation Amend 1	J. Farris			\$10,000		USDA-ARS	5		
9. STEM Writing to Read	A. Grippo			\$299,937	2.50	NSF	5		
10. Irrigation Water Management Using Unmanned Aircraft Systems	A. Hashem	\$12,337					1		
11. Mechanism of Recombinant Protein Accumulation in Maize Seed	E. Hood			\$140,000	1.50	USDA	2		UALR
12. Plant-Produced Manganese Peroxidase as a Bioremediation Agent	E. Hood			\$100,000	0.75	USDA	5		UALR
13. Development of Metals Corrosion Maps of Arkansas and Maintenance of Cross-drains	Z. Hossain			\$50,000	1.00	USDOT	5		
14. Elimination of Empirical, Ineffective and Expensive PG Plus Tests to Characterize Modified Binders	Z. Hossain			\$50,000	1.00	USDOT	5		
15. Use of Rice Husk Ash (RHA) in Flowable Fill Concrete Mix Material	Z. Hossain			\$39,500	1.00	USDOT	5		
16. Develop Novel Informatics Algorithms for Lung Cancer Early Screening with CT Scans	X. Huang	\$10,797	0.30				4		
17. Biomedical Computing and Informatics Strategies for Precision Medicine Year 2	X. Huang			\$59,160	1.50	NIH	5		
18. Resources for Development and Validation of Radiomic Analyses & Adaptive Therapy	X. Huang			\$69,993	1.20	NIH	5		
19. EAGER: Building a Starting Core for No-Boundary Education and Research Network	X. Huang			\$300,000	0.00	NSF	5		

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
20. Arkansas Research Alliance Fellowship	X. Huang			\$75,000	0.00	ARA	5		
21. Management of Regulated Deficit Irrigation in Rice Production by Artificial Intelligence	X. Huang			\$45,000	0.00	Arkansas Division of Agriculture	5		
22. Developing Raspberry Pi-Powered Imaging System	A. Lorence	\$60,048	0.75				5		
23. Comparative Genomics and Phenomics Approach to Discover Genes Underlying Heat Stress Resilience in Cereals	A. Lorence			\$333,958	5.00	NSF	1		USDA ARS Delta Water Management Unit, RiceTec
24. Mini-grant to Write an NSF RCN Proposal To Further the Mission of the North American Plant Phenotyping Network (NAPPN)	A. Lorence			\$5,000		NSF	5		UND/UNL/ISU UASPSE
25. Linking Digital Readouts to Traits in Hybrids of the G2F Project and in Heirloom Corn	A. Lorence			\$75,000	1.00	ARA, UA Div Ag	1		
26. CSBR: Natural History: Development of the Arkansas Center for Biodiversity Collections to Advance Biodiversity Research and Education	T. Marsico			\$99,179	0.50	NSF	5		
27. Collaborative Research: Upper Delta Region Biodiversity Scholarship	T. Marsico, T. Boves			\$992,568	1.00	NSF	5		Southern Illinois University, Murray State University
28. Morphological Identification of Plant Propagules Entering the United States from Abroad via the Port of Savannah	T. Marsico			\$15,000	0.50	USDA Forest Service	5		USDA Forest Service-Southern Research Station

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
29. Digitization TCN: Collaborative Research: The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot	T. Marsico			\$10,000	0.25	NSF	5		Henderson State University, Arkansas Tech University, Arkansas Natural Heritage Commission
30. A Meta-analysis of Biological Control Experiments to Elucidate Mechanisms of Herbivorous Insect Invasions and Effective Control Options	T. Marsico			\$4,000	0.25	USDA Forest Service	5		USDA Forest Service-Southern Research Station
31. Vascular Plant Inventory of Big Lake and Wapanocca National Wildlife Refuges	T. Marsico			\$25,589	0.25	US Fish and Wildlife Service	5		
32. Developing and Implementing a Diversified Intergrated Pest Management Program Aimed at Preventing Stored Product Insect Infestation	T. McKay			\$71,515	1.75	USDA-NIFA	5		Kansas State University
33. Dissecting the Anti-Inflammatory Cell Signaling Mechanisms Mediated by Prenylated Stilbenoids in THP-1 Cells	F. Medina-Bolivar			\$6,510	0.00	INBRE	1	UAMS	
34. Tailoring Plant Metabolism for the Production of Arachidin-2: A Bioactive with Multiple Applications in Human Health	F. Medina-Bolivar	\$49,763	0.50				1,2		
35. Pseudo-Continuum Source Volume Isotope Effect Absorption Spectra for Fieldable Measurement of Uranium and Plutonium Enrichment Mod 5	J. Merten			\$450,000	3.60	USDOD-Defense Threat Reduction Agency	5		U Florida
36. RUI: Elucidation of Matrix Effects in Laser Ablation Elemental Analysis Through Absolute Quantification of Ablated Mass	J. Merten			\$239,000	2.35	NSF	5		
37. Use of Photobiomodulation to Treat Infected Wounds	S. Motts	\$24,320	0.08				1, 4, 5		

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Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
38. Establishing Long-term Research of the Immune and Endocrine System Interactions in Reptilian Species of the Mississippi Delta Region	L. Neuman-Lee	\$20,849	0.40				1,2,3		
39. Confirming the Presence and Activity of Phagocytic B Cells in Squamates to Further our Understanding of Innate System Functioning	L. Neuman-Lee	\$49,156	0.75				1,2,3		
40. Monitoring Illinois Chorus Frog (<i>Pseudacris illnoensis</i>) in Northeast Arkansas	L. Neuman-Lee			\$55,205	1.50	AGFC	5		
41. Isolated Microspore Culture of Soybean: A Pathway to Doubled Haploids	G. Phillips			\$75,000	1.50	USDA-NIFA-NLGCA	1	UA Div Agri	
42. Soybean Androgenesis	G. Phillips			\$22,132	1.00	Soybean Promotion Board	1	UA Div Agri	
43. CASE Support	T. Risch	\$40,430	0.50				5		
44. Partnerships for Biomedical Research in AR: PUI Faculty Liaison, INBRE Admin. Core	T. Risch			\$27,231		NIH/INBRE			
45. RII Track I: Arkansas Advancing and Supporting Science, Engineering and Technology (ASSET) III- Multifunctional and Turnable Nanostructured Surfaces Year 4 (CASE)	T. Risch			\$47,459	0.70	NSF EPSCoR			
46. ASU Graduate Research Assistant Fellowship Program for the Center for Advanced Surface Engineering Year 4	T. Risch			\$59,045	0.50	NSF EPSCoR			
47. ASU Graduate Research Assistant Fellowship Program for the Center for Advanced Surface Engineering Year 4, Amdndment 1	T. Risch			\$15,996		NSF EPSCoR			

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
48. Computational Methods for Integrated Modeling of Natural Resources Processes at Field and Watershed Scales Amend 3	T. Risch			\$23,000		USDA-ARS			
49. Preserving Water Quality and Quantity for Agriculture in the Lower Mississippi River Basin-Amend 3	T. Risch			\$100,000	3.60	USDA-ARS			
50. Acquisition of Goods and Services	T. Risch			\$54,259		USDA-ARS			
51. Acquisition of Goods and Services	T. Risch			\$130,794		USDA-ARS			
52. Accelerating CASE Research Project for aECM Thrust	T. Risch			\$6,500		NSF EPSCoR			
53. Ozark-St. Francis National Forrests Bat Monitoring and Studies-Mod. 002	T. Risch			\$60,000	1.50	USDA-Forest Service			
54. Structural Features of Rice Bran Biopolymers Contributing to Innate Immune Responses	B. Savary	\$47,386	0.60				1,4	UA-Agri	
55. Interdisciplinary Research Integrating Micro-Technology for Improved DNA Capture/Detection in Food Industry Diagnostics	I. Seok	\$18,985	0.30				5		
56. SURF: Fabrication of Nanostructures Using Advanced Manufacturing Process	I. Seok			\$2,750	0.25	ADHE	5		
57. Plant Cell-Derived Growth Factors for ex vivo Mass Production of Red Blood Cells	J. Xu			\$139,730	6.00	NIH/INBRE	2	UAF, UAMS	
58. AR INBRE Mini-Sabbatical Flow Cytometry Training Grant	J. Xu			\$2,287		NIH/INBRE	5		

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
59. Engineering Novel Designer Glycopeptides as Molecular Carriers for Boosting Protein Secretion in Plant Cell Culture	J. Xu			\$443,150	1.00	NSF	1,2	UAF	
60. Engineering Cell Wall-Deficient Plant Cells for Enhanced Therapeutic Protein Production	J. Xu	\$24,434	0.50				2	UAF	
61. Signaling that Underlies CAP1 Regulation of ERK and Breast Cancer Cell Functions	G. Zhou			\$139,730	0.50	NIH/INBRE	1,5	UAMS	
62. Animal Care Core	All PI's	\$90,547	1.25						
63. Capital Purchases for Research	All PI's	\$328,681							
64. Greenhouse/Growth Chamber/Infiltration Core	All PI's	\$139,170	1.00						
65. Research Salary Support and Internships	All PI's	\$872,469	12.50						
66. Outreach	All PI's	\$45,718	1.00						
67. Equipment Voucher	All PI's	\$11,828							
68. ABI Administration	All PI's	\$424,142	5.50						
69. Utilities, Custodial and Building Repairs and Equipment Service Contracts	All PI's	\$1,054,337							
Totals ASU		\$3,422,405	28.08	\$5,364,907	48.95				
University of Arkansas System Division of Agriculture									
1. Regression of Rous Sarcoma Virus-Induced Tumors in Arkansas Regressor Chickens – Mechanisms and Implications for Tumor Treatment	N. Anthony, et al.	\$108,012	0.38	\$113,000		Industry	1,2,4		

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				\$15,000		USDA/Animal Health			
2. Selectivity of Infrared Heat Treatment on Inactivation of Mycotoxigenic Fungi	G. Atungulu	\$149,778	1.60	\$52,000	0.35	Arkansas Corn and Grain Sorghum Board	5		
3. Acquisition (in part): Cytation Multi-Mode Reader (Prior Years ABI Study on Nutrition Intervention to Address Obesity in School-aged Children)	J. Baum	\$33,050	0.03	\$354,238	1.22	US-NIH(Prime) thru UAMS/ACHRI	1,4	UAF, UAMS, ACRI	
				\$170,000	0.75	Alliance for Potato Research & Education			
				\$12,000		National Cattlemen's Beef Association			
				\$1,000		Institute of Food Technologists			
4. Role of Mitochondrial Hormone Receptors in Bioenergetics and Obesity	W. Bottje	\$143,160	0.97	\$26,281		Industry	1,5	UAF, UAMS, ACRI	
5. Acquisition: Multi-mode Microplate Reader and Real-time PCR (polymerase chain reaction) Machine (Dowling Prior Years ABI Project on Monitoring of Ticks in Arkansas)	A. Dowling, N. Joshi, et al	\$40,667	0.10	\$30,065		ADHE	5		
6. NPY and Hepatic Lipogenesis: A Potential Therapeutic Target in Obesity	S. Dridi	\$124,131	0.88	\$30,000		USDA/Animal Health	1, 4	UAMS	
				\$180,000	0.09	AB Vista			
				\$75,355		Various Industry			
7. Investigating the Role of Long-distance Early Endosome Trafficking in Fungal Pathogenesis	M. Egan	\$50,000	0.46	\$426,985		NIH	1,5	ACRI	
8. Rescue and Establishment of Chicken Models for Spontaneously Occurring Scleroderma and Hashimoto's Thyroiditis	G. Erf, N. Anthony	\$173,642	0.69	\$52,646		Various Industry	1,2,4	UAMS	

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9. Acquisition (in part): BioCabinet and Other Lab Equipment (Prior ABI Years Studies on Mitigating Avian Diseases)	B. Hargis, et al.	\$102,238	0.25	\$157,900		Various Industry	1,4,5		
10. Acquisition (in part): State-of-the-Art Gas Chromatograph (GC) for Analysis of Bioactive Food Compounds for Use in Nutritional and Other Studies	L. Howard, et al.	\$52,884	0.25	\$135,000	0.57	USDA-ARS(prime) thru UAMS-ACRI	1,4	ACRI, UAF	
11. Determination of Roles of Mitochondrial Small RNAs in Metabolic Disease Phenotypes using Isocitrate Dehydrogenase 2 (IDH2) Knock-out Mice and Genetically Selected Chicken Models	B.W. Kong	\$158,929	0.92	\$65,707	0.09	Korea University	1,4	UAF, UAMS	
12. Funding (in part) for Microscope Upgrade (Prior Year Study re: Antistress Compounds as Effective Tools for Addressing Chronic Stress)	W. Kuenzel	\$174,680	0.82				1,3		
13. Gene Editing in Rice	V. Srivastava	\$162,572	1.42	\$275,812	2.35	NSF	1	ASU	
14. Mechanism of Microbial Metabolite Bile Acids on Resisting against Campylobacter jejuni Colonization in Chickens	X. Sun	\$105,551	1.00				1,5		
15. Rice Fortification by Parboiling to Alleviate Vitamin and Mineral Deficiency	Y.-J. Wang, S. Lee, A. Durand-Morat	\$135,328	1.35	\$256,195	0.56	USDA/NIFA	1		
16. Acquisition (in part): Smart Prep Extractor II	C. Willett, et al.	\$41,809	0.22				1,5	ASU	
17. General Support (Administrative Fee and Misc. Operating Expenditures)	All PI's	\$69,881					5		
Totals UA - AGRI		\$1,826,311	11.34	\$2,429,184	5.98				

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
University of Arkansas, Fayetteville									
1. Characterizing the Influence of a Novel Small Molecule Target on the Ras-Related Cell Division Cycle 42	P. Adams	\$21,284					4,5		
2. Functional Genomics of Heterotrophic Carbon Utilization in Diatoms, a Lineage of Prolific Photoautotrophs	A. Alverson	\$19,841	0.50	\$222,706	2.00	NSF	5		
				\$180,000	1.50	Simons Found			
3. The Development of an Integrated Biaxial Testing and Quantitative Polarized Light Imaging System to Study Altered Structure and Mechanics during Heart Valve Disease Progression	K. Balachandran	\$39,825	0.50				2,5		
4. Phylogenetic Detection of Conserved Regions of Intergenic Chloroplast DNA for Potential Use in Plant Biotechnology Research	J. Beaulieu	\$38,496	0.50	\$161,717	1.00	NSF	1,5		
5. Late-stage [18F]Fluorination: A Tandem Approach for the Synthesis of Positron Emission Tomography (PET) Radiotracers Using Metal–Organic Frameworks	M.H. Beyzavi	\$75,000		\$142,762	1.00	NIH	4,5		Highlands Oncology
				\$49,908	0.50	DOE			
6. Phytochemical Nanoemulsion Potential for Pathogen Control and Gut Microbiome Beneficial Modulation in Broiler Chickens	F. Carbonero	\$14,300					1,5		
7. Sensitive Detection of Tuberculosis	D. Catanzaro	\$45,541	0.50				4,5		
8. Acquisition of Ion Chromatography System for Speciation Analysis of Ionic Substances	J. Chen	\$96,360		\$51,298	0.50	NSF	5	UAMS	
				\$75,000	0.50	AR Research Alliance			
				\$118,500	0.50	Amer Chem Soc - PRF			

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				\$117,563	0.50	NSF			
				\$83,164	0.50	NSF			
				\$149,994	1.00	NSF			
				\$155,328	1.00	NSF			
9. How Important is Access to Macronutrients in Shaping the Gut Microbiome and Individual Immune Responses?	S. DuRant	\$54,837	0.50				4,5		
10. Genome-wide Screening for Oxidative Stress-Resistant Genes in Escherichia coli	C. Fan	\$28,875	0.50	\$10,000		ORAU	5		
11. Methods for Investigating the Chemistry of Individual Silver Nanoparticles with Applications in Medicine, Biological Processes, and Catalysis	I. Fritsch	\$20,784	0.30	\$270,000	1.50	NSF	5		
12. Purchase of Stimulation Equipment to Support Research in Muscle Biology	N. Greene	\$36,067		\$137,556	1.00	NIH	2,5		
13. Negative Urgency and State Level Fluctuations in Alcohol Cognitions: An Experimental Examination of Mechanisms Underlying Addictive Behaviors	L. Ham	\$11,099	0.30	\$14,924	0.30	Mercy Health	4	UAMS	
				\$14,923	0.30	UAMS			
				\$14,077	0.30	Benton County			
14. Reverse Electrodialysis Based Medical Devices for Pacemaker Battery Charging	C. Hestekin	\$18,338	0.30				2		
15. Combining smFRET with Super-Resolution Imaging, Single Particle Tracking, FLIM and Time-Gated Imaging Using Cd-Free, Long Fluorescence Lifetime Quantum Dots to Study Angiogenic Growth Factors	C. Heyes	\$28,621	0.50	\$66,400	0.50	DOE	4,5		

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16. Executive Functions and Obesity-related Behaviors in Adolescents with or without Obesity	E. Howie			\$58,959	0.50	NIH	4		
17. Understanding Impact of Pathogenic Mitochondrial DNA deletions during Early Development in Human Induced Pluripotent Stem Cell Models	S. Iyer	\$53,675	0.30	\$98,266	1.00	NIH	4		
18. Role of ANGPTL4 in Brain Metastasis and Cachexia in Triple Negative Breast Cancer	T. Jennings	\$26,500					4		
19. Mitigating Sexual Aggression	K. Jozkowski	\$25,518	0.30				4		
20. MicroRNA-mediated Chemopreventive Mechanisms of Apiaceous Vegetables against Acrolein-induced Lung Injury	J. Kim			\$65,707	0.50	Korea University	1,5		
21. Biomedical Research	R. Koeppe	\$358,778	1.00	\$239,174	1.50	NSF	5	UAMS	UCSD, Florida State U
				\$355,500	3.00	NIH			
				\$40,000	0.20	ASTA			
22. Acquisition of a State-of-the-Art Differential Scanning Calorimeter	S.K. Thallapuram	\$113,458		\$66,400	0.50	DOE	5		UNC
				\$125,100		NIH			
23. Nuclear and Cytoplasmic Functions of Drosophila Lipin in Endocrine and Adipose Tissues	M. Lehmann			\$143,637	2.00	NIH	4		
24. The Novel Nitrogenases of Methanogens: Untapped Resources for Nitrogenase-based Biotechnology	D. Lessner			\$228,770	2.00	NSF	5		
				\$202,728	2.00	DOE			
				\$46,000	0.50	NSF			

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Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
25. The Genetic Basis of Natural Variation in Alpha-synuclein Susceptibility	J. Lewis	\$30,884	0.50	\$211,071	1.00		4		
26. Analysis of Protein Aggregation Process by Nanotechnology	J. Li	\$25,838	0.50				5		
27. Molecular Dynamics Studies of Mechanosensitive Channel of Large Conductance	M. Moradi	\$29,312	0.50				5		
28. Endoscopic Imaging and Spectroscopic Guidance of Immunotherapy in a Primary Murine Model of Colorectal Cancer	T. Muldoon	\$23,235	0.50	\$140,667	1.50		4		
29. Live-cell Imaging System to Study Dynamics of Cellular Processes in Biology and Medicine	N. Nakanishi	\$75,000					4,5		
30. The INO80 Complex Prevents Polyploidy and Maintains Genome Integrity	I. Pinto	\$9,500					5		
31. Coherent Raman Imaging Facility for Biomedical Research	K. Quinn	\$74,200		\$347,501	3.00	NIH	5		
				\$100,000	1.00	NSF			
				\$98,266	1.00	NIH			
32. Optical Metabolic Imaging of Biomarkers of Tumor Recurrence and Treatment Resistance in Human Lung Cancer Specimens	N. Rajaram	\$20,751	0.50	\$100,000	1.00	NSF	2,4,5		
33. Replacement Refrigerated Microcentrifuge for Ferritor Hall	D. Rhoads	\$13,446		\$55,846	0.50	Cobb-Vantress	5		
				\$166,667	1.00	NIFA			
				\$47,797	0.20	ZinPro			
34. Modified Two-dimensional Crystal to Inactivate Pathogens at Surfaces	K. Roper	\$15,838					5		

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35. Long-lasting Non-mitogenic Variant of FGF1	J. Sakon	\$35,621	0.50	\$30,000		Nippi, Inc.	4		
				\$16,000		CVitaCyte			
36. Electrochemical Detection of Biomolecules using Peptoid-Functionalized Nanoparticles	S. Servoss	\$14,067	0.50				2,5		
37. Cortical Noise Hypothesis: Circuit Mechanisms of Body Movements in Rett Syndrome	W. Shew	\$48,832	0.50				4		
38. Metabolic Syndrome, Diabetes, and Obesity Associations with Coinfectious Disease	A. Siepielski	\$25,110	0.50				4		
39. Microfluidic Design-Based Microdialysis Sampling for Improved in vivo Sampling	J. Stenken			\$111,600	1.00	NSF	5		
40. Tailoring Matrix Effects to Design Potent Biomimetic Catalysts	S. Striegler	\$51,332	0.50	\$161,667	1.50	NSF	5		
41. Paracellular and Transcellular Solute and Water Shunts in Gill and Intestine of Medaka and Killifish	C. Tipsmark	\$30,175	0.50				5		
42. Investigating the Dynamic Diffusion of Proteins in Live Bacteria with Ultra-High Spatiotemporal Resolutions	Y. Wang	\$39,175	0.50	\$71,164	1.00	NSF	5		
				\$83,164	1.00	NSF			
43. Cancer Cachexia and Leucine Supplementation	T. Washington	\$42,800	0.50				4		
44. The Genetics of Preference Plasticity and Perception of Social Cues in the Model Butterfly <i>Bicyclus anynana</i>	E. Westerman	\$47,597	0.50				5		

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45. Synergizing Regenerative Medicine and Immunotherap for the Treatment of Muscle Injury	J. Wolchok	\$17,781	0.50	\$142,700	1.00	NIH	2,4		
46. Difunctionalization of Photogenerated Distonic Radical Cations by Donor Acceptor Complexes	N. Zheng	\$28,621	0.50				4,5		
Totals UAF		\$1,826,311	14.00	\$5,590,169	43.80				
University of Arkansas for Medical Sciences									
1. Proteomics and Gene Expression	A. Tackett			\$62,084 \$358,700	0.14	NIH NIH	4,5		
2. Tobacco Use Prevention	P. Fagan			\$49,948 \$102,144	0.05 0.07	FDA NIH	3		
3. Immune System Response to Plasmodium	J. Stumhofer			\$511,315 \$188,646	1.66 1.29	NIH NIH	5		
4. Novel Treatments and Prevention Strategies for Ovarian Cancer	K. Zorn			\$17,637 \$62,500		NRG Oncol. Fndn Children's Oncol. Group	4		
5. Birth Defects Center	W. Nembhard	\$7,500					5		
6. Surgical Outcomes in Birth Injury	S. Oliphant			\$223,500	0.86	NIH	5		
7. Osteoporosis and Metabolic Bone Diseases	E. Ambrogini	\$9,761					5		
8. DLAM Sterilizer	M. Randolph	\$295,540					5		
9. Metabolic Profiling of Tobacco Users	P.-C. Hsu	\$179,752	1.67				3		
10. Antiviral Immunology	M. Nakagawa	\$195,097	2.24	\$699,636	2.94	NIH	4		
11. Mass Spectrometry	A. Tackett	\$191,990					4,5		

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12. Staphylococcal Capsule Virulence and Regulation	C. Lee			\$372,500	2.98	NIH	4,5		
13. Emulate System	I. Koturbash	\$100,246					5		
14. Microbiology and Immunology - Coxiella burnetti Pathogenesis	D. Voth			\$220,278	0.82	NIH	5	ACRI	
15. Blood Flow Response to Thermal and Radiation Therapy	R. Griffin	\$13,500	0.75	\$49,286	3.02	NSF	4	UAF, ASU	
				\$530,434	2.50	NSF			
16. Role of Novel Sec34 Protein Complexes in Intracellular Membrane Trafficking	V. Lupashin	\$10,000	1.80	\$74,500	0.38	NIH	5		
17. Center for Translational Neuroscience Research	E. Garcia-Rill	\$25,000					5		
18. Single Cell Sequencing	A. Rodriguez	\$9,400					5		
19. Cesium Irradiator	M. Hauer-Jensen	\$50,000		\$2,116,258	9.16	NIH	4,5		
20. Photothermal Therapy and Nicotine	V. Zharov			\$337,659	1.07	NIH	3,4,5		
				\$166,037		NIH			
21. Pena Raystation Upgrade	J. Penagaricano	\$15,325					5		
22. NWA Freezers	G. Gentry	\$12,519					5		
23. Lung Cancer Research	L. Johnson			\$88,976		Vertex Pharma	4		
24. Genomics Shared Resource	D. Johann	\$457,338	3.90	\$990,393	0.25	FDA	5		
25. Tissue Bank	S. Post	\$63,186					5		
26. Role of Glycans in Cancer Progression	K. Abbott			\$748,247	2.20	NIH	4		
				\$225,250	0.22	NIH			

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Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
27. Addiction Research	A. Acheson	\$118,195	0.72				3,4,5		
28. Obesity Prevention in Children	T. Swindle	\$71,449	1.17	\$122,327 \$120,154	0.74 0.08	NIH NIH	4		
29. Drug Discovery by Fragment-based Identification of Ligands Using Hydrogen-Deuterium Exchange Mass Spectrometry	K. Raney			\$529,716 \$129,583	2.86	NIH NIH	5	UAF	
30. Medical Informatics Support	F. Prior	\$300,000	1.80				5		
31. AMG Fluorescent Microscope	R. Eoff			\$599,825		NSF	5		
32. BSL3 Facility	D. Voth	\$9,717					5		
33. Natural Antimicrobial Compounds to Increase Food Safety	E. Huang	\$100,000	0.59				4		
34. DNA/RNA Sequencing	I. Nookaew	\$12,000					5		
35. ARA Impact Grant (Microbiome)	D. Ussery	\$10,145	0.01	\$20,291		AR Research Assoc.	5		
36. Carcinogenesis and Epigenetics	I. Koturbash			\$17,494	0.01	US DOJ	4		
37. Effects of Nicotine on the Brain and Decision Making	M. Addicott	\$70,950	0.89	\$234,060 \$23,389	0.38 0.03	NIH Brain and Behav. Res. Fndn	3		
38. ARA Impact Grant	M. Smeltzer	\$24,965	0.20	\$28,077		AR Research Assoc.	5		
39. COBRE Phase2	M. Smeltzer	\$100,000	0.60	\$2,227,346	10.61	NIH	5		
40. Doctoral Training Program in Pharmacology	P. Mayeux	\$27,000	0.93	\$148,568	2.30	NIH	5		
41. Thyroid Cancer Research	G.P. Miller			\$145,276	1.64	NIH	4		

APPENDIX 2 ABI-SUPPORTED RESEARCH FOR 2019

Project	Principal Investigator(s)	ABI \$ Allocated	ABI FTE Employment	Related Extramural \$	Related FTE Employment	Extramural Source	ABI Research Areas*	ABI Partners	Other Partners
42. DNA Damage Repair Mechanisms Following Radiation Exposure	F. Xia	\$300,000	1.66	\$394,561	1.77	NIH	4,5		
43. ARA Impact Grant (Staph)	D. Ussery	\$25,000	0.32	\$50,000		AR Research Assoc.	5		
44. ARA Impact Grant	H.-Y. Li	\$25,000	0.60	\$50,000		AR Research Assoc.	5		
45. Thyroid Cancer Research	A. Franco			\$343,125	1.68	NIH	4		
46. Cognitive Function Following Radiation Exposure	A. Allen	\$24,130		\$355,277	0.74	NASA (Baylor Univ Subaward)	4,5		
47. Brain Imaging in Addictions	C. Kilts	\$8,678	0.11	\$344,095		Boehringer Ingleheim Pharm.	3,4,5		
				\$383,331	1.72	NIH			
48. Genetics of Pediatric Cancers	J. Farrar			\$260,750	1.24	NIH	4		
49. Pediatric Infectious Disease Research	J. Snowden	\$50,000		\$329,219	1.29	NIH	5		
				\$329,401		NIH			
50. Liver Regeneration Research	M. McGill	\$100,000	1.00	\$100,000	0.50	Amer. Assn Study Liver Disease	4,5		
51. Cancer Development Research	Z. Qin	\$300,000	1.03				4		
52. Center for Musculoskeletal Disease Research	C. O'Brien	\$75,000	0.81	\$2,253,315	13.62	NIH	5		
53. Microbiome-derived Protein Biomarkers	B. Zybaylov			\$260,750	1.90	NIH	5		
54. Aging Effects on Cardiovascular Homeostasis	J. Wei			\$406,798	0.70	AR DHS	5		
				\$247,458		AR DHS			
Totals UAMS		\$3,388,383	22.80	\$18,650,114	73.42				
All Institutions		\$10,884,966	79.34	\$50,623,801	272.20				

*ABI Research Areas: 1 - Agricultural/Medical Research; 2 - Bioengineering Research; 3 - Tobacco-related Research; 4 - Nutritional Research; 5 - Other Related Research

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Publications, including journal articles, book chapters, and books; ABI-supported investigators in bold.

A. Journal Articles

Abdallah A-O, Coleman H, Kamel M, Davis R, Landrum T, Spencer H, Mackintosh S, Mahmoud FA, Milojkovic N, Wicker C, Arnaoutakis K, **Nakagawa M.** (2018) A Novel Prostate Cancer Immunotherapy Using Prostate-Specific Antigen Peptides and *Candida* Skin Test Reagent as an Adjuvant. *SAGE Open Med*; 6:1-11.

Abutayeh M, **Jeong K**, Alazzam A, El-Khasawneh B. (2019) Streamlining the Power Generation Profile of Concentrating Solar Power Plants. *ASME J Solar Energy Eng*; 141:021002.

Abutayeh M, Padilla RV, Lake M, Lim YY, Garcia J, Sedighi M, Too YCS, **Jeong K.** (2019) Effect of Short Cloud Shading on the Performance of Parabolic Trough Solar Power Plants: Motorized vs Manual Valves. *Renewable Energy*; 142:330-344.

Acheson A, Fantegrossi WE. (2019) Introduction to Special Issue: Therapeutic and Abuse-Related Effects of Cannabis and Cannabinoids. *Exper Clin Psychopharma*; in press.

Acheson A, Vincent AS, Cohoon A, Lovallo WR. (2019) Early Life Adversity and Increased Delay Discounting: Findings from the Family Health Patterns Project. *Exp Clin Psychopharma*; 27:153-159.

Adams SH, Anthony JC, Carvajal R, Chae L, San Khoo C, Latulippe ME, Matusheski NV, McClung HL, Rozga M, Schmid CH, Wopereis S, Yan W. (2019) Guiding Principles for the Implementation of Personalized

Nutrition Approaches that Benefit Health and Function. *Adv Nutri*; in press.

Addicott MA, Daughters SB, Strauman TJ, Appelbaum LG. (2018) Distress Tolerance to Auditory Feedback and Functional Connectivity with the Auditory Cortex. *Psy Res: Neuroimaging*; 282:1-10.

Addicott MA, Luber B, Nguyen D, Palmer H, Lisanby SH, Appelbaum LG. (2019) Low and High Frequency rTMS on Resting-state Functional Connectivity between the Postcentral Gyrus and the Insula. *Brain Connectivity*, in press.

Addicott MA, Schechter JC, Sapyta JJ, Selig JP, Kollins SH, Weiss MD. (2019) Methylphenidate Increases Willingness to Perform Effort in Adults with ADHD. *Pharmacol Biochem Behavior*, in press.

Adhikari B, Kwon YM, **Hargis BM. Tellez G.** (2018) How Trillions of Microbes Residing on Gastrointestinal Tract Maintain Homeostasis with Host Cells? *Food Nutr J: FDNJ*-170.

Adhikari B, Kwon YM, **Hargis BM. Tellez G.** (2018) Prokaryotes Rule the World. In *Gut Microbiota-Brain Axis*. IntechOpen.

Afrose F, McKay MJ, Mortazavi A, Kumar VS, **Greathouse DV, Koeppe RE, II.** (2019) Transmembrane Helix Integrity versus Fraying to Expose Hydrogen Bonds at a Membrane-Water Interface. *Biochem*; 58:633-645.

Aguliar-Lozano A, Baier S, Grove R, Shu J, Giraud D, Leiferman A, **Mercer KE**, Cui J, Badger TM, Adamec J, **Andres A**, Zempleni J. (2018) Concentrations of Purine Metabolites Are Elevated in Fluids from Adults and Infants and in Livers from Mice Fed Diets Depleted of Bovine Milk Exosomes and their RNA Cargos. *J*

Nutr; 12:1886-1894.

Ahsan B, **Hossain Z.** (2018) Supplemental Use of Rice Husk Ash (RHA) As a Cementitious Material in Concrete Industry. *Const Bldg Mat*; 178:1-9.

Alam MA. (2019) Methods for Hydroxamic Acid Synthesis. *Cur Organ Chem*; 23:1-16.

Ali MA, Okolo C, Alsharif Z.A, Whitt J, Chambers SA, Varma RS, **Alam MA.** (2018) Benign Synthesis of Thiazolo-androstenone Derivatives as Potent Anticancer Agents. *Org Lett*; 20: 5927-5932.

Alkam D, Jenjaroenpun P, Wongsurawat T, **Ussery D**, et al. (2019) Genomic Characterization of Mumps Viruses from a Large-scale Mumps Outbreak in Arkansas, 2016. *Infection, Genetics and Evolution*; 75:103965.

Allman BR, **Andres A, Børshheim E.** (2019) The Association of Protein Intake during Pregnancy on Maternal and Offspring Insulin Sensitivity Measures. *Curr Dev Nutr*; 3:nzz055.

Alqahtany M, Khadka P, Niyonshuti I, Krishnamurthi VR, Sadoon AA, Challapalli SD, **Chen J, Wang Y.** (2019) Nanoscale Reorganizations of Histone-like Nucleoid Structuring Protein in *Escherichia coli* are caused by Silver Nanoparticles. *Nanotech*; 30:385101.

Al-Zahrani K, Licknack T, Watson DL, **Anthony NB, Rhoads DD.** (2019) Further Investigation of Mitochondrial Biogenesis and Gene Expression of Key Regulators in Ascites-Susceptible and Ascites-Resistant Broiler Research Lines. *PLOS One*; 14:e0205480.

Amann RI, Baichoo S, Blencowe BJ, **Ussery DW**, et al. (2019) Consent

Insufficient for Data Release—Response. *Science*; 364:446.

Amann RI, Baichoo S, Blencowe BJ, **Ussery DW**, et al. (2019) Toward Unrestricted Use of Public Genomic Data. *Science*; 363:350-352.

Antoszczak M, Urbaniak A, Delgado M, Maj E, Borgström B, Wietrzyk J, Huczynski A, Yuan Y, **Chambers TC**, Strand D. (2018) Biological Activity of Doubly Modified Salinomycin Analogs—Evaluation *in vitro* and *ex vivo*. *Euro J Medic Chem*; 156:510-523.

Apopa P, Alley L, Penney R, **Arnaoutakis K, Steliga M**, Jeffus S, Bircan E, Gopalan B, Jin L, Patumcharoenpol P, Jenjaroenpun P, Wongsurawat T, Shah N, **Boysen G, Ussery D**, Nookaew I, **Fagan P**, Bebek G, **Orloff M.** (2018) PARP1 is Up-regulated in Non-small Cell Lung Cancer Tissues in the Presence of the Cyanobacterial Toxin Microcystin. *Front Microbio*; 9:1757.

Ashby C, Peterson EA, Bauer M, **Johann DJ.** (2019) A Scalable and Adaptive Approach for NGS Analyses Leveraging High-Performance Computing. *Path Specimens Genom Med: Emerging Issues*; 248.

Asirvatham J, **Thomsen MR, Nayga RM Jr, Goudie A.** (2019) Do Fast Food Restaurants Surrounding Schools Affect Childhood Obesity? *Econ Hum Biol*; 33:124-133.

Asirvatham J, **Thomsen MR, Nayga RM Jr, Rouse HL.** (09-2018) Obese Peers' Influence on Student's BMI: Heterogeneity in Race and Sex. *Hlth Behav Policy Rev*; 5:3-12.

Ayers BL, Shreve MD, Scott AL, Seaton VA, Johnson KV, Hawley NL, Rowland B, Moore R, McElfish PA. (2019) Social and Economic Influences on Infant and Child Feeding Practices in a Marshallese Community. *Pub Hlth*

Nutri; 8:1461-1470.

Ayers BL, Hawley NL, Purvis RS, Moore SJ, McElfish PA. (2018) Providers' Perspectives of Barriers Experienced in Maternal Health Care among Marshallese Women. *Women and Birth: Journal of the Australian College of Midwives*; 31:e294-e301.

Aykin-Burns N, Pathak R, Boerma M, Kim T, **Hauer-Jensen M.** (2019) Utilization of Vitamin E Analogs to Protect Normal Tissues while Enhancing Antitumor Effects. *Semin Radiat Oncol*; 29:55-61.

Babawale EA, Jones PJH, **Mercer KE**, Lin H, **Yeruva L**, Bar Yoseph F, Rutherford SM. (2018) Modulating Sterol Concentrations in Infant Formula Influences Cholesterol Absorption and Synthesis in the Neonatal Piglet. *Nutrients*; 10:E1848.

Bakker MK, Bergman JEH, Krikov S, Amar E, **Nembhard WN**, et al. (2019) Prenatal Diagnosis and Prevalence of Critical Congenital Heart Defects: An International Retrospective Cohort Study. *BMJ Open*; 9:e028139.

Banerjee SK, Huckuntod SD, Mills SD, **Kurten RC**, Pechous RD. (2019) Modeling Pneumonic Plague in Human Precision-Cut Lung Slices Highlights a Role for the Plasminogen Activator Protease in Facilitating Type 3 Secretion. *Infect Immun*; 87(8).

Barham C, Fil D, **Byrum SD**, Rahmataallah Y, Glazko G, Kiaei M. (2018) RNA-Seq Analysis of Spinal Cord Tissues from hPFN1^{G118V} Transgenic Mouse Model of ALS at Pre-symptomatic and End-Stages of Disease. *Sci Rep*; 8:13737.

Bavineni M, Wassenaar TM, Agnihotri K, **Ussery DW**, Lüscher TF, Mehta JL. (2019) Mechanisms Linking Preterm Birth to Onset of Cardiovascular Disease Later in Adulthood. *Euro*

Heart J; 40:1107-1112.

Baxter MFA, Latorre JD, **Dridi S**, Merino-Guzman R, Hernandez-Velasco X, **Hargis BM, Tellez-Isaias G.** (2019) Identification of Serum Biomarkers for Intestinal Integrity in a Broiler Chicken Malabsorption Model. *Front Vet Sci*; 6:144.

Baxter M, **Dridi S**, Koltes D, Latorre J, **Bottje W**, Greene E, Bickler S, Kim J, Merino-Guzman R, Hernandez-Velasco X, Anthony N, **Hargis B, Tellez-Isaias G.** (2019) Evaluation of Intestinal Permeability and Liver Bacterial Translocation in Two Modern Broilers and their Jungle Fowl Ancestor. *Front Genet*; 10:480.

Baxter MFA, Latorre JD, Koltes DA, **Dridi S**, Greene ES, Bickler SW, Kim JH, Merino-Guzman R, Hernandez-Velasco X, Anthony NB, **Bottje WG, Hargis BM, Tellez G.** (2018). Assessment of a Nutritional Rehabilitation Model in Two Modern Broilers and their Jungle Fowl Ancestor: A Model for Better Understanding Childhood Undernutrition. *Front Nutr*; 5:18.

Beer LC, Bielke LR, Barta JR, Faulkner OB, Latorre JD, Briggs WN, Wilson KM, Baxter MFA, **Tellez G, Hargis BM.** (2018) Evaluation of Autofluorescent *Eimeria Maxima* Oocysts as a Potential Indicator of Non-viability when Enumerating Oocysts. *Poult Sci*; 97:2684-2689.

Beer L, Butler L, Gautier A, Graham D, Teague K, Wilson V, **Dridi S.** (2018) Xylanase Supplementation in Wheat-based Diets and the Influence on Necrotic Enteritis in Broilers: A Translational Model for Human Malnutrition. *Adv Food Technol Nutr Sci Open J*, 4:e4-e5.

Beger RD, Dunn WB, Bandukwala A, **Hsu PC**, et al. (2019) Towards Quality

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Assurance and Quality Control in Untargeted Metabolomics Studies. *Metabolomics*; 15:4.

Bekelman JE, Lu H, Pugh S, Chauhan C, Braunstein L, **Prior F**, et al. (2019) Pragmatic Randomized Clinical Trial of Proton vs. Photon Therapy for Patients with Non-Metastatic Breast Cancer: The Radiotherapy Comparative Effectiveness (RadComp) Consortium Trial. *BMJ Open*; in press.

Bennuri SC, **Rose S**, **Frye RE**. (2019) Mitochondrial Dysfunction is Inducible in Lymphoblastoid Cell Lines from Children with Autism and May Involve the TORC1 Pathway. *Front Psych*; 10:269.

Blackburn JB, D'Souza Z, **Lupashin VV**. (2019) Maintaining Order: COG Complex Controls Golgi Trafficking, Processing, and Sorting. *FEBS Lett*; 593:2466-2487.

Blackwell TA, Cervenka I, Khatri B, Brown JL, Rosa-Caldwell ME, Lee DE, Perry RA, Brown LA, Haynie WS, Wiggs MP, **Bottje WG**, **Washington TA**, **Kong B**, Ruas JL, Greene NP. (2018) A Transcriptomic Analysis of the Development of Skeletal Muscle Atrophy in Cancer-cachexia in Tumor-bearing Mice. *Physiol Genom*; 50:1071-1082.

Boateng BA, Indelicato N, Fischer E, Delgado P, **Aitken ME**, **James LP**. (2019) Beyond the Common Metrics: Expanding the Impact of the KL2 Mentored Career Development Program using Alternative Impact Assessment Frameworks. *J Clin Transl Sci*; 3:1-4.

Bottje WG. (2018) Oxidative Metabolism and Efficiency: The Delicate Balancing Act of Mitochondria. *Poult Sci*; 98:4223-4230.

Bottje WG, Piekarski-Welsher A,

Greene ES, Lassiter K, **Anthony NB**, **Kong BC**, **Dridi S**. (2018) Enrichment of Autophagy and Proteosome Pathways in Breast Muscle of Feed Efficient Pedigree Male Broilers. *Front Physiol*; 9:1342.

Boysen G, Jamshidi-Parsian A, Davis MA, Siegel ER, Kore RA, **Dings RPM**, **Griffin RJ**. (2019) Glutamine Inhibitor CB-839 Increases Radiation Sensitivity of Lung Tumor Cells and Human Lung Tumor Xenografts in Mice. *Int J Radiat Biol*; 95:436-442.

Brann KR, Fullerton MS, Onylaigha FI, Prince AA, **Kurten RC**, Rom J, **Smeltzer MS**, **Blevins JS**, **Voth DE**. (2019) Infection of Primary Human Alveolar Macrophages Alters *Staphylococcus aureus* Toxin Production and Activity. *Infection and Immunity*; 87:e00167.

Breland A, Balster RL, Cobb C, **Fagan P**, Foulds J, Koch JR, Lipato T, Saliba N

Shihadeh A, Sun S, Eissenberg T. (2019) Answering Questions about Electronic Cigarettes using a Multidisciplinary Model. *Am Psychol*; 74:368-379.

Brents LK, James GA, Cisler JM, **Kilts CD**. (2018) Personality Variables Modify the Relationship between Childhood Maltreatment, Cocaine Use Disorder, and Poor Functional Outcomes. *Psy Res*; 268:229-137.

Brevers D, Bechara A, **Kilts CD**, Antoniali V, Bruylant A, Verbanck P, Kornreich C, Noel X. (2018) Competing Motivations: Proactive Inhibition toward Addiction-related Stimuli in Quitting-motivated Individuals. *J Gambling Studies*; 34:785-806.

Bush KA, Gardner J, Privratsky A, Chung M-H, James GA, **Kilts CD**. (2018) Brain States that Encode Perceived Emotion are Reproducible

but Their Classification Performance is Stimulus-dependent. *Frontiers Human Neurosci*; 12:262-272.

Bush K, Privratsky A, Gardner G, Zielinski M, **Kilts C**. (2018) Common Functional Brain States Encode both Perceived Emotion and the Psychophysiological Response to Affective Stimuli. *Sci Rep*; 8:154444.

Byrd AK, Bell MR, **Raney KD**. (2018) Pif1 Helicase Unfolding of G-quadruplex DNA is Highly Dependent on Sequence and Reaction Conditions. *J Biol Chem*; 16293:17792-17802.

Byrum SD, Loughran AJ, Beenken KE, Orr LM, **Storey AJ**, Mackintosh SG, Edmondson RE, **Tackett AJ**, **Smeltzer MS**. (2018) Label-free Proteomic Approach to Characterize Protease-dependent and Independent Effects of sarA Inactivation on the *Staphylococcus aureus* Exoproteome. *J Proteome Res*; 17:3384-3395.

Byrum SD, Washam CL, **Tackett AJ**, **Garcia-Rill E**, Bisagno V, Urbano FJ. (2019) Proteomics Measures of Gamma Oscillations. *Heliyon*; in press.

Cáceda R, Bush K, James GA, Stowe ZN, Knight B, **Kilts CD**. (2019) Modes of Resting Functional Brain Organization Differentiate Suicidal Thoughts and Actions: A Preliminary Study. *J Clin Psy*; in press.

Cáceda RC, James GA, Stowe ZN, Delgado PL, Kordsmeier N, **Kilts CD**. (2018) The Neural Correlates of Low Social Integration as a Risk Factor for Suicide. *J. Clin Psy*, in press.

Cáceda RC, Prendes-Alvarez S, Hsu J-J, Tripathi SP, **Kilts CD**, James GA. (2019) The Neural Correlates of Reciprocity are Sensitive to Prior Experience of Reciprocity. *Euro Arch Psy Clin Neurosci*; in press.

Caetano DS, **Beaulieu JM**. (2019) Comparative Analyses of Phenotypic Sequences using Phylogenetic Trees. *Am Naturalist*; in press.

Cafferty BJ, Yuan L, Baghbanzadeh M, Rappoport D, **Bezvavi MH**, Whitesides GM. (2019) Charge Transport through Self-Assembled Monolayers of Monoterpenoids. *Angewandte Chemie Intnl Ed*; 131:8181-8186.

Campbell ZC, Acosta-Gamboa LM, Nepal N, **Lorence A**. (2018) Engineering Plants for Tomorrow: How High-throughput Phenotyping is Contributing to the Development of Better Crops. *Phytochem Rev*; 6:1329-1343.

Carroll AA, Clarke J, Fahlgren N, Gehan M, Lawrence-Dill C, **Lorence A**. (2019) NAPPN: Who We Are, Where We Are Going and Why You Should Consider Joining Us! *Plant Phenome J*; 2:180006.

Cauble R, Hamad S, Herring E, Lichtenwalter C, McGuire C, **Dridi S**. (2018) Leptin Activates NLRP3 Inflammasome-Associated with Type II Diabetes and Obesity. *Adv Food Technol Nutr Sci Open J*; 4:e13-e16.

Causey J, Ashby C, Walker K, Wang Z, Yang M, Guan Y, Moore J, **Huang X**. (2018) DNAP: A Pipeline for DNA-seq Data Analysis. *Sci Rep*; 8:6793.

Causey J, Zhang J, Ma S, Jiang B, Qualls J, Politte DG, **Prior F**, Zhang S, **Huang X**. (2018) Highly Accurate Model for Prediction of Lung Nodule Malignancy with CT Scan. *Sci Rep*; 8:9286.

Caviness P, Bauer R, Tanaka K, Janowska K, Roeser JR, Harter D, Sanders J, Ruth C, Matsushita O, **Sakon J**. (2018) Ca²⁺-induced Orientation of Tandem Collagen Binding Domains from Clostridial Collagenase ColG Permits Two Opposing Functions of Collagen

Fibril Formation and Retardation. *FEBS J*; 285:3254-3269.

Cheema AK, Byrum SD, Sharma NK, Altadill T, Kumar VP, Biswas S, Balgley BM, **Hauer-Jensen M**, **Tackett, AJ**, Ghosh SP. (2018) Proteomic Changes in Mouse Spleen after Radiation-Induced Injury and its Modulation by Gamma-Tocotrienol. *Radiat Res*; 190:449-463.

Chegade M, **Jones SM**, **Pesek RD**, Burks AW, Vickery BP, Wood RA, Leung DYM, Furuta GT, Fleischer DM, Henning AK, Dawson P, Lindblad RW, Sicherer SH, Abonia JP9, Sherrill JD, Sampson HA, Rothenberg ME. (2018) Phenotypic Characterization of Eosinophilic Esophagitis in a Large Multicenter Patient Population from the Consortium for Food Allergy Research. *J Allergy Clin Immunol Pract*; 6:1534-1544.

Chen F, Venkat S, Hudson D, Wang T, Gan Q, **Fan C**. (2019) Site-specifically Studying Lysine Acetylation of Aminoacyl-tRNA Synthetases. *ACS Chem Biol*; 14:288-295.

Chen H, Venkat S, McGuire P, Gan Q, **Fan C**. (2018) Recent Development of Genetic Code Expansion for Posttranslational Modification Studies. *Molecules*; 23:1662.

Chen H, Venkat S, Wilson J, McGuire P, Chang A, Gan Q, **Fan C**. (2018) Genome-wide Quantification of the Effect of Gene Overexpression on *Escherichia coli* Growth. *Genes*; 9:414.

Chen J, Foroozesh M, **Qin Z**. (2019) Transactivation of Human Endogenous Retroviruses by Tumor Viruses and Their Functions in Virus-associated Malignancies. *Oncogenesis*; 8:6.

Chen S, Wu H, Tao J, Xin H, Zhu Y, **Chen J**. (2019) Pt-Ni Seed-Core-

Frame Hierarchical Nanostructures and Their Conversion to Nanoframes for Enhanced Methanol Electro-Oxidation. *Catalysts*; 9:39.

Chiang TC, Koss B, Washam CL, **Byrum SD**, **Storey AS**, **Tackett AJ**. (2019) Effect of Sulforaphane and 5-aza-2'-deoxycytidine on Melanoma Cell Growth. *Medicines*; 6:E71.

Chintapalli SV, Anishkin A, **Adams SH**. (2018) Binding Energies and the Entry Route of Palmitic Acid and Palmitoylecarnitine into Myoglobin. *Data in Brief*; 21:1106-1110.

Chung M-H, Martins B, Privratsky A, James GA, **Kilts CD**, Bush KA. (2018) Individual Differences in Rate of Acquiring Stable Neural Representations of Tasks in fMRI. *PLoS One*; 13:e0207352.

Cisler JM, Esbensen K, Sellnow K, Ross M, Weaver S, Sartin-Tarm, A, Herringa RJ, **Kilts CD**. (2019) Differential Roles of the Salience Network in Prediction Error and Threat Detection among Assaulted Adolescent Girls. *Biolog Psy: Cognitive Neurosci Neuroimaging*; in press.

Cisler JM, Privratsky A, Smitherman, S, Herringa R, **Kilts CD**. (2018) Large-scale Brain Organization during Facial Emotion Processing as a Function of Early Life Trauma among Adolescent Girls. *NeuroImage: Clinical*; 17:778-785.

Clemens MM, Kennon-McGill S, Apte U, **James LP**, Finck BN, **McGill MR**. (2019) The Inhibitor of Glycerol 3-phosphate Acyltransferase FSG67 Blunts Liver Regeneration after Acetaminophen Overdose by Altering GSK3 β and Wnt/ β -catenin Signaling. *Food Chem Toxicol*; 125:279-288.

Cockburn CL, Damle SR, Green RS, Martin RK, Ghahrai N, Fullerton MS, Conrad DH, Colonne PM, **Voth**

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

DE, Gilk SD, Rucks EA, Carlyon JA. (2019) Functional Inhibition of Acid Sphingomyelinase Disrupts Infection by Intracellular Bacterial Pathogens. *Life Sci Alliance*; 2:e201800292.

Coleman M, **Stine KC, Farrar JE**. (2019) Iron Deficiency Anemia for the Primary Care Provider. *J Ark Med Soc*; 116:38-41.

Compadre AJ, Simonson ME, Gray K, Runnells G, **Kadlubar S, Zorn KK**. (2018) Challenges in Recruiting African-American Women for a Breast Cancer Genetics Study. *Hered Cancer in Clin Pract*; 16:8.

Connery K, Tippett M, Delhey L, **Rose S**, Slattery J, Kahler S, Hahn J, Kruger U, Cunningham MW, Shimasaki C, **Frye RE**. (2018) Intravenous Immunoglobulin for the Treatment of Autoimmune Encephalopathy in Children with Autism. *Transl Psychi*; 8:148.

Cragle CE, MacNicol MC, **Byrum SD**, Hardy LL, Mackinotsh SG, Richardson WA, Gray NK, Childs GV, **Tackett AJ**, MacNicol AM. (2019) Musashi Interaction with Poly(A) Binding Protein is Required for Activation of Target mRNA Translation. *J Biological Chem*; 294:10969-10986.

Dai L, Chen J, Cao Y, Del Valle L, **Qin Z**. (2018) Ribonucleotide Reductase Inhibitor 3-AP Induces Oncogenic Virus-infected Cell Death and Represses Tumor Growth. *J Cancer*; 9:4503-4509.

Dai L, Qiao J, Yin J, Goldstein A, Lin HY, **Post SR, Qin Z**. (2019) KSHV and *Staphylococcus aureus* Co-infection in Oral Cavities of HIV+ Patients: A Unique Niche for Oncogenic Virus Lytic Reactivation. *J Infect Dis*, in press.

Dai L, Zhao M, Jiang W, Lin Z, Del

Valle L, **Qin Z**. (2018) KSHV Co-infection, a New Co-factor for HPV-related Cervical Carcinogenesis? *Am J Cancer Res*, 8:2176-2184.

Dalgaard LT, **Carvalho E**. (2019) Editorial Commentary: Wanted: MicroRNAs to the Aid of the Diabetic Foot. *Trends Cardiovasc Med*; 3:138-140.

Davis D, Hickman N, Choi K, Robinson CD, Patten CA, **Fagan P**, Okuyemi KS, Nahvi S, Health Disparities Network. (2018) Impact of SRNT Health Disparities Network's Scholarship on Professional Development of its Recipients. *NicTob Res*; in press.

Davis JE, Alghanmi A, Gundampati RK, Jayanthu S, Fields E, Armstrong M, Weidling V, Shah V, Agrawal S, Koppolu BP, Zaharoff DA, **Kumar TKS**. (2018) Probing the Role of Proline -135 on the Structure, Stability, and Cell Proliferation Activity of Human Acidic Fibroblast Growth Factor. *Arch Biochem Biophys*; 654:115-125.

Davis J, Gundampati R, Jayanthi S, Anderson J, Pickhardt A, Koppolu BP, Zaharoff DA, **Kumar TKS**. (2017/18) Effect of Extension of the Heparin Binding Pocket on the Structure, Stability, and Cell Proliferation Activity of the Human Fibroblast Growth Factor. *Biochem Biophys Rep*; 13:45-57.

Davis L, Shalin S, **Tackett AJ**. (2019) Current State of Melanoma Diagnosis and Treatment. *Can Biol Ther*; 1:1-14.

Delgado M, **Chambers TC**. (2018) Microtubules Play an Essential Role in the Survival of Primary Acute Lymphoblastic Leukemia Cells Advancing through G1 Phase. *Cell Cycle*; 17: 1784-1796.

Delgado M, Urbaniak A, **Chambers TC**. (2019) Contrasting Effects of Microtubule Destabilizers versus

Stabilizers on Induction of Death in G1 Phase of the Cell Cycle. *Biochem Pharmacol*; 162:213-223.

Deoni S, **Adams SH**, Li X, Badger TM, Pivik RT, Glasier C, Ramakrishnaiah R, **Ou X**. (2019) C-Section Delivery Impacts Infant Brain Development. *AJNR Am J Neuroradiol*; 40:169-177.

Dey S, Parveen A, Tarrant KJ, Licknack T, Kong BC, **Anthony NB, Rhoads DD**. (2018) Whole Genome Resequencing Identifies the CPQ Gene as a Determinant of Ascites Syndrome in Broilers. *PLoS One*; 13(1):e0189544.

Diaz EC, Borsheim E, Kartik S, Cleves MA, Andres A. (2018) Pre-pregnancy Fat Free Mass and Associations to Glucose Metabolism before and during Pregnancy. *J Clin Endo Metab*; 104:1394-1403.

Diaz EC, Herndon DN, Cleves M, Mlcak RP, Aarsland A, **Borsheim E**. (2018) Clearance of Indocyanine Green in Severe Pediatric Burns. *J Trauma Acute Care Surg*; 86:817-822.

Diaz PM, Jenkins SV, Alhallak K, Semeniak D, **Griffin RJ, Dings RPM, Rajaram N**. (2018) Quantitative Diffuse Reflectance Spectroscopy of Short-term Changes in Tumor Oxygenation after Radiation in a Matched Model of Radiation Resistance. *Biomed Opt Express*; 9:3794-3804.

Diaz Perez A, Kougl K, Vasicek TW, Liyanage R, **Lay J, Stenken JA**. (2019) Microdialysis Sampling of Quorum Sensing Homoserine Lactones during Biofilm Formation. *Anal Chem*; 91:3964-3970.

Dilley MA, Rettiganti M, Christie L, O'Brien E, Patterson M, Weeks C, Aronson J, **Scurlock AM, Perry TT, Pesek RD**, Bell MC, **Kennedy**

JL, Chandler P, Magee J, Simmons L, Chervinskiy SK, Casey P, **Jones SM**. (2019) Impact of Food Allergy on Food Insecurity and Health Literacy in a Tertiary Care Pediatric Allergy Population. *Ped Allergy Immunol*; 30:363-369.

Dinwiddie DD, Denson JL, **Kennedy JL**. (2018) Role of the Airway Microbiome in Respiratory Infections and Asthma in Children. *Ped Allerg Immunol Pulmonol*; 31:236-240.

Doshi A, Khamishon R, Rawson R, Duong L, Dohil L, Myers SJ, Bell B, Dohil R, Newbury RO, Barrett KE, **Kurten RC**, Aceves SS. (2019) Interleukin 9 Alters Epithelial Barrier and E-cadherin in Eosinophilic Esophagitis. *J Pediatr Gastroenterol Nutr*; 68(2):225-231.

Dragan AL, **Kurten RC, Voth DE**. (2019) Characterizing Early Stages of Human Alveolar Infection by the Q Fever Agent, *Coxiella burnetii*. *Infection Immun*; 87:e00028-19.

Dridi S. (2018) Editorial Article: Nutrigenomics in Animal Health and Production. *Front Genet*; 9:201.

D'Souza Z, Blackburn JB, Kudlyk T, Pokrovskaya ID, **Lupashin VV**. (2019) Defects in COG-Mediated Golgi Trafficking Alter Endo-Lysosomal System in Human Cells. *Front Cell Dev Biol*; 7:118.

Ellis LV, Bollinger RJ, Weber HM, Madsen SS, **Tipsmark CK**. (2019) Differential Expression and Localization of Branchial AQP1 and AQP3 in Japanese Medaka (*Oryzias latipes*). *Cells*; 8:422.

Erf GF. (2019) Multifactorial, Non-communicable Diseases in Poultry: The Importance of Conserving Genetic Models for Autoimmune Diseases. *Proc An Natl Breeders Roundtable*; 68:1-7.

Escalona-Vargas D, **Oliphant S**, Siegel ER, Eswaran H. (2019) Characterizing Pelvic Floor Muscles Activities using Magnetomyography. *Neurourol Urodyn*; 38:151-157.

Ewing LE, **McGill MR**, Yee EU, Quick CM, Skinner CM, Kennon-McGill S, Clemens M, Vazquez JH, McCullough SS, Williams DK, Kutanzi KR, Walker LA, ElSohly MA, **James LP**, Gurley BJ, **Koturbash I**. (2019) Paradoxical Patterns of Sinusoidal Obstruction Syndrome-Like Liver Injury in Aged Female CD-1 Mice Triggered by Cannabidiol-Rich Cannabis Extract and Acetaminophen Co-Administration. *Molecules*; 24:E2256.

Ewing LE, Miousse IR, Pathak R, Skinner CM, Kosanke S, Boerma M, **Hauer-Jensen M, Koturbash I**. (2018) NZO/HILtJ as a Novel Model for the Studies on the Role of Metabolic Syndrome in Acute Radiation Toxicity. *Int J Radiat Biol*; 18:1-21.

Ewing LE, Skinner CM, Quick CM, Kennon-McGill S, **McGill MR**, Walker LA, ElSohly MA, Gurley BJ, **Koturbash I**. (2019) Hepatotoxicity of a Cannabidiol-Rich Cannabis Extract in the Mouse Model. *Molecules*; 24:E1694.

Fagan P, Guy M, Alexander LA, Oliver V. (2019) Those Left Behind in the Cinders of Tobacco Combustion. *Cur Rep*; in press.

Fang D, **Thomsen MR, Nayga RM Jr, Goudie A**. (2018) Association of Neighborhood Geographic Spatial Factors With Rates of Childhood Obesity. *JAMA Netw Open*; 4:e180954.

Feng K, Rowell AC, **Andres A**, Bellando BJ, Glasier CM, Ramakrishnaiah RH, Badger TM, **Ou X**. (2019) Diffusion Tensor MRI of White Matter of Healthy Full-Term Newborns: Relationship to Neurodevelopmental Outcomes.

Radiol; 292:179-187.

Ferver A, **Dridi S**. (2018) Phytochemicals as an Alternative to Antibiotics: Chemical Mechanism behind Antimicrobial Activity of Essential Oils. *Adv Food Technol Nutr Sci Open J*; 4:e1-e3.

Foster SL, Estoque K, Voecks M, Rentz N, **Greenlee LF**. (2019) Removal of Synthetic Azo Dye using Bimetallic Nickel-Iron Nanoparticles. *J Nanomat*; 2019: 9807605.

Firwana B, Avaritt N, Shields B, Ravilla R, Makhoul I, Hutchins L, **Tackett AJ**, Mahmoud F. (2018) Do Checkpoint Inhibitors Rely on Gut Microbiota to Fight Cancer? *J Oncol Pharm Pract*; 24:468-472.

Fleischer DM, Greenhawt M, Sussman G, Bégin P, **Jones SM**, et al. (2019) Effect of Epicutaneous Immunotherapy vs Placebo on Reaction to Peanut Protein Ingestion Among Children With Peanut Allergy: The PEPITES Randomized Clinical Trial. *JAMA*; 321:946-955.

Freeland J, Khadka P, **Wang Y**. (2018) Mechanical-energy-based Amplifiers for Probing Interactions of DNA with Metal Ions. *Phys Rev E*; 98:062403.

Galanzha EI, Menyayev Y, Sarimollaoglu M, Juratli M, Nedosekin DA, Foster SR, Jamshidi-Parsian A, Siegel ER, Hutchins L, Suen J, **Zharov VP**. (2019) *In vivo* Liquid Biopsy using Cytophone Platform for Photoacoustic Detection of Circulating Tumor Cells in Melanoma Patients. *Sci Trans Med*; 11(496). pii:eaat5857.

Gankanda A, Rentz NS, **Greenlee LF**. (2019) Influence of Ligand Size and Chelation Strength on Zero Valent Iron Nanoparticle Adsorption and Oxidation Behavior in the Presence of

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Water Vapor and Liquid Water. *J Phys Chem C*; 123:2474-2487.

Gao J, Byrd AK, **Zybailov BL**, Marecki JC, Guderyon MJ, Edwards AD, Chib S, West KL, Waldrip ZJ, Mackintosh SG, Gao Z, Putnam AA, Jankowsky E, **Raney KD**. (2019) DEAD-box RNA Helicases Dbp2, Ded1 and Mss116 bind to G-quadruplex Nucleic Acids and Destabilize G-quadruplex RNA. *Chem Commun (Camb)*; 55:4467-4470.

Garcia-Rill E, Tackett AJ, Byrum SD, Lan RS, Mackintosh SG, Hyde JR, Bisagno V, Urbano FJ. (2019) Modulatory Effects of Deep Brain Stimulation on Distributed Brain Networks. *Clin Neurosci*; in press.

Garcia-Rill E, Tackett AJ, Byrum SD, Lan RS, Mackintosh SG, Hyde JR, Bisagno V, Urbano FJ. (2019) Local and Relayed Effects of Deep Brain Stimulation of the Pedunculopontine Nucleus. *Brain Sci*; 9(64).

Garg S, Sadhukhan R, Banerjee S, Savenka AV, **Basnakian AG**, McHargue V, Wang J, **Pawar SA**, Ghosh SP, **Ware J, Hauer-Jensen M**, Pathak R. (2019) Gamma-tocotrienol Protects the Intestine from Radiation Potentially by Accelerating Mesenchymal Immune Cell Recovery. *Antioxidants*; 8:E57.

Goldman H, Fagnano M, **Perry TT**, Weisman A, Drobnica A, Halterman JS. (2018) Recruitment and Retention of the Hardest-to-Reach Families in Community-based Asthma Interventions. *Clin Trials*; 15:543-550.

Gomez-Acevedo H, Zhang H, **Strub G**, Wu J, Stone A, **Richter GT**. (2019) Identification of Putative Biomarkers for Infantile Hemangiomas and Propranolol Treatment via Data Integration. *Sci Rep*; in press.

Graham BD, Robbins KM, Teague KD, Graham LE, Merino-Guzman

R, **Tellez G, Hargis BM**. (2019) Evaluation of the Efficacy of a Candidate Turkey Cellulitis/dermatitis Oil Emulsion Vaccine on Immune Response and Mortality under Laboratory and Commercial Conditions. *J Appl Poult Res*; 0:1-8.

Graham LE, Teague KD, Latorre JD, Yang Y, Baxter MFA, Mahaffey BD, Hernandez-Velasco X, Bielke LR, **Hargis BM, Tellez G**. (2018) Use of Probiotics as an Alternative to Formaldehyde Fumigation in Commercial Broiler Chicken Hatch Cabinets. *J Appl Poul Res*, 27:371-379.

Gesto-Borroto R, Cardoso-Taketa A, Yactayo-Chang JP, Medina-Jimenez K, Hornung-Leoni C, **Lorence A**, Villarreal ML. (2019). DNA Barcoding and TLC as Tools to Properly Identify Natural Populations of the Mexican Medicinal Species *Galphimia glauca* Cav. *PLoS ONE*; 14:e0217313.

Greene E, Rajaei-Sharifabadi H, **Dridi S**. (2019) Feather HSP70: A Novel Non-invasive Molecular Marker for Monitoring Stress Induced by Heat Exposure in Broilers. *Poult Sci*; 98:3400-3404.

Greening G, Bess SN, **Muldoon T**. (2018) Immunohistochemistry Staining for Tumor-associated Macrophage Polarization in Murine Subcutaneous Colon Tumor Allografts. *Bio-protocol Bio101*:e3106.

Greening GJ, Mundo A, **Rajaram N, Muldoon TJ**. (2018) Sampling Depth of a Diffuse Reflectance Spectroscopy Probe for in vivo Physiologic Quantification of Murine Subcutaneous Tumor Allografts. *J Biomed Optics*; 23:085006.

Grimes CL, Antosh DD, **Oliphant S**, Yurteri-Kaplan L, Kim-Fine S, Melamud G, Heisler C, Chung DE. (2019) Collaborative Research in Pelvic Surgery Consortium (CoRPS). Female

Pelvic Med Reconstr Surg; in press.

Guan H, Hou X, Jiang Y, **Srivastava V**, Mao D, Pan R, Chen M, Zhou Y, Wang Z, Chen Z. (2019) Feature of Blast Resistant Near-isogenic Lines using an Elite Maintainer Line II-32B by Marker-assisted Selection. *J Plant Pathol*; in press.

Gudeta DD, Lei MG, **Lee CY**. (2019) Contribution of *hla* Regulation by SaeR to *S. aureus* USA300 pathogenesis. *Infect Immun*, in press.

Gurley BJ, Miousse IR, Nookaew I, Ewing LE, Skinner CM, Jenjaroenpun P, Wongsurawat T, Kennon-McGill S, Avula B, Bae JY, **McGill MR, Ussery D**, Khan IA, **Koturbash I**. (2019) Decaffeinated Green Tea Extract Does Not Elicit Hepatotoxic Effects and Modulates the Gut Microbiome in Lean B6C3F₁ Mice. *Nutrients*; 11:E776.

Haller J, Keller Z, Barr S, Hadden K, **Oliphant SS**. (2019) Assessing Readability: Are Urogynecologic Patient Education Materials at an Appropriate Reading Level? Female Pelvic Med Reconstr Surg; 25:139-144.

Hamarsland H, Nordengen AL, Nyvik Aas S, Holte K, Garthe I, Paulsen G, Cotter M, **Børshheim E**, Benestad H, Raastad T. (2019) Native Whey Induces Similar Post Exercise Muscle Anabolic Responses as Regular Whey, Despite Greater Leucinemia, in Elderly Individuals. *J Nutr Hlth Aging*; 23:42-50.

Hasan R, **Zhou GL**. (2019) The Cytoskeletal Protein Cyclase-Associated Protein 1 (CAP1) in Breast Cancer: Context-Dependent Roles in Both the Invasiveness and Proliferation of Cancer Cells and Underlying Cell Signals. *Int J Mol Sci*; 20: pii:E2653

Hernandez-Patlan D, Solis-Cruz B, Cano-Vega MA, Beyssac E,

Garrait G, Hernandez-Velasco X, Lopez-Arellano R, **Tellez G**, Rivera-Rodriguez GR. (2018) Development of Chitosan and Alginate Nanocapsules to Increase the Solubility, Permeability and Stability of Curcumin. *J Pharma Innov*; 14:132-140.

Hernandez-Patlan D, Solis-Cruz B, Méndez-Albores A, Latorre JD, Hernandez-Velasco X, **Tellez G**, López-Arellano R. (2018) Comparison of PrestoBlue® and Plating Method to Evaluate Antimicrobial Activity of Ascorbic Acid, Boric Acid and Curcumin in an in vitro Gastrointestinal Model. *J Appl Microbio*; 124:423-430.

Hernandez-Patlan D, Solis-Cruz B, Adhikari B, Pontin KP, Latorre JD, Baxter MFA, Hernandez-Velasco X, Merino-Guzman R, Méndez-Albores A, Kwon YM, **Hargis BM**, López-Arellano R, Arreguin-Nava MA, **Tellez-Isaias G**. (2019) Evaluation of the Antimicrobial and Intestinal Integrity Properties of Boric Acid in Broiler Chickens Infected with *Salmonella* Enteritidis: Proof of Concept. *Res Vet Sci*; 123:7-13.

Hernandez-Patlan D, Solis-Cruz B, Pontin KP, Latorre JD, Baxter MFA, Hernandez-Velasco X, Merino-Guzman R, Méndez-Albores A, **Hargis BM**, López-Arellano R, **Tellez-Isaias G**. (2019) Evaluation of the Dietary Supplementation of a Formulation Containing Ascorbic Acid and a Solid Dispersion of Curcumin with Boric Acid against *Salmonella* Enteritidis and Necrotic Enteritis in Broiler Chickens. *Animals MDPI*; 9:184.

Hernandez-Patlan D, Solis-Cruz B, Pontin KP, Hernandez X, Merino-Guzman R, Adhikari B, Lopez-Arellano R, Kwon YM, **Hargis BM**, Arreguin-Nava M, **Tellez G**. (2019)

Impact of a Bacillus Direct-fed Microbial on Growth Performance, Intestinal Barrier Integrity, Necrotic Enteritis Lesions and Ileal Microbiota in Broiler Chickens using a Laboratory Challenge Model. *Front Vet Sci*; 6:108.

Hipp JD, **Johann DJ**, Chen Y, Madabhushi A, Monaco J, Chemg J, Rodriguez-Canales J, Stumpe MC, Riedlinger G, Rosenberg AZ, Hanson JC, Kunju LP, Emmert-Buck MR, Balis UJ, Tangrea MA. (2018) Computer Aided Laser Dissection: A Microdissection Workflow Leveraging Image Analysis Tools. *J Path Informatics*; 9:45.

Hoffmeister JR, Cohoon AJ, Sorocco KH, **Acheson A**, Lovallo WR. (2019) Addiction Resistance to Alcohol: What About Heavy Drinkers who Avoid Alcohol Problems? *Drug and Alcohol Depend*; in press.

Hood EE, Eversole KA, Leach L, Hogan M, McHughen A, Cordts J, Rathore K, Rood T, Collinge S, Irey M. (2019) Report on the SCRA Nuts and Bolts Workshop II: Case Studies of Citrus Greening, Ultralow Gossypol Cotton, and Blight Tolerant, Low-acrylamide Potato. *GM Crops & Food*; in press.

Hossain K, Karakas A, **Hossain Z**. (2018) Effects of Aging and Rejuvenation on Surface Free Energy Measurements and Adhesion of Asphalt Mixtures. *J Materials in Civil Eng*; in press.

Hossain K, **Hossain Z**. (2018) A Synthesis of Computational and Experimental Approaches of Evaluating Chemical, Physical, and Mechanistic Properties of Asphalt Binders. *J Adv Civil Eng*, in press.

Hossain Z, Alam MS, Baumgardner G. (2018) Evaluation of Rheological

Performance and Moisture Susceptibility of Polyphosphoric Acid Modified Asphalt Binders. *Road Mat Pavement Des*, 2018.

Howie EK, Smith AL, McVeigh JA, Straker LM. (2018) Accelerometer-Derived Activity Phenotypes in Young Adults: A Latent Class Analysis. *Intl Soc Behav Med*; 25:558-568.

Howie EK, Ng L, Beales D, McVeigh JA, Straker LM. (2019) Early Life Factors are Associated with Trajectories of Consistent Organized Sport Participation over Childhood and Adolescence: Longitudinal Analysis from the Raine Study. *J Sci Med Sport/Sports Medicine Australia*; 22:456-461.

Hsu PC, Kadlubar S, Su LS, Acheampong D, Rogers LJ, Runnells G, McElfish PA, Schootman M. (2019) County Poverty Levels Influence Genome-wide DNA Methylation Profiles in African American and European American Women. *Transl Can Res*; 8:1-10.

Hsueh T-Y, **Baum JI, Huang Y**. (2018) Effect of Eicosapentaenoic Acid and Docosahexaenoic Acid on Myogenesis and Mitochondrial Biosynthesis during Murine Skeletal Muscle Cell Differentiation. *Front Nutrition*; 12:15.

Hou F, Dai Y, Fan CY, Suen JY, **Richter GT**. (2018) Estrogen is Involved in Hemangioma Regression Associated with Mast Cells. *Orphanet J Rare Dis*; 13:181.

Hussein WE, **Huang E**, Ozturk I, Yousef AE. (2019) Draft Genome Sequence of *Lactobacillus paraplantarum* OSY-TC318, a Producer of the Novel Lantibiotic Paraplantaracin TC318. *Microbiol Resour Announc*; 8:e00274-19

Idrees M, Batool S, Zhuang Q, Kong J, **Seok I**, Zhang J, Liu H, Murugados

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

V, Gao Q. Achieving Carbon-rich Silicon-containing Ceramic Anode for Advanced Lithium Ion Battery. *Ceramics Intl*; 45:10572-10580.

ImmadiSETTY K, Hettige J, **Moradi M.** (2019) Lipid-Dependent Alternating Access Mechanism of a Bacterial Multidrug ABC Exporter. *ACS Cent Sci*; 5:43-56.

Ishii M, **Lupashin VV**, Nakano A. (2018) Detailed Analysis of the Interaction of Yeast COG Complex. *Cell Struct Func*; 43:119-127.

Jamshidi-Parsian A, **Griffin RJ**, Kore RA, Todorova VK, **Makhoul I.** (2018) Tumor-endothelial Cell Interaction in an Experimental Model of Human Hepatocellular Carcinoma. *Exp Cell Res*; pii: S0014-4827(18)30834-6.

Jawad JH, Sarimollaoglu M, Biris AS, **Zharov VP.** (2018) Dynamic Blood Flow Phantom with Negative and Positive Photoacoustic Contrasts. *Biomed Opt Exp*; 9:4702-4713.

Jayanthi S, Gundampati RK, **Kumar TKS.** (2017/18) Simple and Efficient Purification of Recombinant Proteins Using the Heparin-Binding Affinity Tag. *Curr Protoc Protein Sci*; 90:6.

Jazi V, Ashayerizadeh A, Toghiani M, Shabani A, **Tellez G**, Toghiani M. (2018) Fermented Soybean Meal Exhibits Probiotic Properties when Included in Japanese Quail Diet in Replacement of Soybean Meal. *Poult Sci*; 0:1-10.

Jenkins SV, Nedosekin DA, Shaulis BJ, Wang T, Jamshidi-Parsian A, Pollock ED, **Chen J**, **Dings RPM**, **Griffin RJ.** (2019) Enhanced Photothermal Treatment Efficacy and Normal Tissue Protection via Vascular Targeted Gold Nanocages. *Nanotheranostics*; 3:145-155.

Jenkins SV, Vang KB, Gies A, **Griffin RJ**, Jun SR, Nookaew I,

Dings RPM. (2018) Sample Storage Conditions Induce Post-collection Biases in Microbiome Profiles. *BMC Microbiology*; 18:227.

Johnson AB, **Richter GT.** (2018) Vascular Anomalies. *Clin Perinatol*; 45:737-749.

Jones JD, Ramser HE, Woessner AE, **Quinn KP.** (2018) In vivo Multiphoton Microscopy Detects Longitudinal Metabolic Changes Associated with Delayed Skin Wound Healing. *Comm Biol*; 1:198.

Juratli M, Menyaev YA, Sarimollaoglu M, Melerzanov AV, Nedosekin D, Culp WC, Suen J, Galanzha EI, **Zharov VP.** (2018) Noninvasive Detection of Circulating White and Red Blood Clots in Deep Vessels with Focused Photoacoustic Probe. *Biomed Opt Express*; 9:5667-5677.

Jyonouchi H, Geng L, **Rose S**, Bennuri SC, **Frye RE.** (2019) Variations in Mitochondrial Respiration Differ in IL-1 β /IL-10 Ratio Based Subgroups in Autism Spectrum Disorders. *Front Psych*; 10:71.

Kadhim HJ, **Kang SW**, **Kuenzel WJ.** (2019) Differential and Temporal Expression of Corticotropin Releasing Hormone and Its Receptors in the Nucleus of the Hippocampal Commissure and Paraventricular Nucleus during the Stress Response in Chickens (*Gallus gallus*). *Brain Res*; 1714:1-7.

Kajani AA, Bordbar AK, Mehrgardi MA, Esfahani SHZ, Motaghi H, Kardi M, Khosropour AR, Ozdemir J, Benamara M, **Beyzavi MH.** (2018) Green and Facile Synthesis of Highly Photoluminescent Multicolor Carbon Nanocrystals for Cancer Therapy and Imaging. *ACS Applied Bio Mat*; 1:1458-1467.

Kang S, Jayanthi S, Nagarajan G, **Kuenzel W**, **Kumar TKS.** (2018)

Identification of Avian Vasotocin Receptor Subtype Specific Antagonists Involved in the Stress Response of the Chicken, *Gallus gallus*. *J Biomolec Struc Dyn*; 37:1685-1699.

Kapoor R, Peyear TA, **Koeppe RE, II**, Andersen OS. (2019) Antidepressants are Modifiers of Lipid Bilayer Properties. *J Gen Physiol*; 151:342-356.

Kennedy JL, **Kurten RC**, McCullough S, Panettieri RA, Koziol-White C, **Jones SM**, Caid K, Gill PS, Roberts D, Jaeschke H, **McGill MR**, **James L.** (2018) Acetaminophen is Both Bronchodilatory and Bronchoprotective in Human Precision Cut Lung Slice Airways. *Xenobiotica*; 17:1-29.

Kennedy JL, Pham S, Borish L. (2019) Rhinovirus and Exacerbations of Asthma. *Immunol Allerg Clin N Amer*; 39:335-344.

Kennedy RC, Smith AK, Ropella GEP, **McGill MR**, Jaeschke H, Hunt CA. (2019) Propagation of Pericentral Necrosis During Acetaminophen-Induced Liver Injury: Evidence for Early Interhepatocyte Communication and Information Exchange. *Toxicol Sci*; 169:151-166.

Ketkar A, Maddukuri L, Penthala NR, Reed MR, Zafar MK, Crooks PA, **Eoff RL.** (2019) Inhibition of Human DNA Polymerases Eta and Kappa by Indole-Derived Molecules Occurs through Distinct Mechanisms. *ACS Chem Biol*; 14:1337-1351.

Khatri B, Hayden AM, **Anthony NB**, **Kong B.** (2018) Whole Genome Resequencing of Arkansas Progressor and Regressor Line Chickens to Identify SNPs Associated with Tumor Regression. *Genes (Basel)*; 9:512.

Khatri B, **Kang SW**, Shouse S, **Anthony N**, **Kuenzel WJ**, **Kong BC.**

(2019) Copy Number Variation Study in Japanese Quail Associated with Stress Related Traits using Whole Genome Resequencing Data. *PLoS One*; 14:e0214543.

Khatri B, Seo D, Shouse S, Pan J, Hudson NJ, **Kim J**, **Bottje WG**, **Kong B.** (2018) MicroRNA Profiling Associated with Muscle Growth in Modern Broilers Compared to an Unselected Chicken Breed. *BMC Genomics*; 19:683.

Kiaei M, Balasubramaniam M, **Govind Kumar M**, Shmookler Reis R J, **Moradi M**, Varughese K I. (2018) ALS-causing Mutations in Profilin-1 Alter its Conformational Dynamics: A Computational Approach to Explain Propensity for Aggregation. *Sci Rep*; 8:13102.

Kim J, Kasukonis B, Brown L, **Washington T**, **Wolchok J.** (2019) Regenerative Repair of Volumetric Muscle Loss Injury is Sensitive to Age. *J Tissue Eng Part A*; in press.

Kolenc O, **Quinn KP.** (2019) Evaluating Cell Metabolism through Autofluorescence Imaging of NAD(P)H and FAD. *Antiox Redox Sig*; 30:875-889.

Kong HR, **Anthony NB**, Rowland KC, Khatri B, Kong BC. (2018) Genome Re-sequencing to Identify Singlenucleotide Polymorphism Markers for Muscle Color Traits in Broiler Chickens. *Asian-Australas J Anim Sci*; 31:13-18.

Koturbash I. (2018) 2017 Michael Fry Award Lecture. When DNA is Actually Not a Target: Radiation Epigenetics as a Tool to Understand and Control Cellular Response to Ionizing Radiation. *Radiat Res*; 190:5-11.

Koturbash I, **Griffin RJ.** (2019) Harnessing Epigenetics and Metabolism to Modulate Tissue

Response to Radiotherapy. *Int J Radiat Biol*; 11:1-3.

Koturbash I, **Griffin RJ.** (2019) Harnessing Epigenetics and Metabolism to Modulate Tissue Response to Radiotherapy. *Int J Radiat Biol*; 95:379-381.

Kriss CL, Gregory-Lott E, **Storey AJ**, **Tackett AJ**, **Wahls WP**, Stevens SM Jr. (2018) In vivo Metabolic Tracing Demonstrates the Site-specific Contribution of Hepatic Ethanol Metabolism to Histone Acetylation. *Alcohol Clin Exp Res*; 42:1909-1923

Kurten RC, Rawson R, Shoda T, Duong L, Adejumbi D, Levy R, Newbury R, Rothenberg M, Akuthota P, Wright B, Dohil D, **Jones SM**, Aceves S. (2019) Development and Application of a Functional Human Esophageal Mucosa Explant Platform to Eosinophilic Esophagitis. *Sci Rep*; 9:6206.

Landes RD, Lensing SY, **Hauer-Jensen M**, Zhou D. (2019) Interval Estimators of Relative Potency in Toxicology and Radiation Countermeasure Studies: Comparing Methods and Experimental Designs. *J Biopharm Stat*; 29:348-358.

Lassiter K, **Dridi S**, Greene E, **Kong B**, **Bottje WG.** (2018) Identification of Mitochondrial Hormone Receptors in Avian Muscle Cells. *Poult Sci*; 97:2926-2933.

Lassiter K, **Kong B**, Piekarski-Welsher A, **Dridi S**, **Bottje WG.** 2019. Gene Expression Essential for Myostatin Signaling and Skeletal Muscle Development is Associated with Divergent Feed Efficiency in Pedigree Male Broilers. *Front Physiol*; 10:126.

Latorre JD, Adhikari B, Park SH, Teague KD, Graham LE, Mahaffey BD, Baxter MFA, Hernandez X, Kwon YM, **Ricke SC**, Bielke L, **Hargis BM**, **Tellez G.** (2018) Evaluation of the Epithelial

Barrier Function and Ileal Microbiome in an Established Necrotic Enteritis Challenge Model in Broiler Chickens. *Front Vet Sci*; 5:199.

Lebredonchel E, Houdou M, Potelle S, de Bettignies G, Schulz C, Krzewinski Recchi MA, **Lupashin V**, Legrand D, Klein A, Foulquier F. (2019) Dissection of TMEM165 Function in Golgi Glycosylation and its Mn(2+) Sensitivity. *Biochimie*; 165:123-130.

Lee D, Alhallak K, Jenkins SV, Vargas I, **Greene NP**, **Quinn KP**, **Griffin RJ**, **Dings RPM**, **Rajaram N.** (2018) A Radiosensitizing Inhibitor of HIF-1 Alters the Optical Redox State of Human Lung Cancer Cells In Vitro. *Sci Rep*; 8:8815.

Lee DE, Perry RA, Brown JL, Rosa-Caldwell ME, Brown LA, Haynie WS, **Rajaram N**, **Washington TA**, **Greene NP.** (2019) Mitochondrial mRNA Translation Initiation Contributes to Oxidative Metabolism in the Myocardia of Aged, Obese Mice. *Exper Gerontol*; 121:62-70.

Lei MG, **Lee CY.** (2018) Regulation of Capsule Production by XdrA and CodY in *Staphylococcus aureus*. *J Bacteriol*; 200:e00203-18.

Lellis AD, Patrick RM, Mayberry LK, **Lorence A**, **Campbell ZC**, et al. (2019). eIF5o4G Augments the Synthesis of Specific Plant Proteins Involved in Normal Chloroplast Function. *Plant Physiol*; pii:pp.00557.

Leong KY **Wang F.** (2019) On Approximating a Weak Markovian Process as Markovian: Are We Justified when Discarding Longtime Correlations *J Chem Phys*; 150:058101.

Liang Z, Song L, Deng S, Zhu Y, Stavitski E, Adzic RR, **Chen J**, Wang JX. (2019) Direct 12-Electron Oxidation of Ethanol on Ternary Au(core)-PtIr(shell) Electrocatalyst. *J*

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Am Chem Soc, 141:9629.

Lieblong B, Montgomery B, Su L J, **Nakagawa M.** (2019) Natural History of Human Papillomavirus and Vaccinations in Men: A Literature Review. *Hlth Sci Rep*; e118:1-15.

Ling T, Lang WH, Craig J, Potts MB, Budhraj A, Opferman J, Bollinger J, Maier J, **Marsico TD,** Rivas F. (2019) Studies of Jatrogossone A as a Reactive Oxygen Species Inducer in Cancer Cellular Models. *J Nat Prod*; 82:1301-1311.

Lo D, **Kennedy JL, Kurten RC,** Panettieri RA, Koziol-White CJ. (2018) Modulation of Airway Hyperresponsiveness by Rhinovirus Exposure. *Respir Res*; 19:208.

Lo S, Byrum SD, **Tackett AJ, Parajuli N.** (2019) Cold Storage Increases Albumin and Advanced Glycation-End Product-Albumin Levels in Kidney Transplants: A Possible Cause for Exacerbated Renal Damage. *Kidney Transplan*; in press.

Lo S, MacMillan-Crow, **Parajuli N** (2018) Renal Cold Storage Followed by Transplantation Impairs Proteasome Function and Subsequently Mitochondrial Protein Homeostasis. *Am J Physiol Renal Physiol*; 316:F42-F53.

Loney C, Bakovic SIP, **Greenlee LF,** Renner JN. (2019) Self-assembled Polyproline II Peptide Monolayers on Iron(III) Oxide. *Chem Select*; 4:6784-6789.

Long CR, Rowland B, Langston K, Faitak B, Sparks K, Rowe V, McElfish PA. (2018) Reducing the Intake of Sodium in Community Settings: Evaluation of Year One Activities in the Sodium Reduction in Communities Program, Arkansas, 2016-2017. *Prev Chron Dis*; 15:180310.

Long CR, Purvis RS, Flood-Grady E, Kimminau KS, Rhyne RL, Burge MR, Stewart MK, Jenkins AJ, **James LP,** McElfish PA. (2019) Health Researchers' Experiences, Perceptions and Barriers Related to Sharing Study Results with Participants. *Hlth Res Policy Sys*; 17:25.

Lovallo WR, Cohoon AJ, **Acheson A,** Vincent AS, Sorocco KH. (2019) Cortisol Stress Reactivity in Women, Diurnal Variations, and Hormonal Contraceptives: Studies from the Family Health Patterns Project. *Stress*; 22:421-427.

Lovallo WR, Cohoon AJ, **Acheson A,** Sorocco KH, Vincent AS. (2019) Blunted Stress Reactivity Reveals Vulnerability to Early Life Adversity in Young Adults with a Family History of Alcoholism. *Addiction*; 114: 798-806.

Lovallo WR, Cohoon AJ, Sorocco KH, Vincent AS, **Acheson A,** Hodgkinson CA, Goldman D. (2019) Early-Life Adversity and Blunted Stress Reactivity as Predictors of Alcohol and Drug use in Persons with COMT (rs4680) Val158Met Genotypes. *Alcohol Clin Exp Res*; 43:1519-1527.

Lovallo WR, **Acheson A,** Cohoon AJ, Sorocco KH, Vincent AS, Hodgkinson CA, Goldman D. (2019) Working Memory Reflects Vulnerability to Early Life Adversity as a Risk Factor for Substance Use Disorder in the FKBP5 Cortisol Cochaperone Polymorphism, rs9296158. *PLoS One*; in press.

Mack JM, Verkamp B, **Richter GT,** Nicholas N, Stewart K, **Crary SE.** (2019) Effect of Sirolimus on Coagulopathy of Slow-flow Vascular Malformations. *Pediatr Blood Canc*; 66:e27896.

Maguey-Gonzalez JA, Michel MA, Baxter MF, Tellez Jr G, Moore Jr PA,

Solis-Cruz B, Hernández-Patlan D, Merino-Guzman R, Hernandez-Velasco X, Latorre JD, **Hargis BM, Tellez G.** (2018) Effect of Humic Acids on Intestinal Viscosity, Leaky Gut and Ammonia Excretion in a 24 hr Feed Restriction Model to Induce Intestinal Permeability in Broiler Chickens. *An Sci J*; 1-9.

Maguey-Gonzalez JA, Michel MA, Baxter MF, Solis-Cruz B, Hernandez-Patlan D, Merino-Guzman R, Hernandez-Velasco X, Latorre JD, **Hargis BM, Tellez G,** Gomez-Rosales S. (2018). Effects of Humic Acids on Recovery of *Salmonella enterica* Serovar Enteritidis. *Ann An Sc*; 18:387-389.

Maguire A, Chen X, Wisner L, Malasi S, Ramsower C, **Kendrick S,** Barrett M, Glinsmann-Gibson B, McGrath M, Rimsza L. (2019) Enhanced DNA Repair and Genomic Stability Identify a Novel HIV Related Diffuse Large B-cell Lymphoma Subtype. *Int J of Cancer*; 45:3078-3088.

Maity S, Gundampati RK, **Kumar TKS.** (2018) NMR Methods to Characterize Protein-Ligand Interactions. *Nat Prod Commun*; 13:2-12 (invited review article).

Majcher U, Urbaniak A, Maj E, Moshari M, Delgado M, Wietrzyk J, Bartl F, **Chambers TC,** Tuszyński JA, Huczyński A. (2018) Synthesis, Antiproliferative Activity and Molecular Docking of Thiocolchicine Urethanes. *Bioorg Chem*; 81:553-566.

Majnooni D, Duffield J, Price J, Khosropour AR, Boeini HZ, **Beyzavi MH.** (2019) Aryliodoazide Synthons: A Different Approach for Diversified Synthesis of 2-Aminothiazole, 1,3-Thiazole and 1,3-Selenazole Scaffolds. *ACS Comb Sci*; 21:516-521.

Mallmann B, Martin EM, Kim KS,

Calderon-Apodaca NL, Baxter MFA, Latorre JD, Hernandez-Velasco X, Paasch-Martinez L, Owens CM, **Dridi S, Bottje WG,** Greene ES, **Tellez G.** (2019) Evaluation of Bone Marrow Adipose Tissue and Bone Mineralization on Broiler Chickens Affected by Wooden Breast Myopathy. *Front Physiol*; 10:647.

Maloney SF, Soule EK, Palafox S, McFadden K, Guy MC, Eissenberg T, **Fagan P.** (2018) A Longitudinal Analysis of Electronic Cigarette Forum Participation. *Addictive Behav*; 91:75-81.

Manso RH, Acharya P, Deng S, Crane CC, Reinhart B, Lee S, Tong X, Nykypanchuk D, Zhu J, Zhu Y, **Greenlee LF, Chen J.** (2019) Controlling the 3-D Morphology of Ni-Fe-Based Nanocatalysts for the Oxygen Evolution Reaction. *Nanoscale*; 11:8170-8184.

Manso RH, Song L, Liang Z, Wang JX, **Chen J.** (2018) CuPt and CuPtRu Nanostructures for Ammonia Oxidation Reaction. *ECS Transactions*; 85:177-182.

Mao X, Nishiyama N, **Byrum SD,** Stanbouly S, Jones T, Drew A, Sridharan V, Boerma M, **Tackett AJ,** Zarwieja D, Willey J, Delp M, Pecaut M (2019) Characterization of Mouse Ocular Response to a 35-day Spaceflight Mission: Evidence of Blood-retinal Barrier Disruption and Ocular Adaptations. *Sci Rep*; 9:8215.

Marecki JC, Aarattuthodiyil S, Byrd AK, Penthala NR, **Crooks PA, Raney KD.** (2018) N-Naphthoyl-substituted Indole Thio-barbituric Acid Analogs Inhibit the Helicase Activity of the Hepatitis C Virus NS3. *Bioorg Med Chem Lett*; 29:430-434

Martins B, Caceda R, Cisler J, **Kilts C,** James GA. (2018) The Neural

Representation of the Association of Comorbid Drug Use Disorders with Childhood Maltreatment. *Drug Alcohol Dep*; 192:215-222.

Mathurin LE, Benamara M, Tao J, Zhu Y, **Chen J.** (2018) Tailoring the Surface Structures of CuPt and CuPtRu One-dimensional Nanostructures by Coupling Co-reduction with Galvanic Replacement. *Part Part Syst Charact*; 35:1800053.

Mao XW, Byrum S, Nishiyama NC, Pecaut MJ, Sridharan V, Boerma M, **Tackett A,** Shiba D, Shirakawa M, Takahashi S, Delp MD. (2018) Impact of Spaceflight and Artificial Gravity on the Mouse Retina: Biochemical and Proteomic Analysis. *Inter J Molec Sciences*; 19:E2546.

McCaine KR, Jones JO, Chilbert KT, Patton AL, **James LP,** Moran JH. (2018) Impaired Driving Associated with the Synthetic Cannabinoid 5f-Adb. *J Forensic Sci Criminol*; 6(1).

McCoin CS, Knotts TA, Norman JE, Ono-Moore KD, Gillingham MB, Vockley J, Blackburn ML, **Adams SH.** (2019) Blood Cytokine Patterns Suggest a Modest Inflammation Phenotype in Subjects with Long-chain Fatty Acid Oxidation Disorders. *Physiol Rep*; 7:e14037.

McDaniel EA, Stuecker TN, Veluvolu M, Gasch AP, **Lewis JA.** (2018) Independent Mechanisms for Acquired Salt Tolerance versus Growth Resumption Induced by Mild Ethanol Pretreatment in *Saccharomyces cerevisiae*. *mSphere*; 3:e00574-18.

McElfish PA, **Ayers BL,** Felix HC, **Long CR,** Bursac Z, Kaholokula JK, Riklon S, Bing W, Iban A, Yeary KHK. (2019) How Stakeholder Engagement Influenced a Randomized Comparative Effectiveness Trial Testing Two Diabetes Prevention

Program Interventions in a Marshallese Pacific Islander Community. *J Transl Med*; 17:42.

McGill MR, Jaeschke H. (2018) Biomarkers of Drug-induced Liver Injury: Progress and Utility in Research, Medicine, and Regulation. *Expert Rev Mol Diagn*; 18:797-807.

McGill MR, Jaeschke H. (2019) Animal Models of Drug-induced Liver Injury. *Biochim Biophys Acta Mol Basis Dis*; 1865:1031-1039.

McGill MR. (2018) The Problem With Predictive Values: Are We Using the Right Metrics for Preclinical Prediction of Drug Hepatotoxicity? *Toxicol Sci*; 165:3-4.

McKelvey LM, Saccente JE, **Swindle T.** (2019) Adverse Childhood Experiences in Infancy and Toddlerhood Predict Obesity and Health Outcomes in Middle Childhood. *Childhood Obesity*; 15:206-215.

Meeker DG, Wang T, Harrington WN, **Zharov VP,** Johnson SA, Jenkins SV, Oyibo SE, Walker CM, Mills WB, Shirtliff ME, Beenken KE, **Chen J, Smeltzer MS.** (2018) Versatility of Targeted Antibiotic-loaded Gold Nanoconstructs for the Treatment of Biofilm-associated Bacterial Infections. *Int J Hyperthermia*; 34:209-219.

Mercer KE, Pulliam CF, Hennings L, Cleves MA, Jones EE, Drake RR, Ronis MJJ. (2019) Diet Supplementation with Soy Protein Isolate, but Not the Isoflavone Genistein, Protects Against Alcohol-Induced Tumor Progression in DEN-Treated Male Mice. *Adv Exper Med Biol*; 1032:115-126.

Merten J, Johnson B. (2018) Laser Continuum Source Atomic Absorption Spectroscopy: Measuring the Ground State with Nanosecond Resolution in Laser-induced Plasmas.

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Spectrochimica Acta Part B; 139:38-43.

Merten J, Johnson B. (2018) Massing a LIBS Plasma with Atomic Absorption Spectroscopy. *Spectrochimica Acta Part B*; 149:124-131.

Miousse IR, Skinner CM, Sridharan V, Seawright J, Singh P, Landes RD, Cheema AK, **Hauer-Jensen M**, Boerma M, **Koturbash I**. (2019) Changes in One-carbon Metabolism and DNA Methylation in the Hearts of Mice Exposed to Space Environment-relevant Doses of Oxygen Ions (¹⁶O). *Life Sci Space Res (Amst)*; 22:8-15.

Miousse IR, Tobacyk J, Quick CM, Jamshidi-Parsian A, Skinner CM, Kore R, **Melnyk SB**, Kutanzi KR, Xia F, **Griffin RJ**, **Koturbash I**. (2019) Reply to Flugge: The Anti-metastatic Potential of Methionine Restriction in Melanoma. *Carcinogenesis*, in press.

Miousse IR, Tobacyk J, Quick CM, Jamshidi-Parsian A, Skinner CM, Kore R, **Melnyk SB**, Kutanzi KR, Xia F, **Griffin RJ**, **Koturbash I**. (2018) Modulation of Dietary Methionine Intake Elicits Potent, yet Distinct, Anticancer Effects on Primary Versus Metastatic Tumors. *Carcinogenesis*; 39:1117-1126.

Moerman AM, Acheampong D, Brooks A, Blair AM, **Hsu PC**, Wong H. (2019) Transcriptome Analysis of Sézary Syndrome and Lymphocytic-variant Hypereosinophilic Syndrome T Cells Reveals Common and Divergent Genes. *Oncotarget*; in press.

Mohindra P, Sawant A, **Griffin RJ**, Lamichhane N, Vlashi E, Xu-Welliver M, Dominello M, Joiner M, Burmeister J. (2019) Three Discipline Collaborative Radiation Therapy (3DCRT) Special Debate: I Would Treat All Early-stage NSCLC Patients with SBRT. *J Appl Clin Med Phys*; in press.

Moon SH, **Huang E**. (2019) Novel Linear Lipopeptide Paenipeptin C' Binds to Lipopolysaccharides and Lipoteichoic Acid and Exerts Bactericidal Activity by the Disruption of Cytoplasmic Membrane. *BMC Microbiol*; 19:6.

Moore CL, Taylor EM, Ball KK, Bernock LJ, **Griffin RJ**, Jung S, Shoeib A, Borrelli MJ. (2018) Quantitative Microinjection using Fluorescence Calibration of Streaming Microdroplets on a Superhydrophobic Surface. *Exp Cell Res*; pii: S0014-4827(18)30396-3.

Mosleh A, Benamara M, **Greenlee L**, **Beyzavi MH**, **Beitle R**. (2019) Recombinant Peptide Fusion Proteins Enable Palladium Nanoparticle Growth. *Mat Let*; 252C:68-71.

Mosleh A, Vaprio RT, Benamara M, Bedford N, **Greenlee LF**, **Beitle R**. (2019) Nanoparticle Synthesis with Semi-crude Biotemplates. *Mat Ltrts*; 252:68-71.

Mosner MG, McLaurin RE, Kinard JL, Hakimid S, Parelman J, Shaha JS, Bizzell J, Greene RK, Cernasov PM, Walsh E, **Addicott MA**, Eisenlohr-Moul T, Carter RM, Dichter GS. (2019) Neural Mechanisms of Reward Prediction Error in Autism Spectrum Disorder. *Autism Res Treatment*, in press.

Moura J, Sorensen A, Leal EC, Svendesen R, Carvalho L, Willemoes RJ, Jorgensen PT, Jenssen H, Wengel J, Dalgaard LT, **Carvalho E**. (2019) microRNA-155 Inhibition Restores Fibroblast Growth Factor 7 Expression in Diabetic Skin and Decreases Wound Inflammation. *Sci Rep*; 9:5836.

Moura LIF, Lemos C, Ledent C, **Carvalho E**, Kofalvi A. (2019) Chronic Insulinopenia/hyperglycemia Decreases Cannabinoid CB1 Receptor

Density and Impairs Glucose Uptake in the Mouse Forebrain. *Brain Res Bulletin*; 147:101-109.

Moura J, Rodrigues J, Goncalves M, Amaral C, Lima M, **Carvalho E**. (2019) Imbalance in T-cell Differentiation as a Biomarker of Chronic Diabetic Foot Ulceration. *Cell Mol Immunol*; 16:833-834.

Nakanishi N, Martindale MQ. (2018) CRISPR Knockouts Reveal an Endogenous Role for Ancient Neuropeptides in Regulating Developmental Timing in a Sea Anemone. *eLife*; 7:e39742.

Nandy S, Pathak B, Zhao S, **Srivastava V**. (2019) Heat-shock Inducible CRISPR/Cas9 System Generates Heritable Mutations in Rice. *Plant Direct*; in press.

Narcisse MR, **Long CR**, Felix HC, **Howie EK**, Purvis RS, McElfish PA. (2019) Adherence to Sleep Guidelines Reduces Risk of Overweight/Obesity in Addition to 8-5-2-1-0 Guidelines among a Large Sample of Adolescents in the United States. *Sleep Health*; 5:444-451.

Nembhard WN, **Robbins JM**, Ayers B, Collins RT, Shan X, Rabie NZ, Chang D, McElfish PA. (2019) Adverse Pregnancy and Neonatal Outcomes among Marshallese Women Living in the United States. *Mater Child Health J*; 23:1525-1535.

Nepal N, Yactayo-Chang JP, Acosta-Gamboa LM, Medina-Jiménez K, González-Romero MA, Arteaga-Vazquez MA, **Lawrence A**. (2019) Mechanisms Underlying the Enhanced Biomass and Abiotic Stress Tolerance Phenotype of Arabidopsis MIOX Over-expressers. *BioRxiv*; Feb 2019.

Nguyen KG, Gillam FB, Hopkins JJ, Jayanthi S, Gundampati RK, Su G, Bear J, Pilkington GH, Jalah R, Felber

BK, **Kumar TKS**, Zaharoff DA. (2019) Molecular Mechanisms of Heparin-induced Modulation of Human Interleukin Bioactivity. *J Biol Chem*; 294:4412-4424.

Nima ZA, Vang KB, Nedosekin D, Kannarpady G, Saini V, Bourdo SE, Majeed W, Watanabe F, Darrigues E, Alghazali KM, Alawajji RA, Petibone D, Ali S, Biris AR, Casciano D, Ghosh A, Salamo G, **Zharov V**, Biris AS. (2019) Quantification of Cellular Associated Graphene and Induced Surface Receptor Responses. *Nanoscale*; 11:932-944.

Nima ZA, Watanabe F, Jamshidi-Parsian A, Sarimollaoglu M, Nedosekin DA, Han M, Watts JA, Biris AS, **Zharov VP**, Galanzha EI. (2019) Bioinspired Magnetic Nanoparticles as Multimodal Photoacoustic, Photothermal and Photomechanical Contrast Agents. *Sci Rep*; 9:887.

Noden M, Moreira R, **Huang E**, Yousef A, Palmer M, Taylor SD. (2019) Total Synthesis of Paenibacterin and Its Analogues. *J Org Chem*; 84:5339-5347.

Nolan J, Nedosekin DA, Galanzha EI, **Zharov VP**. (2018) Detection of Apoptotic Circulating Tumor Cells using in vivo Flow Cytometry. *Cytometry A*; 95:664-671.

Novoselova MV, Bratashov DN, Sarimollaoglu M, Dmitry A. Nedosekin DA, Harrington W, Watts AJ, Han M, Khlebtsov BN, Galanzha EI, Gorin DA, **Zharov VP**. (2018) Photoacoustic and Fluorescent Effects in Multilayer Plasmon-dye Interfaces. *J Biophotonics*; 3:e201800265.

Nowak-Sliwinska P, **Dings RPM**, **Griffin RJ**, et al. (2018). Consensus Guidelines for the Use and Interpretation of Assays for the Assessment and Analysis of

Angiogenesis. *Angiogenesis*; 21:425-532.

Nur T, Gautam SH, **Stenken JA**, **Shew WL**. (2019) Probing Spatial Inhomogeneity of Cholinergic Changes in Cortical State in Rat. *Sci Rep*; 9:9387.

O'Brien CA, **Morello R**. (2018) Modeling Rare Bone Diseases in Animals. *Cur Osteo Rep*; 16:458-465.

Ojcius DM, Jafari A, **Yeruva L**, Schindler CW, Abdul-Sater AA. (2019) Dicer Regulates Activation of the NLRP3 Inflammasome. *PLoS One*; 14:e0215689.

Okolo C, Ali MA, Newman M, Alsharif ZA, Whitt J, **Alam MA**. (2018) Chambers, Hexafluoroisopropanol-Mediated Domino Reaction for the Synthesis of Thiazolo-androstenones: Potent Anticancer Agents. *ACS Omega*; 3:17991-18001.

Onyshchenko A, Ruck EC, Nakov T, **Alverson AJ**. (2019) A Single Loss of Photosynthesis in the Diatom Order Bacillariales (Bacillariophyta). *Am J Bot*; 106:560-572.

Orlowski S, Flees J, Greene E, Ashley D, **Lee SO**, Yang FL, Owens CM, Kidd M, **Anthony N**, **Dridi S**. (2018) Effects of Phytochemical Additives on Meat Quality Traits in Broiler Chickens. *J Anim Sci*; 96:3757-3767.

Orzechowski P, Sipper M, **Huang X**, Moore J. (2018) EBIC: An Artificial Intelligence-based Parallel Biclustering Algorithm for Pattern Discovery. *Bioinformatics*; 34:3719-3726.

Orzechowski P, Sipper M, **Huang X**, Moore J. (2018) runibic: A Bioconductor Package for Parallel Row-based Biclustering of Gene Expression Data. *Bioinformatics*; 34:4302-4304.

Orzechowski P, Sipper M, **Huang X**, Moore J. (2018) EBIC: A Next-generation Evolutionary-based Parallel Biclustering Method. *GECCO (Companion)*; 2018: 59-60.

Paidi SK, Diaz PM, Dadgar S, Jenkins SV, Quick CM, **Griffin RJ**, **Dings RPM**, **Rajaram N**, Barman I. (2019) Label-Free Raman Spectroscopy Reveals Signatures of Radiation Resistance in the Tumor Microenvironment. *Cancer Res*; 79:2054-2064.

Pan JH, Kim HS, Beane K, Montalbano A, Lee JH, Kim YJ, Kim JH, **Kong B**, Kim SY, Park JW, Shin EC, **Kim JK**. (2018) IDH2 Deficiency Aggravates Fructose-induced NAFLD by Modulating Hepatic Fatty Acid Metabolism and Activation of Inflammatory Signaling in Female Mice. *Nutrients*; 10:679.

Pan JH, Tang J, Beane K, Redding M, Cho YJ, Kim YJ, **Zhao J**, Shin EC, Lee JH, **Kong B**, **Kim JK**. (2019) Hepatic Transcriptomics Reveals that Fructose Exposure Downregulated Xenobiotics Metabolizing Enzymes through Aryl Hydrocarbon Receptor Signaling Suppression in C57BL/6N Mice. *Br J Nutr*; in press.

Parajuli N. (2019) A Cycle of Altered Proteasome and Reactive Oxygen Species Production in Renal Proximal Tubular Cells. *Toxicol Forensic Med Open J*; 4:13-17.

Pathak B, Pruetz EP, Guan H, **Srivastava V** (2019) Utility of I-SceI and CCR5-ZFN Nucleases in Excising Selectable Marker Genes from Transgenic Plants. *BMC Res Note*; 12.

Pathak BP, Zhao S, Manoharan M, **Srivastava V**. (2019) Dual-targeting by CRISPR/Cas9 Leads to Efficient Point-mutagenesis but Only Rare Targeted Deletions in the Rice

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Genome. 3Biotech; 9:158.

Pathak R, Kumar VP, **Hauer-Jensen M**, Ghosh SP. (2019) Enhanced Survival in Mice Exposed to Ionizing Radiation by Combination of Gamma-tocotrienol and Simvastatin. *Mil Med*; 184: 644-651.

Pathak R, Shah SK, **Hauer-Jensen M**. (2019) Therapeutic Potential of Natural Plant Products and their Metabolites in Preventing Radiation Enteropathy Resulting from Abdominal or Pelvic Irradiation. *Int J Radiat Biol*; 95:493-505.

Patlán D, Solis B, Pontin KP, Latorre JD, Baxter MF, Hernandez-Velasco X, Merino-Guzman R, Méndez-Albores A, **Hargis BM**, López-Arellano R, **Tellez G**. (2018) Evaluation of a Solid Dispersion of Curcumin with Polyvinylpyrrolidone and Boric Acid against Salmonella Enteritidis Infection and Intestinal Permeability in Broiler Chickens: A Pilot Study. *Front Microbio*; 9:1289.

Phillips GC, Garda M. (2019) Plant Tissue Culture Media and Practices: An Overview. *In Vitro Cell Dev Biol Plant*; 55:242-257.

Piccolo BD, Graham JL, Stanhope KL, Nookaew I, **Mercer KE**, Chintapalli SV, Wankhade UD, Shankar K, Havel PJ, **Adams SH**. (2018) Diabetes-associated Alteration in the Cecal Microbiome and Metabolome are Independent of Diet or Environment in the UC Davis Type 2-Diabetes Mellitus Rat Model. *Am J Physiol Endocrinol Metab*; 315:E961-E972.

Piekarski A, Nagarajan G, Ishola P, Flees J, Greene ES, **Kuenzel WJ**, Ohkubo T, Maier H, **Bottje WG**, Cline MA, **Dridi S**. (2018) AMP-activated Protein Kinase Mediates the Effect of Leptin on Avian Autophagy in a Tissue-specific Manner. *Front*

Physiol; 9:541.

Piekarski-Welsher A, Greene E, Lassiter K, Kong BC, **Dridi S**, **Bottje W**. (2018) Enrichment of Autophagy and Proteasome Pathways in Breast Muscle of Feed Efficient Pedigree Male Broilers. *Front Physiol*; 9:1342.

Pope JL, Yang Y, Newsome RC, Sun W, **Sun X**, Ukhanova M, Neu J, Issa JP, Mai V, Jobin C. (2019) Microbial Colonization Coordinates the Pathogenesis of a Klebsiella pneumoniae Infant Isolate. *Sci Rep*; 9:3380.

Prieto SP, Reed CL, James HM, **Quinn KP**, **Muldoon TJ**. (2019) Differences in Colonic Crypt Morphology of Spontaneous and Colitis-associated Murine Models via Second Harmonic Generation Imaging to Quantify Colon Cancer Development. *BMC Cancer*; 19:428.

Prior F, Almeida J, Kathiravelu P, Kurc T, Smith K, Fitzgerald TJ, Saltz J. (2019) Open Access Image Repositories: High Quality Data to Enable Machine Learning Research. *Clin Radiol*; pii: S0009-9260.

Ravindranathan S, Nguyen KG, Kurtz SL, Frazier HN, Smith SG, Koppolu B, **Rajaram N**, **Zaharoff DA**. (2018) Tumor-derived Granulocyte-colony Stimulating Factor Diminishes Efficacy of Breast Tumor Cell Vaccines. *Breast Can Res*; 20:126.

Reynolds D, Baret F, Welcker C, Bostrom A, Ball J, Cellini F, **Loence A**, Chawade A, Khafif M, Noshita K, Mueller-Linow M, Zhou J, Tardieu F. (2018) What is Cost-efficient Phenotyping? Optimizing Costs for Different Scenarios. *Plant Sci*; 282:14-22.

Roberts K, Kim J, White S, **Hestekin J**, **Wolchok JC**. (2019) Production of Extracellular Matrix Fibers via Sacrificial Hollow Fiber Membranes. *J Vis Exp*; in press.

Rose S, **Carvalho E**, **Diaz EC**, Cotter M, Bennuri SC, Azhar G, **Frye RE**, **Adams SH**, **Borsheim E**. (2019) A Comparative Study of Mitochondrial Respiration in Circulating Blood Cells and Skeletal Muscle Fibers in Women. *AJP-Endocrin Metab*; 317:E503-E512.

Rose S, Niyazov DM, Rossignol D, Goldenthal M, Kahler SG, **Frye RE**. (2018) Clinical and Molecular Characteristics of Mitochondrial Dysfunction in Autism Spectrum Disorder. *Mol Diagn Ther*; 22:571-593.

Ross MC, Lenow JK, **Kilts CD**, Cisler JM. (2018). Altered Neural Encoding of Prediction Errors in Assault-related Posttraumatic Stress Disorder. *J Psy Res*, 103:83-90.

Ruebel ML, Piccolo BD, **Mercer KE**, Pack L, Moutos D, Shankar K, **Andres A**. (2019) Obesity Leads to Distinct Metabolomic Signatures in the Follicular Fluid of Women Undergoing in vitro Fertilization. *Am J Physiol Endocrinol Metab*; 316:E383-E396.

Ryan MC, Kochunov P, Sherman PM, Rowland LM, Wijtenburg SA, **Acheson A**, Hong LE, Sladky J, McGuire S. (2018) Miniature Pig Magnetic Resonance Spectroscopy Model of Normal Adolescent Brain Development. *J Neurosci Meth*; 308:173-182.

Sadoon AA, **Wang Y**. (2018) Anomalous, Non-Gaussian, Viscoelastic, and Agedependent Dynamics of Histone-like Nucleoid-structuring Proteins in Live *Escherichia coli*. *Phys Rev E*; 98:042411.

Saha D, Kharbanda A, Essien N, Zhang L, Cooper R, Bassak D, **Kendrick S**, Frett B, Li H-Y. (2019) Domino Ugi-N₃/C-H Activation Sequence: Synthesis of Tetrazolyl Pyrido-imidazo

Quinolones via a Silver Mediated Palladium Catalyzed Cyclization. *Org Chem Front*; 6:2234-2239.

Sakamaki Y, Ozdemir J, Heidrick Z, Watson O, Shahsavari HR, Fereidoonzhad M, Khosropour AR, **Beyzavi MH**. (2018) Metal-Organic Frameworks and Covalent Organic Frameworks as Platforms for Photodynamic Therapy. *Comm Inorgan Chem*; 38:210-237.

Salzwedel AP, Gao W, **Andres A**, Badger TM, Glasier CM, Ramakrishnaiah RH, Rowell A, **Ou X**. (2019) Maternal Adiposity Influences Neonatal Brain Functional Connectivity. *Front Hum Neurosci*; 12:514.

Samara A, Feng K, Pivik RT, Jarrett KP, Badger TM, **Ou X**. (2019) White Matter Microstructure Correlates with Memory Performance in Healthy Children: A Diffusion Tensor Imaging Study. *J Neuroimaging*; 29:233-241.

Samara A, Li X, Pivik RT, Badger TM, **Ou X**. (2018) Brain Activation to High-Calorie Food Images in Healthy Normal Weight and Obese Children. *BMC Obesity*; 5:31.

Sampson HA, Berin MC, Plaut M, Sicherer SH, **Jones SM**, Burks AW, Leung DYM, Wood RA. (2019) The Consortium of Food Allergy Research (CoFAR) The First Generation. *J Allergy Clin Immunol*; 143:486-493.

Seawright JW, Sridharan V, Landes RD, Cao M, Singh P, **Koturbash I**, Mao XW, Miousse IR, Singh SP, Nelson GA, **Hauer-Jensen M**, Boerma M. (2019) Effects of Low-dose Oxygen Ions and Protons on Cardiac Function and Structure in Male C57BL/6J Mice. *Life Sci Space Res (Amst)*; 20:72-84.

Shafiee B, Duffield J, Timm R, Liyanage R, Lay Jr JO, Khosropour AR, Rudbari HA, **Beyzavi MH**. (2019)

Metal-free and Benign Approach for the Synthesis of Dihydro-5'h-spiro[benzo[c]chromene-8,4'-oxazole]-5',6(7h)-dione Scaffolds. *Green Chem*; 21:2656-2661.

Shahsavari HR, Aghakhanpour RB, Nikravesh M, Ozdemir J, Golbon Haghighi M, Notash B, **Beyzavi MH**. (2018) Highly Emissive Cycloplatinated(II) Complexes Obtained by the Chloride Abstraction from the Complex [Pt(ppy)(PPh₃)(Cl)]: Employing Various Silver Salts. *Organometal*; 37:2890-2900.

Shakhnovich V, Brian Smith P, Guptill JT, **James LP**, Collier DN, Wu H, Livingston CE, Zhao J, Kearns GL, Gohen Wolkowicz M. (2018) A Population-based Pharmacokinetic Model Approach to Pantoprazole Dosing for Obese Children and Adolescents. *Paediatr Drugs*; 20:483-495.

Sharma B, Pickens JB, **Striegler S**, Barnett JD. (2018) Glycoside Hydrolysis by a Microgel Templated with a Competitive Glycosidase Inhibitor. *ACS Catal*; 8:8788-8795.

Sharma B, **Striegler S**. (2019) Tailored Interactions of the Secondary Coordination Sphere Enhance the Hydrolytic Activity of Crosslinked Microgels. *ACS Catal*; 9:1686-1691.

Sharma B, **Striegler S**, Whaley M. (2018) Modulating the Catalytic Performance of an Immobilized Catalyst with Matrix Effects – A Critical Evaluation. *ACS Catal*; 8:7710-7718

Shaw EI, **Voth DE**. (2019) *Coxiella burnetii*: A Pathogenic Intracellular Acidophile. *Microbio*; 165:1-3.

Shields BD, Koss B, Taylor EM, **Storey AJ**, West K, **Byrum SD**, Mackintosh SG, Edmondson RE, Mahmoud F, Shalin S, **Tackett AJ**. (2019) Loss of E-cadherin Inhibits CD103 Anti-tumor

Activity and Reduces Checkpoint Blockade Responsiveness in Melanoma. *Cancer Res*; 79:1113-1123.

Sicherer SH, Wood RA, **Perry TT**, **Jones SM**, Leung DYM, Henning AK, Dawson P, Burks AW, Lindblad R, Sampson HA. (2019) Clinical Factors Associated with Peanut Allergy in High Risk Infant Cohort. *Allergy*; 00:1-13.

Silva C, Sampaio-Pinto V, Andrade S, Rodrigues I, Costa R, Guerreiro S, **Carvalho E**, Pinto-do-O P, Nascimento DS, Soares R. (2019) Establishing a Link between Endothelial Cell Metabolism and Vascular Behaviour in a Type 1 Diabetes Mouse Model. *Cell Physiol Biochem*; 52:503-516.

Silva MA, **Nakanishi N**. (2019) Genotyping of Sea Anemone during Early Development. *J Vis Exp*, 147:e59541.

Skinner CM, Miousse IR, Ewing L, Sridharan V, Cao M, Kosanke S, Lin H, Williams DK, Avula B, Haider S, Chittiboyina A, Khan I, ElSohly M, Boerma M, Gurley BJ, **Koturbash I**. (2018) Impact of Obesity on the Toxicity of a Multi-ingredient Dietary Supplement, OxyELITE Pro™ (New Formula), Using the Novel NZO/HILtJ Obese Mouse Model: Physiological and Mechanistic Assessments. *Food Chem Toxicol*; S0278-6915:30711-7.

Solis-Cruz B, Hernandez-Patlan D, Petrone VM, Pontin KP, Latorre JD, Beyssac E, Hernandez-Velasco X, Merino-Guzman R, Owens C, **Hargis BM**, Lopez-Arellano R, **Tellez-Isaias G**. (2019) Evaluation of Cellulosic Polymers and Curcumin to Reduce Aflatoxin B1 Toxic Effects on Performance, Biochemical, and Immunological Parameters of Broiler Chickens. *Toxins MDPI*; 11:121.

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Song CW, **Griffin RJ**, Lee Y-J, Cho H, Seo J, Park I, Kim HK, Kim DH, Kim M-S, Dusenbery KE, Cho LC. (2019) Re-oxygenation and Repopulation of Tumor Cells after Ablative Hypofractionated Radiotherapy (SBRT and SRS) in Murine Tumors. *Radiat Res*; in press.

Song J, Lin L, Yang Z, Zhu R, Zhou Z, Li ZW, **Wang F**, **Chen J**, Yang H, Chen X. (2019) Self-Assembled Responsive Bilayered Vesicles with Adjustable Oxidative Stress for Enhanced Cancer Imaging and Therapy. *J Am Chem Soc*; 141:8158.

Song L, Liang Z, Ma Z, Zhang Y, **Chen J**, Adzic RR, Wang JX. (2018) Temperature-Dependent Kinetics and Reaction Mechanism of Ammonia Oxidation on Pt, Ir, and PtIr Alloy catalysts. *J Electrochem Soc*; 165:J3095-J3100.

Soule EK, Sakuma KK, Palafox S, Pokhrel P, Herzog TA, Thompson N, **Fagan P**. (2019) Content Analysis of Internet Marketing Strategies used to Promote Flavored Electronic Cigarettes. *Addict Behav*; 91:128-135.

Spencer J, Hadden K, Brown H, **Oliphant SS**. (2019) Considering Low Health Literacy: How Do the Pelvic Floor Distress Inventory-Short Form 20 and Pelvic Floor Impact Questionnaire-Short Form 7 Measure Up? *Female Pelvic Med Reconstr Surg*; 25:145-148.

Stass H, Lettieri J, Vanevski KM, Willmann S, **James LP**, Sullivan JE, Arrieta AC, Bradley JS. (2019) Pharmacokinetics, Safety, and Tolerability of Single-Dose Intravenous Moxifloxacin in Pediatric Patients: Dose Optimization in a Phase 1 Study. *J Clin Pharmacol*; 59:654-667.

Steele JS, Bush KA, Stowe ZN, James

GA, Weed S, **Kilts CD**, Cisler JM. (2018) Implicit Emotion Regulation in Adolescent Girls: An Exploratory Investigation of Hidden Markov Modeling and its Neural Correlates. *PLoS ONE*; 3:e0192318.

Storey AJ, Wang HP, Protacio RU, Davidson MK, **Tackett AJ**, **Wahls WP**. (2018) Chromatin-mediated Regulators of Meiotic Recombination Revealed by Proteomics of a Recombination Hotspot. *Epigen Chromatin*; 11:64.

Strub GM, Perkins JA. (2018) MicroRNAs for the Pediatric Otolaryngologist. *Intnl J Ped Otorhinolaryng*; 112:195-207.

Sun X, Jia Z. (2018) Microbiome Modulates Intestinal Homeostasis against Inflammatory Diseases. Review. *Vet Immuno Immunopath*; 205: 97-105.

Sun X, Wang H. (2019) A New, Economical, and Easy Protocol to Culture 3D Mouse Hepatoid and Cholangoid. *Intnl J Clin Gastroenter Hepa*; 1:7-11.

Swindle T, Curran G, Johnson S. (2019) Implementation Science and Nutrition Education and Behavior: Opportunities for Integration. *J Nutr Ed Behav*; 51:763 -774.e1.

Swindle T, Johnson S, Davenport K, Thirunavukarasu T, Sadasavin G, Whiteside-Mansell L, Curran G. (2019) Closing the Gap: A Mixed Methods Exploration of Barriers and Facilitators to Evidence-based Practices for Obesity Prevention in Head Start. *J Nutr Ed Behav*; in press.

Swindle T, Sigman-Grant M, Branen LJ, Fletcher J, Johnson SL. (2018) About Feeding Children: Factor Structure and Internal Reliability of a Survey to Assess Mealtime Strategies and Beliefs of Early Childhood

Education Teachers. *Int'l J Behav Nutr Phys Act*, 15:85.

Swindle T, Phelps J. (2018) How Does Context Relate to Nutrition Promotion and Mealtime Practice in Early Care and Education Settings? A Qualitative Exploration. *J Acad Nutri Dietetics*; 18:30676-2

Swindle T, Selig J, Rutledge JM, Whiteside-Mansell L, Curran G. (2018) Fidelity Monitoring in Complex Interventions: A Case Study of the WISE Intervention. *Arch Publ Hlth*; 52:1-10.

Tait Wonjo ED, Hunter CA, **Stumhofer JS**. (2019) The Immunobiology of the Interleukin-12 Family: Room for Discovery. *Immunity*; 50:851-870.

Tang X, Eberhart JK, Cleves MA, Jingyun L, MacLeod S, **Nembhard WN**, **Hobbs CA**. (2018) PDGFRA Gene, Maternal Binge Drinking and Obstructive Heart Defects. *Nature: Sci Rep*; 8:11083.

Tarrant K, Fulton JE, Lund A, **Rhoads DD**, **Anthony NB**. (2018) Predicting Ascites Incidence in a Simulated Altitude-challenge using Single Nucleotide Polymorphisms Identified in Multi-generational Genome Wide Association Studies. *Poultry Sci*; 97:3801-3806.

Tashi M, Shafiee B, Sakamaki Y, Hu J-Y, Heidrick Z, Khosropour AR, **Beyzavi MH**. (2018) Micro-flow Nanocatalysis: Synergic Effect of TfOH@SPIONs and Micro-flow Technology as an Efficient and Robust Catalytic System for the Synthesis of Plasticizers. *RSC Advan*; 8:37835-37840.

Tellez-Isaias G, Rosales GA. (2019) Percepción de *Quorum sensing* y comunicación entre reinos. *AviNews America Latina*; Marzo 71-80.

Tesfazghi MT, **McGill MR**, Yarbrough ML. (2019) What's Causing this Dark Brown Plasma? *J Appl Lab Med*; 4:125-129.

Thomas L, Booth H, Beane K, Bottoms K, **Dridi S**. (2018) Mechanistic Understanding of Antioxidants Impact on Cognitive Function in Geriatric Canines. *Adv Food Technol Nutr Sci Open J*; 4:e6-e8.

Tobacyk J, **Parajuli N**, Shrum S, MacMillan-Crow LA. (2019) The First Direct Activity Assay for the Mitochondrial Protease OMA1. *Mitochondrion*; 46:1-5.

Tomkovich S, Dejea CM, Winglee K, **Sun X**, et al. (2019) Human Colon Mucosal Biofilms from Healthy or Colon Cancer Hosts are Carcinogenic. *J Clin Invest*; 130:1699-1712.

Tuchin VV, **Zharov VP**, Galanzha EI. (2018) Biophotonics for Lymphatic Theranostics in Animals and Humans. *J Biophotonics*. 11:e201811001.

Udaondo Z, Wongsurawat T, Jenjaroenpun P, **Ussery D**, et al. (2019) Draft Genome Sequences of 48 Vancomycin-Resistant Enterococcus faecium Strains Isolated from Inpatients with Bacteremia and Urinary Tract Infection. *Microbio Res Announc*; 8:e00222-19.

Uddin MB, Roy KR, Hosain SB, Khiste SK, Hill RA, Jois SD, Zhao Y, **Tackett AJ**, Liu YY. (2018) An N6-methyladenosine at the Transited Codon 273 of p53 pre-mRNA Promotes the Expression of R273H Mutant Protein and Drug Resistance of Cancer Cells. *Biochem Pharmacol*; 160:134-145.

Urbaniak A, Delgado M, Antoszczak M, Huczynski A, **Chambers TC**. (2018) Salinomycin Derivatives Exhibit Activity against Primary Acute Lymphoblastic Leukemia (ALL)

Cells *in vitro*. *Biomed Pharmacother*; 99:384-390.

Usoltseva LO, Volkov DS, Nedosekin DA, Korobov MV, Proskurnin MA, **Zharov VP**. (2018) Absorption Spectra of Nanodiamond Aqueous Dispersions by Optical Absorption and Optoacoustic Spectroscopies. *Photoacoustics*; 12:55-66.

Vargas I, Alhallak K, Kolenc O, Jenkins SV, **Griffin RJ**, **Dings RPM**, **Rajaram N**, **Quinn KP**. (2018) Rapid Quantification of Mitochondrial Fractal Dimension in Individual Cells. *Biomed Opt Exp*; 9:5269-5279.

Vargason T, Kruger U, Roth E, Delhey LM, Tippett M, **Rose S**, Bennuri SC, Slattery JC, **Melnyk S**, James SJ, **Frye RE**, Hahn J. (2018) Comparison of Three Clinical Trial Treatments for Autism Spectrum Disorder through Multivariate Analysis of Changes in Metabolic Profiles and Adaptive Behavior. *Front Cell Neurosci*; 2:503.

Venkat S, Chen H, Gan Q, **Fan C**. (2019) The Application of Cell-free Protein Synthesis in Genetic Code Expansion for Post-translational Modifications. *Front Pharmacol*; 10:248.

Venkat S, Chen H, McGuire P, Stahman A, Gan Q, **Fan C**. (2019) Characterizing Lysine Acetylation of Escherichia coli Type II Citrate Synthase. *FEBS J*; doi: 10.1111/febs.14845

Vickery BP, Vereda A, Casale TB, Beyer K, Du Toit G, Hourihane JO, **Jones SM**, Shreffler WG, Marcantonio A, Zawadzki R, Dilly SG, Adelman DC, Burks AW for the PALISADE Group of Clinical Investigators. (2018) AR101 Oral Immunotherapy for Peanut Allergy. *N Engl J Med*; 379:1991-2001.

Vicogne D, Houdou M, Garat A, Climer L, **Lupashin V**, Morelle W, Foulquier F. (2019) Fetal Bovine

Serum Impacts the Observed N-glycosylation Defects in TMEM165 KO HEK Cells. *J Inherit Metab Dis*; 2019:1-10.

Vicuna Requesens DV, Ring R, Phillips C, Hood NC, Flory AR, Marbaniang CD, Howard JA, **Hood EE**. (2019) Assessment of Endosperm-specific Promoters to Drive Expression of Cellulases in Maize Endosperm. *Transgen Res*; in press.

Vohra N, Bowman T, Diaz PM, **Rajaram N**, Bailey K, **El-Shenawee M**. (2018) Pulsed Terahertz Reflection Imaging of Tumors in a Spontaneous Model of Breast Cancer. *Biomed Phys Eng Express*; 4:065025

Wadley TD, Jenjaroenpun P, Wongsurawat T, **Ussery DW**, Nookaew I. (2019) Complete Genome and Plasmid Sequences of Escherichia coli Type Strain ATCC 11775. *Microbio Res Announc*; 8:e00046-19.

Walden C, **Greenlee LF**, Zhang W. (2019) Real-time Interaction of Mixed Species Biofilm with Silver Nanoparticles using QCM-D. *Colloid Interface Sci Comm*; 28:49-53.

Walker A, Wyatt J, Compton G, **Balachandran K**, **Wolchok J**. (2019) Repeat Impact Conditioning of Astrocytes Decreases the Expression and Production of Extracellular Matrix. *Ann Biomed Eng*; 47:967-979.

Walker S, Tacinelli A, Hexirui W, Pendergraft S, Horsfall K, **Dridi S**. (2018) Intermittent Fasting: A Potential Effective Strategy for Preventing Obesity and Type 2 Diabetes Mellitus. *Adv Food Technol Nutr Sci Open J*; 4:e9-e12.

Wang GG, Ren Z, Ahn JH, Cai L, Tsai YH, Allison D, Groen RWJ, Martens A, Mi A, Jin J, Garcia B, Zheng D, Bhanu N, **Tackett AJ**, Storey AJ. (2019) PHF19 Promotes Multiple

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Myeloma Tumorigenicity through PRC2 Activation. *Blood*; in press.

Wang T, Jones J, Niyonshuti I, Agrawal S, **Kumar TKS**, Quin K, Chen J. (2019) Biocompatible, Injectable Anionic Hydrogels Based on Poly(acrylic acid)-co-poly(oligoethylene glycol monoacrylate) for Protein Controlled Release. *Adv Therap*; in press.

Wankhade UD, Zhong Y, Kang P, Alfaro M, Chintapalli SV, Piccolo BD, **Mercer KE**, Andres A, **Thakali KM**, Shankar K. (2018) Maternal high-fat diet programs offspring liver steatosis in a sexually dimorphic manner in association with changes in gut microbial ecology in mice. *Sci Rep*; 1:16502.

Wassenaar TM, Wanchai V, Buzard GS, **Ussery DW**. (2019) In Silico Selection of Amplification Targets for Rapid Polymorphism Screening in Ebola Virus Outbreaks. *Front Microbio*; 10:857.

Wei T, Shalin S, Draper E, Miller E, Zhang H, Sun R, Lee M, Albert G, **Richter GT**. (2019) Abnormal Elastin and Collagen Deposition is Present in Extracranial Arteriovenous Malformations: A Comparison to Intracranial Disease. *Histol Histopathol*; 23:18129.

West KL, **Byrum SD**, Mackintosh SG, Edmondson RE, Taverna SD, **Tackett AJ**. (2019) Proteomic Characterization of the Arsenic Response Locus in *S. cerevisiae*. *Epigenetics*, 14:130-145.

West KL, Kelliher JL, Xu Z, An L, Reed MR, **Eoff RL**, Wang J, Huen MSY, Leung JWC. (2019) LC8/DYNLL1 is a 53BP1 Effector and Regulates Checkpoint Activation. *Nucleic Acids Res*; 47:6236-6249.

Whiteside-Mansell L, **Swindle T**. (2019) Evaluation of Together We

Inspire Smart Eating: Preschool fruit and vegetable consumption. *Hlth Ed Res*; 34.1:62-71.

Whitt J, Duke C, Sumlin A, Chambers SA, Alnufae R, Gilmore D, Fite T, Basnakian AG, **Alam MA**. (2019) Synthesis of Hydrazone Derivatives of 4-[4-Formyl-3-(2-oxochromen-3-yl)pyrazol-1-yl]benzoic acid as Potent Growth Inhibitors of Antibiotic-resistant *Staphylococcus aureus* and *Acinetobacter baumannii*. *Molecules*; 24:2051-2063.

Wikenheiser DJ, Brown SL, Lee J, **Stumhofer JS**. (2018) NK1.1 Expression Defines a Population of CD4+ Effector T Cells Displaying Th1 and Tfh Cell Properties that Support Early Antibody Production during *Plasmodium yoelii* Infection. *Front Immunol*; 9:2277.

Witcher CM, Napier-Jameson R, Lockwood HN, Mattila MN, Wisdom SB, Saade Ferreira LL, Taylor J, Clack B, **Medina-Bolivar F**, Ball JM, Parr RD. (2019) Arachidin-1 and Arachidin-3 Modulation of Rotavirus-infected MA104 Cells. *J Am Counc Med Active Plants*; 8:1-19.

Wolfenden L, Kingsland M, Grady A, Williams CM, Nathan N, Sutherland R, Wiggers J, Jones J, Hodder R, Finch M, McFadyen T, Bauman A, Rissel C, Milat A, **Swindle T**, Yoong SL. (2019) Identifying Opportunities to Develop the Science of Implementation for Community-based Non-communicable Disease Prevention: A Review of Implementation Trials. *Prevent Med*; 118:279-285.

Wongsurawat T, Athipanyasilp N, Jenjaroenpun P, **Ussery DW**, et al. (2018) Case of Microcephaly after Congenital Infection with Asian Lineage Zika Virus, Thailand. *Emerging Inf Dis*; 24:1758-1761.

Wongsurawat T, Jenjaroenpun P, Taylor MK, **Ussery DW**, et al. (2019) Rapid Sequencing of Multiple RNA Viruses in their Native Form. *Front Microbio*, 10:260.

Wongsurawat T, Jenjaroenpun P, Athipanyasilp N, **Ussery DW**, et al. (2018) Genome Sequences of Zika Virus Strains Recovered from Amniotic Fluid, Placenta, and Fetal Brain of a Microcephaly Patient in Thailand, 2017. *Microbiol Resour Announc*; 9:e01020-18.

Wongsurawat T, Jenjaroenpun P, Wassenaar TM, **Ussery DW**, et al. (2018) Decoding the Epitranscriptional Landscape from Native RNA Sequences. *BioRxiv*; in press.

Wu H, Hasan R, Zhang H, Gray J, Williams D, Miller M, Allen F, Lee V, Kelly T, **Zhou GL**. (2019) Phosphorylation Regulates CAP1 (Cyclase-Associated Protein 1) Functions in the Motility and Invasion of Pancreatic Cancer Cells. *Sci Rep*; 9:4925.

Xie S, Liu Y, Li X, Tan M, Wang C, Field J, **Zhou GL**. (2018) Phosphorylation of the Cytoskeletal Protein CAP1 Regulates Non-Small Cell Lung Cancer Survival and Proliferation by GSK3 β . *J Cancer*; 9:2825-2833.

Xiong J, Almeida M, **O'Brien CA**. (2018) The YAP/TAZ Transcriptional Co-activators Have Opposing Effects at Different Stages of Osteoblast Differentiation. *Bone*; 112:1-9.

Xiong J, Cawley KM, Piemontese M, Fujiwara Y, Zhao H, Goellner JJ, **O'Brien CA**. (2018) Soluble RANKL Contributes to Osteoclast Formation in Adult Bone but not Ovariectomy-induced Bone Loss. *Nature Comm*; 9:2909.

Yamashita T, **Rhoads DD**, Pummill J. (2019) Genome Report:

Genome Analyses of a New Mycoplasma Species from the Scorpion *Centruroides vittatus*. *G3: Genes|Genomes|Genetics*; 8:993-997.

Yang Y, **Latorre JD**, **Khatrri B**, **Kwon YM**, **Kong BW**, Teague KD, Graham LE, Wolfenden AD, Mahaffey BD, Baxter M, Hernandez-Velasco X, Merino-Guzman R, **Hargis BM**, **Tellez G**. (2018) Characterization and Evaluation of Lactic Acid Bacteria Candidates for Intestinal Epithelial Permeability Reduction and *Salmonella Typhimurium* Colonization in Neonatal Turkey Poults. *Poult Sci*; 97:515-521.

Yang Y, **Tellez G**, Latorre JD, Ray PM, Hernandez X, **Hargis BM**, **Ricke SC**, **Kwon YM**. (2018) *Salmonella* Excludes *Salmonella* in Poultry: Confirming an Old Paradigm using Conventional and Barcode-tagging Approaches. *Front Vet Sci*; 5:101.

Yu X, Nassar N, Mastroiacovo P, Canfield MA, Groisman B, **Nembhard WN**, et al. (2019) Hypospadias Prevalence and Trends in International Birth Defects Surveillance Systems, 1980 to 2010. *Euro Urology*; pii:S0302-2838.

Zakeyah AA, Whitt J, Duke C, Gilmore DF, Meeker DG, **Smeltzer MS**, **Alam MA**. (2018) Synthesis and Antimicrobial Studies of Hydrazone Derivatives of 4-[3-(2,4-difluorophenyl)-4-formyl-1H-pyrazol-1-yl]benzoic acid and 4-[3-(3,4-difluorophenyl)-4-formyl-1H-pyrazol-1-yl]benzoic Acid. *Bioorg Med Chem Lett*; 28:2914-2919.

Zamani P, Kajani AA, Phipps J, Hu J, Cheema F, Khosropour AR, Rudbari HA, Bordbar A-K, **Beyzavi MH**. (2019) Multicomponent Synthesis of Diversified Chromeno [3, 2-d]

oxazoles. *ACS Comb Sco*; in press

Zamani P, Ozdemir J, Ha Y, Benamara M, Kuchuk AV, Wang T, Chen J, Khosropour AR, **Beyzavi MH**. (2018) Magnetic Nanoparticle Anchored Deep Eutectic Solvents as a Catalyst for the Etherification and Amination of Naphthols. *Adv Synth Catalysis*; 360:4372-4380.

Zampiga M, Laghi L, Petracci M, Zhu C, Meluzzi A, **Dridi S**, Sirri F. (2018) Effect of Dietary Arginine to Lysine Ratios on Productive Performance, Meat Quality, Plasma and Muscle Metabolomics Profile in Fast-growing Broiler Chickens. *J Anim Sci Biotech*; 9:79.

Zampiga M, Flees J, Meluzzi A, **Dridi S**, Sirri F. (2018) Application of Omics Technologies for a Deeper Insight into Quali-quantitative Production Traits in Broiler Chickens: A Review. *J Anim Sci Biotech*; 9:61.

Zare A, Khanivar R, Gheshlaghchaei NI, **Beyzavi MH**. (2019) A Nanostructured Organic-Inorganic Hybrid Material: Preparation, Characterization and Catalytic Performance for the Synthesis of N,N'-Alkylidene Bisamides. *Chem Select*; 4:3953-3960.

Zare A, Kohzadian A, Abshirini Z, Sajadikhah SS, Phipps J, Benamara M, **Beyzavi MH**. (2019) Nano-2-(dimethylamino)-N-(silica-n-propyl)-N,N-dimethylethanaminium Chloride as a Novel Basic Catalyst for the Efficient Synthesis of Pyrido[2,3-d:6,5-d']dipyrimidines. *New J Chem*; 43: 2247-2257.

Zavala-Franco A, Hernández-Patlán D, Solís-Cruz B, López-Arellano R, **Tellez-Isaias G**, Vázquez-Durán A, Méndez-Albores A. (2018) Assessing the Aflatoxin B1 Adsorption Capacity between Biosorbents using an in vitro Multi-Compartmental Model

Simulating the Dynamic Conditions in the Gastrointestinal Tract of Poultry. *Toxins*; 10:484.

Zeng J, Xie S, Liu Y, Shen C, Song X, **Zhou GL**, Wang C. (2018) CDK5 Functions as a Tumor Promoter in Human Lung Cancer. *J Cancer*; 9:3950-3961.

Zhang J, Bhattacharyya S, Hickner RC, Light AR, Lambert CJ, Gale BK, Fiehn O, **Adams SH**. (2019) Skeletal Muscle Interstitial Fluid Metabolomics at Rest and Associated with an Exercise Bout: Application in Rats and Humans. *Am J Physiol Endocrinol Metab*; 316:E43-E532018.

Zhang N, Wright T, Wang X, **Savary B**, Karki U, **Xu J**. (2018) Engineering Designer Glycomodules for Boosting Secretion of Recombinant Proteins in Tobacco Hairy Root Culture and Studying Hydroxyproline-O-Glycosylation Process in Plants. *Plant Biotechnol J*; 17:1-12.

Zhang N, Wright T, Caraway P, **Xu J**. (2019) Enhanced Secretion of Human α 1-antitrypsin Expressed with a Glycosylation Module in Tobacco BY-2 Cell Culture. *Bioengineered*; 10:87-97.

Zhang QY, **Du Y**. (2019) Model-free Feature Screening for Categorical Outcomes: Nonlinear Effect Detection and False Discovery Rate Control. *PLoS ONE*; 14:e0217463.

Zhang QY. (2018) A Modified PageRank Algorithm for Biological Pathway Ranking. *Stat*; 7:1-15.

Zhang QY. (2019) Direct Estimation of Differential Networks under High-dimensional Nonparanormal Graphical Models. *Canadian J Statistics*, in press.

Zhao Y, Kim JY, Karan R, Jung JH, Pathak B, Williamson B, Kannan, B, Wang D, Fan C, Yu W, Dong S,

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Srivastava V, Altpeter F. (2019) Generation of a Selectable Marker Free, Highly Expressed Single Copy

Locus as Landing Pad for Transgene Stacking in Sugarcane. *Plant Mol Biol*; 100:246-263.

Zielinski MJ, Privratsky A, Steele JS, Smitherman S, **Kilts CD**, Herringa RJ, Cisler JM. (2018) Does Development Moderate the Effect of Early Life Assaultive Violence on Resting State Brain Networks? An Exploratory Study. *Psy Res: Neuroimaging*; 281:69-77.

Zimmerman SM, Heard-Lipsmeyer ME, Dimori M, Thostenson JD, Mannen EM, **O'Brien CA**, **Morello R**. (2018) Loss of RANKL in Osteocytes Dramatically Increases Cancellous Bone Mass in the Osteogenesis Imperfect Mouse (oim). *Bone Rep*; 9:61-73.

Zong G, ^{Hu Z}, O'Keefe S, Tranter D, Iannotti MJ, Baron L, Hall B, Corfield K, Paatero A, Henderson M, Roboti P, Zhou J, Sun X, Govindarajan M, Rohde J, Blanchard N, Simmonds R, Inglese J, **Du Y**, Demangel C, High S, Paavilainen VO, Shi WQ. (2019) Ipomoeassin F Binds Sec61 α to Inhibit Protein Translocation. *J Am Chem Soc*; 141:8450-8461.

Zybaylov B, Glazko G, Rahmatallah Y, Andreyev D, McElroy T, Karaduta O, **Byrum SD**, Orr LM, **Tackett AJ**, Mackintosh SG, Edmondson RD, Kieffer DA, Martin RJ, **Adams SH**, Vaziri ND, **Arthur JM**. (2019) Metaproteomics Reveals Potential Mechanisms by Which Dietary Resistant Starch Supplementation Attenuates Chronic Kidney Disease Progression in Rats. *PLOS One*; 14:e0199274.

B. Books, Book Chapters

Baghal A, Zozus M, Baghal A, Al-Shukri S, **Prior F**. (2019) Factors Associated with Increased Adoption of a Research Data Warehouse. In: Improving Usability, Safety and Patient Outcomes with Health Information Technology. Lau F, et al. (Eds.), IOS Press.

Baxter MFA, **Hargis BM**, **Tellez-Isaias G**. (2018) Assessment of a Nutritional Rehabilitation Model in Two Modern Broilers and their Jungle Fowl Ancestor. In: Application of Genetics and Genomics in Poultry Science. Liu X (Ed.), IntechOpen.

Bennuri SC, **Rose S**, **Frye RE**. (2019) The Effect of N-Acetyl Cysteine on Apoptosis. In: The Therapeutic Use of N-Acetyl Cysteine in Medicine. **Frye RE**, Berk M (Eds.), Adis Books, Springer Healthcare, Auckland, New Zealand.

Cabal A, Wassenaar TM, **Ussery DW**. (2018) Gender Differences in the Gut Microbiome and How These Affect Cardiovascular Diseases. In: Gender Differences in the Pathogenesis and Management of Heart Disease. Mehta JL, McSweeney J (Eds.), Springer.

Erf GF. (2019) Autoimmune Diseases of Poultry. In: Avian Immunology, Third Edition. Schat KA, Kaspers B (Eds.), Elsevier, Academic Press, San Diego, California, in press.

Hernandez-Patlan D, Solis-Cruz B, **Hargis B**, **Téllez G**. (2018) Applied Research of Chitosan to Control Food Borne Pathogens and Mycotoxins in Poultry. In: Chitin-Chitosan Myriad Functionalities Applications in Science and Technology. Dongre R (Ed.), Publisher: IntechOpen.

DeHart AN, Mack JM, Lewis PS, **Crary SE**, **Richter GT**. Vascular Anomalies. In: Multidisciplinary Management of Pediatric Voice and

Swallowing Disorders. McMurray JS (Ed.), Springer Nature Switzerland AG, in press.

Heyes CD. (2019) Quantum Dots in Single-Molecule Spectroscopy. In: Spectroscopy and Dynamics of Single Molecules, First Edition. Johnson C (Ed.), Elsevier, in press.

FitzGerald TJ, Bishop-Jodoin M, Laurie F, Iandoli M, Karolczuk K, Kessel S, **Prior F**, Saltz J, Sharma A, Knopp M, Rosen M, Xiao Y, Followill D, Michalski J, Cicchetti G, Moni J. (2019) Imaging and Neuro-Oncology Clinical Trials of the National Clinical Trials Network (NCTN). In: Neuroimaging. Zhou Y, (Ed.), IntechOpen Limited, London, in press.

Johnson TL, Chin E, Hoon A. (2019). Cerebral Palsy. In: Children with Disabilities, 8th edition. Batshaw M, Roizen N, Pellegrino L (Eds.), Brookes Publishing, Baltimore.

Kuenzel WJ, **Kang SW**, Jurkevich A. (2019) The Vasotocin System and Its Role in the Regulation of Stress in Birds. In: Vasopressin (Volume 111 of Vitamins and Hormones). Litwack G (Ed.), Academic Press/ Elsevier, Oxford, UK, in press.

Nakanishi N, Jacobs DK. (2019) The Early Evolution of Cellular Reprogramming in Animals. In: Deferring Development: Setting Aside Cells for Future Use in Development and Evolution. Hall BK, Bishop C (Eds.), CRC Press, in press.

Rose S, Bennuri SC. (2019) The Effect of N-Acetyl Cysteine on Mitochondrial Metabolism. In: The Therapeutic Use of N-Acetyl Cysteine in Medicine. **Frye RE**, Berk M (Eds.), Adis Books, Springer Healthcare, Auckland, New Zealand.

Strub GM, Sidbury R, Bauman NM. (2018) Vascular Tumors: Infantile Hemangioma. In: Evidence-Based Management of Head and Neck Vascular Anomalies. Perkins JA, Balakrishnan K (Eds.), Springer.

Strub GM, Parikh SR. (2018) Choanal Atresia-Lymphedema. In: Evidence-Based Management of Head and Neck Vascular Anomalies. Perkins JA, Balakrishnan K (Eds.), Springer.

Taylor EM, Koss B, Davis LE, **Tackett AJ**. (2019) Histone Modifications as Biomarkers for Immunotherapy. In: Biomarkers for Immunotherapy of Cancer: Methods and Protocols, Methods in Molecular Biology. Thurin M. et al (Eds.), Springer Science + Business Media.

Wassenaar TM, Wanchai V, Alkam D, Nookaew I, **Ussery DW**. (2018) Conservation of Two-Component Signal Transduction Systems in E. coli, Salmonella, and Across 100,000 Bacteria of Various Bacterial Phyla. In: Molecular Mechanisms of Microbial Evolution. Rampelotto PH (Ed.), Springer International Publishing AG.

Zaman M, Ghabchi R, **Hossain, Z**. (2019) Enhancing Sustainability of Transportation Infrastructure Using Increased Recycled Materials. In: Prospects for the 21st Century. Khan A (Ed.), Texas Tech University.

Clinical Research Trials

Addicott M. The Effects of Sedatives on Tobacco Use Disorder, 2019 – 2020.

Baum J. Breakfast and Muscle Health in Children; NCT03602144. 2018-2019

Borsheim E. Mitochondrial Function in Circulating Cells and Muscle Tissue. 2016-2020.

Borsheim E. Total Energy

Expenditure and Fat Oxidation in 2 Year Old Children. 2015-2020.

Borsheim E. Pilot Study for Determination of Total Energy Expenditure and Fat Oxidation in Children. 2015-2019.

Borsheim E, **Weber J**. Arkansas Active Kids – Objective 3. 2017-2020.

Borsheim E. Effects of Amino Acids on Regional Lipid Metabolism. 2013-2020.

Carvalho E, **Rose S**. Bioenergetics and Metabolism in Pediatric Populations. NCT03323294. 2017-2019.

Crary S, Mack J, **Richter G**, Pezeshkmehr A. Analyzing Coagulation Dynamics in Vascular Malformations with Thromboelastography. Ongoing.

Diaz E. Prenatal Probiotic Intervention. NCT03240419. 2017-2019.

Johann D. Scientific and methodological advancements in liquid biopsies to further the development of lung cancer-based precision medicine. 2015-2020.

Jones SM. Desensitization in Children and Adults (PALISADE) Follow On Study (ARC004), Phase 3. 2017-2020.

Jones SM. Long-term Assessment of Safety and Therapeutic Benefit of Viaskin Peanut Epicutaneous Treatment in Peanut-Allergic Children: A 6 month Randomized, Double-blind, Placebo-Controlled Phase III Study Followed by An Open Label Active Treatment (REALISE Study). Phase 3, DBV Technologies, Inc. 2017-2019.

Jones SM. A Double-blind, Placebo-controlled, Randomized Phase 3 Trial to Assess the Safety and Efficacy of Viaskin® Peanut in Peanut-

Allergic Young Children 1-3 Years of Age (EPITOPE). Phase 3, DBV Technologies. 2017-2020.

Jones SM. EPITOPE Open-label Extension Study to Evaluate the Long-term Clinical Benefit and Safety of DBV712 in Peanut-Allergic Children (EPOPEX). Phase 3, DBV Technologies. 2018-2021.

Jones SM. A Phase 2, Multicenter, Randomized, Double-Blind, Placebo-Controlled, Study in Pediatric Subjects with Peanut Allergy to Evaluate the Efficacy and Safety of Dupilumab as Adjunct to AR101-CODIT (Peanut Oral Immunotherapy) (OIT). Phase 2, Regeneron Pharmaceuticals, Inc. 2018-2020.

Jones SM. A Phase 1, Randomized, Placebo Controlled Study to Evaluate Safety, Tolerability and Immune Response in Adults Allergic to Peanut after Receiving Intradermal or Intramuscular Administration of ASP0892 (ARA LAMP vax), a Single Multivalent Peanut (Ara h1, h2, h3) Lysosomal Associated Membrane Protein DNA Plasmin Vaccine MATRIX 1001. Phase 1, Astellas, Inc. 2017-2019.

Jones SM. A Phase 1, Randomized, Placebo Controlled Study to Evaluate Safety, Tolerability and Immune Response in Adolescents Allergic to Peanut after Receiving Intradermal or Intramuscular Administration of ASP0892 (ARA LAMP vax), a Single Multivalent Peanut (Ara h1, h2, h3) Lysosomal Associated Membrane Protein DNA Plasmin Vaccine MATRIX 1002. Phase 1, Astellas, Inc. 2018-2020.

Jones SM. A Phase 1, Randomized, Placebo Controlled Study to Evaluate Safety, Tolerability and Immune Response in Adults Allergic to

APPENDIX 3 ABI-SUPPORTED PUBLICATIONS, CLINICAL TRIALS, AND GRANTS FOR 2019

Peanut after Receiving Intradermal or Intramuscular Administration of ASP0892 (ARA LAMP vax), a Single Multivalent Peanut (Ara h1, h2, h3) Lysosomal Associated Membrane Protein DNA Plasmin Vaccine MATRIX 1001. Phase 1, Astellas, Inc. 2017-2019.

Jones SM. A Phase 1, Randomized, Placebo Controlled Study to Evaluate Safety, Tolerability and Immune Response in Adolescents Allergic to Peanut after Receiving Intradermal or Intramuscular Administration of ASP0892 (ARA LAMP vax), a Single Multivalent Peanut (Ara h1, h2, h3) Lysosomal Associated Membrane Protein DNA Plasmin Vaccine MATRIX 1002. Phase 1, Astellas, Inc. 2018-2020.

Kilts C. A phase II randomized, double-blind, placebo-controlled study to evaluate the efficacy, safety and tolerability of orally administered BI 409306 during a 52-week treatment period as an early intervention in patients with attenuated psychosis syndrome. Boehringer Ingelheim. Ongoing.

Lynch AL. Prospective Crossover Comparison of Tidal Volume Delivery during Nasal Intermittent Positive Pressure Ventilation in Preterm Infants: Infant Cannula vs. Nasal Continuous Positive Airway Pressure Prongs. Ongoing.

McGill M. Acetaminophen Safety in Cirrhosis (ASIC study). 2019.

Nakagawa M. A Phase II Clinical Trial of PepCan Randomized and Double-Blinded to Two Therapy Arms for Treating Cervical High-Grade Squamous Intraepithelial Lesions. Ongoing.

Neville K, Crary S, Richter G, Pezeshkmehr A, Mack J. Pharmacokinetics of Intralesional

Bleomycin Injections for Vascular Malformations. Ongoing.

Oliphant S. Impact of Lactation on Vaginal Hormonal Status and Associations with Postpartum Sexual Function. Ongoing.

Oliphant S. Health Literacy in Urogynecological Patients. Ongoing.

Pesek RD, Jones SM. A Phase 3, Randomized, 3-Part Study To Investigate The Efficacy and Safety Of Dupilumab In Adult And Adolescent Patients With Eosinophilic Esophagitis (EOE). Phase 3, Regeneron Pharmaceuticals, Inc. 2018-2023.

Scurlock AM, Jones SM. Peanut Oral Immunotherapy Study of Early Intervention for Desensitization (POSEIDON) (ARC005). Phase 2, Aimmune Therapeutics, Inc. 2018-2019.

Sims C. A Dietary Intervention to Modify Breast Milk Content in Obese Lactating Women AKA: The Nourish Study. 2019-2020.

Stine K. A Phase 1/2, Open-label, Adaptive, Dose-Ranging Study to Assess the Safety and Tolerability of SB-525 in Adult Subjects with Severe Hemophilia A. Sangamo Therapeutics, Inc. 2017-2020.

Stine K. Study of Adeno-Associated Virus rh10-Mediated Gene Transfer of Human Factor IX in Adults with Moderate/Severe to Severe Hemophilia B. Dimension/PPD. 2015-2019.

Stine K. My Life, Our Future: A Hemophilia Genotyping Initiative Data and Sample Research Repository. Biogen. 2015-2018.

Stine K. Recombinant Coagulation Factor VIII Fc Fusion Protein. Bioverativ. 2015-2019.

Stine K. A Phase 1/2 Open-label Safety and Dose-finding Study of BAY 2599023 (DTX201), an Adeno-associated Virus (AAV) hu37-mediated Gene Transfer of B-domain Deleted Human Factor VIII, in Adults with Severe Hemophilia A. Bayer. 2018-2019.

Stine K. An Open-Label Study in Adolescent and Adult Severe (Coagulation Factor Activity <1%) Hemophilia A or B Patients With or Without Inhibitors Comparing Standard Treatment to PF-06741086 Prophylaxis. Short Title: Prophylaxis Study of PF-06741086 in Adolescent. Pfizer. 2019-2020.

Swindle T. Developing and Testing Implementation Strategies for Evidence-Based Obesity Prevention in Childcare. NIH; 2016-2021.

New Research Awards, July 1, 2018, to June 30, 2019

Addicott M. Neural Correlates of Distress Tolerance in Tobacco Addiction. NIH/NIDA.

Ambrogini E. Role of natural antibodies against oxidation specific epitopes in bone homeostasis. VA Merit Award; \$626,172.

Anthony N. Poultry genetics research. Industry; \$113,000.

Anthony N, Orłowski S. Intestinal barrier health studies in heat stressed broilers. USDA-NIFA/Animal Health; \$15,000.

Atungulu G. Development of drying and decontamination strategies to prevent mycotoxins in corn. AR Corn and Grain Sorghum Board; \$52,000.

Baum J. The impact of potato consumption on body composition and cardio-metabolic health in subjects with Metabolic Syndrome.

Alliance for Potato Research & Education; \$170,000.

Baum J. Systematic review on the impact of beef's nutrients on optimal health, wellbeing, and quality of life in aging adults. National Cattlemen's Beef Assoc.; \$12,000.

Beyzavi H. Late-stage [¹⁸F] Fluorination: A Tandem Approach for the Synthesis of Positron Emission Tomography (PET) Radiotracers using Metal-Organic Frameworks (MOFs). NIH; \$428,000.

Bottje W. Assessing efficacy of dietary PQQ to reduce incidence of muscle myopathy. Industry; \$26,281.

Bottje W, Rhoads D, et al. Empowering US Broiler Production for Transformation and Sustainability. USDA-NIFA Sustainable Agriculture Systems; \$1,830,000.

Dowling AP. Tick-borne Disease Project. ADH; \$30,065.

Dridi S. (PI). Efficacy of supplements on growth performance and health factors; Molecular Poultry Science research support. Various industry; \$75,355.

Dridi S, Anthony N, Greene E, Orłowski S, Bottje W, Owens C. Mechanistic understanding of muscle myopathy in broiler chickens. USDA; \$15,000.

Egan M, Wang Y. Understanding the mechanisms of spatial protein quality control in a model filamentous fungus. NIH; \$426,985.

Erf GF, Rochell S. Effects of Dietary Copper, Zinc, and Manganese Source and Level on the Acute Inflammatory Response of Broilers. Micronutrients USA; \$15,000.

Erf GF. Effect of USV-India Peptide (USV-P) on Repigmentation in Smyth Chickens with Spontaneously

Developing Autoimmune Vitiligo. USV-Private LTD; \$37,646.

Fagan P. A Tobacco Regulatory Agenda for Vulnerable and Disparate Groups: Developing a Blueprint for Research, Policy, and Regulatory Standards. NIH; \$49,948.

Farrar JE. Targeting Epigenomic Abnormalities in Pediatric Acute Myeloid Leukemia. Rally Foundation for Childhood Cancer \$50,000.

Farrar JE. Epigenomic Characterization of Pediatric AML. Children's Oncology Group Foundation; \$268,331.

Hargis BM. Evaluation of probiotics and other approaches to mitigating pathogens using avian models. Industry; \$107,900.

Harris K, Marsico T. Expanding the Network of Natural History Collections Clubs through Workshops to Broaden Participation of Students in Biodiversity Collections. NSF; \$49,969.

Hashem A. Timing cover crop termination to optimize corn yields and water-use efficiency. AR Corn and Grain Sorghum Board; \$41,000.

Hashem A. Preserving groundwater for agriculture in the lower Mississippi basin. USDA; \$30,200.

Hauer-Jensen M. Evaluation of IPW-5371, a TGFbRI kinase inhibitor, dosed as a single agent or in combination with G-CSF, as a medical countermeasure against the delayed effects of total body irradiation in mice. NIH/NIAID; \$299,994.

Howard LR, Seo HS. Effects of Diet and Physical Activity on Maternal Child/Adolescent Health and Development. USDA-ACRI Subcontract; \$135,000.

Howie EK. NIH NIGMS COBRE. Activity phenotypes in pregnancy, post-partum and associations with child obesity. \$58,959. Dec 2018-Dec 2019.

Hsu P.-C. Understanding the factors influencing exposures from tobacco usage among young adults in the minority communities. AR Center for Health Disparities; 2018-2019.

Huang E, Smeltzer M. Novel Linear Lipopeptide Paenipeptins Sensitize Multidrug-resistant Gram-negative Pathogens to Antibiotics. NIH/NIAID; \$416,500.

Huang X. Management of Regulated Deficit Irrigation in Rice Production by Artificial Intelligence. University of Arkansas Division of Agriculture; 2019-2021.

Iyer S, Quinn K. Development of quantitative biomarkers for mitochondrial disorders. NIH/NICHD; \$393,064.

James L, Kilts C. Modeling sex-differences in trauma-related neural organization conferring resilience against addiction. NIH/NIDA; 2017-2019.

Johann D. Scientific and methodological advancements in liquid biopsies to further the development of lung cancer-based precision medicine. FDA; \$1,400,000.

Kilts C. The Sex-specific Roles and Neural Processing Correlates of Future Outcome Estimation in the Drug Addiction Process. NIDA; 2018-2023.

Kim J K, Kong B. Effects of chondroitin sulfate on immune functions in lipopolysaccharide-treated mice. Korea University; \$31,000.

Koturbash I. Novel molecular biomarkers of previous radiation exposure and radiation-induced health effects in Northwest Arkansas

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Marshall. ARCHD/NIMHD; \$74,500.

Lessner D. Understanding nitrogenase maturation and activity in methanogens. DOE; \$397,733.

Lessner D. Deciphering the novel link between sulfur assimilation and nitrogen fixation in methanogenic archaea; NSF; \$686,309.

Lorence A, Hood E, Flint-Garcia S, Miller N. Linking Digital Readouts to Traits in Hybrids of the G2F Project and in Heirloom Corn. AR Research Alliance and UA System Division of Agriculture; \$75,000.

Marsico T. Vascular Plant Inventory of Big Lake and Wapanocca National Wildlife Refuges. US Fish and Wildlife Service; \$25,589.

Martin E, Wang Y. Mechanisms of spatial protein quality control in a model filamentous fungus. NIH; \$426,985.

McGill M. Phosphatidic acid in liver regeneration after acetaminophen hepatotoxicity. American Association for the Study of Liver Diseases Foundation; \$100,000.

Medina-Bolivar F. Dissecting the anti-inflammatory cell signaling mechanisms mediated by prenylated stilbenoids in THP-1 cells. IDeA Network of Biomedical Research Excellence; \$6,510.

Melnyk SB. Oxidative stress pathways and placental pathology in association with autism spectrum disorder and neurodevelopment. Drexel Univ Subaward; \$88,526.

Merten J, Hartig K. Elucidation of Matrix Effects in Laser Ablation Elemental Analysis through Absolute Quantification of Ablated Mass; NSF; \$239,000.

Nembhard W. Birth Defects Study to Evaluate Pregnancy Exposures (BD-

STEPS) II – Stillbirth Study. CDC; \$1,241,074.

Nembhard W. Birth Defects Study to Evaluate Pregnancy Exposures (BD-STEPS) II. CDC; \$4,575,282.

Pereira A, **Srivastava V.** Systems genetics studies on rice genomes for analysis of grain yield and quality under heat stress. NSF; \$275,812.

Perry T. Implementing a Guidelines-Based M-Health Intervention for High Risk Asthma Patients. NIH; \$357,978.

Phillips GC. Capacity Building; Isolated Microspore Culture of Soybean: A Pathway to Doubled Haploids. USDA-NIFA NLGCA; \$148,958.

Phillips GC. Soybean Androgenesis by Isolated Microspore Culture. AR Soybean Promotion Board; \$22,132.

Prior, Fred. Informatics Platform for Cancer-Related Cognitive Impairment and Dementia Research. NCI; \$375,000.

Quinn K. CAREER: Integrating quantitative biomarkers of mitochondrial structure and function through endogenous cellular fluorescence. NSF; \$500,000.

Rajaram N. CAREER: A multimodal imaging platform to investigate spatiotemporal changes in tumor bioenergetics that drive treatment resistance. NSF; \$100,000.

Rajaram N, Griffin R. Determination of functional and molecular biomarkers of treatment resistance with multimodal optical spectroscopy. NIH/NCI; 2019-2024.

Rhoads D, Alrubaye A. Whole Genome Resequencing to Identify Genetic Determinants of Resistance to Bacterial Chondronecrosis with Osteomyelitis Leading to Lameness.

Cobb-Vantress, Inc; \$55,846.

Striegler S. Developing Catalytic Nanogels as General Purpose Glycosidases. NSF; \$485,000.

Swindle T. Deimplementation of Detrimental Feeding Practices in Childcare. NIH/NIDDK; \$227,899.

Tackett AJ, Makhoul I, Shalin S, Byrum SD, Washam CL, Edmondson RE, Cannon M, Barreto Andrade JC, Siegel E. Identification of Druggable Targets to Complement Melanoma Immunotherapy. NIH; \$358,700.

Ussery D. Sleep Apnea Gut Microbiome. ARA Impact Grant; \$25,000.

Ussery D. Identification of Staphylococcus aureus Genes that Contribute to the Pathogenesis of Osteomyelitis. ARA Impact Grant; \$75,000.

Voth D. A Novel Human Lung Infection Platform to Define Staphylococcus aureus Virulence Determinants. NIH/NIAID; \$403,270.

Wang F. Equipment Supplement for Efficient and Accurate Force Fields for Computer-Aided Drug Design. NIH; \$131,974.

Wang Y, Chen J. Understanding the antimicrobial mechanism of metal nanoparticles using super resolution fluorescence microscopy”, \$498,983.00, National Science Foundation. 12/01/2018 – 11/30/2021.

Wang YJ, Siebenmorgen T. Applying a Material Science Approach to Optimize Rice Processing Performance. USDA/NIFA; \$256,195.

Weber J, Rose S. T cells in Childhood Obesity: Immunometabolic Phenotype and Effects of Metformin. NIH; \$175,000.

Wolchok J, Washington T, Durdik J. Testing of a matrix gel for the

treatment of fatty infiltration. NIH/NIAMS; \$422,993.

Yeruva L. Extracellular vesicles miRNA cargo induces inflammation during chlamydial infection. NIH; 2019-2021.

Patent Activity for FY2019

Patents filed or awarded July 1, 2018, to June 30, 2019

A. Patent applications and provisional patents:

Ainechi A, Allen R, Faqih N, **Johnson T, Leon N, Nair P, Ruiz M, Seabrooke A, Schick J, Wang K, Xin K.** Orthosis to Mitigate Scissoring Gait in Cerebral Palsy Patients. PCTUS 2018/0140453 A1.

Al-Ogali AS, Jiang T, Vuong CN, **Liyanage R, Lay JO, Kumar TKS, Kwon YM, Hargis BM.** CD40 Specific DNA Aptamers as Vaccine Adjuvants. (2019) US provisional patent 62/832,725.

Byrum S, Mahmoud F, Shalin S, Shields B, Tackett A. Methods for Predicting Responsiveness of a Cancer to an Immunotherapeutic Agent and Methods of Treating Cancer. Provisional patent submitted.

De la Vega A, **Johnson T, Leon N, Xu Y.** Spill-Proof Cup. PCTUS 2018/0160829 A1.

Eoff RL, Crooks PA, Penthalala NR. Naphthoyl, Naphthalenylmethyl, and Naphthalenylsulfonamide Indole Aminoguanidine Analogs as DNA Polymerase Kappa Inhibitors Targeting Glioblastoma. US provisional patent 67/792,226.

Griffin R. Nanogriddle Approach for Characterizing Biomedical Applications of Nanoparticles. Provisional patent submitted.

Griffin R. Psoralen Based Upconverting Nanoparticle Therapy for Tumor Selective Drug Delivery and Improved Outcomes. Provisional patent submitted.

Jobin C, **Sun, X.** Materials and Methods for the Treatment of Enteric Bacterial Infections and Associated Pathologies including Colorectal Cancer. PCTUS 2018/195180.

Rojas CM, Morawicki RO, Pinto I. Burkholderia Cenocepacia and Pseudomonas Fluorescens Compositions and Methods of Using the Same. US provisional patent 62/727,095.

Striegler S, Sharma B, Pickens JB. Templated Antimicrobial Microgels and Methods of Making and Using the Same. US provisional patent 62/801,358.

Wang Y. Mechanically-strained Oligonucleotide Constructs and Methods of Using the

Same. Provisional patent submitted.

B. Patents awarded:

Jeong K. Condensing Heat Exchanger System. US patent 10,010,810 B1.

Medina-Bolivar F, Yang T. Method to Increase the Yield of Products in Plant Material. US patent 10,144,913.

Sakon J, Matsushita O, Ponnappakkam T, Gensure RC. Fusion Proteins of Collagen-binding Domain and Parathyroid Hormone. European patent EP3091075 B1.

Sakon J, Philominathan STL, Katikaneni R, Matsushita O, Ponnappakkam T, Koide T, Gensure RC, Nishi N. Delivery of Therapeutic Agents by a Collagen Binding Protein. European patent EP2790717 B1; US patent 10,213,488.