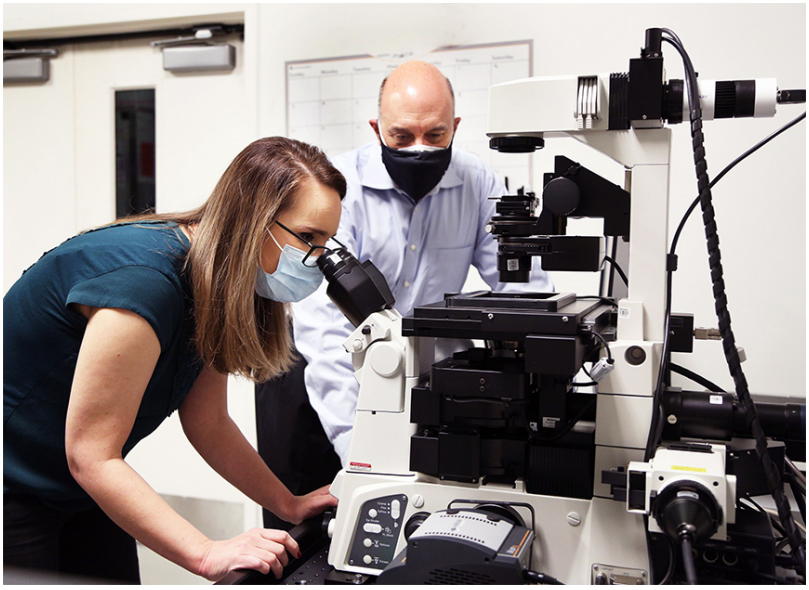
Med School Watercooler

NEWS FROM FREDERICK P. WHIDDON COLLEGE OF MEDICINE AT THE UNIVERSITY OF SOUTH ALABAMA

Friday, December 4, 2020

USA research on NAD+ featured in national journal's special issue



Kate Saville, a student in the Basic Medical Sciences Graduate Program, and Robert Sobol, Ph.D., professor of pharmacology, are studying the role NAD+ plays in cancer research.

Scientists at the USA College of Medicine and the Mitchell Cancer Institute have extensively researched nicotinamide adenine dinucleotide, or NAD+, and the role it plays in cancer research and treatment effectiveness for patients.

NAD+, also known as an energy molecule, is essential for the survival of every cell in the body. The article titled "NAD+ mediated regulation of mammalian base excision repair," describes several cell pathways that are influenced by NAD+ that can cause cells to become damaged or mutate. The work was highlighted in the October special issue of the scientific journal, DNA Repair.

The article also explores how NAD+ helps to maintain an intact genome in each cell in the body. Genomes, comprised of DNA, are a complete set of genetic instructions. Each genome contains all the information needed to build an organism and allow it to grow and develop.

"NAD+ is a vitamin B3-related molecule. It is critical for the role it plays in the body's metabolism and maintaining our genome, which is crucial for patients battling cancer," said Robert W. Sobol, Ph.D., professor of pharmacology at the USA College of Medicine and chief of the Molecular & Metabolic Oncology Program at the Mitchell Cancer Institute.

MCI researchers are using their findings to better understand why some cancer treatment responses may be affected differently depending on the patient's vitamin B3 dietary intake and how a cancerous tumor can grow and spread because of a patient's metabolism.

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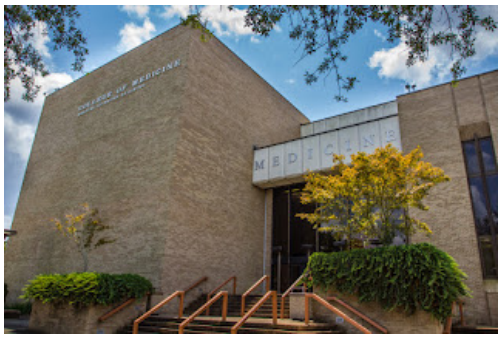
"We've been studying NAD+ for many years at the Mitchell Cancer Institute and we're working to find better solutions for patients with cancer and how we conduct our research," Sobol said. "It is exciting to be featured in a national journal that showcases our work."

The special issue was published to honor the editor-in-chief, Samuel H. Wilson, M.D., who has been involved in breakthrough scientific reports on DNA. The work conducted at the Mitchell Cancer Institute was chosen along with work from 23 research labs from around the world to contribute short review articles.

"It was a privilege to be represented in this special issue as we pay tribute to Dr. Wilson and his contributions to science," Sobol said. "The work conducted through the Molecular & Metabolic Oncology Program focuses on the cellular mechanisms of DNA repair and metabolism and how these processes impact cancer treatment. We are guided by Dr. Wilson's teachings and use his resources as a tool for our research."

The article was written by Sobol and Kate Saville, a USA College of Medicine graduate student. Co-authors from the USA College of Medicine and MCI include Jennifer Clark, Ph.D., instructor of pharmacology; Anna Wilk, Ph.D., instructor of pharmacology; Joel Andrews, Ph.D., manager of the MCI Cellular and Bimolecular Imaging Facility; Christopher Koczor, Ph.D., instructor of pharmacology; and Greyson Rogers, an undergraduate researcher.

Details set for 2020 College of Medicine Research Forum



The USA College of Medicine Research Forum will be held from 8:45 a.m. to 1 p.m. Friday, Dec. 11. This year's forum will be presented virtually via Zoom.

John Marymont, M.D., dean of the USA College of Medicine and vice president for medical affairs, and Sarah Sayner, Ph.D., associate professor of physiology and cell biology, will deliver opening remarks.

Fifty-three abstracts, distributed over nine Zoom sessions, will be presented during the forum.

Starting at noon, three faculty members will give presentations: Meghan Hermance, Ph.D., assistant professor of microbiology and immunology; Amy Nelson, assistant professor of physiology and cell biology; and Thuy Phung, M.D., Ph.D., associate professor of pathology.

Zoom links are provided on the Canvas portal. Beginning on Wednesday, Dec. 9, all registrants to the forum can access the COM Research Forum Canvas portal, where they can review the forum's program and all materials submitted by poster presenters (three-minute video/audio with an overview of their work, plus PDF poster file).

All basic medical sciences graduate students, postdoctoral fellows and faculty of the USA College of Medicine will be automatically registered to the Canvas portal COM Research Forum. Others interested in participating should contact Angie O'Neal at aoneal@southalabama.edu to access the Canvas portal for this virtual forum.

Thursday, December 3, 2020

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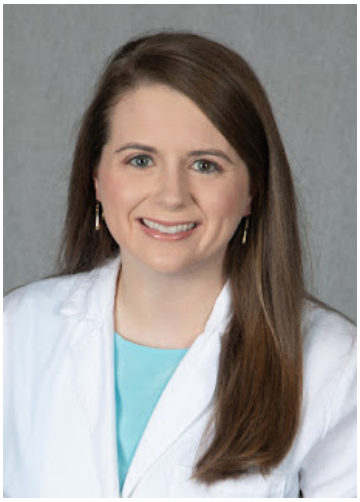
Medical student to present findings on diabetes, COVID outcomes at national symposium



Lexie Gibson, fourth-year medical student

In March, when the pandemic was beginning to spread, medical students at the USA College of Medicine were selected to help manage data from COVID-19 testing performed by USA Health.

Lexie Gibson, a fourth-year medical student from Eufaula, Ala., took the opportunity to delve into the data to study associated factors, long-term outcomes in the current population and to contribute to larger, national data sets for more comprehensive study. "One of the things I was interested in was pre-existing diabetes and how it affects outcomes," Gibson said.

Recognizing that diabetes is associated with decreased immunity, Gibson mined the data to see how many of the 600 people tested from March through June had a previous diabetes diagnosis. She found that the percentage of diabetes was 15.2 percent – a bit higher than the state average of 14.5 percent.

Gibson also discovered that among patients who tested positive for COVID-19, those with diabetes mellitus – a metabolic disease that causes high blood sugar – had significantly higher rates of hospitalization, worse outcomes and higher rates of death secondary to COVID-19. Findings such as these are critical for patient care because so much is still unknown about COVID-19. She will present these findings in a poster presentation at the American Medical Association Research Symposium, which is being held virtually Dec. 3-6.

"It was interesting to see how the prevalence rate of diabetes in our COVID-positive patient population compared with both state and national prevalence rates because it may reflect the increased inherent risk of our patient population as well as illustrate underlying health disparities specific to our population," she said.

Gibson was among the first medical students selected for this COVID-19 data project, said Casey L. Daniel, Ph.D., M.P.H, director of epidemiology and public health at USA and assistant professor of family medicine at the USA College of Medicine.

The goals of the project were to inform health system coordination and policies in real time to ensure maximization of limited resources and provide critical information for epidemiologic study of COVID 19. Gibson's project was part of the latter work.

"The project is so important because it provides vital information for epidemiologic study of COVID-19 as well as potentially associated factors among patients," Daniel said "We know there are disparities among COVID patients, and we are in a position to provide more data about that to the larger body of literature because of the diversity in our population. We have the potential to provide insights that other, less diverse regions are not."

In partnership with the City of Mobile, USA Health has operated a drive-through public testing site since March 2020.

Wednesday, December 2, 2020

Mark your calendar: Upcoming grand rounds

Surgery Grand Rounds
"Types of Anesthesia and Complications"
Kai Rodning, M.D., anesthesia specialist, University Hospital
7 to 8 a.m. Friday, Dec. 4
Zoom: https://usahealthsystem.zoom.us//j/95461821786
Contact: Tyronda Rogers at 251-445-8230 or tmrogers@health.southalabama.edu

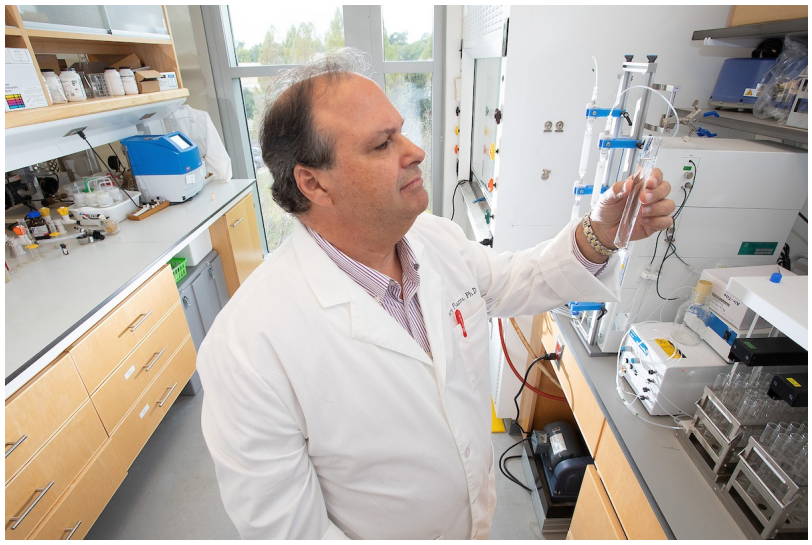
OB-GYN Grand Rounds
"Update in Type 2 Diabetes"
Wilburn Bolton, M.D., assistant professor of internal medicine, USA College of Medicine
7:30 to 8:30 a.m. Friday, Dec. 4
Zoom registration: https://southalabama.zoom.us/meeting/register/tJUuf-Gsrz0oH9PNDOgKTE4Fh6h_j4keBDL
Contact: Heather Glass at 251-415-1492 or nholliday@health.southalaba.edu

Cardiology Grand Rounds
"Rivaroxaban for Valvular Heart Disease and Atrial Fibrillation - RIVER Trial"
Muhammad Rafique, M.D., cardiology fellow, University Hospital
11:30 a.m. to 12:30 p.m. Friday, Dec. 4
Heart Center Conference Room, University Hospital
Contact: Donna Gregory at 251-471-7919 or dgregory@health.southalabama.edu

Surgery Grand Rounds
"Trauma"
Jon Simmons, M.D., FACS, professor of surgery, USA College of Medicine
7 to 8 a.m. Friday, Dec. 11
Zoom: https://usahealthsystem.zoom.us/j/96103821143
Contact: Tyronda Rogers at 251-445-8230 or tmrogers@health.southalabama.edu

Tuesday, December 1, 2020

Piazza receives grant to further study potential treatment for aggressive cancers



Gary Piazza, Ph.D., professor of pharmacology, is studying how RAS inhibitors may help treat aggressive cancers.

Developing new treatments for aggressive cancers is the goal of a collaboration between a researcher at the USA College of Medicine and colleagues throughout the state.

Gary Piazza, Ph.D., professor of pharmacology at the USA College of Medicine, leader of the Drug Discovery Research Center at the Mitchell Cancer Institute,

and co-lead investigator of the project, discovered and developed a novel RAS inhibitor class. RAS inhibitors may help treat aggressive cancers that are RAS-driven such as pancreatic, colon and lung cancers.

RAS is a protein sending signals to a chain of proteins that converge on the nucleus to alter gene transcription. Mutations of RAS oncogenes signal cancer cells to grow and spread throughout the body. Oncogenes, or cancer-causing genes such as RAS, can transform a cell into a tumor cell, in certain circumstances.

RAS inhibitors have not yet been approved by the U.S. Food and Drug Administration but represent a potential new treatment for aggressive cancers, Piazza said. RAS inhibitors are in clinical trials, but would be limited to patients diagnosed with a specific type of RAS mutation.

Piazza hopes his discovery of a novel class of a RAS inhibitor could prove to be effective for a broader group of patients diagnosed with any type of RAS mutation.

"To receive this grant is an important step forward to accelerate our research so that we can develop more effective and safer therapeutics for patients with aggressive cancers," Piazza said.

Pancreatic ductal adenocarcinoma (PDA), or pancreatic cancer, is among the deadliest cancers with a 10 percent, five-year survival rate and is often diagnosed in advanced stages. Mutated forms of RAS genes occur in more than 90 percent of patients with PDA.

Piazza spearheads the project with a University of Alabama at Birmingham researcher, Donald Buchsbaum, Ph.D. They plan to continue their research by preparing cancer cells, derived from patients with pancreatic cancer, to evaluate the anticancer activity of their novel RAS inhibitor class.

The grant is part of the Richard A. Elkus, M.D. Eminent Scholars Fund in Gastrointestinal Oncology at UAB. It promotes innovative research and scientific understanding of gastrointestinal cancers, especially pancreatic cancer. The ultimate goal of the fund is to create new therapeutics for thousands of Americans suffering with gastrointestinal cancers.