

## NEW GRANTS SPOTLIGHT PIONEERING HUMAN HEALTH RESEARCH



The National Heart, Lung, and Blood Institute has awarded grants to two faculty members – Brent Myers and Dan Regan – working to improve human health through translational science.

### Matters of the heart

We're used to being told to exercise, eat right, and maintain healthy blood pressure and cholesterol levels to protect our hearts, yet this advice all too often leaves stress, anxiety, and depression out of the equation.

"We know that cardiovascular disease is the leading cause of death worldwide, but one of the strongest risk factors for developing it is actually chronic psychosocial stress and mood disorders," says Myers, assistant professor in the Department of Biomedical Sciences. "The only thing worse for your heart health is smoking."

Myers' lab is working to better understand the biological and neurological basis of how we evaluate and respond to stress and how it affects our cardiovascular system. Myers found that changing the activity in a small part of the brain's prefrontal cortex can affect how the heart responds to stress and that stimulating specific cells in

this area can reduce the stress response as well as its wear and tear on the heart. With this grant, he's working to understand how these cells do that in hopes of eventually identifying better targets for drug therapies.

"For example, current drugs used to treat hypertension don't improve mood," Myers says. "There's some other link there that's unknown and is something I'm really interested in finding, because these chronic disorders, whether they're cardiometabolic or mood and anxiety related, affect the quality of life of billions of people."

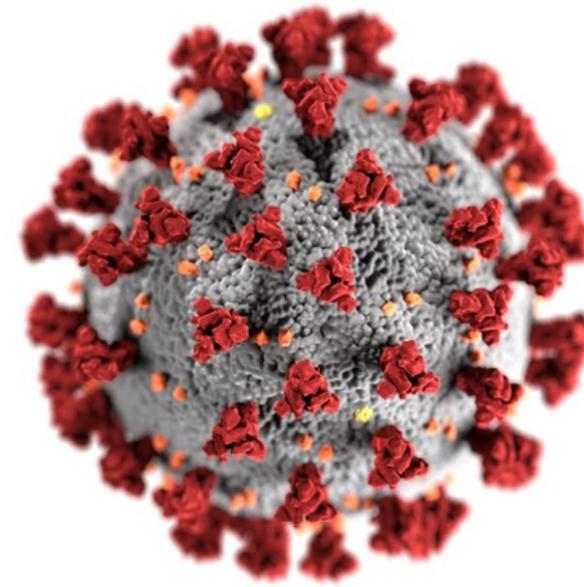
### A bone to pick

When osteosarcoma, the most common type of bone cancer in kids and dogs, spreads to the lungs, chances of recovery and long-term survival are drastically reduced. In children with the disease, it's a mystery why the cancer spreads rapidly to the lungs in some patients and not in others. Current imaging technology, such as CT scans, detect tumors, but it can be too late. Another technique using fluid washed into the lungs to collect immune cells may provide a path to earlier detection.

"Think of the lung as soil and the cancer cells as seeds. The immune cells we're looking at here might be able to detect potential changes in the soil before the seeds are sown," says Regan, assistant professor in the Department of Microbiology, Immunology, and Pathology. Regan's lab is investigating if these immune cells can provide early clues that foreshadow tumors spreading.

"If we can better understand how these cells are responding, then maybe we could intervene and slow down the process," Regan says. He hopes this project helps lead to earlier diagnostic tools and better treatments. "The first part of the puzzle is to see if we can get to these kids earlier. It's a big goal, but hopefully we can bite off a little piece of it." ■

– RHEA MAZE



## CORONAVIRUS RESEARCH AND VACCINE DEVELOPMENT

In February, as COVID-19 began to spread beyond China, research teams at Colorado State University's Infectious Disease Research Center received live samples of the novel coronavirus and began working on a vaccine. The CSU center is one of the nation's secure Biosafety Level 3 facilities, where experts can conduct research with microbes that cause contagious diseases such as yellow fever, plague, SARS, and MERS. The IDRC was instrumental in the response to two other global outbreaks caused by coronaviruses (SARS in 2003 and MERS in 2012). In addition, CSU's unique capability to create and mass-produce vaccines through BioMARC, part of the IDRC, is another reason the University will help lead in the fight against diseases such as COVID-19. BioMARC is a nonprofit biopharmaceutical manufacturing operation with the ability to rapidly translate basic research findings into vaccine development and testing.

– MIKE HOOKER

## LIVESTOCK SYSTEMS COLLABORATIVE ADDRESSES GLOBAL DEMAND FOR SAFE, SUSTAINABLE FOOD

To address the dramatic global demand for safe, high-quality, protein-based food sources, Colorado State University will create a first-of-its-kind collaborative to support profitable, sustainable, and healthy solutions for feeding the world.

The Sustainable Livestock Systems Collaborative is designed for CSU livestock and animal-health experts to work alongside industry, government, and other stakeholders in addressing 21st-century challenges as well as training current and future livestock industry professionals.

Spearheaded by the College of Veterinary Medicine and Biomedical Sciences and the College of Agricultural Sciences, the collaborative will enhance sustainable and healthy livestock systems through the examination of new technologies and disease treatments as well as soil, plant, animal, and atmospheric microbiomes.

A dozen faculty members in epidemiology, meat science, infectious disease, diagnostics, nutrition, and livestock production will be hired by 2024. The new director, who will oversee the collaborative, is expected to be on board this summer. ■

– JOE GIORDANO

