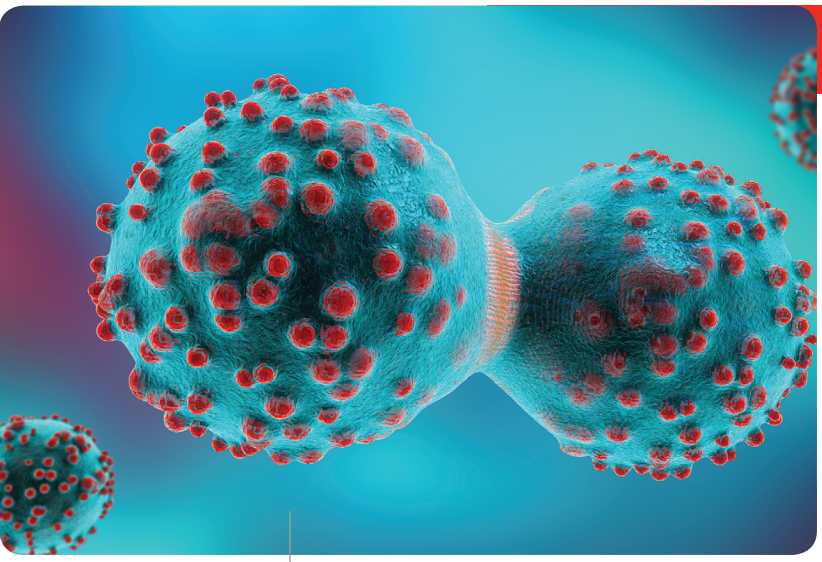
RESEARCH TARGETS MEDICATIONS FOR DEPRESSION

The World Health Organization estimates 350 million people suffer from depression. While there are a number of prescription medications on the market to treat the condition, many cause multiple side effects.

The work of researchers in the Department of Cell Physiology and Molecular Biophysics has identified that FDA-approved bupropion (Wellbutrin® and Zyban®) blocks the function of the serotonin type 3A receptors. The receptors are responsible for and contribute to psychiatric disorders such as anxiety and depression as well as schizophrenia, irritable bowel syndrome, addiction and substance abuse, and cognitive dysfunction.

Their work, supported in part by a seed grant from the South Plains Foundation and extramural funding from the National Institutes of Health National Institute of Neurological Disorders and Stroke, provides a foundation for developing improved pharmacological interventions for both addiction and depression. Additionally, the research findings will now be part of medical and pharmacy textbooks.

Akash Pandhare, MD, PhD, senior research associate in the School of Medicine Department of Cell Physiology and Molecular Biophysics, is the first author of the study. He works in the lab of Michaela Jansen, PharmD, PhD, associate professor. Other members of the research team were Aneesh Satya Pappu; Henrik Wilms, MD, PhD, associate professor, Department of Neurology; and Michael Blanton, PhD, professor and vice-chair, Pharmacology.



PROTEIN DISCOVERY COULD PROVIDE NEW IMMUNOTHERAPIES FOR CANCER

Researchers in the School of Pharmacy have discovered that the ribosomal protein s19 (RPS19), a naturally occurring protein in the body, can shield cancerous cells from the body's immune system in cancer patients.

This discovery is one of the beauty's of research, said Maciej Markiewski, MD, PhD, who with his wife and research partner, Magdalena Karbowniczek, MD, PhD, were part of a team that identified this new function of the protein which occurs when it is released from dying cancer cells and interacts with cells of the immune system.

The researchers were not specifically looking for this function of the protein, that's just where their inquiry took them. Their discovery, however, could pave the way for new immunotherapies to fight cancer.

The Journal of Immunology published their study in the February issue. Their work is sponsored in part by grants from the Cancer Prevention and Research Institute of Texas, Department of Defense Tuberous Sclerosis Research Program Grant and the National Institutes of Health Grant.

Their recent work provides evidence that blocking RPS19 impairs growth and delays development of tumors in a breast cancer model.

Maciej Markiewski, MD, PhD, and Magdalena Karbowniczek, MD, PhD, are associate professors in the School of Pharmacy. Additional authors of the study were from the University of Queensland in Brisbane and the University of Pennsylvania.

Markiewski

Karbowniczek

$1.1 MILLION GRANT FUNDS STUDY ON HOW EARLY PREGNANCY PREVENTS BREAST CANCER

Rajkumar Lakshmanaswamy, PhD, has received a $1.1 million research grant from the U.S. Department of Defense to study how early pregnancy reduces a woman's lifetime risk of breast cancer.

"We've known for centuries that women who don't have children run a high risk of breast cancer," said Lakshmanaswamy. "So what is it about pregnancy—particularly early pregnancy—that reduces a woman's lifetime risk of breast cancer?"

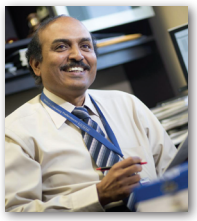
Studies have shown that if a woman gives birth to her first child before the age of 20, her risk of developing breast cancer is half that of a woman who never had full-term pregnancy or a woman who had her first child after the age of 35. The biological processes that cause this protective effect, however, are not well understood.

Lakshmanaswamy hopes to better understand the natural processes behind the phenomenon, which could lead to new prevention and treatment strategies for breast cancer.

His team will specifically study growth hormone and prolactin, two hormones known for stimulating breast cancer growth but that dramatically dip in women after pregnancy. Lakshmanaswamy believes this hormonal reduction in postpartum women affects tissue within the breast, causing it to alter and become resistant to mammary cancer permanently.

"If you think about it, by design, mammals are wired to make babies as soon as they achieve puberty—except humans, who choose to have babies at later ages," he explained. "So when a woman opts to hold off on children, she may be delaying an important natural process."

Lakshmanaswamy does not recommend that women get pregnant early to avoid breast cancer; he only hopes to gain more knowledge on the protective phenomenon so that it can be translated into a new therapy for breast cancer.



Rajkumar Lakshmanaswamy, PhD, is dean of the Graduate School of Biomedical Sciences at TTUHSC El Paso.

CARDIOLOGIST WARNS AGAINST DISSOLVABLE STENTS

TOMMIE MORELOS

Debabrata Mukherjee, MD, is the chief of cardiovascular medicine and chair of the Department of Internal Medicine at TTUHSC El Paso's Paul L. Foster School of Medicine.

In a recent New England Journal of Medicine article, Debabrata Mukherjee, MD, provides expert commentary on bioresorbable stents, an alternative to the traditional stents used in patients with cardiac conditions. Mukherjee encourages cardiologists to continue using conventional options instead of the newer bioresorbable stent.

Conventional stents have had their drawbacks for years. While they open up narrowed arteries and improve blood flow, blood clots and scar tissue are more likely to form where a stent has been placed. There's also a possibility that the stent will fail and the artery will become blocked again at the same location.

"That's why bioresorbable stents were invented," Mukherjee said. "The premise is that you want to put in a stent that will go away completely after a few years, fixing the problem of potential side effects."

Bioresorbable stents, approved for use in the U.S. in 2016, naturally dissolve in the body three years after implant.

In its most recent clinical trial, published in the journal's March issue, the stent was tied to an increased risk of device thrombosis—a dangerous side effect where a blood clot forms on the stent itself.

In his review of the study, Mukherjee writes, "Because the current generation of metallic drug-eluting stents is associated with excellent outcomes, there is little rationale to use bioresorbable vascular scaffolds at this time.

"Bioresorbable stents cost more than the typical metallic stent, and they take longer for cardiologists to insert," he further explains. "They are also no more effective and less safe. As a physician, why I am going to use something that costs me more if it can cause risk or harm to my patients?"

Mukherjee admits that bioresorbable stents are a good idea in theory and hopes that the next generation of the device will have improved results.