TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™

News Release

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CONTACT: Suzanna Cisneros, suzanna.cisneros@ttuhsc.edu
(806) 773-4242

TTUHSC's Jerry H. Hodge School of Pharmacy Establishes Brain Drug Discovery Center

After more than a decade of research growth and recruiting efforts to build strong, collaborative research programs, the Jerry H. Hodge School of Pharmacy in Amarillo has developed the Brain Drug Discovery Center, the newest Texas Tech University Health Sciences Center (TTUHSC) research center.

Created from two existing pharmacy school centers — the Center for Blood-Brain Barrier Research and the Cancer Biology Research Center — the Brain Drug Discovery Center will focus on discovering novel drug targets and treatments for a variety of neurodegenerative diseases. To do so, the center will combine the long-standing expertise and blood-brain barrier research from the previous centers with the new faculty researchers hired by the school in the area of brain drug discovery.

Thomas Abbruscato, Ph.D., the Brain Drug Discovery Center's inaugural director, said the pharmacy school is fortunate that many of its pharmaceutical sciences faculty have research expertise in areas such as brain stroke, neuropathic pain, addiction, cell-based therapies, brain cancer and blood-brain barrier science.

"Several collaborative projects have been supported by the National Institutes of Health, the Cancer Prevention and Research Institute of Texas and the Food and Drug Administration," Abbruscato said.

Abbruscato said the Brain Drug Discovery Center would not be possible without the support of TTUHSC's Office of Research and Innovation, the Jerry H. Hodge School of Pharmacy and the Department of Pharmaceutical Sciences faculty and graduate students.

"The Brain Drug Discovery Center will provide an opportunity to build on an already state-of-the-art drug discovery infrastructure and expertise in the School of Pharmacy and the Department of Pharmaceutical Sciences," Abbruscato said. "The institution has been extremely generous to support this mission."

One recent example of the School of Pharmacy's highly developed drug discovery infrastructure is its Nuclear Magnetic Resonance core, which can determine the structure of small molecules, an important step in drug discovery. The school's Avance Neo 400 MHz NMR Spectrometer Nano was updated in July to enhance the core capabilities in structural elucidation, offering researchers high-resolution data, advanced analysis and cutting-edge technological analytical tools.

The School of Pharmacy also houses a molecular modeling core and a synthetic chemistry core. Both are critical components of the drug discovery process and will play pivotal roles in the Brain Drug Discovery Center, which will unify these cores to engage drug discovery efforts throughout TTUHSC and beyond.

Abbruscato said the center aims to generate and coordinate multidisciplinary efforts in medical chemistry, pharmacology, drug delivery, formulation and drug repurposing in an effort to translate TTUHSC's basic science into therapeutic intervention for human and animal disease.

"The main emphasis will be on establishing a robust pipeline of collaborative projects with faculty from the TTUHSC School of Pharmacy and School of Medicine and the Texas Tech University School of Veterinary Medicine," Abbruscato said.

The ability to screen, generate and synthesize novel chemical entities is a complex undertaking that requires multiple researchers. Abbruscato said TTUHSC scientists have engaged in research to identify and validate novel disease targets, though the translation of these findings to interventional therapeutics proves much more challenging.

"The Brain Drug Discovery Center will facilitate the generation of biologically active small molecules to engage a variety of protein targets," Abbruscato said. "Because it will not be limited to a specified indication, the center will be able to provide expert support for faculty in a breadth of brain disease areas."

The inaugural Brain Drug Discovery Center members include Abbruscato, Abraham Al-Ahmad, Ph.D., Mahmoud Ahmed, Ph.D., Ulrich Bickel, M.D., Hiranmoy Das, Ph.D., Nadia German, Ph.D., Lance McMahon, Ph.D., Samuel Obeng, Ph.D., Quentin Smith, Ph.D., Heidi Villalba, Ph.D., Ming-Hai Wang, M.D., Ph.D., and Jenny Wilkerson, Ph.D.

"Currently, center members are primarily from the Department of Pharmaceutical Sciences, but we will work to expand membership across departments and schools to form collaborative drug discovery efforts," Abbruscato said. "We plan to engage multiple stakeholders, including the community, the pharmaceutical industry and the TTUHSC Office of Research and Innovation, to create new partnerships that accelerate the pipeline of medication and diagnostic innovation."

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