

Vanderbilt Partners with Michael J. Fox Foundation to Help Parkinson's Patients

Researchers at Vanderbilt University Medical Center have achieved a milestone in the development of a potential new treatment for Parkinson's disease that may improve on some of the limitations of current therapy.

Dopamine replacement therapy, today's gold standard treatment, relieves some motor symptoms of Parkinson's disease, but over time it causes debilitating side effects such as involuntary, uncontrollable movements (dyskinesia). Current Parkinson's treatments also provide fewer benefits to patients as the disease worsens over the long term.

The new compounds, developed by the Vanderbilt Center for Neuroscience Drug Discovery (VCNDD) with support from The Michael J. Fox Foundation for Parkinson's Research (MJFF), bypass the dopamine system altogether and instead modulate the activity of a specific glutamate receptor called mGlu4.

The Vanderbilt-Fox Foundation partnership is an example of how academic medical centers are helping to fill the "drug pipeline" with new agents that have potential to dramatically improve the health of millions of patients worldwide.

CTTC helped design, negotiate, and manage the partnership between VCNDD and MJFF to ensure the goals of both groups would be met as a result of the investment made by MJFF. The milestone that VCNDD has reached under this agreement is a significant accomplishment. CTTC is actively seeking an industry partner for this technology and has begun initial negotiations with several potential companies.

VANDERBILT CENTER FOR NEUROSCIENCE DRUG DISCOVERY

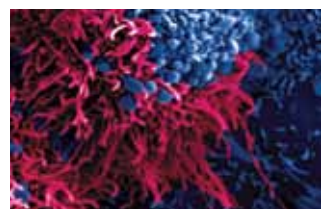
New Program to Advance Infectious Disease Research

A new Program in Microbial Pathogenesis at Vanderbilt University aims to strengthen interactions between investigators who study the biology of infectious diseases.

The program, part of the Division of Host-Pathogen Interactions within the Department of Pathology, Microbiology and Immunology, will enhance fundamental discovery research and also address the growing need for new therapeutics to treat infectious diseases.

"It's not an exaggeration to say that we're approaching a post-antibiotic era, where many antibiotics no longer work," said Eric Skaar, Ph.D., M.P.H., associate professor of pathology, microbiology and immunology, and director of the new program. "At the same time, we're making significant headway in studying host-microbe interactions using a variety of emerging technologies."

Skaar said his role as program director is "community organizer" for investigators who focus on any aspect of microbes—bacteria, viruses, fungi,



parasites—and the mechanisms they use to cause disease. He hopes that once the community begins routinely interacting, for example at seminars and journal clubs, collaborative opportunities between program members will emerge.

Program members include investigators in the Department of Pathology, Microbiology and Immunology, the Department of Biological Sciences, the Department of Medicine—Divisions of Infectious Diseases, Gastroenterology, Hepatology, and Nutrition, and Allergy, Pulmonary, and Critical Care Medicine, and the Department of Pediatrics—Division of Infectious Diseases.

CTTC has a critical role in this group by providing the services needed to commercialize intellectual property that results from the program. In addition, they facilitate collaborations with companies to obtain research funding and partner with companies to ensure that the program's novel scientific findings can be translated into new classes of antibiotics that will enhance patient care.

Project Seeks to Apply Genetic Testing to Personalize Medicine

What if a doctor could tell which drugs will work for patients, and which they should avoid, before they even try them? What if a genetic biopsy could pinpoint the most effective cancer treatment with the fewest side effects? What if genetic medical records could flag previously undetected risk factors to prevent future illnesses?

These are alluring aspects in the budding field of personalized medicine that are being pioneered by scientists and health care providers at Vanderbilt University Medical Center.

Vanderbilt is leading the nation in personalizing medicine by leveraging its sophisticated Electronic Medical Record (EMR) to use genetic information in point-of-care decision making.

"We know that genetic differences in humans at the molecular level not only contribute to the disease process, but can also significantly impact an individual's ability to respond optimally to drug therapy," said Jeff Balser, M.D., Ph.D., vice chancellor for health affairs and dean of the School of Medicine. "Through a unique and cohesive set of advances that combine innovations in health care informatics, genomics, and drug discovery,

we are beginning to 'deliver' on the promise of the Human Genome Project, with highly personalized therapy for our patients."

Two programs have already resulted from this emphasis. The first is the Personalized Cancer Medicine Initiative, which includes My Cancer Genome (see page 28), and the other is the Pharmacogenomic Resource for Enhanced Decisions in Care and Treatment (PREDICT) program.

PREDICT was recently awarded a two-year, \$1 million grant by the U.S. Centers for Disease Control and Prevention (CDC) to develop a model for applying genomic testing to drug prescribing in real-world settings. Its goal is to develop a clinician-friendly genomic test report with supportive clinical, educational, and laboratory practices that can be widely disseminated.



New Insect Repellent May Be Thousands of Times Stronger than DEET

Imagine an insect repellent that not only is thousands of times more effective than DEET—the active ingredient in most commercial mosquito repellents—but that also works against all types of insects, including flies, moths, and ants.

That possibility has been created by the discovery of a new class of insect repellent made in the laboratory of Vanderbilt Professor of Biological Sciences and Pharmacology Laurence Zwiebel.

In preliminary tests with mosquitoes, the researchers found the new class of repellent, called Vanderbilt University Allosteric Agonist or VUAA1, to be thousands of times more effective than DEET. The compound works by affecting insects' sense of smell through a newly discovered molecular channel.

The discovery was made during tests that are part of a major interdisciplinary research project, supported by the Grand Challenges in Global Health Initiative



funded by the Foundation for the NIH through a grant from the Bill & Melinda Gates Foundation, to develop new ways to control the spread of malaria by disrupting a mosquito's sense of smell. The project received five years of initial funding and a two-year extension that is currently in progress.

CTTC has assisted Dr. Zwiebel in developing a Global Access Plan to address how Vanderbilt and its collaborating institutions, Yale and Wageningen Universities, would comply with Grand Challenges program requirements. In

addition, a member of the CTTC leadership team serves on the project's Program Management Committee. CTTC, along with the technology transfer team, has taken the lead in negotiations and interactions with the funders as well as product development partners in the private sector. The continuing development of this project has led to several new patents and patent applications being filed on behalf of Dr. Zwiebel's team.