New McCormick Center targets brain disorders

Northwestern has received $3 million from the Dr. Ralph and Marian C. Falk Medical Research Trust to establish the Falk Center for Molecular Therapeutics, an interdisciplinary research center within the McCormick School. The center opened in Northwestern’s Illinois Technology Enterprise Corporation building in downtown Evanston in January.

“Our mission is to use innovative molecular biology techniques to identify and evaluate genes responsible for neurological disorders such as brain tumors, learning and memory disorders, depression, and epilepsy,” says Joseph Moskal, center director and research professor of biomedical engineering at McCormick and of neurological surgery at the Feinberg School of Medicine. “This understanding will lead to the development of effective new drugs.”

The Falk Medical Research Trust funds basic biomedical research and supports several other research programs at Northwestern.

A key goal of the Falk Center is to help move important discoveries from the laboratory to the marketplace. Falk Center scientists will work closely with Nyxis Neurotherapies, Inc., a biotechnology company founded by Moskal and Jan Leestma, a former associate professor of neurology and pathology at the Feinberg School of Medicine. The Falk Center’s staff of seven will drive the center’s own research objectives as well as facilitate collaborations with other University researchers in biomedical engineering.

Two therapeutic developments at the Falk Center are approaching the product stage. One is a gene-based therapy for the treatment of malignant brain tumors in both children and adults. “Discovering genes specific to brain tumors and their invasive behavior is one of the major thrusts of the Falk Center’s work,” says Moskal. “The current treatment for malignant brain tumors is not very effective. One of the big hurdles in brain cancer research is learning how to effectively deliver drugs to cancerous cells that may remain after surgery. By aligning the Falk Center with McCormick’s biomedical engineering department, we are combining molecular biology and gene discovery with the pragmatism of engineering in order to solve this problem and others.”

The second potential therapy is based on the discovery by Moskal and colleagues of a family of molecules called glyxins that appear to enhance learning and memory. The Food and Drug Administration recently approved the glyxins for human phase I trials. “The glyxins may have an impact on attention-deficit hyperactivity disorder, memory loss associated with the early stages of Alzheimer’s disease, as well as normal aging, damage due to stroke, and neuropathic pain,” says Moskal.

The Falk Center puts state-of-the-art technology — the same used to discover the glyxins and the brain tumor therapy — into the hands of Northwestern faculty and students. “Very few universities in the country have direct access to technology of this caliber,” says Roger Kros, chief of molecular neuro-oncology at the Falk Center and assistant research professor of biomedical engineering at McCormick. “In the Chicago area, only a handful of programs in academia and the private sector combined have facilities equivalent to the Falk Center’s.”

“Our department is expanding its presence in biotechnology and neuroscience, and the molecular biology expertise and equipment of the Falk Center is invaluable to this effort,” says Robert Linsenmeier, professor of biomedical engineering, who was instrumental in helping to establish the Falk Center. “Nationally, biomedical engineering is moving more and more to the level of cells, molecules, and genes. Adding the Falk Center to biomedical engineering at Northwestern adds a range of capabilities we did not have before.”

The center is building on its initial Falk Foundation gift by seeking additional funding from other foundations, individuals, the private sector, and government agencies. Such diverse support will enable the Falk Center and its programs to grow and flourish.

—Megan Feltman