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NIH Names Emory University a National Molecular Libraries Screening Center

The National Institutes of Health (NIH) today announced it is awarding nearly \$9 million to Emory University as part of a nationwide research network of nine centers that will use high-tech screening methods to identify small molecules that can be used as research tools. By screening promising molecular targets against thousands of small molecule compounds, the Molecular Libraries Screening Centers (MLSC) will give scientists more information about key biological processes involved in human health and disease. Raymond Dingledine, PhD, professor and chair of pharmacology in Emory University School of Medicine, is principal investigator for Emory's MLSC.

The screening centers will use high-throughput robotics equipment to screen huge libraries of small molecule compounds against cells or proteins already identified by laboratory scientists as playing key roles in disease processes. The screening process will single out compounds that modify the target proteins. Eventually the screening process may help the scientists identify promising new targets for diagnosis, treatment and prevention.

The national screening program is part of the "New Pathways to Discovery" initiative within the NIH Roadmap for medical research. The network is funded by all of the institutes of the NIH and co-administered by the National Institute of Mental Health (NIMH) and the National Human Genome Research Institute (NHGRI).

Emory's Molecular Libraries Screening Center builds on Emory's recently established Emory Chemistry-Biology Center for Drug Discovery under the leadership of Dr. Dingledine, which is co-directed by Haiyan Fu, PhD, professor of pharmacology and Dennis Liotta, PhD, professor of chemistry in Emory College. The Emory Chemistry-Biology Center is an interdisciplinary collaboration among research departments in Emory University School of Medicine and Emory College to screen promising protein targets identified by Emory scientists. Dr. Fu and Dr. Liotta, along with James Snyder, PhD, professor of chemistry in Emory College, also are co-principal investigators of the new NIH molecular screening center.

The national molecular libraries screening program will eventually enable researchers to explore the hundreds of thousands of proteins believed to be encoded by the approximately 25,000 genes in the human genome. At present, only about 530 proteins, out of more than 30,000 proteins identified by the human genome project, have been identified as actual targets of marketed drugs.

"Now that all those proteins are known, we need to identify more small molecules that can alter the function of those potential targets," explains Dr. Dingledine. The molecular libraries screening program is an effort by NIH to take an efficient, high-throughput approach toward the discovery of many more useful compounds.

Data generated from the high-throughput assays in the screening centers will be made available to researchers in both the public and private sectors through the PubChem database (<http://putchem.ncbi.nlm.nih.gov/>), created and managed by the National Library of Medicine. The Molecular Libraries Small Molecule Repository, located in San Francisco at Discovery Partners International, a drug discovery research firm, houses the collection of small molecules that will be used for screening by the centers. Already the repository has acquired nearly 100,000 compounds.

"This new Screening Centers Network will be the engine of discovery in the NIH Roadmap Molecular Libraries initiative," said NIMH Director Tomas R. Insel, MD. "Using the compounds from the Molecular Libraries Small Molecule Repository and supported by the informatics capabilities of PubChem, the MLSCN should provide researchers with many new chemical tools to explore how cells function at the molecular level."

Emory University's Woodruff Health Sciences Center is one of the nation's pre-eminent academic health centers, devoted to Making People Healthy through research, teaching, and patient care. It includes the Emory University School of Medicine, the Rollins School of Public Health, the Nell Hodgson Woodruff School of Nursing, and the Yerkes National Primate Research Center. Its clinical arm is Emory Healthcare, Georgia's largest and most comprehensive health care system, consisting of Emory University Hospital, Emory Crawford Long Hospital, Wesley Woods Center, The Emory Clinic, the Emory Children's Center, EHCA, LLC, Emory-Adventist Hospital, and other affiliates.

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