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NIH-funded study shows early brain effects of HIV in mouse model

A new mouse model closely resembles how the human body reacts to early HIV infection and is shedding light on nerve cell damage related to the disease, according to researchers funded by the National Institutes of Health.

The study in today's *Journal of Neuroscience* demonstrates that HIV infection of the nervous system leads to inflammatory responses, changes in brain cells, and damage to neurons. This is the first study to show such neuronal loss during initial stages of HIV infection in a mouse model.

The study was conducted by a team of scientists from the University of Nebraska Medical Center, Omaha, and the University of Rochester Medical Center, N.Y. It was supported by the National Institute on Drug Abuse (NIDA), the National Institute of Neurological Disorders and Stroke, the National Institute of Mental Health, and the National Center for Research Resources.

"This research breakthrough should help us move forward in learning more about how HIV affects important brain functioning in its initial stages, which in turn could lead us to better treatments that can be used early in the disease process," said Dr. Nora D. Volkow, director of NIDA.

"The work contained within this study is the culmination of a 20-year quest to develop a rodent model of the primary neurological complications of HIV infection in humans," said Dr. Howard Gendelman, one of the primary study authors. "Previously, the rhesus macaque was the only animal model for the study of early stages of HIV infection. However, its use was limited due to expense and issues with generalizing results across species. Relevant rodent models that mimic human disease have been sorely needed."

Behaviors associated with drug abuse, such as sharing drug injection equipment and/or engaging in risky sexual behavior while intoxicated, continue to fuel the spread of HIV/AIDS. To learn more about NIDA's AIDS Research Program, and the linkages between drug abuse and HIV/AIDS, visit www.drugabuse.gov/drugpages/hiv.html.

For a copy of the article, go to <http://www.jneurosci.org/>.

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The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health aspects of drug abuse and addiction. The Institute carries out a large variety of programs to inform policy and improve practice. Fact sheets on the health effects of drugs of abuse and information on NIDA research and other activities can be found on the NIDA home page at www.drugabuse.gov. To order publications in English or Spanish, call NIDA's new DrugPubs research dissemination center at 1-877-NIDA-NIH or 240-645-0228 (TDD) or fax or email requests to 240-645-0227 or drugpubs@nida.nih.gov. Online ordering is available at <http://drugpubs.drugabuse.gov>. NIDA's new media guide can be found at <http://drugabuse.gov/mediaguide/>.

The National Institutes of Health (NIH) — *The Nation's Medical Research Agency* — includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary Federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.