

EMBARGOED FOR RELEASE:
January 25, 2007, 2 p.m. ET

NIDA Contact:

Dorie Hightower
Sara Rosario Wilson
301-443-6245
media@nida.nih.gov

Contacto en Español:

301-594-6145

Damage to Specific Part of the Brain May Make Smokers ‘Forget’ to Smoke

Preliminary research supported by the National Institute on Drug Abuse (NIDA), a component of the National Institutes of Health, has found that some smokers with damage to a part of the brain called the insula may have their addiction to nicotine practically eliminated. The study is published in the January 26, 2007 issue of the journal *Science*.

“The researchers found that smokers with insula lesions were 136 times more likely to have their addiction to nicotine erased than smokers with other brain injuries,” says NIDA Director Dr. Nora Volkow. “Research that identifies a way to alter the function of this area could have major implications for smokers and addiction treatment in general.”

Dr. Antoine Bechara of the University of Southern California and his colleagues identified 19 smokers who had experienced some degree of brain damage, resulting in lesions on the insula. Of these, 13 quit smoking. The scientists also identified 50 smokers whose brain injuries did not include damage to the insula. Of these, 19 quit smoking.

The scientists recognized that individuals from both groups—those with damage to the insula or damage to other brain regions—were able to quit smoking. However, some smokers experienced a greater ease in quitting. The scientists developed four behavioral criteria for determining who fell into this group; those who reported: (1) quitting smoking less than one day after the brain injury; (2) their difficulty of quitting was less than three on a scale of one to seven; (3) that they did not smoke again after quitting; and (4) no urge to smoke since quitting.

The researchers found that twelve of the 13 participants who quit smoking following damage to their insula met these criteria as compared to only four of 19 participants who quit smoking after sustaining damage to other brain areas.

“Participants with damage to the insula were overwhelmingly more likely to experience a true disruption of the urge to smoke, characterized by an almost immediate cessation of smoking with no reported struggles to maintain their abstinence,” said Dr. Bechara. “We know that the insula plays a role in the desire to smoke by anticipating physical effects brought on by emotions such as those induced by environmental cues. Thus, damage to the insula could lead smokers to feel that their bodies have ‘forgotten’ the urge to smoke.”

“Cigarette smoking is the most common preventable cause of illness and death in the modern world, and it is an addictive behavior,” says Dr. Volkow. “While additional research is needed to replicate these findings, the current study suggests that damage to the insula can impact the conscious ‘urge’ to smoke, making it easier for smokers to quit and remain abstinent. Medications that target receptors within the insula may offer promise in developing more effective smoking cessation therapies in the future.”

####

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 ensure the rapid dissemination of research information and its implementation in policy and 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.

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.