

UW-CTRI News Release

Center for Tobacco Research and Intervention, UW School of Medicine and Public Health

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Wisconsin and Utah Researchers Crack “Kid-Smoking” Genetic Code *No Daily Smoking Before Age 17 Means Less Likely to Get Hooked*

Based on multiple genetic studies, researchers at the University of Wisconsin-Madison and their colleagues at the University of Utah have found that if youth don't begin daily smoking before age 17 they are dramatically less likely to ever become severely addicted to nicotine. The findings were published in the July 11, 2008 issue of the *Public Library of Science Genetics* journal.

“This finding suggests we can protect our younger generations from some of the massive risks associated with tobacco dependence if we can prevent them from daily smoking before the age of 17,” said Tim Baker, Ph.D. and lead researcher at the University of Wisconsin Center for Tobacco Research and Intervention (UW-CTRI).

“We were able to replicate our findings using three separate data sets. We have found that most people are genetically coded in one of three ways. There is a genetic risk factor for nicotine dependence, one for protecting against addiction and one that is neutral. The genetic risk for nicotine dependence posed by these factors is neutralized if the young person doesn't smoke daily by age 17,” Baker said. “If young people smoke before age 17, the genetic risk becomes active. So the risk for severe dependence is produced by the combination of the genetic risk and smoking early in life.”

State researchers looked at 398 Wisconsin participants who came to UW-CTRI study clinics in Milwaukee and Madison. Participants agreed to blood sampling and responded to detailed questionnaires.

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An additional 2,429 participants from Utah and from an extensive national study rounded out the sample.

The findings involve several SNP's – single-nucleotide polymorphisms, or “snips” for short. A SNP is a place where genomes routinely differ from one another by a single genetic variation. In this instance, researchers found five snips that “go together,” forming a structure. Prior to these findings, no one has characterized the structure and the structure's relationship to nicotine dependence.

“The SNPs are important. If someone is exposed to nicotine in more formative years there is a change in their brain structure and function,” said Megan Piper, Ph.D, another UW-CTRI researcher involved in this transdisciplinary federal study.

Baker said, “This research emphasizes the importance of prevention programs, and specifically prevention programs aimed at youth who are genetically at risk for nicotine dependence.”

UW-CTRI is a nationally recognized research center in operation for 16 years committed to determining the nature of tobacco dependence and developing evidence-based treatments to assist smokers. For more information, visit www.ctri.wisc.edu

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