MedicalXpress

Genetic marker may predict smoking quantity in African Americans

May 22 2012

In a step toward understanding possible genetic differences in smoking behaviors, a team of researchers co-led by SRI International has identified a genetic marker associated with smoking quantity in people of African ancestry. The study's findings may help guide future public health decisions related to smoking, because the more people smoke, the higher their risk of lung cancer.

The genetic variant, called rs2036527, appears to function as a marker of smoking quantity in African Americans, predicting the number of cigarettes smoked per day. It is on the same nicotine receptor gene, located on Chromosome 15, as another marker previously identified in people of European descent. Earlier studies have also shown that this gene plays a role in limiting nicotine intake by affecting how pleasurable nicotine is, which in turn affects how much nicotine is consumed.

Findings from the Study of Tobacco Use in Minority Populations (STOMP) Genetics Consortium study are published in the May 22, 2012 issue of *Translational Psychiatry* (part of Nature Publishing Group).

To find the genetic variants for smoking behavior, researchers combined 13 genome-wide association studies. The result included data for genetics and smoking behavior for more than 32,000 African Americans.

Although African Americans are less likely to smoke than European Americans, if they do start smoking, they tend to start smoking later in

life, are less likely to quit smoking, and die more often from smoking-related lung cancer. Smoking is the leading cause of premature death among African Americans. STOMP investigators did not assess lung cancer risk, but other researchers have found that the genetic marker (rs2036527) is associated with risk of lung cancer in African Americans.

"This study may have implications for personalized medicine and the need to identify targets for drug discovery." said Sean P. David, M.D., D.Phil., research physician and director of the Translational Medicine program in the Center for Health Sciences in SRI's Policy Division and also a family medicine physician and Clinical Associate Professor of Medicine at Stanford University School of Medicine. "However, we need to be careful not to draw conclusions about the degree to which a genetic variant associated with smoking quantity affects smoker's ability to quit. Future studies of smoking behavior, including smoking cessation clinical trials, should be performed in non-European ancestry groups, so that other informative biomarkers aren't missed."

Provided by SRI International