

Hundreds of genes affecting tobacco and alcohol use discovered

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Tobacco and alcohol use, both genetically inheritable behaviors, influence risk for many complex diseases and disorders and are leading causes of mortality.

The University of Minnesota was part of a research collaboration that

conducted the first study, recently published in *Nature Genetics*, to identify hundreds of genomic locations associated with addictive behaviors. Researchers found more than 500 genetic variants that affect the use of and addiction to tobacco and alcohol. Until now, only a few of such variants had been identified.

Researchers studied 1.2 million people and looked five characteristics including the age when a participant began smoking; the number of cigarettes per day the participant smoked; whether the participant has ever been a regular smoker; whether the participant ever quit smoking; and the number of alcoholic drinks the participant had per week.

The study showed:

- 566 genetic variants in 406 genomic locations associated with multiple stages of [tobacco](#) use (initiation, cessation, and heaviness) and [alcohol use](#);
- 150 loci, or locations in the genome, showing evidence for association with two or more of the characteristics listed above;
- increased genetic risk for smoking was associated with increased risk for a wide variety of health conditions such as obesity and [coronary artery disease](#);
- genetic risk for [alcohol](#) use was associated with lower disease risk.

"These results provide a solid starting point to evaluate the effects of these loci in model organisms and more precise substance use measures," said Scott Vrieze, a researcher on the project and associate professor in the College of Liberal Arts Department of Psychology. "We hope the results drive research on how these genes affect addiction and, ultimately, inform treatment development."

More information: undefined undefined et al. Association studies of

up to 1.2 million individuals yield new insights into the genetic etiology of tobacco and alcohol use, *Nature Genetics* (2019). [DOI: 10.1038/s41588-018-0307-5](https://doi.org/10.1038/s41588-018-0307-5)

Provided by University of Minnesota

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