

## **Nicotinic receptor gene variants interact with attention deficient hyperactive disorder symptoms to predict smoking trajectories from early adolescence to adulthood.**

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## **Nicotinic receptor gene variants interact with attention deficient hyperactive disorder symptoms to predict smoking trajectories from early adolescence to adulthood.**

Lee CT, Fuemmeler BF, McClernon FJ, Ashley-Koch A, Kollins SH.

### **Source**

Duke University Medical Center, Department of Psychology Neuroscience, Durham, NC DUMC 104006, Durham, NC 27710, United States.

### **Abstract**

#### **OBJECTIVE:**

To examine the association of single nucleotide polymorphisms (SNPs) of the CHRN3 (rs13280604) and CHR6 (rs892413) nicotinic acetylcholine receptor (nAChR) genes and symptoms of attention deficit hyperactivity disorder (ADHD) in predicting smoking patterns from early adolescence to adulthood.

#### **METHOD:**

A longitudinal cohort of 1137 unrelated youths from the National Longitudinal Study of Adolescent Health provided responses to four surveys from Waves I to IV, and a genetic sample in Wave III. Growth mixture modeling was used to identify smoking patterns and to assess the effects of the two SNPs and ADHD symptoms on cigarette use over time.

#### **RESULTS:**

There were significant main effects of ADHD symptoms and CHR6 variants in predicting the number of cigarettes smoked and the pattern of use over time, respectively. There were no main effects of the CHRN3 variants. However, a significant CHRN3 variant $\times$ ADHD symptom interaction was observed, such that individuals with elevated ADHD symptoms and a particular CHRN3 variant were at increased risk of cigarette use over time.

#### **CONCLUSIONS:**

These findings demonstrate that a SNP in a nicotinic receptor gene may interact with ADHD symptoms to link with increased cigarette use across adolescence and young adulthood. Unique associations between specific variants and patterns of ADHD symptoms were identified which may be useful for targeting prevention efforts to individuals at greatest risk for cigarette smoking.

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**KEYWORDS:**

ADHD, Smoking development, nAChR SNPs

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