



DOES THE *SNAP-25* GENE PLAY A ROLE IN INHIBITORY CONTROL AND ATTENTION?

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Introduction

The synaptosomal associated protein of 25 kD (*SNAP-25 gene*) is involved in synaptic plasticity, dendrite formation and axonal growth, and plays a role in catecholamine release.

Several SNPs of *SNAP-25* have been associated with ADHD, and recently SNP rs363050 showed an association with IQ.

We first tested for an association of SNP rs363050 with inhibitory control, as this is supposed to be the core cognitive deficit of children with ADHD. Second, a possible association with attention skills was investigated.



Subjects

Subjects were selected from a population sample of 12-year-old twins and their siblings (N=346 subjects)

Instruments

Inhibitory control was measured with the Stroop Color Word task.

From all children scores on the Strength and Weakness of ADHD symptoms and Normal behavior scale (SWAN) were available. SWAN scores cover the continuum of attention, ranging from problems to skills.

A family based association test was used for the genetic analyses.

Table 1: Means per genotype

rs363050	AA	AG	GG
<i>frequency</i>	35%	49%	16%
Stroop interference	45.60	50.95	47.09
Attention Skills	38.93	39.49	38.58

Results & Discussion

We found a significant association between SNP rs363050 of the *SNAP-25* gene and Stroop interference ($p=0.03$). Children with genotype AG had more Stroop interference than children with AA or GG genotypes. No association was found with attention skills.

SNP rs363050 was previously associated with intelligence. The current association with inhibitory control supports evidence for a functional role of this SNP in cognitive traits, with dopaminergic regulation being a possible mediator. However, the exact mechanism through which this SNP of *SNAP-25* has an influence on cognition remains to be investigated.

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