A genetic variant within STS previously associated with inattention in boys with attention deficit hyperactivity disorder is associated with enhanced cognition in healthy adult males.


Abstract

INTRODUCTION:
The enzyme steroid sulfatase (STS) converts sulphated steroids to their non-sulfated forms. Deficiency of this enzyme is associated with inattention but preserved response control. The polymorphism rs17268988 within the X-linked STS gene is associated with inattentive, but not other, symptoms in boys with attention deficit hyperactivity disorder (ADHD).

METHODS:
We initially tested whether rs17268988 genotype was associated with attention, response control, and underlying aspects of cognition, using questionnaires and neuropsychological tasks, in two independent cohorts of healthy adult males. In an additional analysis based on existing data, the performance of mice with genetic or pharmacological manipulations of the STS axis under attentionally demanding conditions was investigated.

RESULTS:
G-allele carriers at rs17268988 exhibited reduced reaction time, enhanced attention, and reduced reaction time variability relative to C-allele carriers. Mice with genetic or pharmacological manipulations of the STS axis were shown to have perturbed reaction time variability.

DISCUSSION:
Our findings provide additional support for an association between rs17268988 genotype and attention, which may be partially mediated by reaction time variability; they also indicate that, in contrast to the situation in boys with ADHD, in healthy men, the G-allele at rs17268988 is associated with enhanced cognition. As reaction time variability is a predictor of well-being, the rs17268988 genotype may represent a biomarker for long-term health.