National Human Genome Research Institute (NHGRI)

Patented & Patent-pending Technologies Available for Licensing

Latrophilin 3, a Gene Involved in ADHD

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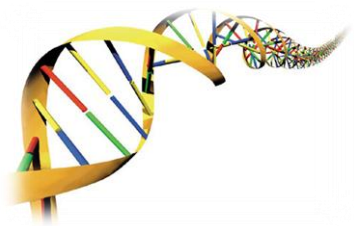

Summary
Attention Deficit Hyperactivity Disorder (ADHD) is the most commonly diagnosed childhood behavioral disorder, affecting about ten percent of children and adolescents in the U.S. At this time there is no accurate way for doctors to determine in advance which ADHD therapeutic drug is likely to be of most benefit to a particular individual.

Scientists from the National Human Genome Research Institute (NHGRI) at the National Institutes of Health (NIH) have identified specific latrophilin 3 (LPHN3) mutations, groups of LPHN3 variants (e.g., LPHN3 alleles), and other loci that are associated with an increased susceptibility for and severity of ADHD. LPHN3 is a G-protein coupled receptor specifically expressed in the brain's mesolimbic system, which is part of a dopaminergic pathway. This LPHN3 protein expression pattern fits with the dopamine theory of ADHD, according to which patients affected with the disorder have lower levels of dopamine receptors and transporters.

Potential Commercial Applications
Identification of mutations in this ADHD susceptibility gene could be used as the basis for both a DNA-based ADHD diagnostic test as well as used to aid in the development and clinical validation of more efficient and individualized therapies. Thus, personalized treatment options could be tailored to the genetic makeup of a person thereby potentially minimizing the amount of medication taken by those who are at less risk and/or who have a less severe form of ADHD.

Related Articles
Muenke, M. et al., *A Common Variant of the Latrophilin 3 Gene, LPHN3, Confers Susceptibility to ADHD and Predicts Effectiveness of Stimulant Medication*, 15 MOLECULAR PSYCHIATRY 1053 (2010).
http://www.nature.com/mp/journal/v15/n11/pdf/mp20106a.pdf

Muenke, M. et al., *A cooperative interaction between LPHN3 and 11q doubles the risk for ADHD.* Mol Psychiatry. (2011).
http://www.nature.com/mp/journal/vaop/ncurrent/pdf/mp201159a.pdf

Key Words
Attention Deficit Hyperactivity Disorder, Latrophilin 3, Pharmacogenetics