

# MORE PROOF THAT ADHD IS GENETIC

by Tracey Arial



**Parents and teachers are frequently blamed as they struggle to cope with children who fail classes, perform badly on standardized tests or make few friends. Blame continues even after a child has been diagnosed with attention-deficit/hyperactivity disorder (ADHD), because the genetic nature of the disease is little recognized by the general public.**

Researchers from 14 laboratories around the world found statistical proof that a genetic link exists between parents and children diagnosed with either inattentive or combined ADHD. Before working together, the researchers already knew that ADHD has a genetic component from previous research on families, twins and adopted children. They also knew

that dopamine-blocking medications work for 70% of people diagnosed with ADHD, and that several receptors might be involved. Their goal was to confirm an association between ADHD and the dopamine D5 receptor gene.

## RARE INTERNATIONAL COOPERATION

The researchers began by recruiting participants from members of the ADHD collaborative network, which links researchers around the world. Centres represented in the study contributed data and at least three DNA samples from ADHD-diagnosed children and one or both parents to ensure consistency.

*"This study is unique because it pulls together data from multiple settings, multiple families and multiple laboratories," says Dr. Russell Schachar, a senior scientist from the Department of Psychiatry at the Hospital for Sick Children in Toronto. "Politically, it's difficult to get scientists to contribute to that kind of study. I think that there have now been 16 or 17 risk factors identified in ADHD, and half of them have been identified with researcher Cathy Barr's laboratory, which is producing some of the world's best molecular research. At a scientific level, what she's been able to do, the kind of people she's been able to bring around her is impressive." "It's pretty clear that there's going to be a number of genes involved and we haven't even found them all yet," says Cathy Barr, from the Toronto Western Hospital Institute, and one of the Canadian researchers on the team.*

In the end, it was the large study size that made results possible. Researchers compared the genetic makeup of 3,072 parents with that of 1,980 children in a statistical modelling process known as meta-analysis. They discovered a much higher incidence of a specific marker in both the diagnosed children and their parents than expected, thereby confirming the genetic region involved in ADHD.

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## PARENTS NO LONGER BLAMED

*"The most important change for parents with this study is that it further confirms the fact that ADHD runs in families. It gives parents support against teachers, doctors and others who imply that bad parenting somehow caused the disease," says Cathy Barr. "What a relief for these children's parents who are constantly being judged," says Francine Côté, General Manager of the Quebec PANDA group of associations, and mother of a young adult with ADHD. "These families live with rejection and criticism of their parenting skills. The impact of this research is major and we would encourage it to continue to improve the lives of children with ADHD who are our future adults." 🦋*

Ref.: Lowe N, Kirley A, Hawi Z, Sham P, Wickham H, Kratochvil CJ, Smith SD, Lee SY, Levy F, Kent L, Middle F, Rohde LA, Roman T, Tahir E, Yazgan Y, Asherson P, Mill J, Thapar A, Payton A, Todd RD, Stephens T, Ebstein RP, Manor I, Barr CL, Wigg KG, Sinke RJ, Buitelaar JK, Smalley SL, Nelson SF, Biederman J, Faraone SV, Gill M. Joint analysis of the DRD5 marker concludes association with attention-deficit/hyperactivity disorder confined to the predominantly inattentive and combined subtypes. *American Journal of Human Genetics* 2004;74(2):348-356.