

The Scientist: NewsBlog:

New autism loci discovered

Posted by [Elie Dolgin](#)

[Entry posted at 12th November 2008 07:56 PM GMT]

[Comment on this blog](#)

Two large-scale genetic analyses have turned up a trio of new sites associated with autism, including a large-effect allele that seems to reduce the risk of developing the debilitating brain disorder, researchers reported today (Nov. 12) at the *American Society of Human Genetics meeting* in Philadelphia.

Last year, the Autism Genome Project Consortium performed the largest genome-wide linkage scan to date with around 10,000 SNPs in 1,181 families with at least two affected individuals. The group flagged a handful of genomic regions harboring [autism](#) susceptibility genes, although none of the linkage results were statistically significant (*Nat Genet*, 39:319-328, 2007).

Now, a team led by [Dan Arking](#), a geneticist at Johns Hopkins University, has ramped up the SNP count to include around 500,000 markers in 802 affected pairs of siblings. They then eliminated all the error-prone or uninformative SNPs to amass a collection of 180,000 high-quality markers for their analysis. "It's the cleanest best set of markers you can imagine," Arking said at a press conference.

This enhanced genome-wide scan proved effective. Arking's team discovered two regions of significant linkage that had not been implicated before with the disease -- one at the tip of chromosome 20's short arm, and one at the end of chromosome 6's long arm.

Arking, together with [Lauren Weiss](#), a molecular geneticist at the University of California, San Francisco, also used the SNP dataset to perform familial association mapping in 1,594 parent-offspring trios to hunt for common variants of major effect linked to the disorder. At first, they did not find any genome-wide significant results. Additional assays, however, revealed a hitherto unidentified site on chromosome 5 where one particular allele was transmitted less often than expected to autistic individuals whose parents carried the allele. Thus, this allele, although only found in 4% of the population as a whole, likely confers some protection against autism, Arking and Weiss argued.

This "protective allele" fell near the [semaphorin 5A](#) (*SEMA5A*) gene, which is involved in axonal guidance during neural development. The researchers compared brain slices of 20 autistic individuals with 10 controls and found that *SEMA5A* had much lower expression levels in the

autistic brains, further implicating this novel locus with autism.

Arking and Weiss will present their findings in a [talk](#) on Saturday (Nov. 15) and in a [poster](#) on Friday (Nov. 14).

Rate this article

Rating: **4.55**/5 (55 votes)

[Comment on this blog](#)
