

NEWS

Genetics: Sibling study delivers new autism candidates

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Sibling rivalry: Children with severe autism show differences in the expression of nervous system genes compared with their healthy siblings.

People with autism **show differences in the levels of various gene products** compared with their unaffected siblings, according to a study published online in September in *Brain Research*.

Steven Scherer and his colleagues looked at differences in the levels of messenger RNA (mRNA), which represent gene expression, and small fragments of RNA — called microRNAs or miRNAs — that indirectly regulate gene expression, in 20 individuals with autism and 22 unaffected siblings.

The researchers found several genes expressed at either higher or lower levels in people with the disorder compared with controls. The candidates include HEY1, which plays a role in nervous system development, and SOX9, which is required for the development of testes.

Other studies have found **changes in miRNA expression in individuals with autism**. In the new study, Scherer's team identified autism-associated changes in miRNAs that regulate genes involved in nervous system development.

To find new candidates, the researchers carefully selected participants for the study. Because some individuals can have traits of autism — and autism-associated mutations — but do not merit an actual diagnosis, the researchers tested unaffected siblings and did not include anyone with signs of the disorder for the control group. They also chose affected siblings with severe cases of autism for the autism group, but none with known autism-linked mutations.

One limitation of the new study is that the researchers used lymphoblastoid cells, immature white blood cells found throughout the body. Although these cells are easier to obtain than neurons — which have to be extracted from postmortem tissue — they may not show expression differences specific to the brain.

Still, the researchers found a strong association between the identified genes and pathways involved in nervous system development, neurological disorders and Rett syndrome.