NEWS

Genetics: Gene family linked to language and autism

BY **JESSICA WRIGHT**

5 NOVEMBER 2010

Talking genes: Two individuals with a mutation in FOXP1 have impairment in language abilities.

Loss of activity of FOXP1, a member of a family of genes that regulate gene expression, leads to general behavioral defects, including **delays in language**, according to a study published in November in *The American Journal of Human Genetics*.

FOXP2, a member of the same family, is known to be important for language development in both people and animal models. FOXP2 regulates contactin-associated protein-like 2, and abnormal levels of this protein, as well as gene mutations, have been **found in people with autism**.

Some scientists have suggested that FOXP1 may also be involved in language development. In a previous study, researchers did not find any mutations in FOXP1 in individuals diagnosed with only verbal impairment, however.

In the new study, the researchers looked for large deletions and duplications — called copy number variations — across the FOXP1 gene region in 110 individuals with either autism or intellectual disability. They found one individual with intellectual disability and autism-like behaviors who has a deletion across a large portion of the FOXP1 gene.

The researchers then sequenced the FOXP1 gene in 245 people with autism, intellectual disability, or both, to look for point mutations, which change only one base in the DNA code. They found one mutation that results in an inactive version of the FOXP1 protein in an individual with both autism and intellectual disability.

The two individuals with harmful mutations show similar developmental defects, including a significant impairment in language abilities, autism-like behavior, physical aggressiveness and specific obsessions.

FOXP proteins act in pairs, and FOXP1 and FOXP2 can bind to each other and regulate some of the same targets. The researchers suggest that the FOXP1 mutant language defects could be due to its interaction with FOXP2.