

NEWS

# Genetics: Protein that regulates serotonin linked to autism

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Mood molecule: Numerous studies have linked serotonin, a chemical messenger associated with depression, to autism.

A protein that regulates the development of serotonin-producing neurons in the brain is associated with autism, according to a study published 25 August in *PLoS One*<sup>1</sup>.

Several studies have suggested an association between autism and the chemical messenger, or **neurotransmitter**, serotonin, which regulates mood, appetite and sleep. Some individuals with autism have atypically high levels of **serotonin in their blood**. Others have lower-than-typical activity in the brain of a **transporter that regulates serotonin levels**.

There is also preliminary evidence showing that women who take the selective serotonin reuptake inhibitor, or SSRI, class of antidepressants during pregnancy increase their **risk of having a child with autism**.

In the new study, researchers looked at LMX1B, or LIM homeobox transcription factor, beta 1, which regulates the expression of genes essential for the development of serotonin-producing neurons. The researchers looked at the LMX1B gene in 252 families from the **Autism Genetic Resource Exchange**. These families are all multiplex, meaning that they have more than one child with autism.

Of the 24 LMX1B variants that the researchers analyzed, 2 show a modest association and 1 has a significant association with autism, the study found.

The researchers also looked at LMX1B gene expression in postmortem brain tissue from 8 individuals with autism and 13 controls. The autism brains have fewer transcripts that code for the LMX1B protein in the anterior cingulate gyrus, a brain region involved in decision-making and reward, than controls do, the study found.

The results suggest a potential genetic mechanism for alterations in the serotonin pathway in individuals with autism.

## **References:**

**1: Thanseem I.** *et al. PLoS One* Epub ahead of print (2011) **PubMed**