



Communicating Research in Clear Language

Genetic Variants Affect Brain Connections in Some People with ASD

What is the research about?

Past research has shown that people with ASD have differences in certain genes that influence connections between brain cells. This study looked at a specific region of DNA called DIXDC1, which has previously been suspected as playing a role in ASD symptoms related to learning, memory, and social communication.

What did the researchers do?

The researchers used gene sequencing, a process in which the DNA of all a being's genetic material is characterized, and differences between individuals can be identified. They looked at the features of a gene associated with the development of synapses, structures that permits a neuron (nerve cell) to pass a signal to another neuron.

What did the researchers find?

Scientists at Hospital for Sick Children, Toronto, and McMaster University's Stem Cell and Cancer Research Institute, found that a gene that affects the way brain cells can communicate with each other has a variant form in some people with ASD. Called DIXDC1, this gene regulates the formation of parts of the synapse. The gene is "turned off" in this group, thus, the connections between their brain cells don't work correctly, and cause problems in learning social interaction skills, forming new memories, and their ability to learn.

Take home message

By discovering that DIXDC1 is a regulator gene that is turned off in some people with ASD, the researchers have identified a potential treatment target which could improve memory and social communication seen in people with ASD.

NOTE: The original [Research Report](#) was written by V. Kwan and associates and was published in *Cell Reports*. 2016.