

Neurexin (NRXN) is a presynaptic protein that helps to connect neurons at the synapse.

They are located mostly on the presynaptic membrane and contain a single transmembrane domain. The extracellular domain interacts with proteins in the synaptic cleft, most notably neuroligin, while the intracellular cytoplasmic portion interacts with proteins associated with exocytosis.

Neurexin and neuroligin “shake hands,” resulting in the connection between the two neurons and the production of a synapse.

Neurexins mediate signaling across the synapse, and influence the properties of neural networks by synapse specificity. Neurexins were discovered as receptors for α -latrotoxin, a vertebrate-specific toxin in black widow spider venom that binds to presynaptic receptors and induces massive neurotransmitter release.

In humans, alterations in genes encoding neurexins are implicated in autism and other cognitive diseases, such as Tourette syndrome and schizophrenia.

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