

The cell biology of synaptic specificity during development. [1]

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Abstract

Proper circuit connectivity is critical for nervous system function. Connectivity derives from the interaction of two interdependent modules: synaptic specificity and synaptic assembly. Specificity involves both targeting of neurons to specific laminar regions and the formation of synapses onto defined subcellular areas. In this review, we focus discussion on recently elucidated molecular mechanisms that control synaptic specificity and link them to synapse assembly. We use these molecular pathways to underscore fundamental cell biological concepts that underpin, and help explain, the rules governing synaptic specificity.

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