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**Title:** Target-specific expression of presynaptic NMDA receptors in neocortical microcircuits

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**Preferred topic:** B Excitability, synaptic transmission, network functions

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Presynaptic NMDARs (preNMDARs) have been implicated in synaptic plasticity, but their location remains controversial. We show that, in layer 5 of young mouse visual cortex, preNMDARs control neurotransmission at inputs from pyramidal cells (PCs) to other PCs and to Martinotti but not basket cells. In agreement, imaging revealed preNMDAR signals in a subset of PC boutons. A tuned network model predicted that preNMDARs reroute information flow in local circuits during high firing rates, as was verified experimentally. In conclusion, preNMDARs provide synapse-specific flow control in cortical microcircuits.

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