

Interfering of the Reelin/ApoER2/PSD95 Signaling Axis Reactivates Dendritogenesis of Mature Hippocampal Neurons

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© 2016 Wiley Periodicals, Inc. Reelin, an extracellular glycoprotein secreted in embryonic and adult brain, participates in neuronal migration and neuronal plasticity. Extensive evidence shows that reelin via activation of the ApoER2 and VLDLR receptors promotes dendrite and spine formation during early development. Further evidence suggests that reelin signaling is needed to maintain a stable architecture in mature neurons, but, direct evidence is lacking. During activity-dependent maturation of the neuronal circuitry, the synaptic protein PSD95 is inserted into the postsynaptic membrane to induce structural refinement and stability of spines and dendrites. Given that ApoER2 interacts with PSD95, we tested if reelin signaling interference in adult neurons reactivates the dendritic architecture. Unlike findings in developing cultures, the presently obtained in vitro and in vivo data show, for the first time, that reelin signaling interference robustly increase dendritogenesis and reduc