

# CDK5 downregulation enhances synaptic plasticity

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© 2016, Springer International Publishing. CDK5 is a serine/threonine kinase that is involved in the normal function of the adult brain and plays a role in neurotransmission and synaptic plasticity. However, its over-regulation has been associated with Tau hyperphosphorylation and cognitive deficits. Our previous studies have demonstrated that CDK5 targeting using shRNA-miR provides neuroprotection and prevents cognitive deficits. Dendritic spine morphogenesis and forms of long-term synaptic plasticity such as long-term potentiation (LTP) have been proposed as essential processes of neuroplasticity. However, whether CDK5 participates in these processes remains controversial and depends on the experimental model. Using wild-type mice that received injections of CDK5 shRNA-miR in CA1 showed an increased LTP and recovered the PPF in deficient LTP of APP<sup>swe</sup>/PS1<sup>9</sup> transgenic mice. On mature hippocampal neurons CDK5, shRNA-miR for 12 days induced increased dendritic protrusion morphogenesis,