

Memory formation and suppression through AMPA receptor dependent synaptic plasticity

1. Oculomotor adaptation is a useful approach to detect motor learning deficits under natural, pathological or genetically targeted alterations of the cerebellar neurophysiology (this thesis).
2. Parallel fiber to Purkinje cell LTP cannot be granted as the cause of motor learning, but as a form of plasticity that crucially contributes with others across the olivo-cerebellar system (this thesis).
3. Instead of trafficking, GluA3 containing AMPA receptors undergo synaptic potentiation through cAMP triggered changes of unitary channel conductance (this thesis).
4. Despite the functional importance of LTP in the cerebellum and hippocampus, the molecular pathways underlying LTP in both structures are largely upside down (this thesis).
5. The precise control of GluA1 and GluA3 dependent forms of synaptic potentiation in the hippocampus potentially explains the Yerkes–Dodson law (this thesis).
6. GluA3 dependent synaptic potentiation contributes to motor memory formation and to contextual memory attenuation (this thesis).
7. Whereas an increase in mEPSC frequency indicates a presynaptic modification, it can be caused by a postsynaptic change (this thesis).
8. *“Science is a way of thinking much more than it is a body of knowledge”*, Carl Sagan.
9. *“Spain has shown the same interest for science as that of England for bullfighting”*, Mariano Barbacid.
10. *“Science never solves a problem without creating ten more”*, George Bernard Shaw.
11. *“If we teach only the findings of science and products of science without communicating its critical method, the average person cannot possibly distinguish between science and pseudoscience; both then are presented as unsupported assertion”*, Carl Sagan.