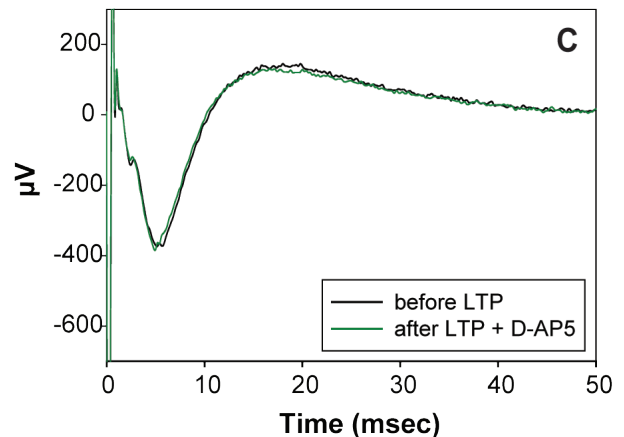
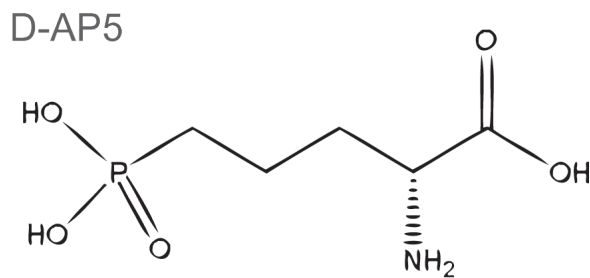
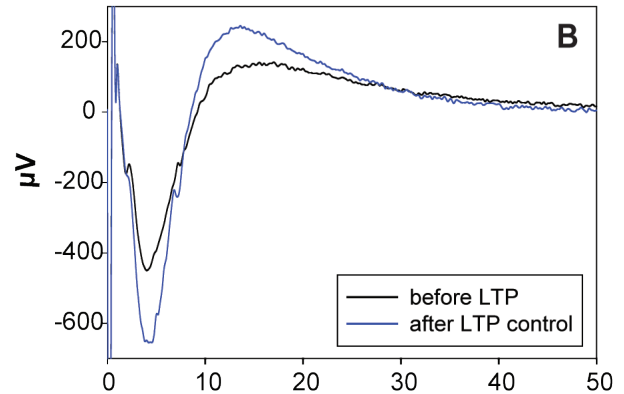
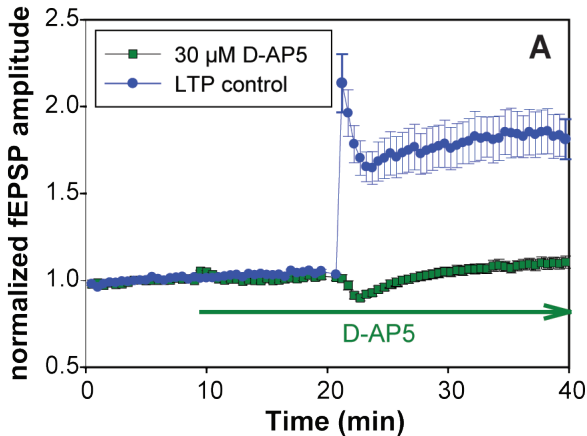


SST-003 : LONG-TERM POTENTIATION IN CA1 : D-AP5 : NMDA RECEPTORS



BIOLOGY

Glutamatergic transmission is recorded in the CA1 region of the adult rat hippocampus while stimulating afferent fibers (Schaeffer collaterals) in the CA3 region. Following high-frequency stimulation (two 100 Hz trains of 1 sec, at 20 sec intervals), fEPSP amplitudes recorded in CA1 are markedly increased. This phenomenon called "Long-Term Potentiation" (LTP, see A and B) depends on NMDA receptor activation. LTP is considered as a substrate for memory and learning processes. LTP impairment in hippocampal slices is related to spatial memory/cognitive deficit. As an example, D-AP5 a competitive NMDA receptor antagonist, completely abolishes LTP induction (see A and C).

BIBLIOGRAPHY

Artola A, von Frijtag JC, Fermont PC, Gispen WH, Schrama LH, Kamal A, Spruijt BM (2006). *Eur J Neurosci* 23:261-272.
 Chen L, Miyamoto Y, Furuya K, Dai XN, Mori N, Sokabe M (2006). *Neuropharmacology* 51:659-670.
 Pastalkova E, Serrano P, Pinkhasova D, Wallace E, Fenton AA, Sacktor TC (2006). *Science* 313:1141-1144.
 Malenka, RC & Nicoll, RA (1999), *Science*, 285, 1870-1874.
 Rioult-Pedotti M-S, Friedman D and Donoghue JP (2006), *Science*, 290, 533-536.

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