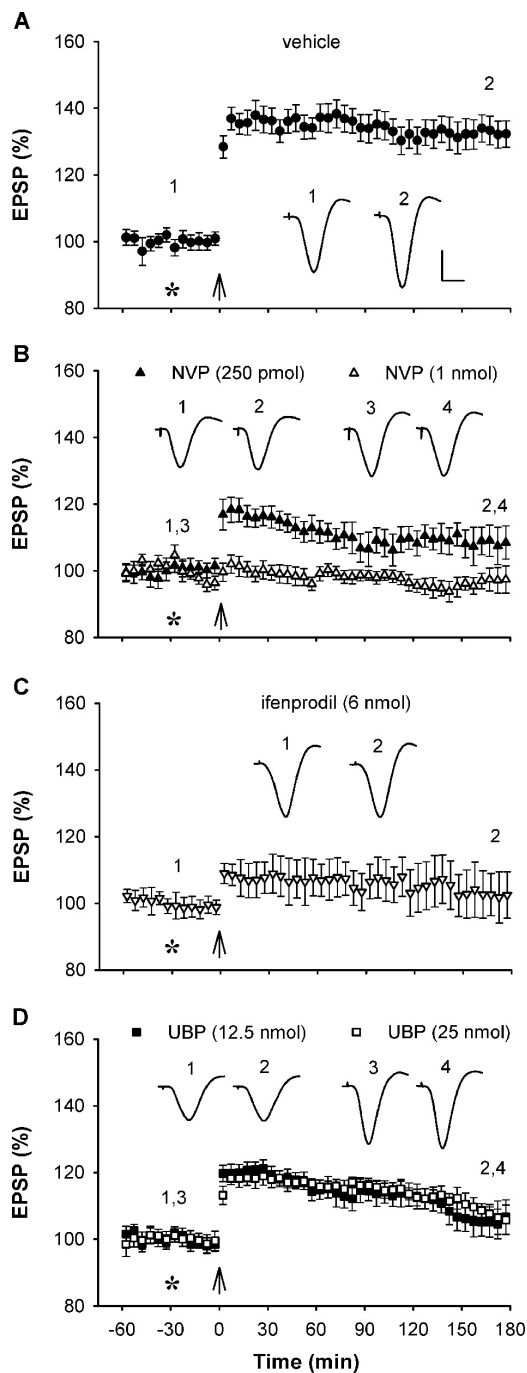
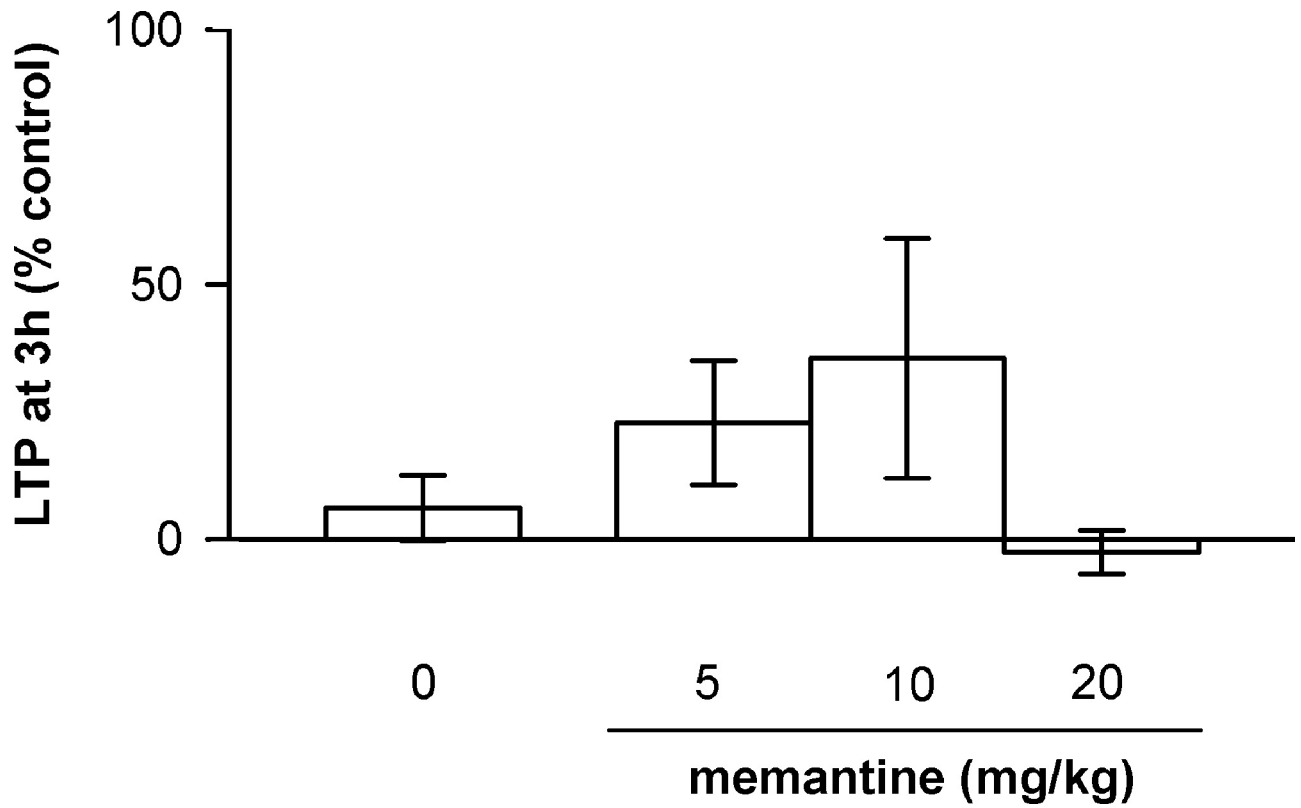


# Supporting Information

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**Fig. S1.** Dose-dependence of the inhibition of LTP by NMDAR antagonists. (A) Application of conditioning high frequency stimulation (HFS, arrow) triggered robust LTP ( $132.2 \pm 3.4\%$ ,  $n = 10$ ,  $P < 0.05$  compared to pre-HFS baseline, paired  $t$  test) in animals that received an intracerebroventricular injection of vehicle (asterisk,  $5 \mu\text{L}$ ). NVP-AAM077 (250 pmol or 1 nmol) (B), ifenprodil (6 nmol) (C), or UBP141 (12.5 nmol or 25 nmol) (D) inhibited LTP induction ( $108.0 \pm 4.6\%$ ,  $97.3 \pm 3.3\%$ ,  $102.1 \pm 7.1\%$ ,  $105.6 \pm 3.9\%$  and  $106.1 \pm 3.9\%$  pre-HFS mean baseline EPSP amplitude  $\pm$  SEM, respectively at 3 h post-HFS,  $n = 4-5$  per group;  $P < 0.05$  compared with vehicle-injected controls; one-way ANOVA followed by post hoc Tukey's test). Values are the mean percentage of pre-HFS baseline EPSP amplitude ( $\pm$ SEM). Insets show representative EPSP traces at the times indicated. Calibration bars: vertical, 2 mV; horizontal, 10 ms.



**Fig. S2.** Dose-dependence of the effects of memantine on the inhibition of LTP by  $A\beta_{1-42}$ . Systemic (i.p.) injection of memantine (5 mg/kg,  $n = 3$ ; 10 mg/kg,  $n = 5$ , and 20 mg/kg,  $n = 3$ ) only partly prevented the  $A\beta_{1-42}$ -mediated inhibition of LTP ( $A\beta_{1-42}$  alone,  $n = 5$ ). LTP values are expressed as the mean % control magnitude of LTP ( $\pm$ SEM).



