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Supplementary Data

Selective Impairment of Some Forms of Synaptic Plasticity by Oligomeric Amyloid-β Peptide in the Mouse Hippocampus: Implication of Extrasynaptic NMDA Receptors

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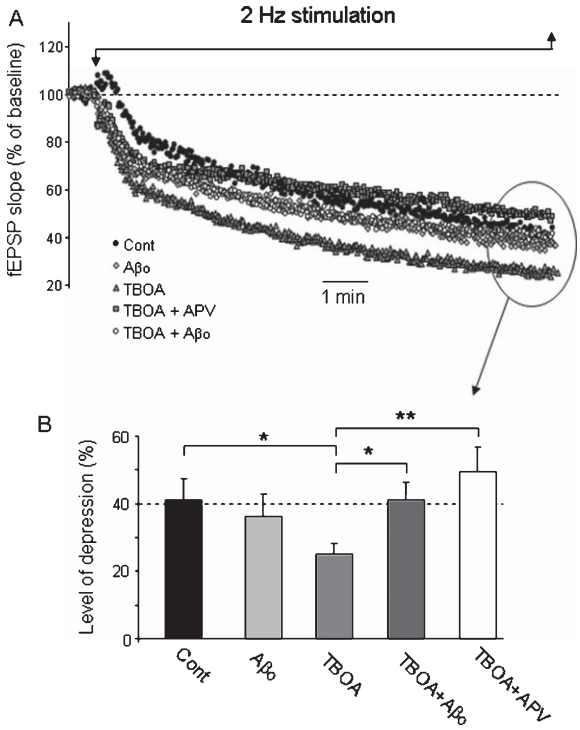
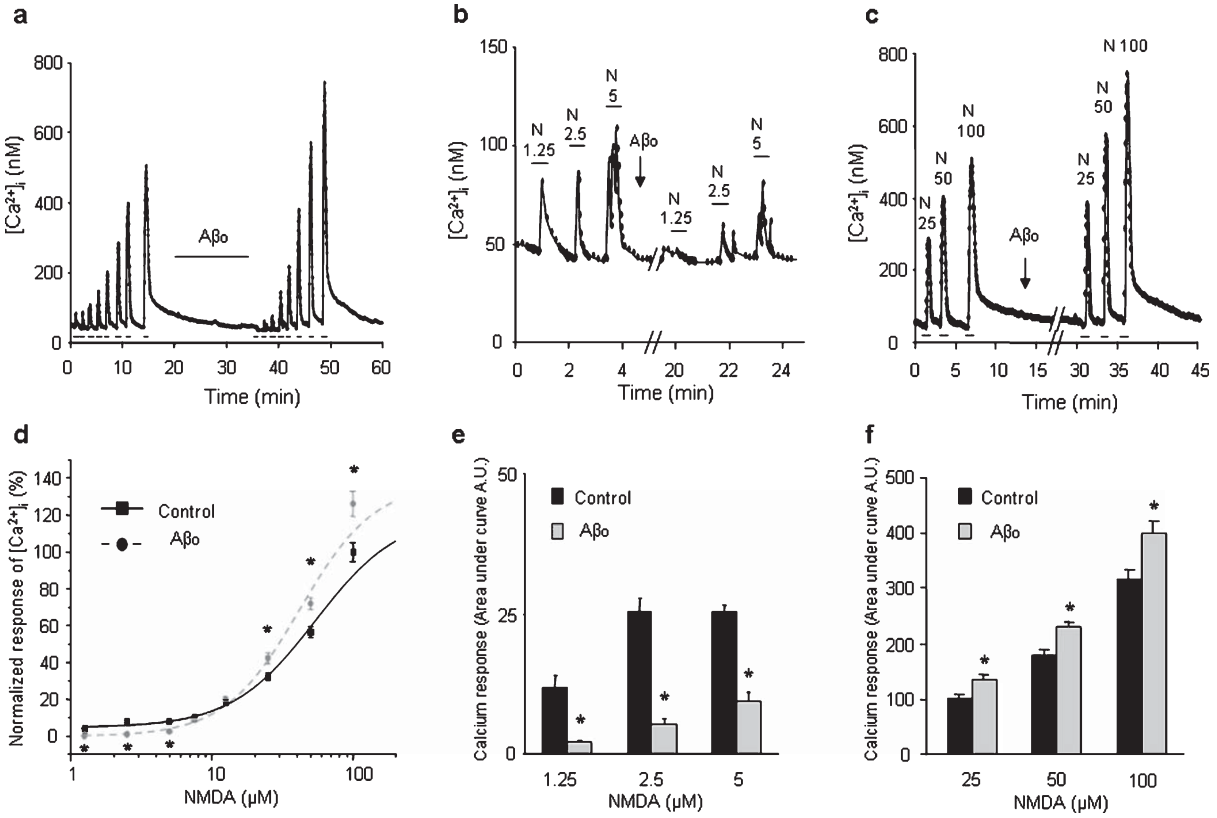


Supplementary Figure 1. Measurement of AMPA-mediated fEPSP slopes during the 2 Hz stimulation. This figure is a complement of Fig. 3A2. We measure the time-course of AMPA-mediated responses during the repetitive stimulation required for LTD induction (2 Hz, 10 min pulse) (A). The depression of fEPSP observed during this protocol was significantly enhanced by TBOA (10 μM). This enhancement was antagonized by Aβ (200 nM) and by APV (80 μM). The bar graph in (B) gives the values of the mean amplitude of the last 20 fEPSPs responses.



Supplementary Figure 2. Aβ oligomers differently affect NMDAR-mediated Ca^{2+} responses depending on NMDA concentration. a) Time-lapse Fura-2 Ca^{2+} imaging of NMDAR activation mediated by the bath application of 1.25 to 100 μM NMDA before and after Aβo application (100 nM). b,c) Selection from (a) of NMDAR-mediated Ca^{2+} responses induced by low doses of NMDA (1.25, 2.5, and 5 μM) showing a depressive effect of Aβo on these responses (b) or high doses of NMDA (25, 50, and 100 μM) showing a potentiating effect of Aβo (c). d) Graph representing normalized Ca^{2+} responses against NMDA concentrations measured before (dashed gray line) or after (solid black line) Aβo treatment (100 μM) for 15 min. Data were calculated from three independent experiments and represent means ± s.e.m. ($N = 3$, $n = 87$). e, f) Histograms representing the area under the curve during the 2 min following each NMDA application (30 s) means ± s.e.m ($N = 3$, $n = 87$). Quantification of NMDAR-mediated Ca^{2+} responses induced by low doses of NMDA (1.25, 2.5, and 5 μM) (e) or high doses of NMDA (25, 50, and 100 μM) (f). $^{*}p < 0.01$ for a comparison between the test group and the corresponding control by ANOVA followed by a Fisher PLSD test.