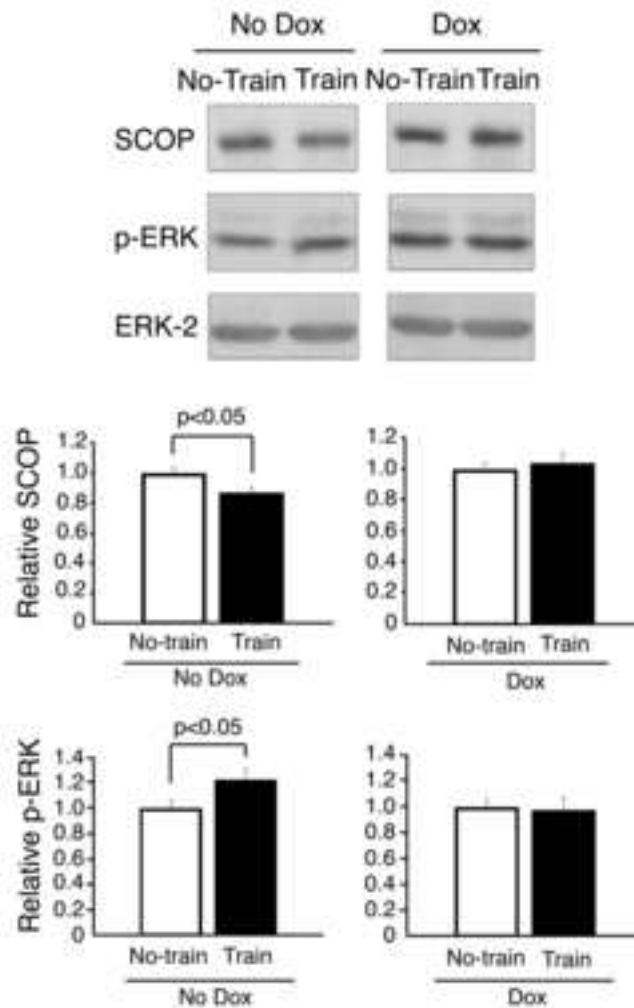


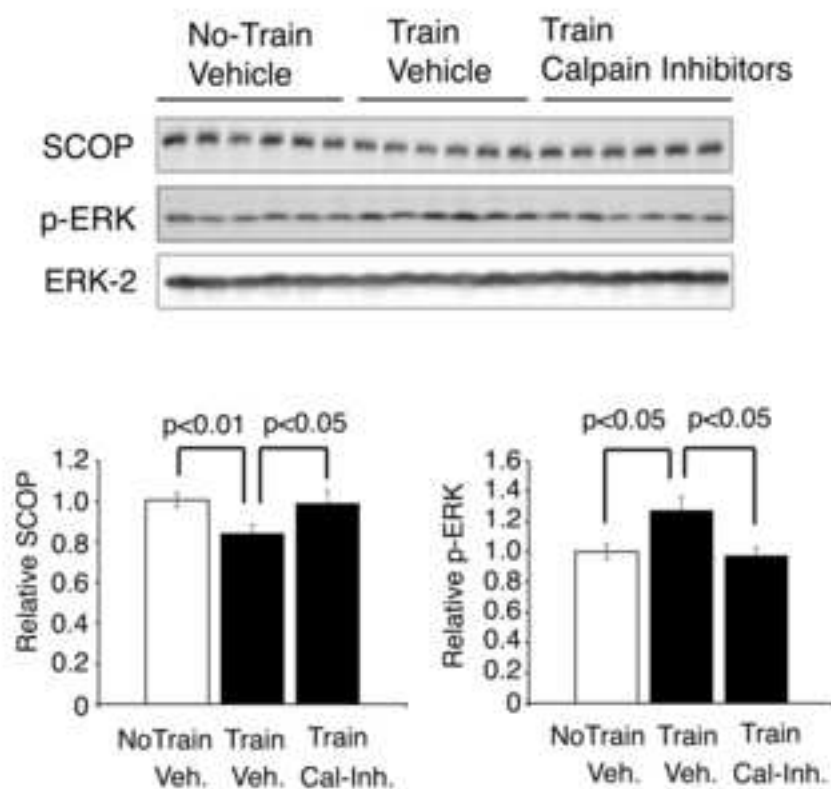
Supplemental Figure1. Inhibition of SCOP by siRNA expressing stimulates ERK activation

Cultured hippocampal neurons (day 7 *in vitro*) were infected with lenti-virus expressing short hairpin type of SCOP siRNA or scrambled RNA of the same composition (Infection efficiency was approximately 88.0 %). The neurons were harvested 68 hr after infection and analyzed by Western analysis. Some of these neurons were treated with BDNF (5ng/ml) and harvested 5 min after BDNF application. Error bars, SEM (n=2).



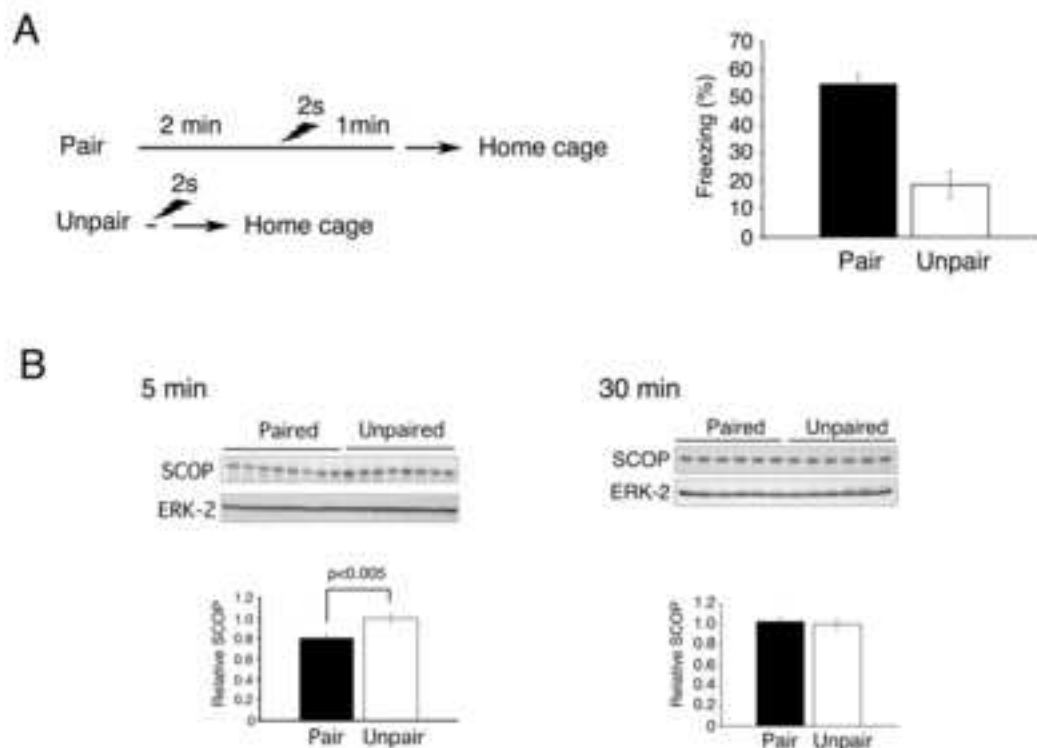
Supplemental Figure 2 Overexpression of SCOP Inhibits ERK Activation during Novel Object Training

SCOP and p-ERK in the hippocampus from SCOP overexpression mice (Dox) or control mice (NoDox) were analyzed by Western analysis 5 min after novel object training. SCOP and p-ERK proteins were normalized to ERK-2. Error bars, SEM (n=5 Train mice, n=4 No-Train mice).



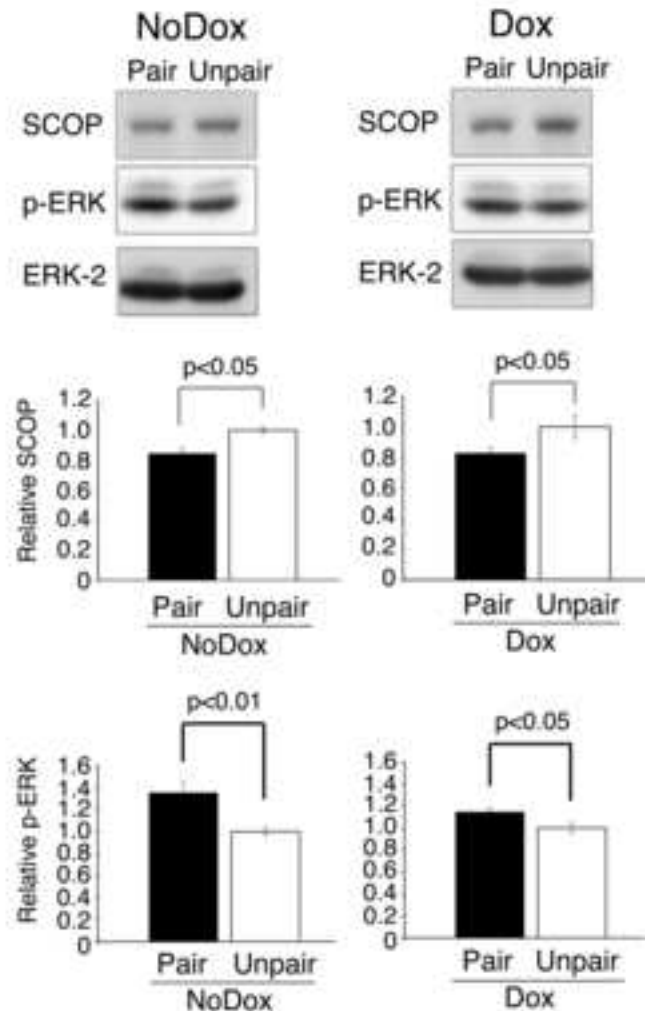
Supplemental Figure 3. Calpain inhibitors inhibit SCOP degradation after Novel Object Training

A calpain inhibitor cocktail containing a mixture of calpeptin, calpain inhibitor I and calpain inhibitor III or vehicle was bilaterally infused in area CA1 in the hippocampus. Mice were trained 45 min after infusion. The levels of SCOP and p-ERK in cannula tip areas (approximately 2.5 mm³) from individual trained and untrained mice 5 min after training are shown on the Western blot. SCOP protein was normalized to ERK-2. Error bars, SEM (n= 6).



Supplemental Figure 4. Contextual Fear Conditioning Decreases SCOP in the Hippocampus

(A) Mice trained for contextual fear were placed in the training context and two min later they received a two sec shock (paired). Unpaired controls were shocked 2 sec immediately after being placed in context. Paired mice, measured 24 hr after training, showed memory; unpaired controls did not. Error bars, SEM ($n = 8$ mice for paired, $n = 7$ mice). (B) SCOP in the hippocampus from paired and unpaired mice was analyzed by Western analysis 5 and 30 min after training. The levels of SCOP from individual paired and unpaired mice 5 min after training were shown on the Western blot. SCOP protein was normalized to ERK-2. Error bars, SEM ($n = 8$ 5min after training, $n = 6$ 30min after training).



Supplemental Figure 5. Overexpression of SCOP partially inhibits ERK activation during contextual fear conditioning

SCOP overexpressing (Dox) mice and control (NoDox) mice trained for contextual fear were placed in the training context and two min later they received two sec shocks (pair). Unpaired controls were shocked 2 sec immediately after being placed in context. SCOP and p-ERK in the hippocampus from SCOP overexpression mice and control mice were analyzed by Western analysis 5 min after contextual training. SCOP and p-ERK proteins were normalized to ERK-2. Error bars, SEM (n=4).