Figure S4 (Lebeau et al, 2010)

A  'Constitutive' Stau2 dependent mRNA trafficking

B  Block of mGluR-LTD after Stau2 knockdown

1. granules with mGluR-LTD-specific mRNAs are not formed in the absence of Stau2

2. Stau2 is necessary for Map1b mRNA loading into granules

3. Stau2 is required for translational activation (dissociation of Map1b mRNA/ribosomes)

Figure S4. Model of Stau2 regulation of Map1b mRNA granules and mGluR-LTD. (A) Following export of transcripts from the nucleus (top), Stau2 and FMRP associate and form an mRNA-protein complex containing ribosomes. This RNA granule is transported along microtubules into dendrites with the help of motor proteins (kinesins and dyneins). In response to mGluR-LTD induction (bottom) (1), Stau2 regulates the dissociation of Map1b mRNA and ribosomes with the granule (2), subsequently mRNA is locally translated into new protein (3) to cause AMPAR internalization and LTD (4). (B) Possible mechanisms explaining the block of mGluR-LTD after knockdown of Stau2: (1) mRNA granules sensitive to DHPG are not formed in the absence of Stau2; (2) Stau2 is necessary for Map1b mRNA loading into granules; (3) Stau2 is required for translational activation (dissociation of Map1b mRNA and ribosomes).