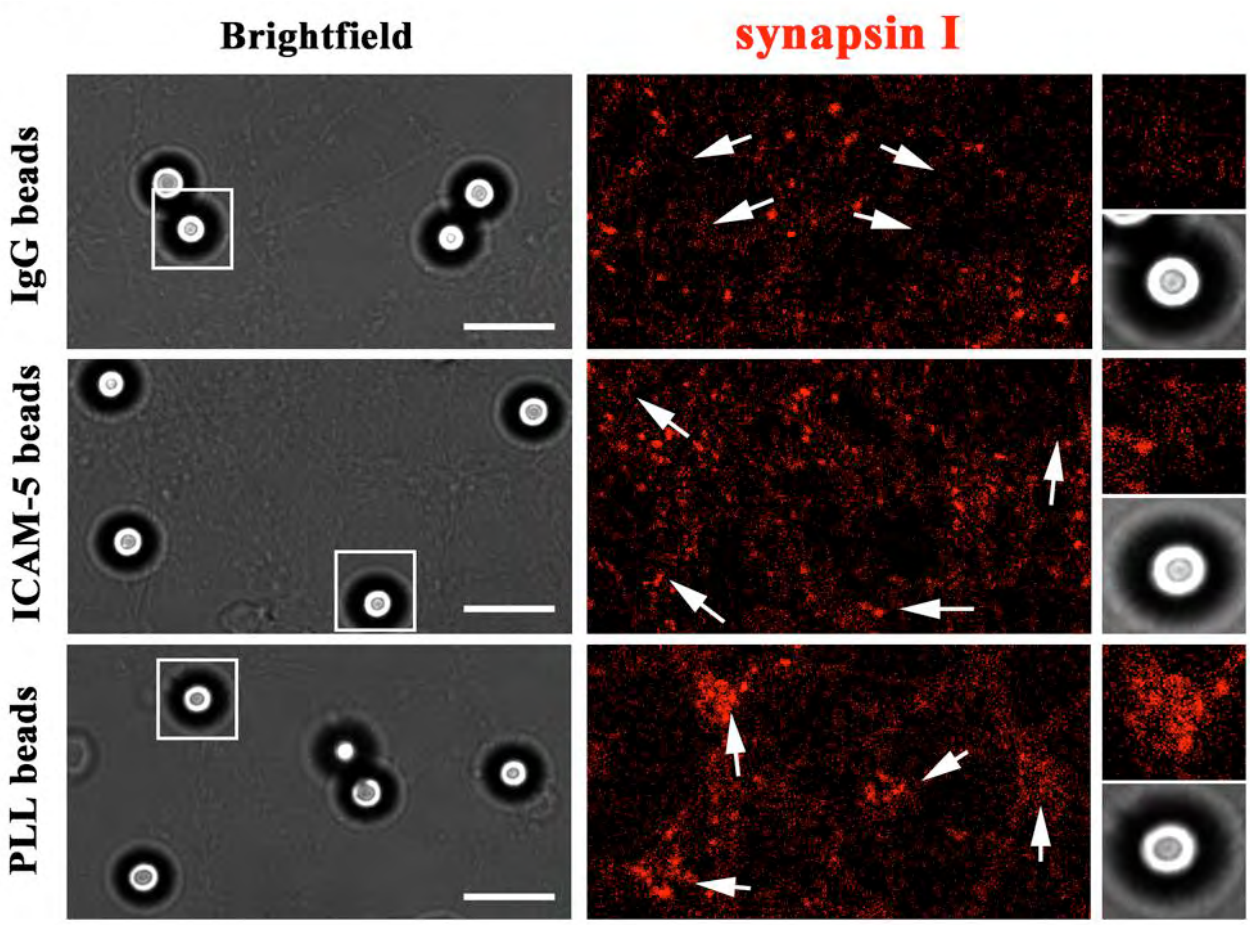

Fig. S1. ICAM-5-Fc coated beads do not induce recruitment of synaptic proteins. 13 DIV neurons incubated for 24 h with ICAM-5, human IgG or PLL-coated beads were fixed and stained for synapsin I (red). The DIC images were presented for each corresponding fluorescent image. Arrows indicate the location of beads. Small windows: higher magnification images of the selected area. PLL-coated beads efficiently recruited synapsin I, but ICAM-5 coated beads did not. Scale bar = 10 μm.

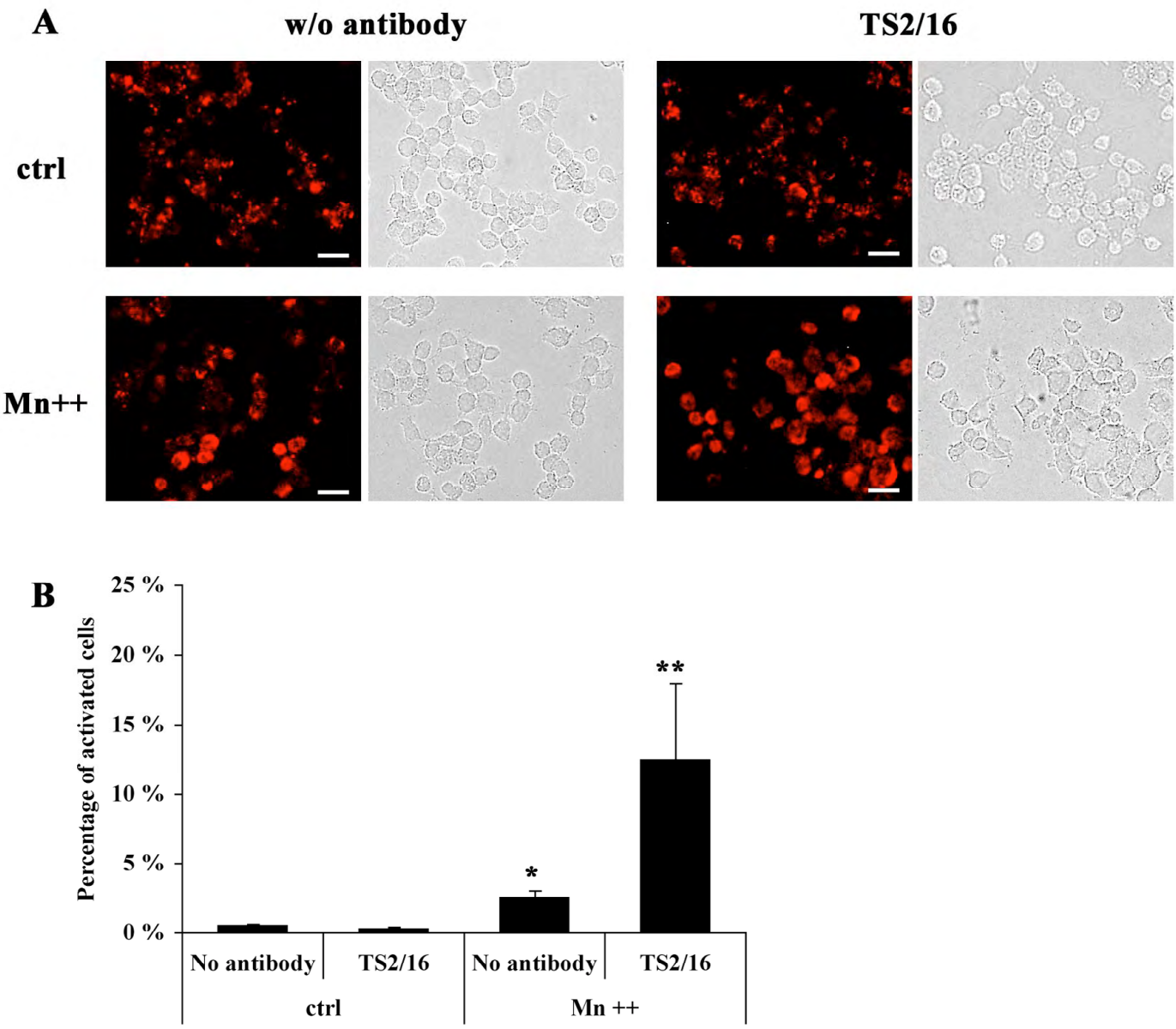

Fig. S2. TS2/16 activates mouse β1 integrins. (A) N2A cells were left untreated or treated with 10 μg/ml TS2/16, with or without 1 mM $MnCl_2$ and then immunostained with antibody 9EG7. In the presence of Mn^{++}, the number of activated N2A cells significantly increased. Activated cells: cells with fully distributed activated β1 integrin-immunosignal along the membrane. Scale bar = 20 μm. (B) Quantification of activated N2A cells. Error bars indicate mean ± s. d. *: $p<0.01$; **: $p<0.005$.

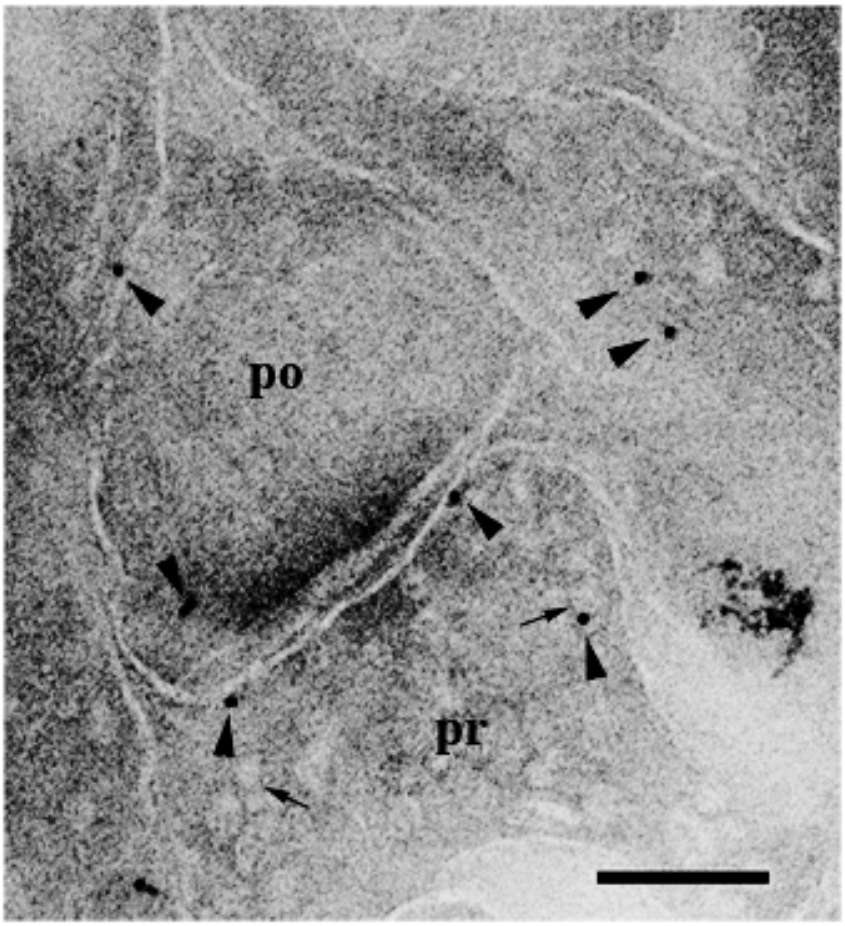

Fig. S3. Immuno-electron microscopy studies on β1 integrins distribution at synapses. Representative electron micrograph of synaptic contacts in the mouse hippocampal region. The β1 integrin polypeptide was labeled with β1 antibody conjugated to 10 nm gold particles (indicated by arrowheads). In the synaptic region, β1 integrins were found in the spine heads (post-synaptic sites, po) and in the active zone (az) and synaptic vesicles (sv, indicated by arrows) of the pre-synaptic terminals (pr). Scale bar = 0.2 μm.

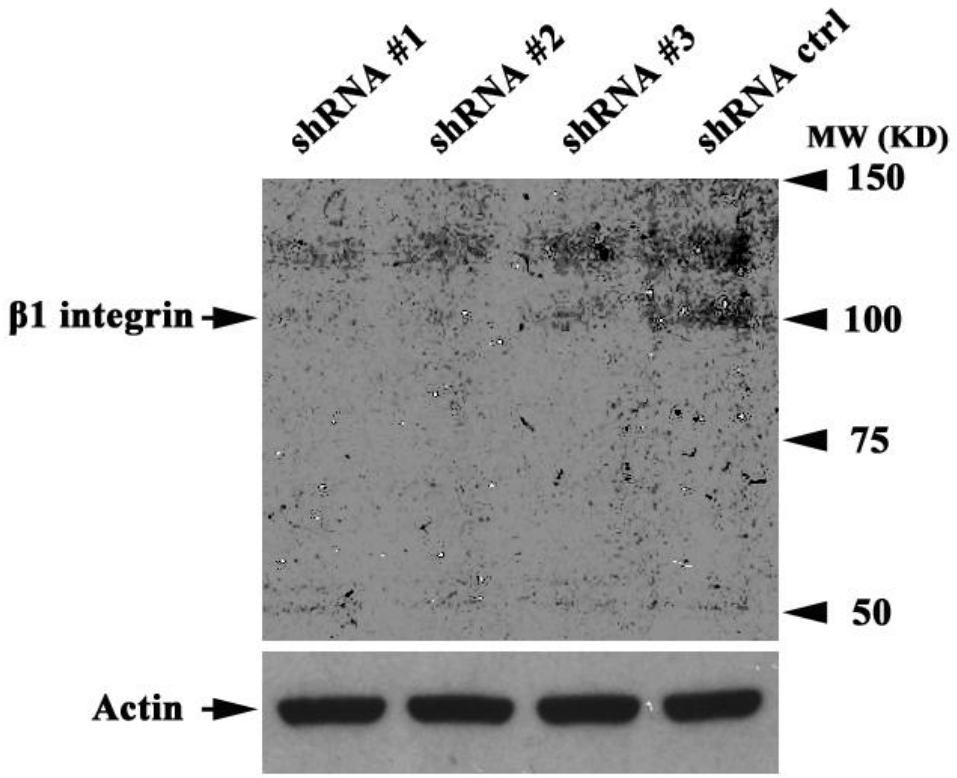

Fig. S4. Lentiviral β1 integrin-shRNA down-regulates β1 integrin expression in N2A cells. N2A cells were transfected with β1 integrin-shRNA plasmids V2LMM_39157, V2LMM_188403, V3LMM_429934 and pGIPZ empty vector. Cell lysates were collected 48 hr after transfected and β1 integrin expression was detected by Western blotting.