



**Supplementary figure 1: The surface dynamics properties of GABA<sub>A</sub> receptors are identical regardless of how inhibitory postsynaptic sites are identified.** These single nanoparticle tracking experiments were performed at DIV14 on cultured hippocampal neurons transfected with  $\gamma 2$ -GABA<sub>A</sub> subunit fused with a SEP tag and gephyrin fused with a mRFP (18 neurones, 1564 trajectories). **(A)** Cumulative probabilities diffusion coefficient of GABA<sub>A</sub> receptors in inhibitory (inh) and extrasynaptic areas (ext) in analyses where inhibitory synapses have been identified using either SEP or mRFP (geph) fluorescence. **(B)** Bar graphs illustrating the instantaneous diffusion coefficient ( $D$ , represented as median  $\pm$  interquartile range 25-75%) in ext and inh areas for both types of analysis. **(C)** Comparison of GABA<sub>A</sub> receptors mean square displacements (MSD, represented as mean  $\pm$  SEM) in ext and inh areas for both types of analysis. **(D)** bar graphs illustrating the explored surface area (EA, represented as median  $\pm$  interquartile range 25-75%) in ext and inh areas for both types of analysis. Ns, non-significant, nonparametric Mann-Whitney test.