Supporting Information

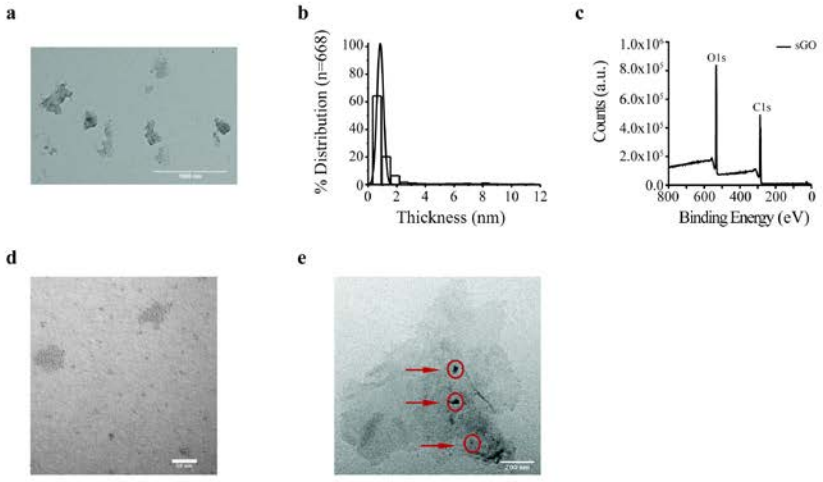

Figure S1. (a) TEM image of s-GO sheets. (b) s-GO thickness distribution. (c) XPS survey of s-GO. (d) TEM image of QD. (e) TEM image of the s-GO-QD

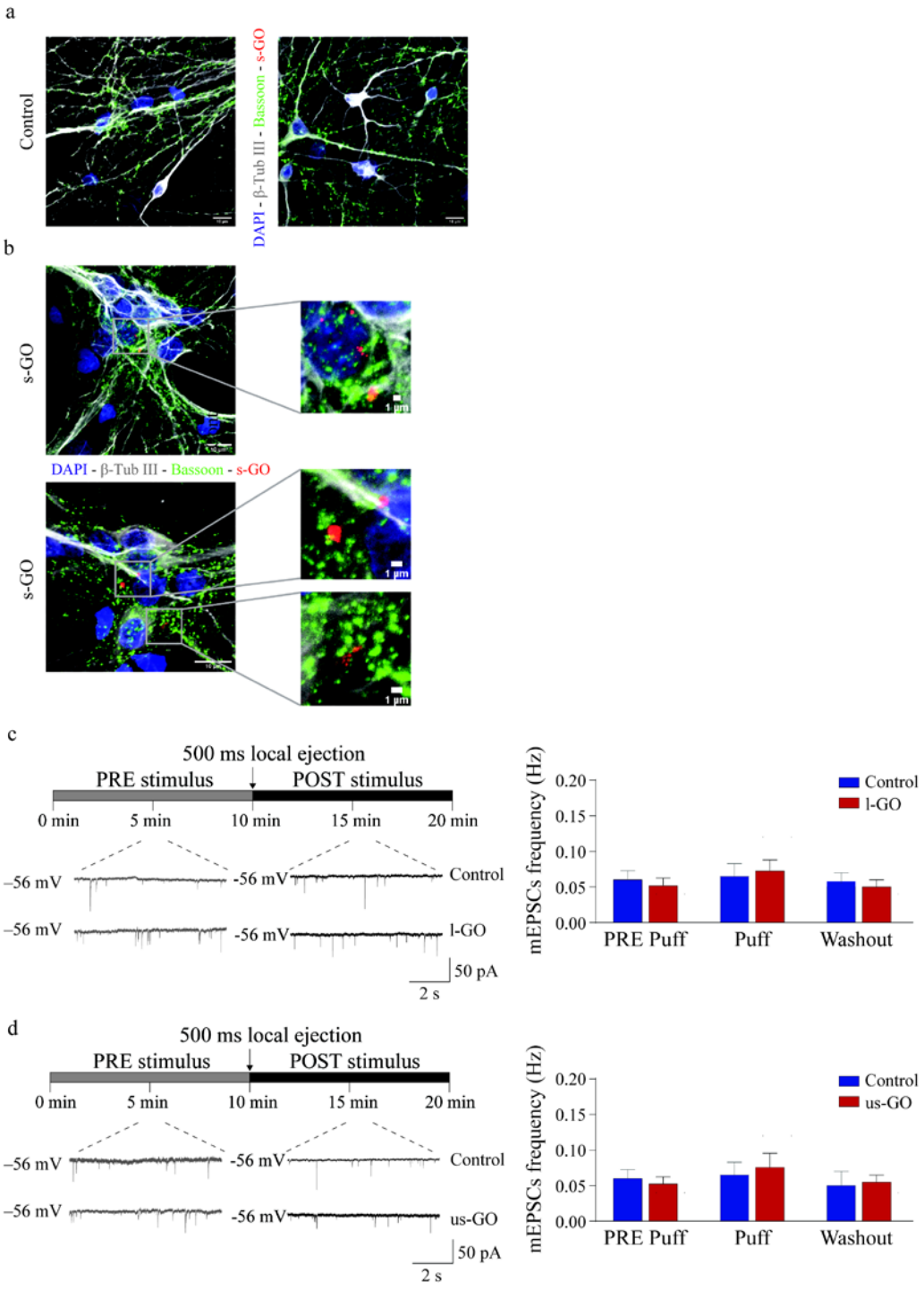

Figure S2. GO flakes interactions with synapses depends on the flakes dimensions.

In (a) and (b) representative confocal reconstructions of hippocampal neurons in control (a) and treated with s-GO (b). Cultures were stained for DAPI (in blue), to visualize nuclei, for β-tubulin III (in grey) to visualize neurons and for bassoon (in green) to identify presynaptic terminals. s-GO (in red) was visualized by confocal reflection mode.[58] Images were acquired with a 60 × objective in oil with a XY resolution of 70 nm/pixel (in s-GO) and of 50 nm/pixel (in control), in both conditions a Z resolution of 0.25 μm/stack was used. In (a) 100 μm × 100 μm field fields are shown. In (b) the fields shown are 100 μm × 100 μm (left panels) and 50 μm × 50 μm (right panels).
(c) Top: diagram of the experimental protocol. Bottom: representative tracings of the spontaneous synaptic activity detected prior and after puff applications of control saline (Control, top) or l-GO (bottom). Recordings of mEPSCs are performed in the presence of TTX. Right plots of pooled data summarize the average mEPSCs frequency before (PRE puff) and after (Washout) saline (Control) or l-GO (100 μg/mL final concentration) pressure ejections. (d) Top: diagram of the experimental protocol. Bottom: representative tracings of the spontaneous synaptic activity detected prior and after puff applications of control saline (Control, top) or us-GO (bottom). Recordings of mEPSCs are performed in the presence of TTX. Right plots of pooled data summarize the average mEPSCs frequency before (PRE puff) and after (Washout) saline (Control) or us-GO (100 μg/mL final concentration) pressure ejections.