**Additional file 6**

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**Figure S6**.Optogenetic inactivation of Arch-expressing SST interneurons has no effect on the power of gamma oscillations. **a** Experimental schematic showing sinusoidal (5 Hz) blue light (470 nm) stimulation of ChR2-expressing PC, tonic yellow light (590 nm) stimulation of Arch-expressing SST interneuron (Arch-SST) and field recording in CA1 area of DMSO-treated hippocampal slices *in vitro*. **b** Sinusoidal blue light stimulation induces theta-nested gamma oscillations as shown in the band-pass filtered LFP (top) and the corresponding spectrograms (bottom) without (left) or with (right) tonic yellow light stimulation. **c-e** Representative PSD (**c**, shade indicates SEM), mean normalized peak power (**d**), and mean peak frequency (**e**) of the gamma oscillations without (black) and with tonic yellow light to inactivate Arch-SST (yellow) during blue light stimulation to induce gamma oscillations in DMSO-treated hippocampal slices (*n* = 6). **f, g** Representative comodulograms showing phase-amplitude coupling of gamma oscillations to theta cycle (**f**) and mean modulation index (**g**) in each condition. Paired Student’s *t-*test (ns: not significant). Data are represented as mean ± SEM.