

## **Description of Additional Supplementary Files**

**Supplementary Movie 1:** Fusion of Synaptophysin-pHluorin-labelled synaptic vesicles upon field stimulation (100 action potentials at 40 Hz). Final NH<sub>4</sub><sup>+</sup> superfusion dequenches pHluorin and renders the labelled pool of synaptic vesicles visible. Scale bar = 2 μm.

**Supplementary Movie 2:** Fusion of individual NPY-pHluorin-labelled dense core vesicles upon high frequency stimulation (16 trains of 50 action potentials at 50 Hz). Final superfusion with NH<sub>4</sub><sup>+</sup> dequenches pHluorin and renders the labelled pool of dense core vesicles visible. Scale bar = 5 μm.