

**Supplementary information, Figure S5**  $\alpha$ ,  $\beta$ -MeATP-induced endocytosis of P2X<sub>3</sub>-Myc-GFP rather than  $\alpha$ ,  $\beta$ -MeATP-induced ERK activation *via* P2X<sub>3</sub> receptor is dependent on dynamin.

(A) Dynasore pre-treatment abolished  $\alpha$ ,  $\beta$ -MeATP-induced endocytosis of P2X<sub>3</sub>-Myc-GFP in HEK293 cells. \*, P < 0.05 versus control, \*\*\*, P < 0.01 versus indicated treatment, n = 3. (**B**)  $\alpha$ ,  $\beta$ -MeATP-induced ERK phosphorylation *via* P2X<sub>3</sub> receptor was not affected by dynasore in HEK293 cells. (**C**) Local ERK activation by  $\alpha$ ,  $\beta$ -MeATP application to the axon terminal in microfluidic chamber was not affected by dynasore pre-treatment in the same compartment. \*, P < 0.05 versus vehicle treatment, n = 3.