

**Supplementary information, Figure S7** Interfering of clathrin- and caveolae-mediated endocytosis. To confirm the effect of  $K^+$ -depletion on inhibiting clathrin-mediated endocytosis, the cells were pre-treated in the control or  $K^+$ -depletion medium at 37 °C for 1 h **(A)**. To confirm the effect of filipin on blocking caveolae-mediated endocytosis, the cells were pre-treated with filipin (1 µg/ml) at 37 °C for 1 h **(B)**. Then the cells were incubated with Alexa Fluor 488-conjugated transferrin and Alexa Fluor 555-conjugated Cholera Toxin Subunit B (CTB) at 37 °C for 15 min. After wash, the cells were imaged by confocal microscopy. Scale bar, 10 µm. **(C, D)** After the cells were pretreated with K<sup>+</sup>-depletion medium or filipin, the distribution of Myc-TβR1 (internalized for 30 min in the presence of TGF-β1) in the four intracellular compartments was quantified (n = 8-12 cells/condition).