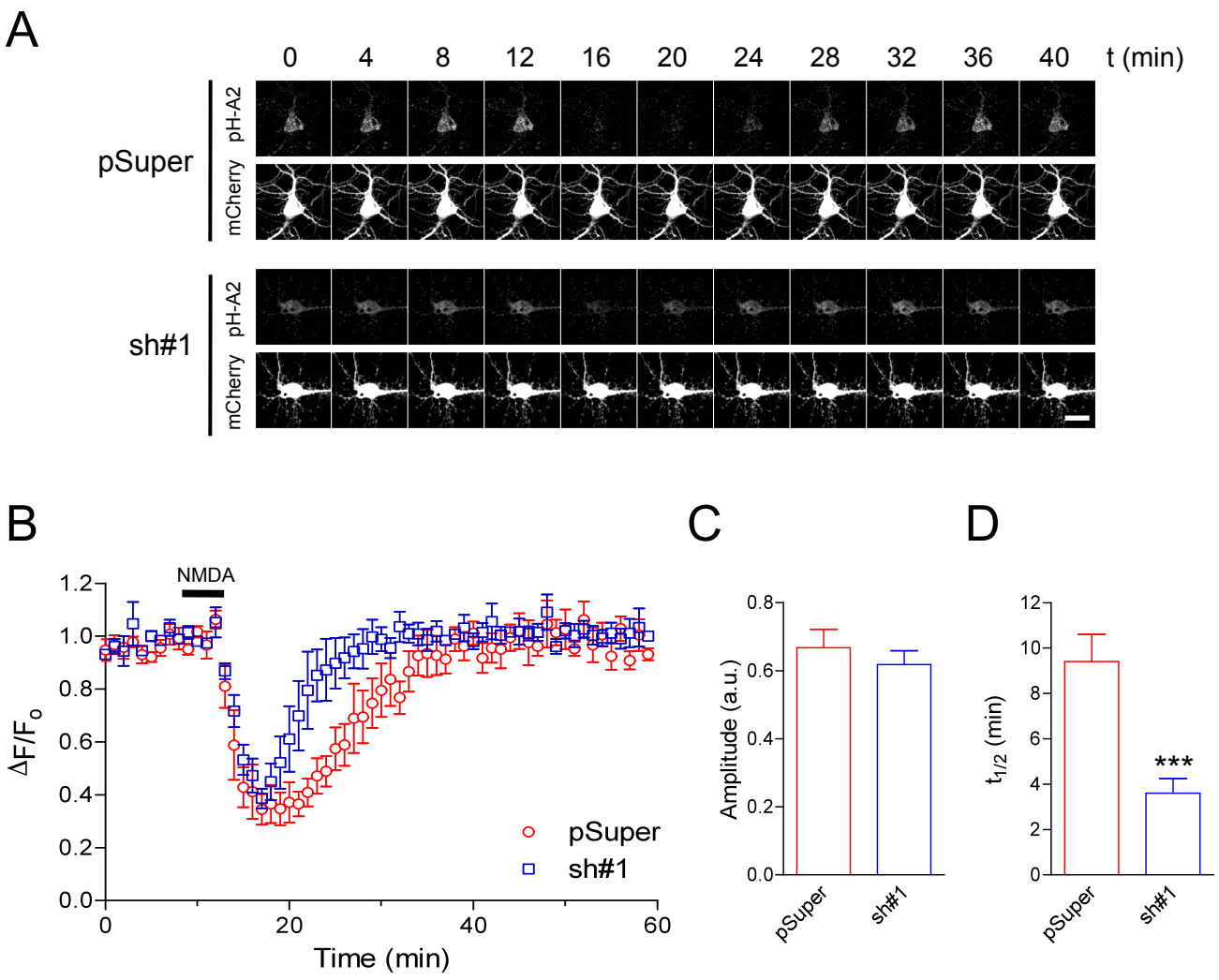
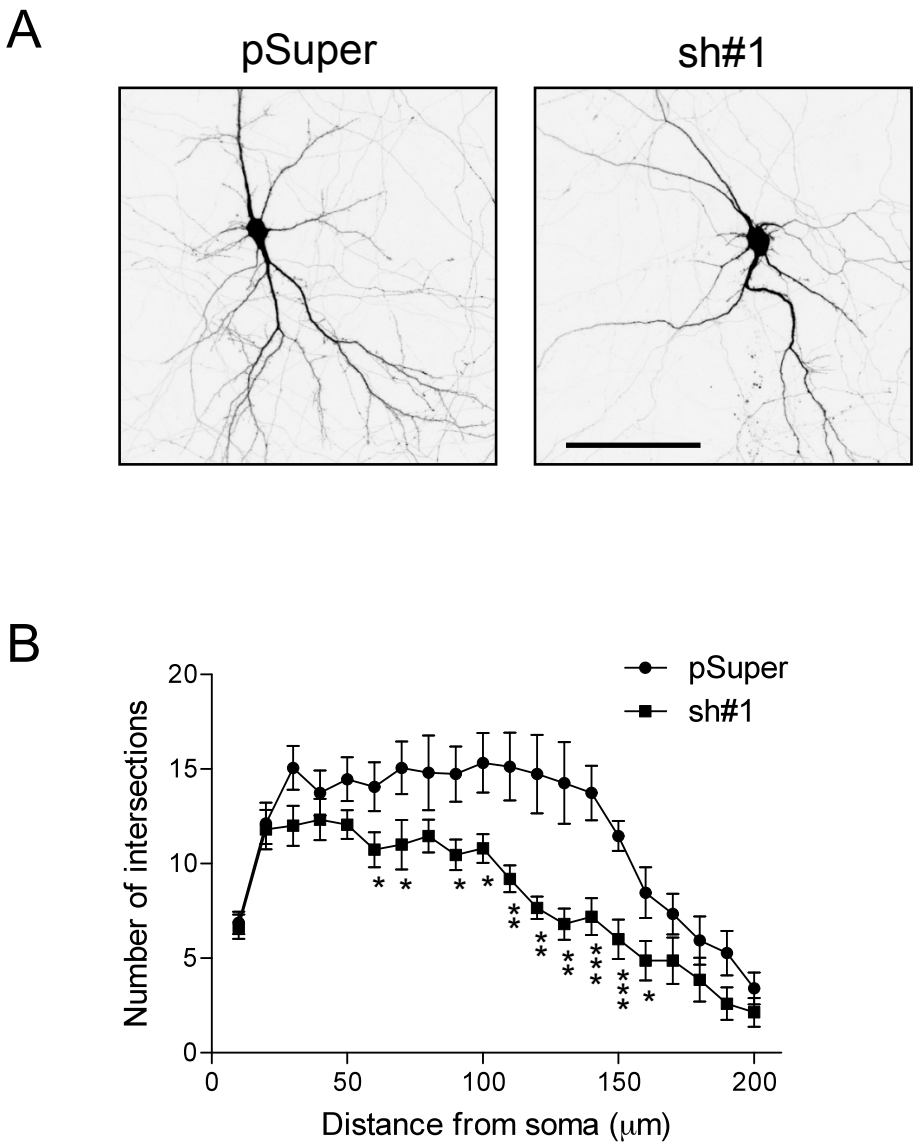


Supplementary Figure 1. *PICK1 knockdown accelerates the rate of GluA2 recycling upon NMDA stimulation*. Cultured hippocampal neurons were transfected with either pSuper-Venus or pSuper-Venus::PICK1 shRNA together with pH-sensitive GFP-GluA2 (pH-GluA2) reporter and mCherry at DIV15. At DIV17, neurons were stimulated with 20 μM NMDA for 3 min and changes in pH-GluA2 fluorescence were monitored by live-cell confocal microscopy. A. Representative series of images from control and PICK1 knockdown neurons. Scale bar, 10 μm. B. Average time course of pH-GluA2 fluorescence change (ΔF) normalized to initial fluorescence (F_o). Quantification of the amplitude of pH-GluA2 fluorescence change (C) and its recycling rate, $t_{½}$ (D) in response to NMDA stimulation and after NMDA washout, respectively. Data represent mean ± S.E.M. (Student's *t*-test, *** $P < 0.001$, n = 4).



Supplementary Figure 2. *PICK1 knockdown disrupts dendritic morphology in developing neurons* . A. Cultured cortical neurons were transfected with either pSuper-Venus or pSuper-Venus::PICK1 shRNA at DIV8 and imaged at DIV11. Scale bar, 100 μm. B. Sholl analysis for control and PICK1 knockdown neurons. Concentric circles with increasing radii were superimposed on Venus fluorescence images of neurons and the number of processes crossing each radius was counted. Data represent mean ± S.E.M. (Student's *t*-test, * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$, n = 15).