



**Fig S5. AtFH5 undergoes relocation toward the leading side in pollen tube during turning**

(a) Time-lapse images reveal the dynamic localization of AtFH5-EGFP within the pollen tube during AtLURE1.2-induced turning. Pollen derived from *FH5pro: FH5-EGFP; fh5* plants (Lan et al., 2018) was pollinated on WT stigma. Notably, the localization pattern of AtFH5-EGFP shifts gradually, becoming more concentrated on the leading side during turning. White arrowheads indicate the pollen tube growth direction. Scale bar, 5  $\mu\text{m}$ .

(b) Distribution of AtFH5-EGFP at three different time points. To quantitatively assess these localization changes, we measured the fluorescence intensity of AtFH5-EGFP along the yellow line indicated in the inset images. Red arrowheads indicate the peaks of fluorescence, which correspond to regions of increased AtFH5-EGFP accumulation during the turning process.