

SUPPLEMENTARY FIGURES

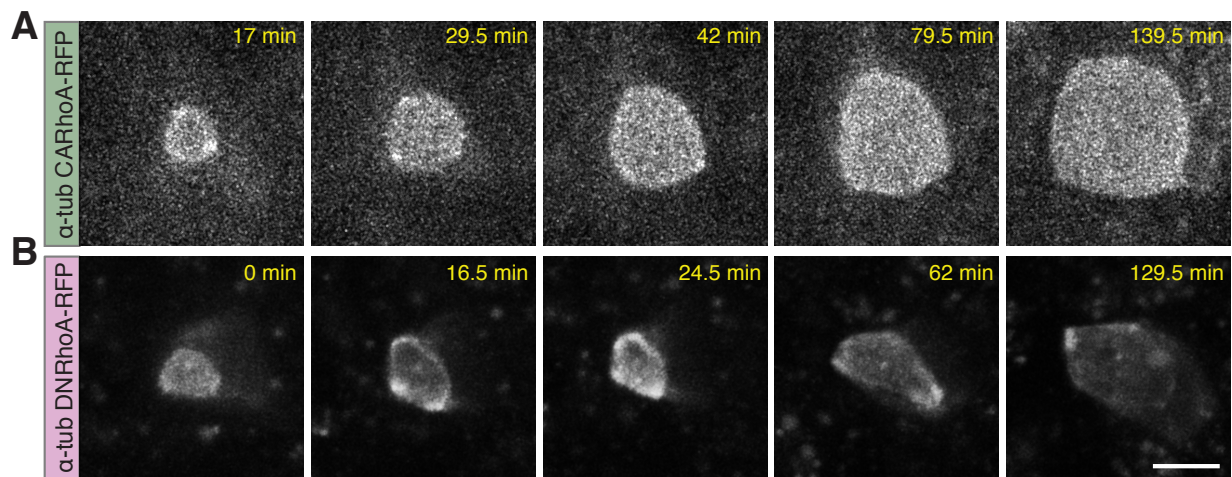


Figure S1. RhoA regulates apical emergence dynamics. (A) Image sequence of an apically emerging MCC upon expression of CA-RhoA-RFP specifically in MCC using a MCC-specific α -tubulin promoter. (B) Image sequence of an apically emerging MCC upon expression of DN-RhoA-RFP specifically in MCC using a MCC-specific α -tubulin promoter. Scale bar, 10 μ m.

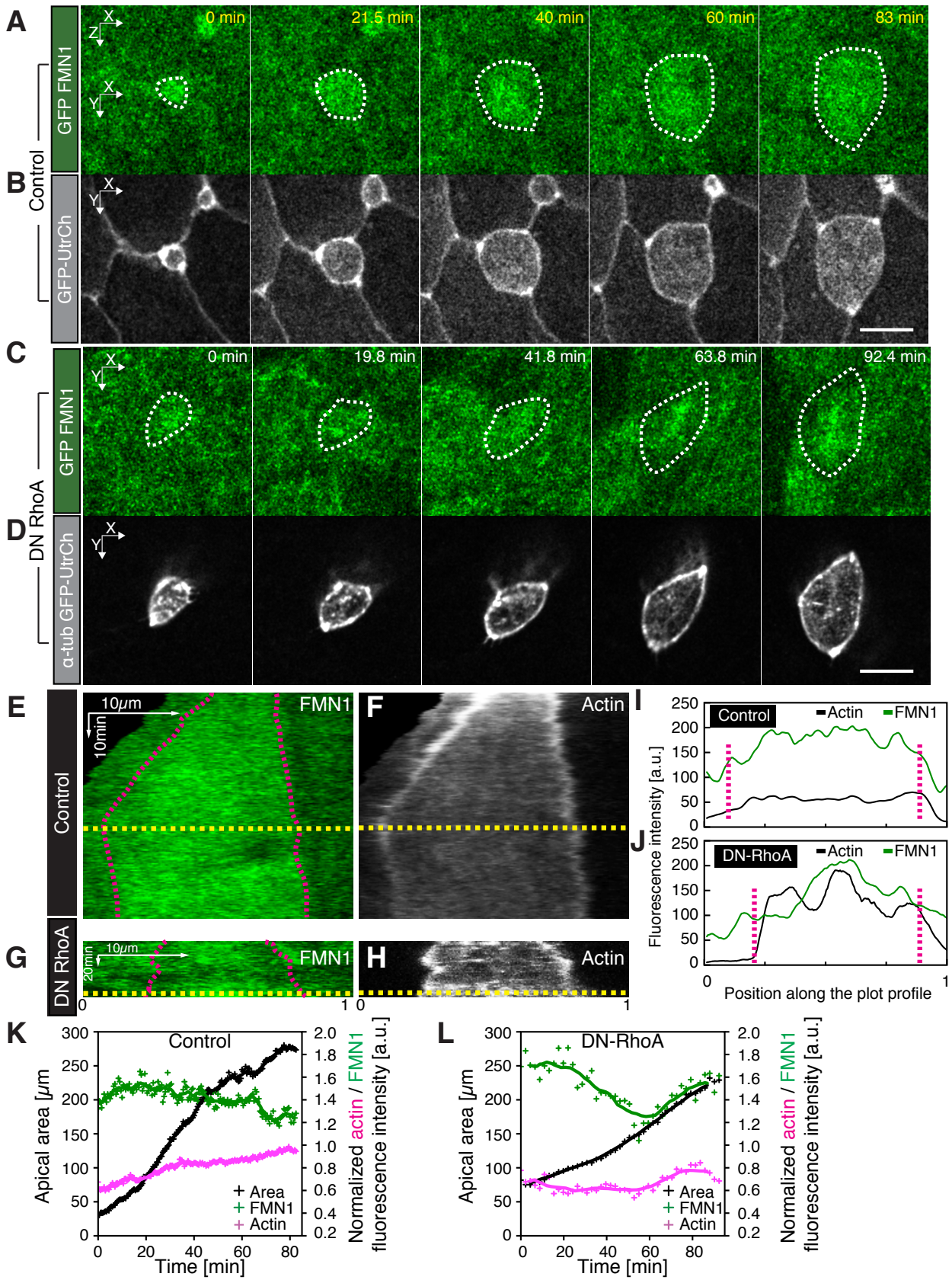


Figure S2. Expression of DN-RhoA impairs the localization and dynamics of formin 1. (A) Image sequence of fluorescently labelled Fmn1 (green) during apical emergence in a control cell. (B) Image sequence of an apically emerging control cell visualized with an actin marker, UtrCH (grey). (C) Image sequence of fluorescently labelled Fmn1 (green) during apical emergence upon expression of DN-RhoA. (D) Image sequence of an apically emerging cell visualized with actin marker, UtrCH (grey) upon expression of DN-RhoA. (E) Kymograph of FMN1 signal during apical expansion of a control cell. (F) Kymograph of actin signal (visualized by UtrCH) in a control cell. (G) Kymograph of FMN1 signal upon expression of DN-RhoA. (H) Kymograph of actin signal (visualized by UtrCH) upon expression of DN-RhoA. (I) Formin 1 and actin (visualized by UtrCH) fluorescence intensity profile along the apical domain diameter (yellow dotted line, starts at 0 and ends at 1) in controls and upon expression of DN-RhoA (J). (K) Dynamics of Fmn1 and actin in controls and upon expression of DN-RhoA (L). Scale bar, 10 μ m.

Table S1. Frequency of apical domain collapses and partial collapses in various experimental conditions. Apical domain partially collapses - the apical surface undergoes non-periodic damped oscillations, it expands and shrinks but does not fully collapse.

Conditions	% of collapsing / partially collapsing cells	*n =
Controls	0 / 3.3	30
α -tubulin CA-RhoA	0 / 3.3	23
α -tubulin DNRhoA	7 / 34.5	29
Formin 1 KD	30.6 / 20.4	49

* From n > 5 embryos

SUPPLEMENTARY MOVIE



Movie 1. Apical emergence of nascent multiciliated cells (MCCs) within *Xenopus laevis* epithelium. Time-lapse movie of an apically expanding MCC (visualized by α -tubulin UtrCH-GFP, grey) in controls, upon expression of CA-RhoA, and DN-RhoA. Scale bar, 10 μ m.