

## Description of Additional Supplementary Files

**File Name:** Supplementary Movie 1

**Description:** Time-lapse of a representative wild type follicle cell labeled with MyoII-mCherry. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 2

**Description:** Time-lapse of a representative Cdc42DN-expressing follicle cell labeled with mCD8 GFP and MyoII-mCherry. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 3

**Description:** Time-lapse of a representative Rho1DN-expressing follicle cell labeled with mCD8 GFP and MyoII-mCherry. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 4

**Description:** Time-lapse of a representative PA-Cdc42DN-expressing follicle cell labeled with MyoII-GFP and photoactivated (the photoactivation region covers the entire field of view). Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 5

**Description:** Time-lapse of a representative PA-Cdc42DN C450M-expressing follicle cell labeled with MyoII-GFP and photoactivated (the photoactivation region covers the entire field of view). Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 6

**Description:** Time-lapse of a representative PA-Cdc42DN-expressing follicle cell labeled with UtrABD-GFP and photoactivated (the photoactivated region covers the full field of view). Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 7

**Description:** Time-lapse of a representative PA-Cdc42DN C450M-expressing follicle cell labeled with UtrABD-GFP and photoactivated (the photoactivated region covers the full field of view). Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 8

**Description:** Time-lapse of a representative mCD8GFP-expressing follicle cell labeled with MyoII-mCherry. Laser ablation was performed along the AP axis. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 9

**Description:** Time-lapse of a representative mCD8GFP-expressing follicle cell labeled with MyoII-mCherry. Laser ablation was performed along the DV axis. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 10

**Description:** Time-lapse of a representative Cdc42DN-expressing follicle cell labeled with mCD8 GFP and MyoII-mCherry. Laser ablation was performed along the AP axis. Scale bar 5  $\mu\text{m}$ .

**File Name:** Supplementary Movie 11

**Description:** Time-lapse of a representative mCD8GFP-expressing egg chamber labelled with MyoII-mCherry. Laser ablation was performed along the AP axis. Scale bar 10  $\mu\text{m}$ .

**File Name:** Supplementary Movie 12

**Description:** Time-lapse of a representative mCD8GFP-expressing follicle cell labelled with MyoII-mCherry. Laser ablation was performed along the DV axis. Scale bar 10  $\mu\text{m}$ .

**File Name:** Supplementary Movie 13

**Description:** Time-lapse of a representative mCD8GFP-expressing egg chamber labelled with MyoII-mCherry. Laser ablation was performed over a segmented line along the AP axis. Scale bar 10  $\mu\text{m}$ .

**File Name:** Supplementary Movie 14

**Description:** Time-lapse of a representative mCD8GFP-expressing egg chamber labelled with MyoII-mCherry. Laser ablation was performed along the AP axis. Arrow heads indicate the current position of the filopodium. Scale bar 10  $\mu\text{m}$ .