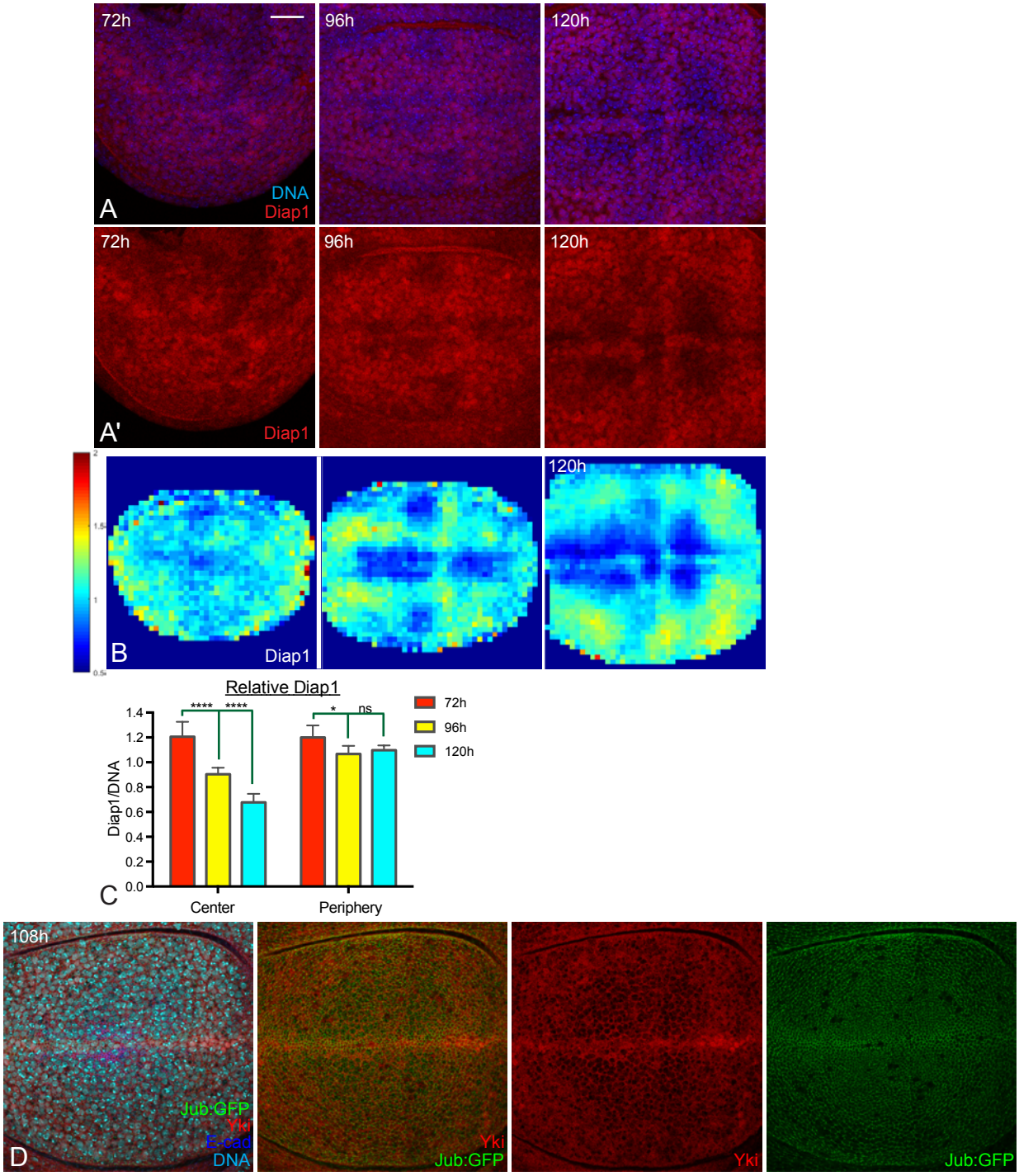
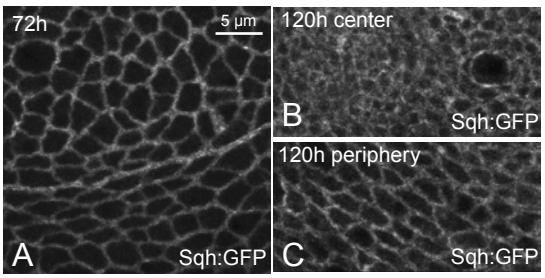
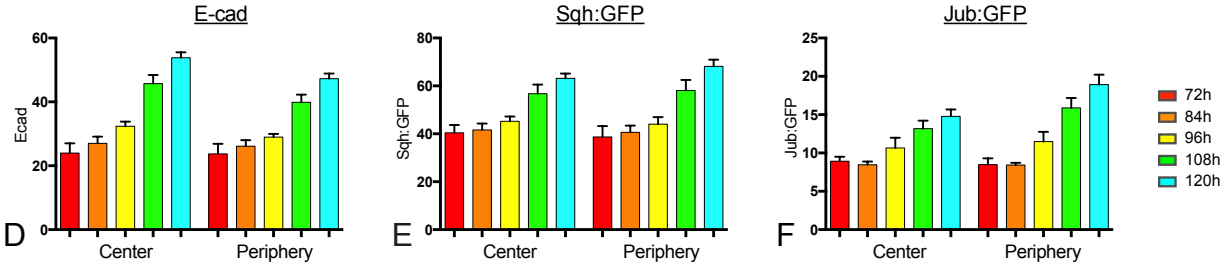
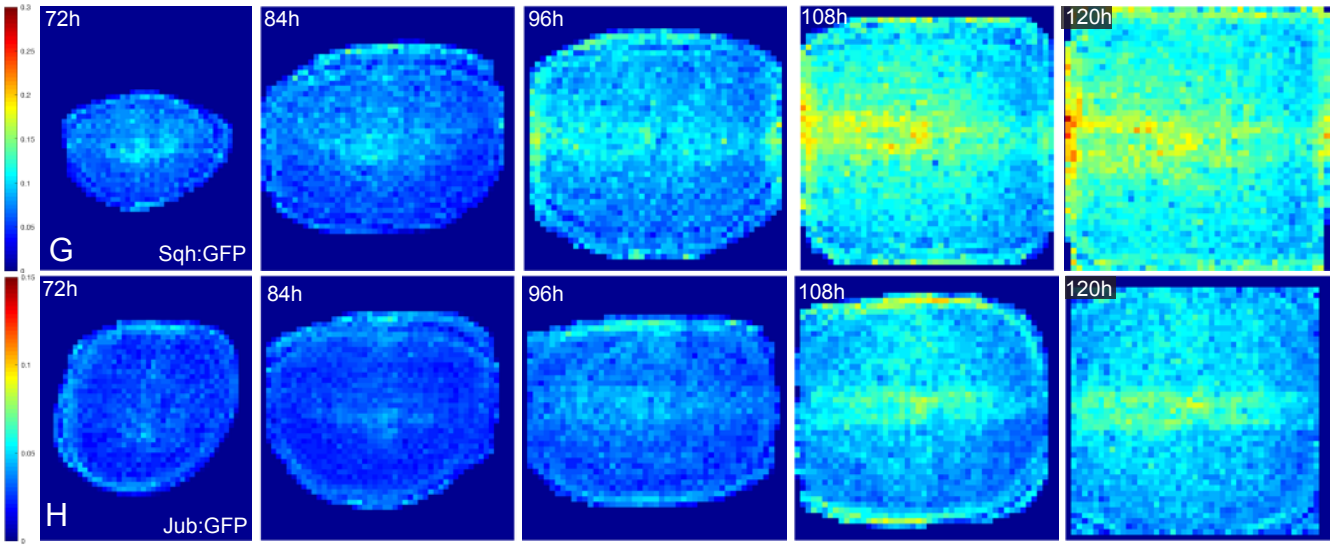
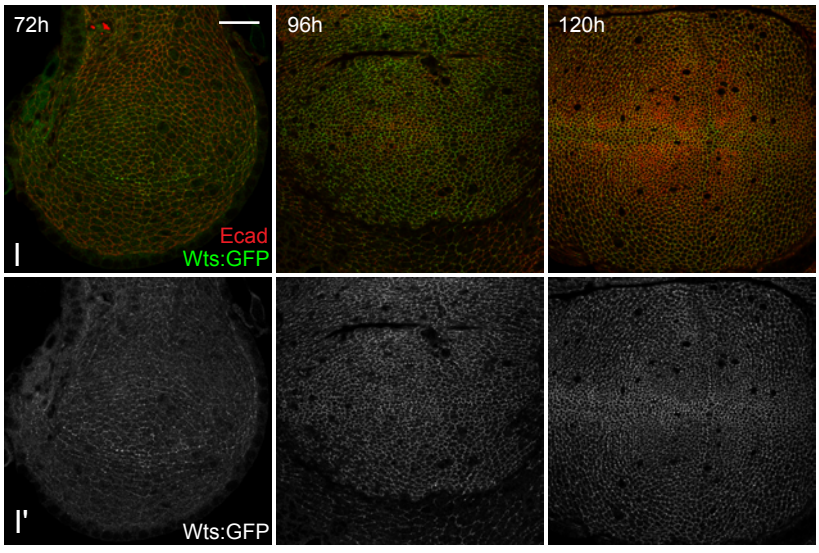


Figure S1. Additional characterization of the dynamics of Yki activity. (A) Wing discs at 72, 96 and 120 h AEL stained for DNA (Blue) and Diap1 (Red). Pictures were taken under identical conditions. Scale bar, 20 µm. (B) Heat maps of relative Diap1 intensity of wing discs from 72 to 120 h AEL (red, high; blue, low). Number of wing discs used for analysis: 72h (N=6), 96h (N=6) and 120h (N=5). (C) Histogram showing relative nuclear Diap1 levels in the central and peripheral regions of wing discs at different stages. N= 14 (72 or 120h) or 12 (96h). Statistical comparisons are shown relative to the 72h timepoint. Error bars indicate 95% confidence interval. D) Wing disc stained for DNA (cyan), E-cad (blue) and Yki red), and expressing Jub:GFP (green) to illustrate relationship between Yki and Jub pattern in a single disc at 108 h AEL.









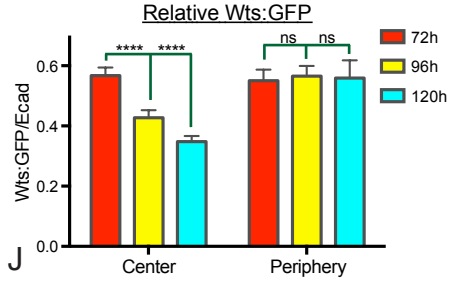


Figure S2. Additional characterization of the dynamics of Jub biomechanical signaling. (A-C) Zoomed in pictures of wing discs expressing Sqh:GFP (White) from 72 h (A), center of 120 h (B) and periphery of 120h (C). Junctional Sqh:GFP is weaker in the central region of 120h discs, but medial myosin is higher. Scale bar, 5 μm.

(D-F) Histograms showing absolute levels of junctional E-cad (D), Sqh:GFP (E) and Jub:GFP (F) in the central and peripheral regions of wing discs at different stages. Error bars indicate 95% confidence interval. These show the data presented in Fig. 2 without normalization to E-cad. We normalize to E-cad to identify tension-dependent changes in localization of Sqh and Jub, as opposed to changes that occur simply because there is a change in the amount of adherens junctions. In support of this, we note that the values for myosin and Jub that are obtained after E-cad normalization are consistent with laser cutting experiments, in that they show higher tension in younger discs than in older discs, and higher tension in peripheral regions than in central regions. G,H) Heat map showing the absolute junctional levels of Sqh:GFP (G) and Jub:GFP (H) in wing discs from 72 to 120 h AEL. These show analysis of the same discs presented in Fig. 2, but without normalization to E-cad. (I) Wing discs stained for E-cad (Red) and expressing Wts:GFP (Green/White) at 72, 96 and 120 h AEL. Pictures were taken under identical conditions. Scale bar, 20 μm. (J) Histogram showing relative junctional Wts:GFP intensity in the central and peripheral regions of wing discs at different stages. Error bars indicate 95% confidence interval. N=12 for all time points. Statistical comparisons are shown relative to the 72h timepoint.

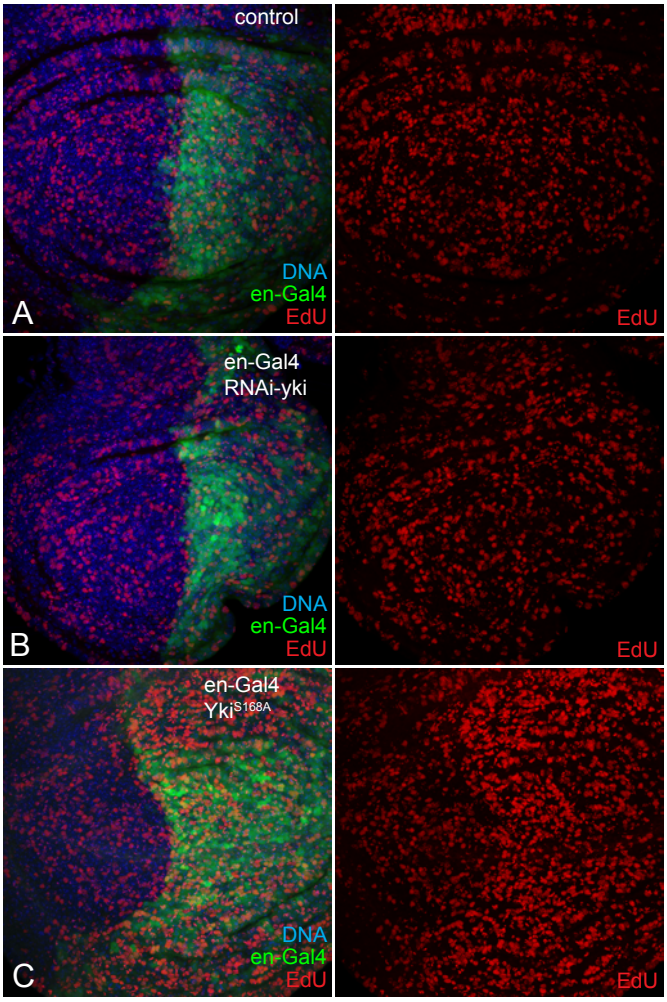


Figure S3. Influence of transient changes in Yki on cell proliferation. Wing discs expressing en-Gal4 UAS-GFP (Green) UAS-dcr2 tub-Gal80^{ts} and control (A), Yki-RNAi (B) or Yki-S168A (C) were stained with EdU (Red) and DNA (Blue). Larvae were cultured at 18 °C, shifted to the restrictive temperature for Gal80^{ts} (29 °C) for 24 h before dissection. Knocking down Yki reduces EdU staining while overexpressing activated Yki (Yki^{S168A}) increases EdU staining.