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Supplemental Information

Oscillatory Switches of Dorso-Ventral Polarity in Cells Confined between Two Surfaces

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Supporting Material

Supplemental Figures and Legends

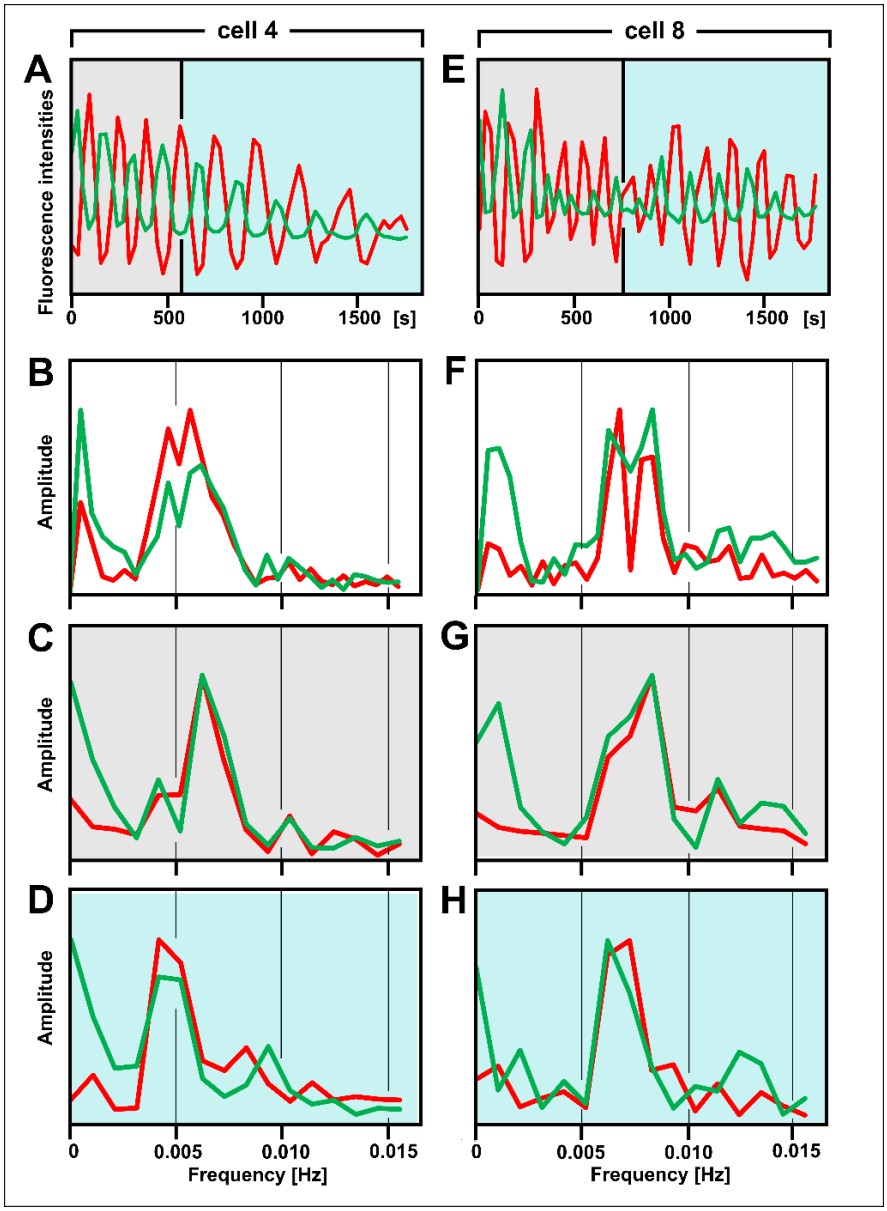

Figure S1. Decreasing frequencies during runs of PIP3 oscillations, revealed by splitting of the Fourier diagrams of two cells that in Figure 4 show a double peak of frequency. The oscillations of cell 4 are taken from Figure 4 F, those of cell 8 from Figure 4 E. See also Tables 1 and 2. A, the sequence of PIP3 oscillations on the glass (green) and the cantilever (red) surfaces is divided in an earlier (grey area) and a later part (blue area). **B, F** Fourier diagrams of the entire sequences, as compared to **C, G** Fourier diagrams of the earlier part or **D, H** of the later part of each sequence. For presentation, the amplitudes in the Fourier diagrams have been adjusted by setting the highest values to 1.

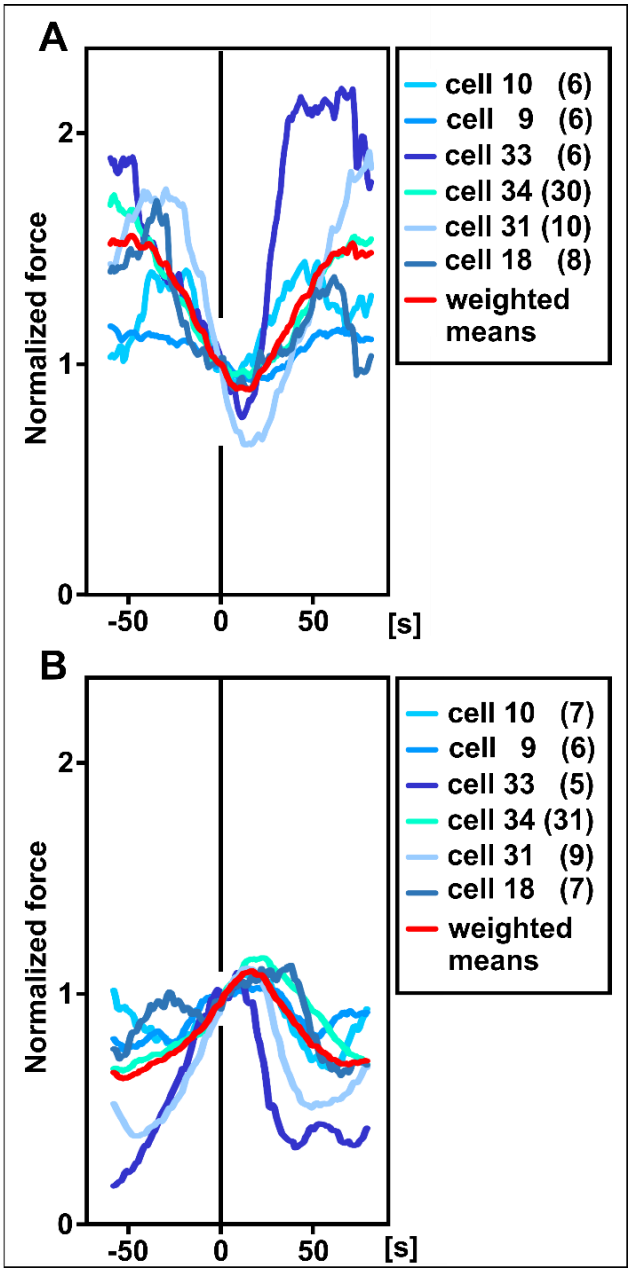

Figure S2. Summary of force generation in relation to PIP3 oscillations. Forces were determined in conjunction with recording the fluorescent PIP3 label at 10-s intervals. Data of 6 runs with varying numbers of half-periods are normalized to 1 at zero-time. In **A** zero-time is the time of fluorescence peaks, in **B** the time of crossing points in the fluorescence curves. Numbers in the panels correspond to the numbering of cells in Table 1; in brackets the multitude of half-periods recorded is indicated. The red curves represent the weighted means of the data from all six cells.

Supplemental Movie Legends

Movie S1. Actin and PIP3 dynamics in a single cell on the surfaces attached to the cantilever (top panels) or to the glass coverslip (bottom panels). The cell expressed mRFP-LimEΔ as a label for filamentous actin (red) and GFP-PHcrac as a label for PIP3 (green). The same sequence of cell 13 is shown in Figure 1 C, D. The 319-s frame corresponds to the 0-s frame in Figure 1 D. See also Table 1. Bar, 10 μm.

Movie S2. Crossing of waves that propagate on the glass (green) or the cantilever (red) surface. The cell expressed GFP-PHcrac as a label for PIP3. Cell 23 is also shown in Figure 2 A. The 288-s frame corresponds to the 0-s frame in Figure 2 A. See also Table 1. Bar, 10 μm.

Movie S3. Surface switching in cell 30, showing oscillatory switching of PIP3 waves between the glass (green) and the cantilever (red) surfaces. The same cell is shown in Figures 3 and 7. The 0-s frames in these Figures correspond to the following frames in the Movie: in Figure 3 F to the 3150-s frame; in Figure 3 G to the 1380-s frame; in Figure 7 B to one before the 0-s frame; in Figure 7 D to the 1050-s frame. Quantitative data for this cell are displayed in Figures 4 H and 7. See also Tables 1 and 2. Bar, 10 μm.