

Supporting Information

Pukhlyakova et al. 10.1073/pnas.1713682115

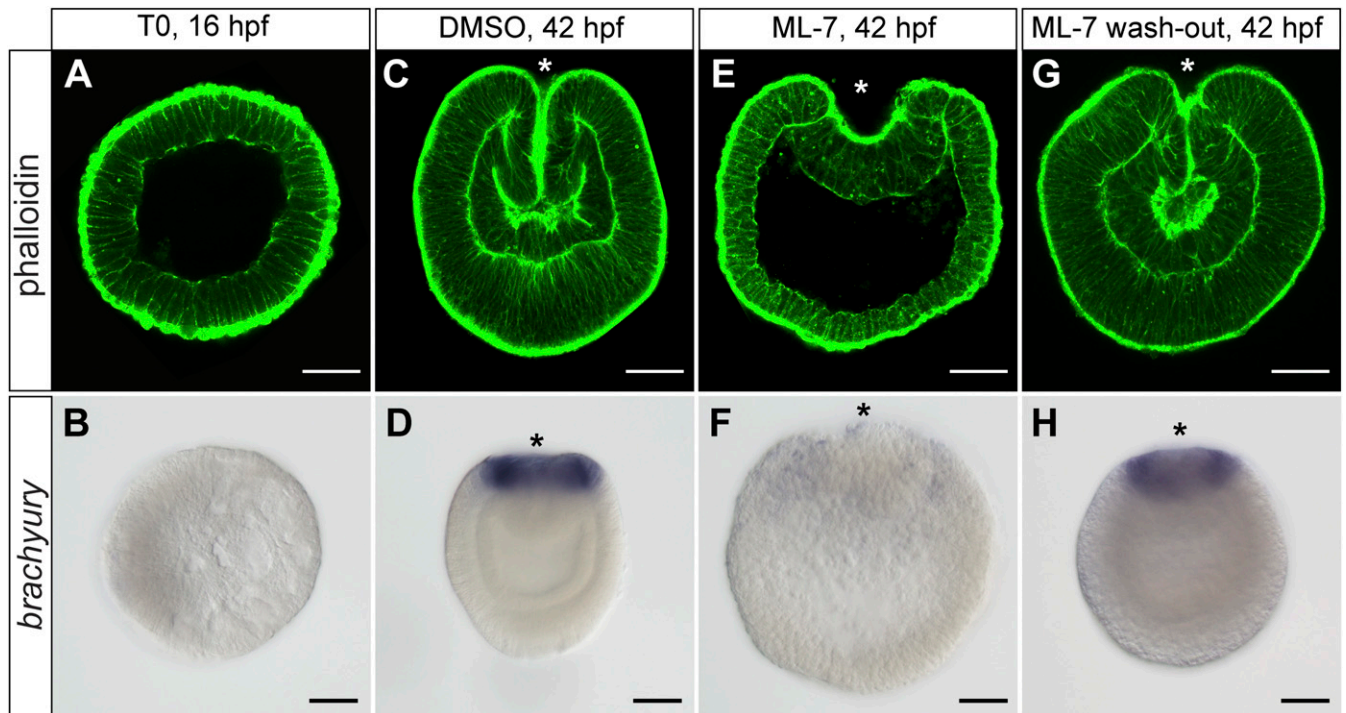


Fig. S1. ML-7 inhibition effects are reversible after washout. (A and B) Control blastula (16 hpf) at onset of treatment. *Brachyury* expression is not or barely detectable. (C and D) DMSO control (42 hpf) reflecting endpoint of treatment. *Brachyury* is strongly expressed at blastopore. (E and F) Embryo treated with ML-7 from 16 hpf until 42 hpf. Gastrulation and *brachyury* expression are inhibited. (G and H) ML-7 washout. Embryos were treated with ML-7 from 16 hpf until 28 hpf, and after five washes were incubated in sea water until 42 hpf. Gastrulation movements and *brachyury* expression are restored after washout of ML-7. (Scale bar, 50 μ m.) Asterisk indicates the oral pole of the embryo.

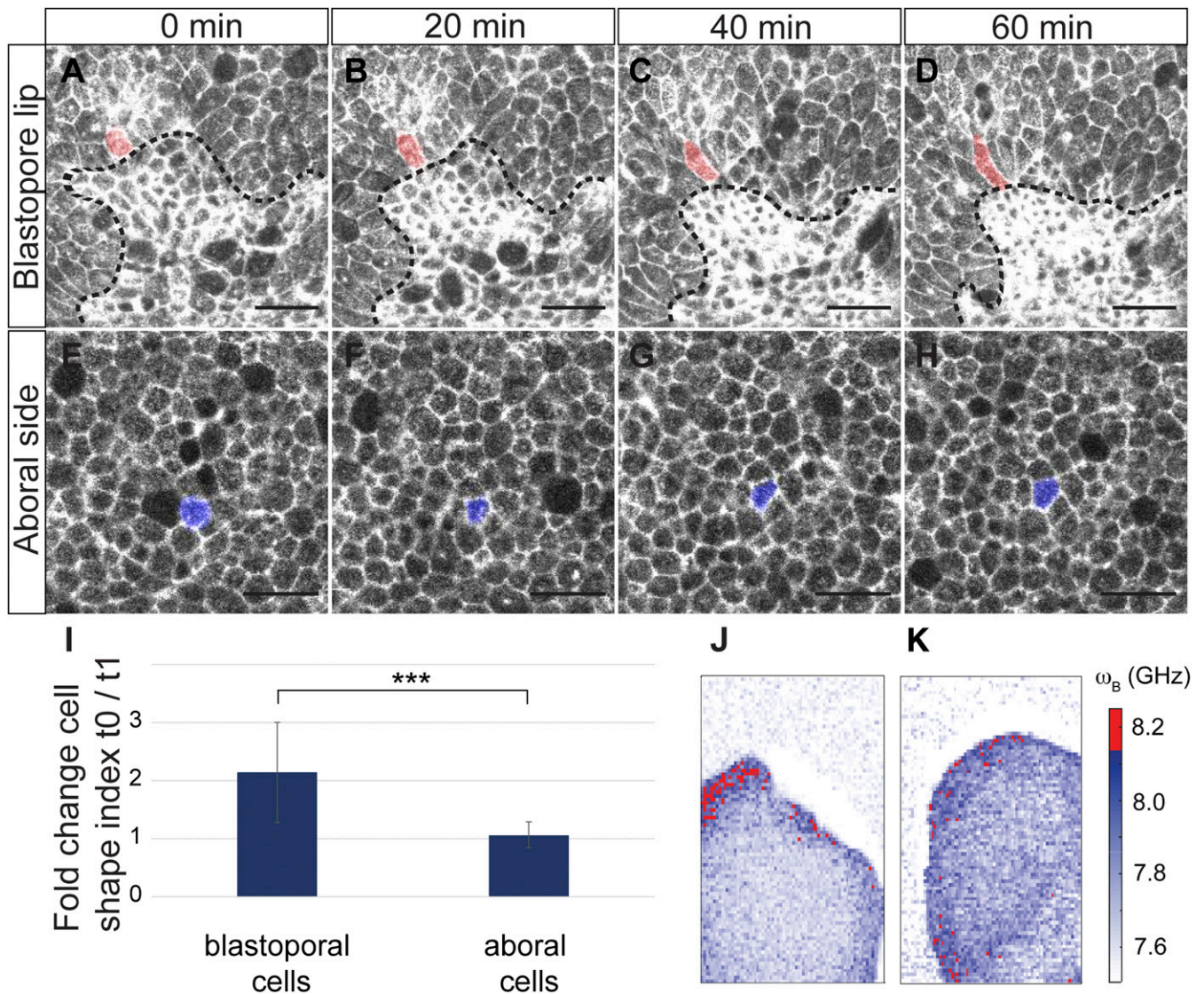
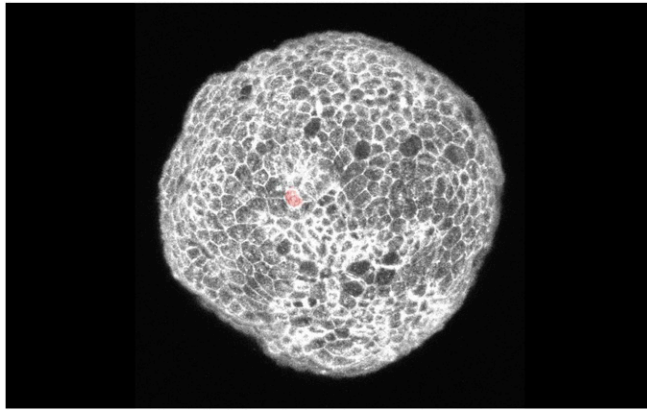
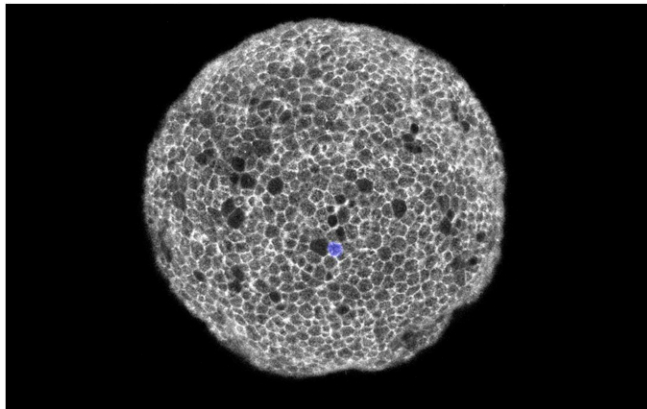


Fig. 54. Cell shape and stiffness change during gastrulation of *N. vectensis*. (A–D) During gastrulation, endodermal cells apically constrict, which leads to the stretching of the adjacent blastoporal cells. Such cell morphology change indicates that cells experience directional mechanical tensions. (E–H) Morphology of the cell on the aboral side of the embryo does not significantly change during gastrulation. Dashed line defines the preendodermal plate. An example of a blastoporal cell colored in red. An example of an aboral cell colored in blue. (Scale bar, 10 μm .) (I) Fold change cell-shape index t0/t1. Increasing of cell-shape index over time indicates cell elongation. (J and K) Spatial maps of the Brillouin frequency shift ω_B in wild-type embryo during gastrulation in the vicinity of the lip (J) and in the aboral side (K). A distinct increase in the frequency shift (stiffness) for cells near and at the lip relative to those further away is apparent. Regions of high-frequency shift are colored red for illustrative purposes.



Movie S1. Gastrulation of *N. vectensis*. Oral side view. An example of a blastoporal cell colored in red. Timing is shown in hours:minutes.

[Movie S1](#)



Movie S2. Gastrulation of *N. vectensis*. Aboral side view. An example of an aboral cell colored in blue. Timing is shown in hours:minutes.

[Movie S2](#)