# Supporting Information

Pavlopoulos et al. 10.1073/pnas.0902804106

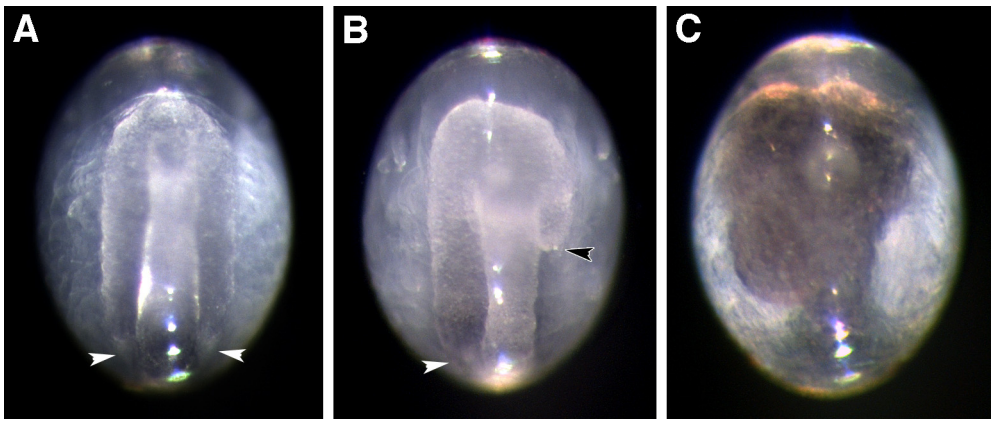
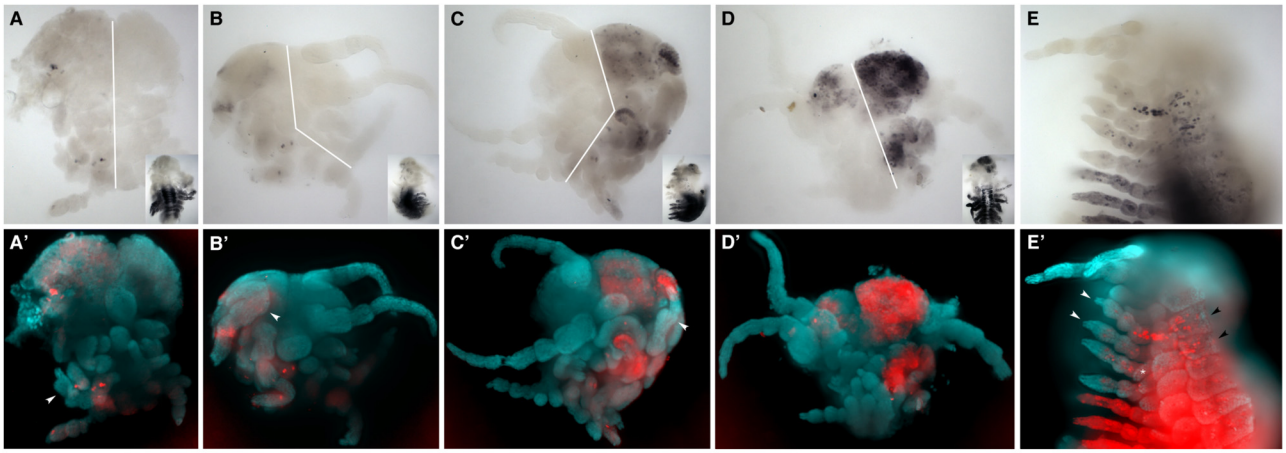



**Fig. S1.** Predominant nonhomeotic phenotype resulting from *PhUbx* misexpression. (*A*) Wild-type embryo showing bilateral extension of the yolk-filled digestive caecae (posterior extent marked by white arrowheads). (*B*) Mosaic embryo injected with the *PhHS-PhUbx-II* construct at the 2-cell stage and subjected to daily heat shocks after stage 12. Posterior extension of the digestive cecum is normal on one side of the embryo (white arrowhead), but partly disrupted on the other side (black arrowhead). (*C*) Transgenic embryo carrying the *PhHS-PhUbx-II* construct and subjected to daily heat shocks after stage 12. The formation and posterior extension of the digestive ceca is completely disrupted on both sides of the embryo. This phenotype was obtained by misexpression of either PhUbx-I or PhUbx-II isoforms, but not in wild-type or *PhHS-DsRed* embryos subjected to heat shock. All panels show dorsal views of stage 24 embryos.

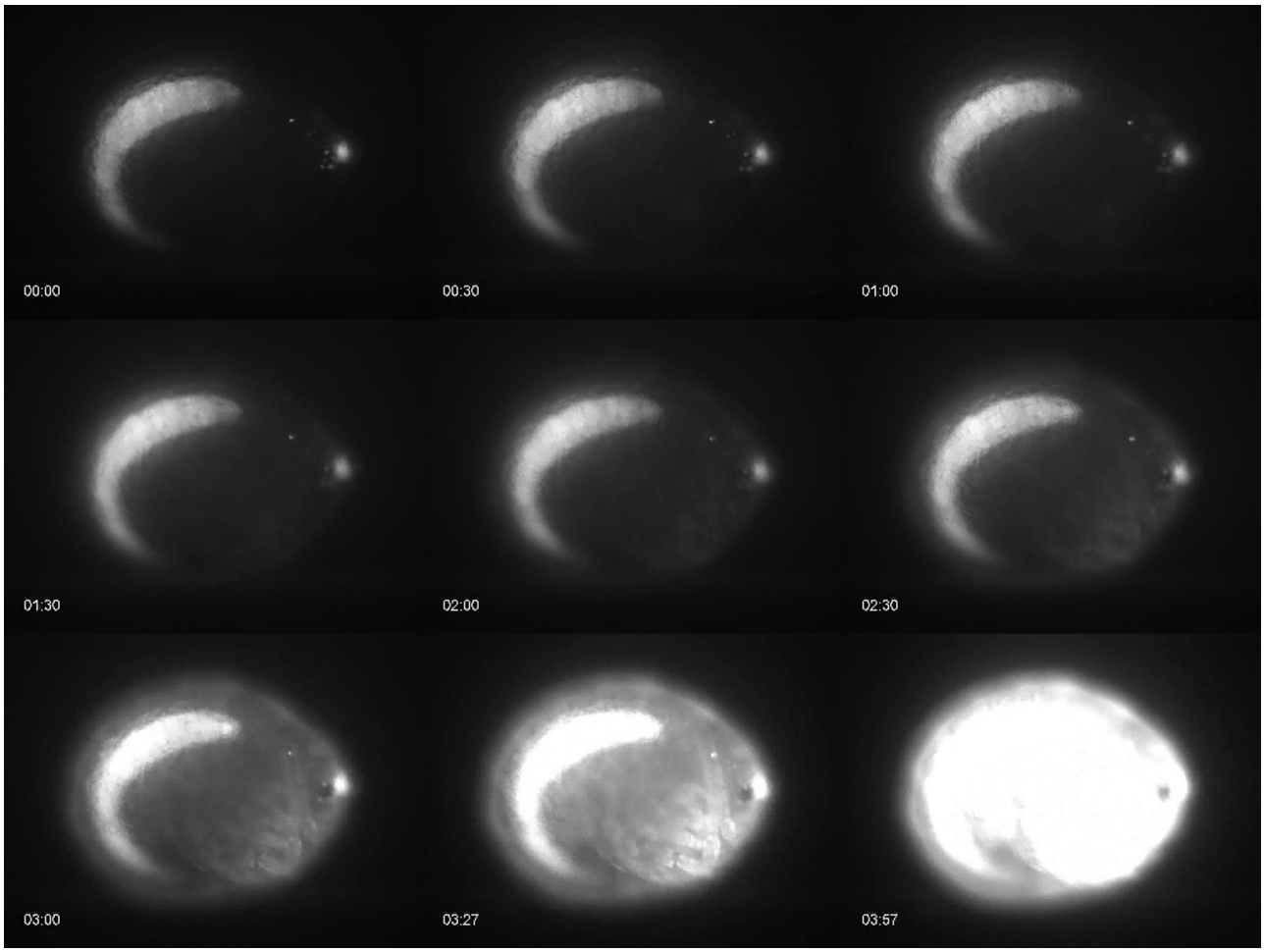



**F**

| | number | frequency among hatched |
|---|---|---|
| Embryos injected | 1494 | |
| Embryos hatched | 516 | |
| Mx2 > Mxp transformation | 80 | 16% |
| Mx2 > T2/3 transformation | 13 | 3% |
| Mxp > T2/3 transformation | 18 | 3% |
| Mx2 > T4/5 transformation | 6 | 1% |
| Mxp > T4/5 transformation | 4 | 1% |
| T2-3 > T4/5 transformation | 4 | 1% |

| | number | frequency among stained |
|---|---|---|
| Embryos injected | 443 | |
| Embryos stained at st.23-24 | 250 | |
| Embryos with ectopic PhUbx | 76 | |
| Only in mesoderm/endoderm | 31 | 12% |
| Low levels in ectoderm | 17 | 7% |
| Intermediate levels in ectoderm | 5 | 2% |
| High levels in ectoderm | 5 | 2% |
| Variable levels in ectoderm | 18 | 7% |

**Fig. S2.** Intensity and mosaicism of ectopic PhUbx in injected *Parhyale* embryos. Embryos were injected with *PhHS-PhUbx-II* construct and *Minos* transposase mRNA at the 1- or 2-cell stage, subjected to daily heat shocks from stage 12 onward, and stained with the FP6.87 antibody at stage 23–24. (*A*–*D*) Ventral view of heads with unilateral PhUbx expression (midline marked by a white line). Insets show the entire stained embryo for reference. (*E*) anterior part of embryo in lateral view. (*A′*–*E′*) Same specimens with PhUbx staining (in red) superimposed on nuclear DAPI staining (in cyan). (*A* and *A′*) Head of embryo that expresses barely detectable levels of ectopic PhUbx, showing Mx2-to-Mxp transformation (arrowhead). (*B* and *B′*) Head that expresses low levels of ectopic PhUbx, showing partial antenna-to-leg transformation (arrowhead). (*C* and *C′*) Head expressing intermediate levels of ectopic PhUbx, comparable to normal levels in T2/3, with antenna-to-leg transformation (arrowhead) and ectopic coxal plates. (*D* and *D′*) Head expressing high levels of PhUbx, comparable to normal levels in T4/5. (*E* and *E′*) Anterior portion of embryo with groups of cells expressing different levels of ectopic PhUbx. The embryo carries multiple homeotic transformations, including Mx2-to-leg and Mxp-to-leg transformations (white arrowheads), and ectopic tergites (black arrowheads) and gills (asterisk). Anterior is up in all panels. (*F*) Frequencies of injected embryos that express low, intermediate, high, or variable levels of ectopic PhUbx in the ectoderm (*Right*), juxtaposed to frequencies of appendage homeotic transformations (*Left*, taken from Table 1). Embryos with variable ectopic PhUbx levels contribute to all types of transformations.




**Movie S1.** Time-lapse recording showing induction of DsRed fluorescence in a live transgenic embryo carrying the *PhHS-DsRed* reporter. The embryo was subjected to a 1-h heat shock at 37 °C and then mounted for the time-lapse recording (time indicated at *Lower Left*). The fluorescence seen at 0 h is because of expression of the *3xP3-DsRed* transformation marker (anterior spots) and because of autofluorescence of the yolk (dorsal crescent). Anterior is to the right.

Movie S1