SUPPLEMENTARY FIGURES

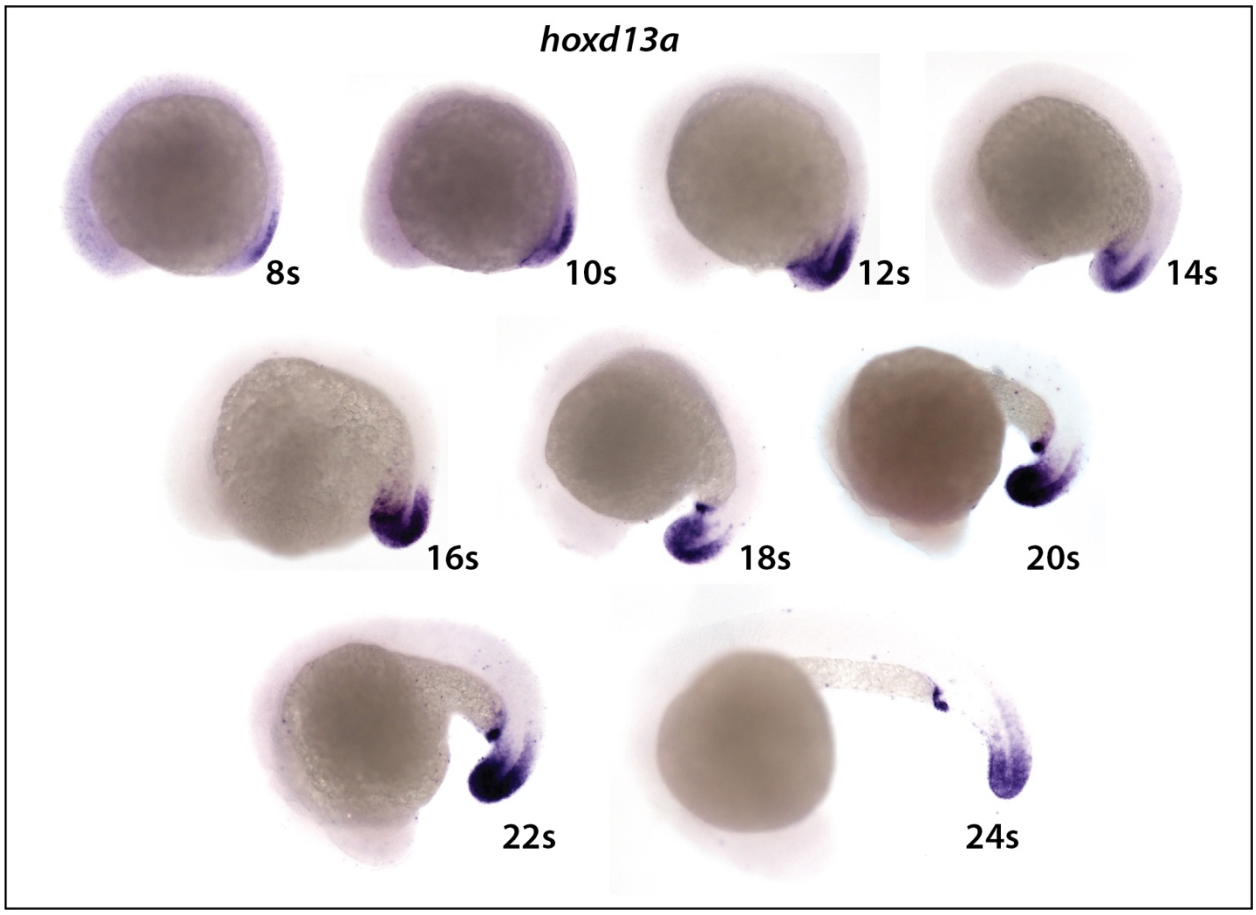


Figure S1 *hoxd13a* is expressed from early stages of embryogenesis. Refers to Figure 1.

Expression of *hoxd13a* from 8s until the 24s. Embryos from 12s to 24s were developed for the same length of time. Embryos at 8s and 10s were developed twice as long.

Figure S2 Adult *hoxa13b;d13a* mutant. Refers to Figure 2.

Shown is a *ntl*$^{cs/cs}$;*hoxa13b*$^{\Delta 16/\Delta 16}$;*d13b*$^{ins4/-}$ mutant that survived to adulthood with severe posterior defects. Most fish with this degree of posterior defect die as larvae.

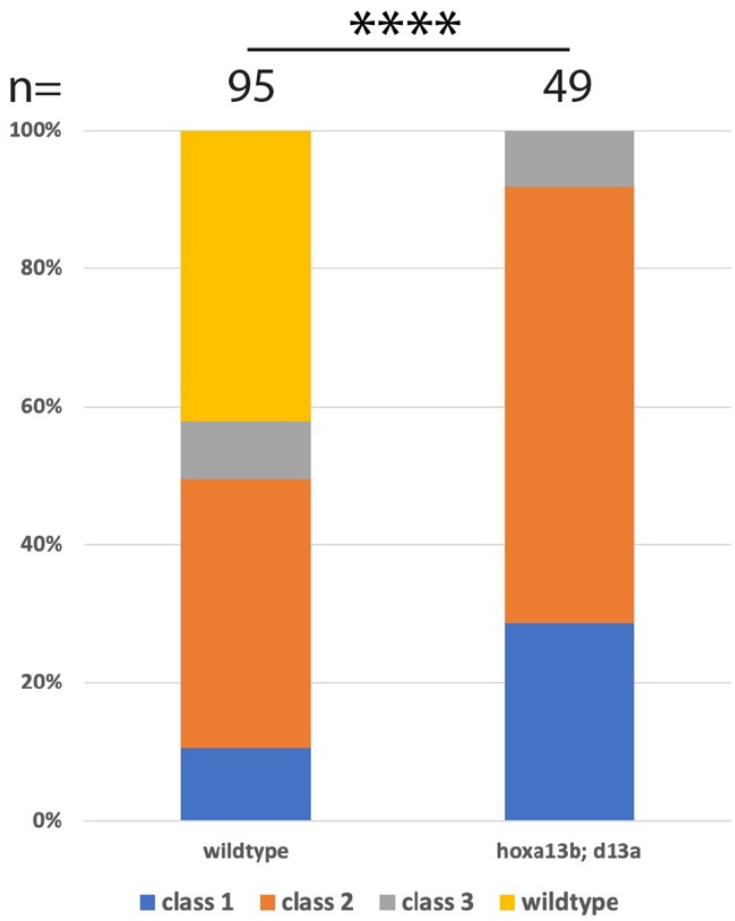


Figure S3 *Hoxa13b;d13a* mutants in a *ntl* wildtype background are hypersensitive to Tbxta reduction. Refers to Figure 3.

Embryos from a cross of wildtype or *hoxa13;d13* mutant fish (in a $ntl^{+/+}$ background) were injected with very low doses (0.2 ng) of a *tbxta* morpholino. The *hoxa13;d13* mutant fish show enhanced defects relative to wildtype fish. **** = p<0.0001, Fisher's Exact test.

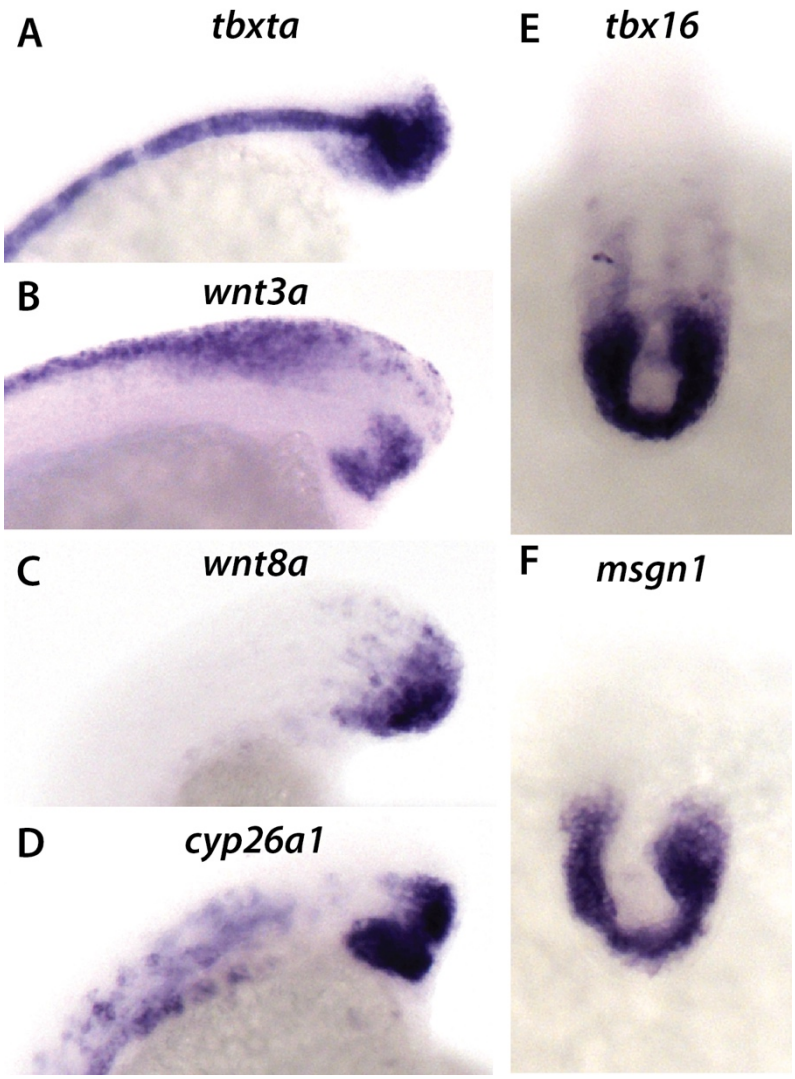


Figure S4 Reduction of mesodermal gene expression in *ntl*^{cs} embryos at 18.5° C. Refers to Figure 4.

A-F) In situ hybridization of class 1 15s *ntl*^{cs} homozygous embryos maintained at 18.5° C. Compare to the wildtype expression patterns shown in Figure 4. The reduction of mesodermal genes is the same as observed in in *hoxa13;ntl*^{cs} embryos maintained at 18.5°C.

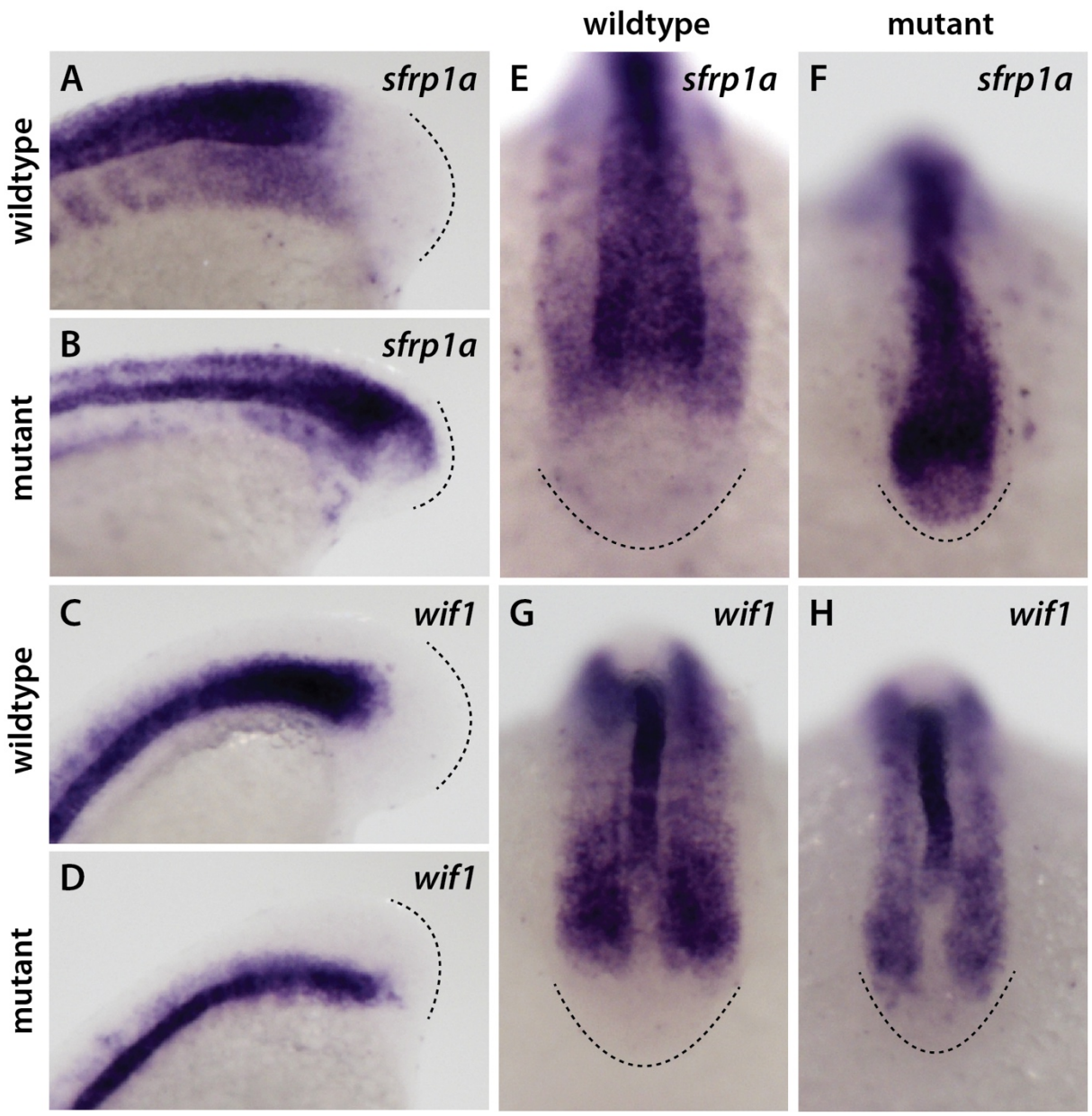


Figure S5 Wnt inhibitors expressed more posteriorly in *hoxa13;ntl*^{cs} embryos at 18.5° C. Refers to Figure 4.

(A-H) In situ hybridization of wildtype and *hoxa13;ntl*^{cs} embryos at 15s. Note that both genes expand more posteriorly in the mutants. Mutants with expanded expression: *sfrp1a* (81%, n=26) and *wif1* (79%, n=24). A-D are lateral views and panels E-H are dorsal views. The posterior limit of the tailbud is shown by a line.

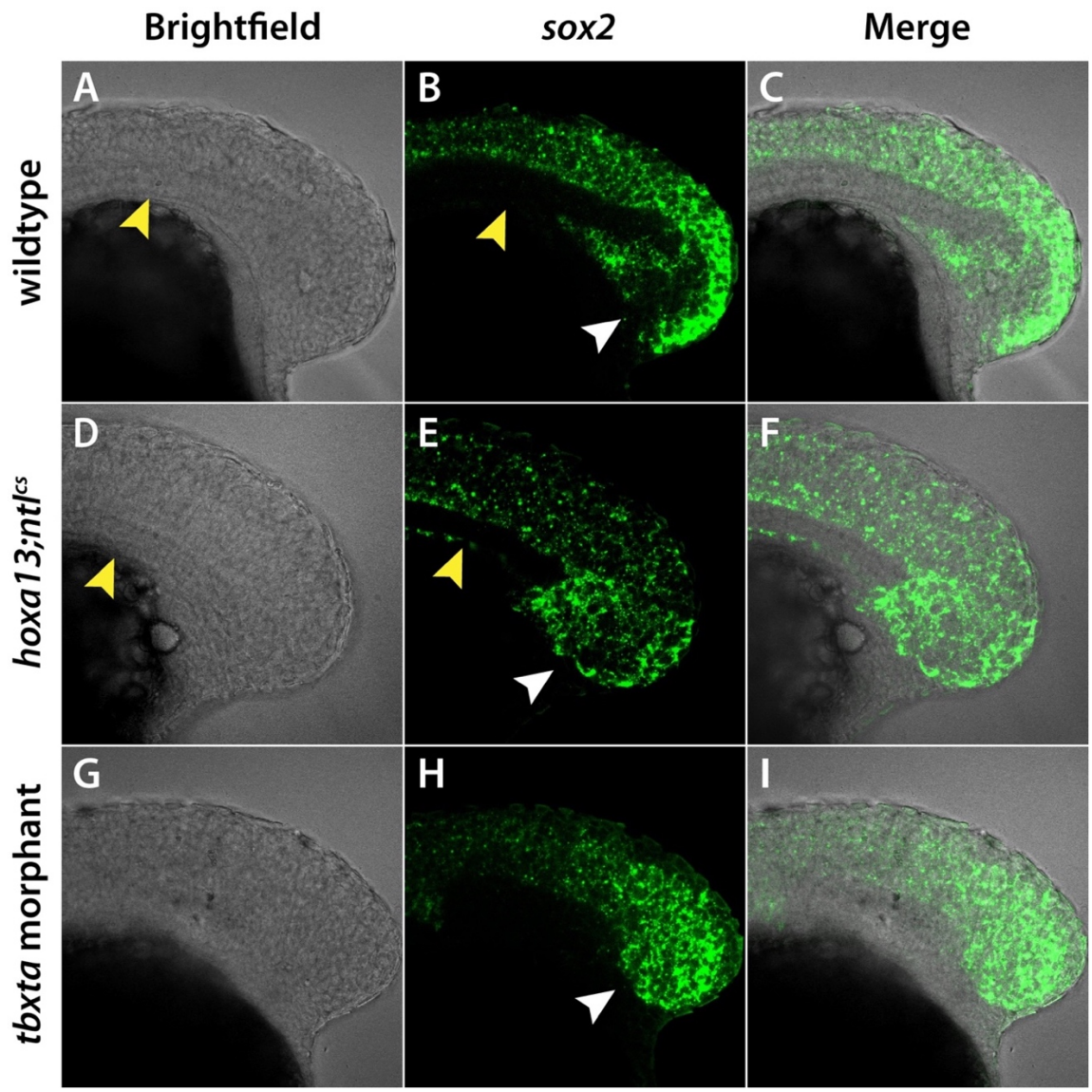


Figure S6 *sox2* expression expands into the mesodermal progenitor region in *hoxa13;ntl*^{cs} mutants at 18.5° C.

A-C) In wildtype embryos *sox2* is present in the NMps and neural tube, but absent from the mesodermal progenitor zone (white arrowhead). D-F) In *hoxa13;ntl*^{cs} mutants *sox2* expands into the mesodermal progenitor zone (white arrowhead). F-I) in *tbxta/ntl* morphants *sox2* also expands into the mesodermal progenitor zone, as was previously shown for *tbxta/ntl* mutants (Martin and Kimelman, 2012). In both brightfield and fluorescent imaging the notochord is visible in wildtype and *hoxa13;ntl*^{cs} mutants (yellow arrowheads in panels A,B,D and E) but is not observed in *tbxta/ntl* morphants. Embryos are at the 15s stage and are shown in a side view of a confocal section at the midline of the embryo.

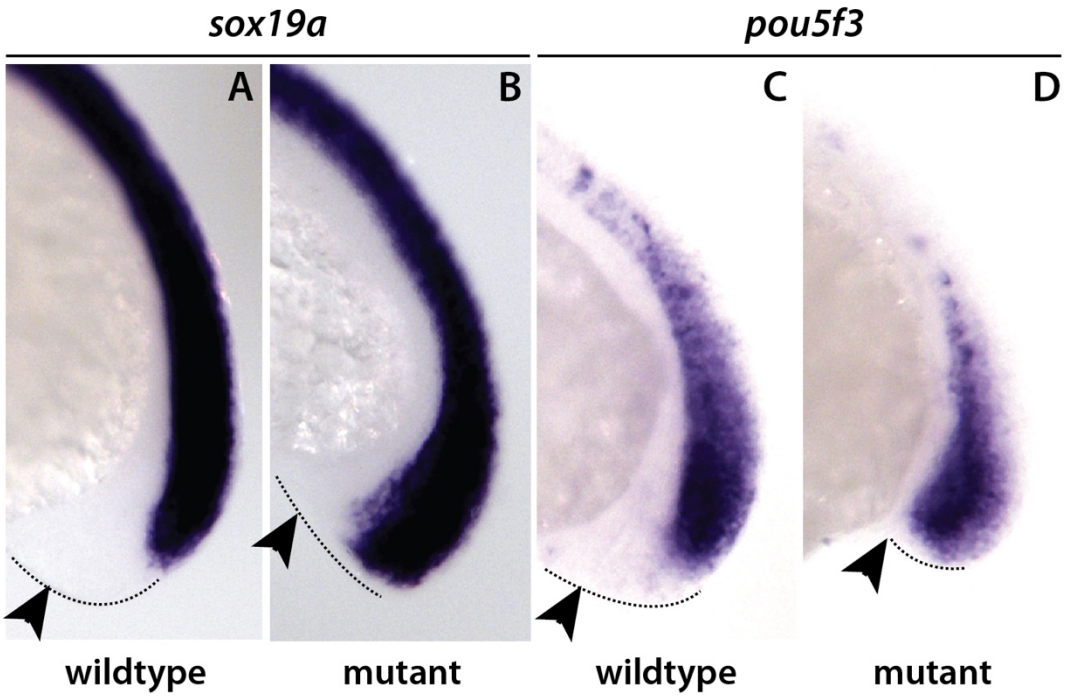
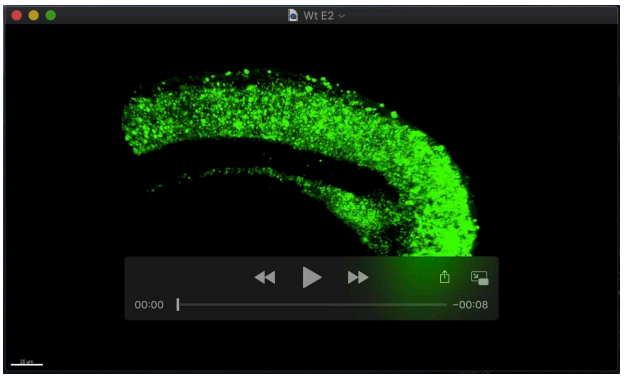
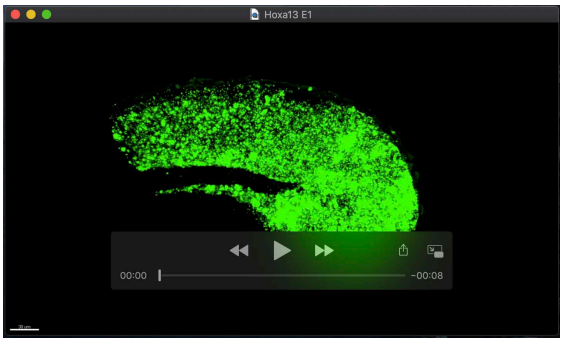


Figure S7 *sox19a and pou5f3* expression expands into the mesodermal progenitor region in *hoxa13;ntl^{cs}* mutants at 18.5° C. Refers to Figure 4.

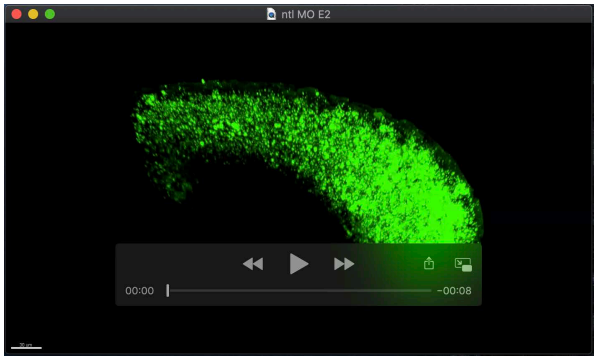
A-D) In situ hybridization of 15s wildtype and *hoxa13;ntl^{cs}* embryos for the neural markers *sox19a* and *pou5f3*. As with *sox2*, expression expands into the prospective mesodermal territory in the *hoxa13;ntl^{cs}* mutants.



Movie 1. *sox2* expression in a wildtype embryo.
The same embryo as in Figure S6A-C.



Movie 2. *sox2* expression in a *hoxa13;ntl*^{cs} mutant with a class 1 phenotype.
The same embryo as in Figure S6D-F.



Movie 3. *sox2* expression in a *tbxta/ntl* morphant.
The same embryo as in Figure S6G-I.