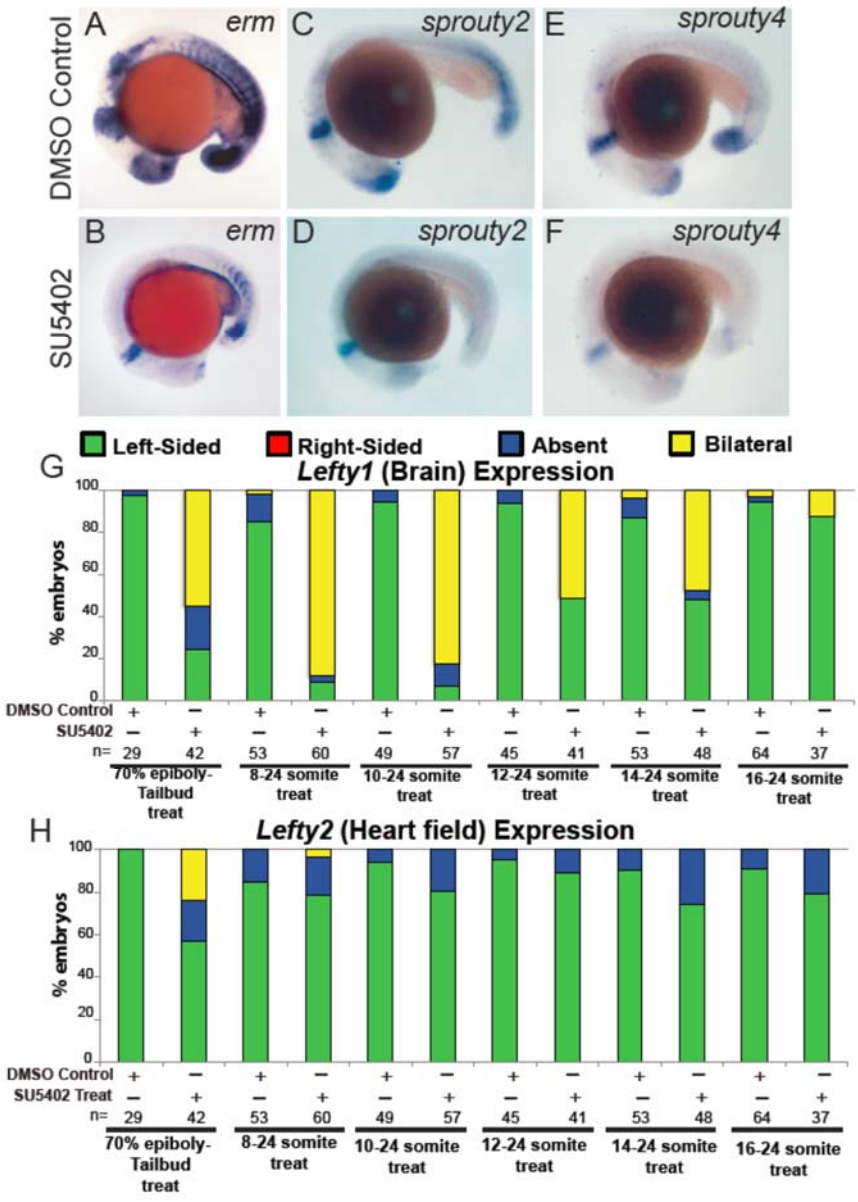
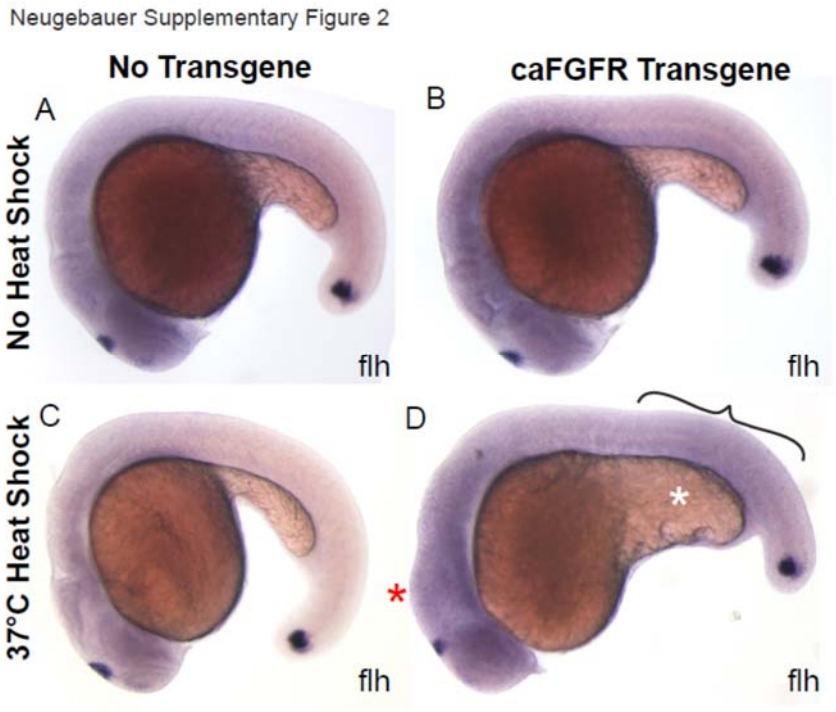
Supplementary Figures

Neugebauer Supplemental Figure 1



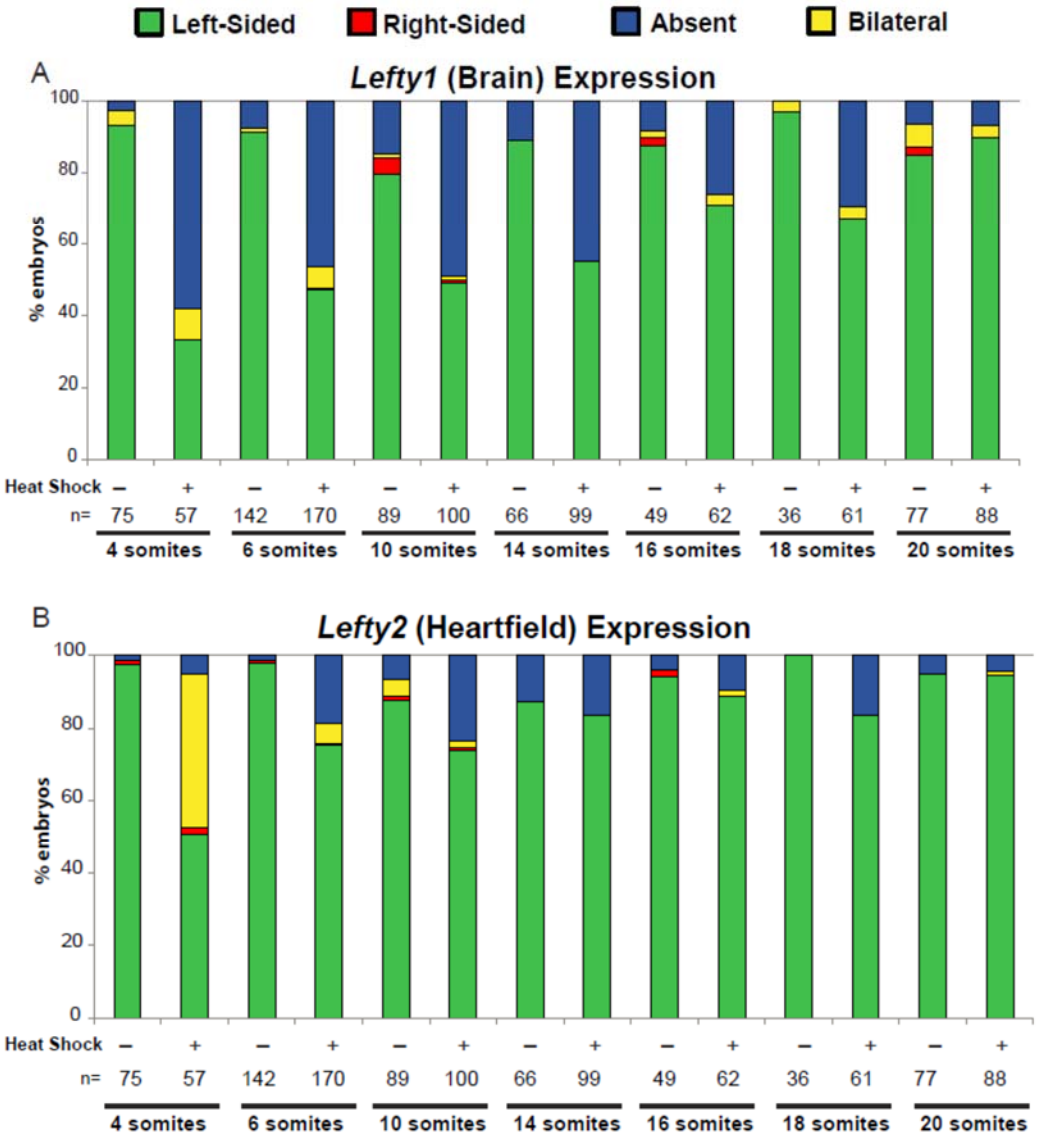
Supplemental Figure 1: FGF target gene expression is diminished when FGF signaling is inhibited and *lefty1* but not *lefty2* is affected by inhibition of FGF signaling during later somitogenesis. (A-B) Lateral view of 20 somite embryos expressing *erm*. *Erm* expression is globally down-regulated in the SU5402 treated

embryos (B, n=28) in comparison to DMSO controls (A, n=32). (C-D) Lateral view of 20 somite embryos expressing *sprouty2*. Compared to DMSO controls (C, n=36) expression of *sprouty2* was diminished in the SU5402 treated embryos (D, n=30) except for residual staining in midbrain-hindbrain boundary (MHB). (E-F) Lateral view of 18 somite embryos expressing *sprouty4*. Compared to DMSO controls (E, n=27) expression of *sprouty4* is diminished in the SU5402 treated embryos (F, n=23) with the exception of residual staining in the tailbud and MHB boundary. (G) Histogram showing the percentages of embryos displaying normal (left-sided), reversed (right-sided), absent and bilateral expression patterns of *lefty1* in DMSO control and SU5402 embryos. (H) Histogram showing the percentages of embryos displaying normal (left-sided), reversed (right-sided), absent and bilateral expression patterns of *lefty2* in DMSO control and SU5402 embryos.



Supplemental Figure 2: HS'd caFGFR transgenic embryos have morphological defects. (A-D) Lateral view of 24-26 somite embryos expressing *flh*. Compared to No HS no transgene (A), no HS caFGFR transgene (B), and 37°C HS no transgene (C) control embryos, caFGFR transgene embryos HS'd at 4-6 somites have shortened body axis (black bracket), yolk extension defects (white asterick), and midbrain-hindbrain defects (red asterick).

Neugebauer Supplemental Figure 3



Supplemental Figure 3: *Lefty1* but not lefty2 expression is affected when FGF signaling is upregulated. (A) Histogram showing the percentages of embryos displaying normal (left-sided), reversed (right-sided), absent and bilateral expression patterns of *lefty1* in non-HS'd and HS activated caFGFR transgenic and non-transgenic embryos. (B) Histogram showing the percentages of embryos displaying normal (left-sided),

reversed (right-sided), absent and bilateral expression patterns of *lefty2* in non-HS'd and HS activated caFGFR transgenic and non-transgenic embryos.

Movie S1: Quicktime movie of Confocal Z-stacks of a non-HS'd control embryo illustrating the normal midline.

Movie S2: Quicktime movie of Confocal Z-stacks of a HS'd caFGFR transgenic embryo illustrating the complete lack of midline organization.