

**Supplemental Movie M1:** Corresponding to Figure 1B-F. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(rx2:eGFPcaax)* transgenic reporter line (green). Onset of imaging: 37hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M2:** Corresponding to Figure 3 A-D. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *Ncad:Ncad-GFP* transgenic reporter line (green). Onset of imaging: 32hpf, imaging temperature 28°C, onset of movie 6 hrs after onset of imaging, scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M3:** Corresponding to Figure 4A-C. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(fli1a:eGFP)* transgenic endothelial reporter (green). Onset of imaging: 28hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M4:** Corresponding to Figure 4D-F. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(fli1a:eGFP)* transgenic endothelial reporter (green). Onset of imaging: 28hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M5:** Corresponding to Figure 5C-F. Control embryo heat shocked at 26 hpf. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(rx2:eGFPcaax)* transgenic reporter line (green). Onset of imaging: 30hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M6:** Corresponding to Figure 5G-J. *tg(hsp70l:bmp4)* embryo heat shocked at 26 hpf. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(rx2:eGFPcaax)* transgenic reporter line (green). Green fluorescence in the heart originates from the transgenesis marker *myl7:eGFP*. Onset of imaging: 30hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M7:** Corresponding to Figure 5A-D. Control embryo heat shocked at 26 hpf. Zygotic microinjection of H2B-eGFP mRNA (green), *tg(sox10:lyntdTomato)* transgenic reporter line (magenta). Onset of imaging: 34hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M8:** Corresponding to Figure 5E-H. *tg(hsp70l:bmp4)* embryo heat shocked at 26 hpf. Zygotic microinjection of H2B-eGFP mRNA (green), *tg(sox10:lyntdTomato)* transgenic reporter line (magenta). Green fluorescence in the heart originates from the transgenesis marker *myl7:eGFP*. Onset of imaging: 34hpf, imaging temperature 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M9:** Corresponding to Figure 5I-L. Control embryo heat shocked at 26 hpf. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(fli1a:eGFP)* transgenic endothelial reporter (green). Onset of imaging: 32hpf, imaging temperature 28°C, onset of movie 5 hrs after onset of imaging 28°C scale bar 25µm, lateral view, nasal to the left.

**Supplemental Movie M10:** Corresponding to Figure M-P. *tg(hsp70l:bmp4)* embryo heat shocked at 26 hpf. Zygotic microinjection of *lyntdTomato* mRNA (magenta), *tg(fli1a:eGFP)* transgenic endothelial reporter (green). Onset of imaging: 32hpf, imaging temperature 28°C, onset of movie 5 hrs after onset of imaging 28°C scale bar 25µm, lateral view, nasal to the left.