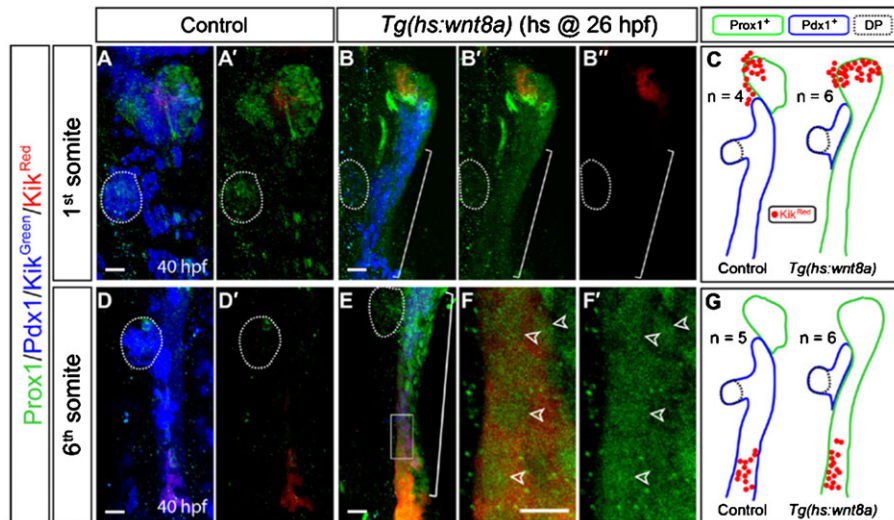
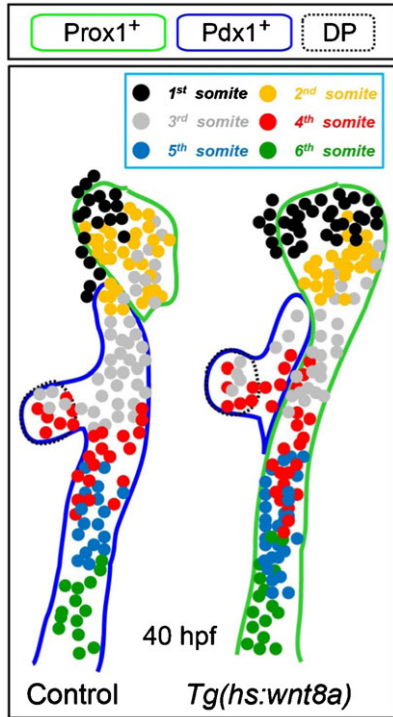


## Supplementary Material

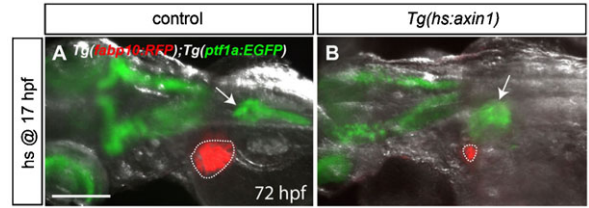
Juhoon So et al. doi: 10.1242/bio.20122857



**Fig. S1. Wnt8a overexpression induces the direct conversion of non-hepatic endodermal cells into hepatoblasts, but not the posterior migration of hepatoblasts.** Wild-type or *Tg(hs:wnt8a)* embryos were co-injected with *sox32* and *kikume* mRNA into a single cell at the 32-cell stage. Endodermal cells at the 1<sup>st</sup> or 6<sup>th</sup> somite level were photoconverted at 25.5 hpf and then heat-shocked. The embryos were harvested at 40 hpf and processed for immunostaining. (A–C) Endodermal cells at the 1<sup>st</sup> somite level were photoconverted for lineage tracing. A' and B' images are the same as A and B, respectively, but without Pdx1 and Kik<sup>green</sup> expression. B'' is the same image as B' but without Prox1 expression. Cartoons incorporating all lineage-tracing data (C) show that the posterior migration of hepatoblasts in the liver-forming region did not occur in Wnt8a-overexpressing embryos. (D–G) Endodermal cells at the 6<sup>th</sup> somite were photoconverted for lineage tracing. Kik<sup>Red+</sup> cells expressed Prox1 (green) in Wnt8a-overexpressing embryos (F, open arrowheads), but not in controls (D'). Higher magnification images of the square region in E are shown in F without Pdx1 and Kik<sup>green</sup> expression. F' is the same image as F but without Prox1 expression. Cartoons incorporating all lineage-tracing data (G) show that non-hepatic endodermal cells were converted into hepatoblasts upon Wnt8a overexpression. Green and blue lines outline Prox1<sup>+</sup> and Pdx1<sup>+</sup> domains, respectively, and n indicates the number of embryos (C,G). Dotted lines outline the dorsal pancreas (DP), and brackets delineate the endodermal region in which ectopic hepatoblasts are present. All confocal images are ventral views with anterior up. Scale bars, 20 μm.



**Fig. S2. Cartoons combining all lineage-tracing data obtained from the photoconversion of endodermal cells at the 1<sup>st</sup> to 6<sup>th</sup> somite level.** Endodermal cells photoconverted at each somite level are color-coded and their final position at 40 hpf is shown. These cartoons reveal that the distribution of endodermal cells in control embryos is similar to that in Wnt8a-overexpressing embryos. Green and blue lines outline Prox1<sup>+</sup> and Pdx1<sup>+</sup> domains, respectively. Dotted lines outline the dorsal pancreas (DP).



**Fig. S3. Axin1 overexpression greatly reduces liver size.** (A,B) The *Tg(fabp10:RFP)* and *Tg(ptf1a:EGFP)* lines were used to reveal hepatocytes (red) and ventral pancreatic cells (green), respectively. Control and *Tg(hs:axin1)* embryos were heat-shocked at 17 hpf and harvested at 72 hpf. Liver size was greatly reduced in Axin1-overexpressing embryos compared to controls (B versus A, dotted lines). Arrows point to the pancreas. Dorsal views, anterior to the left. Scale bar, 200 μm.