Supplementary Information

Vegfa/vegfr2 signaling is necessary for zebrafish islet vessel development, but is dispensable for beta- and alpha-cell formation

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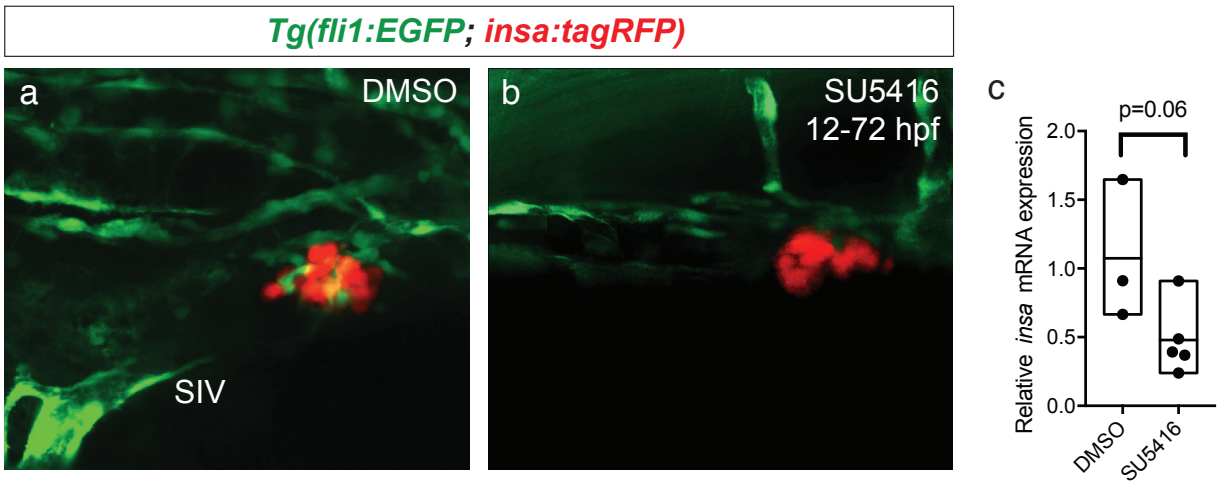
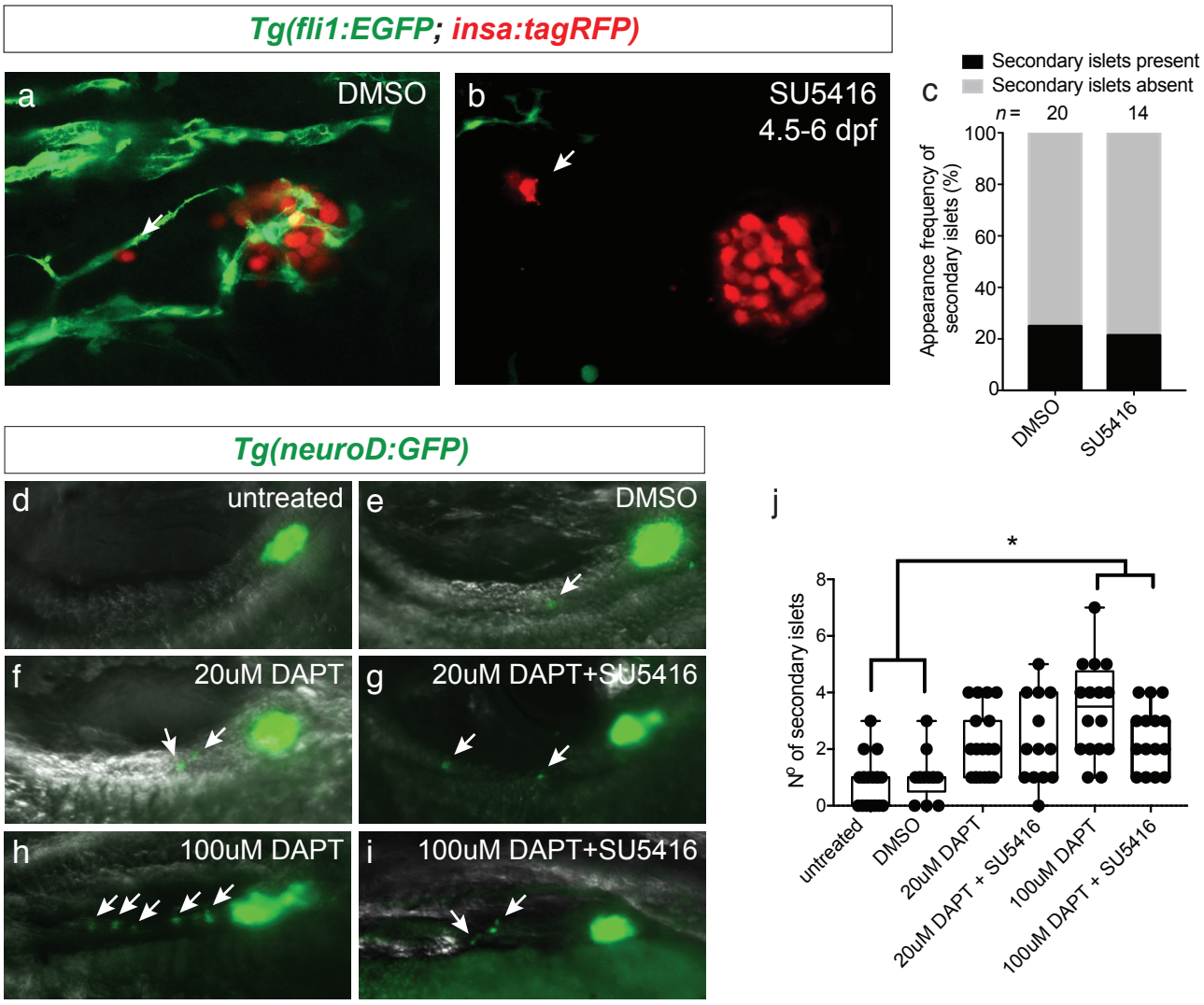
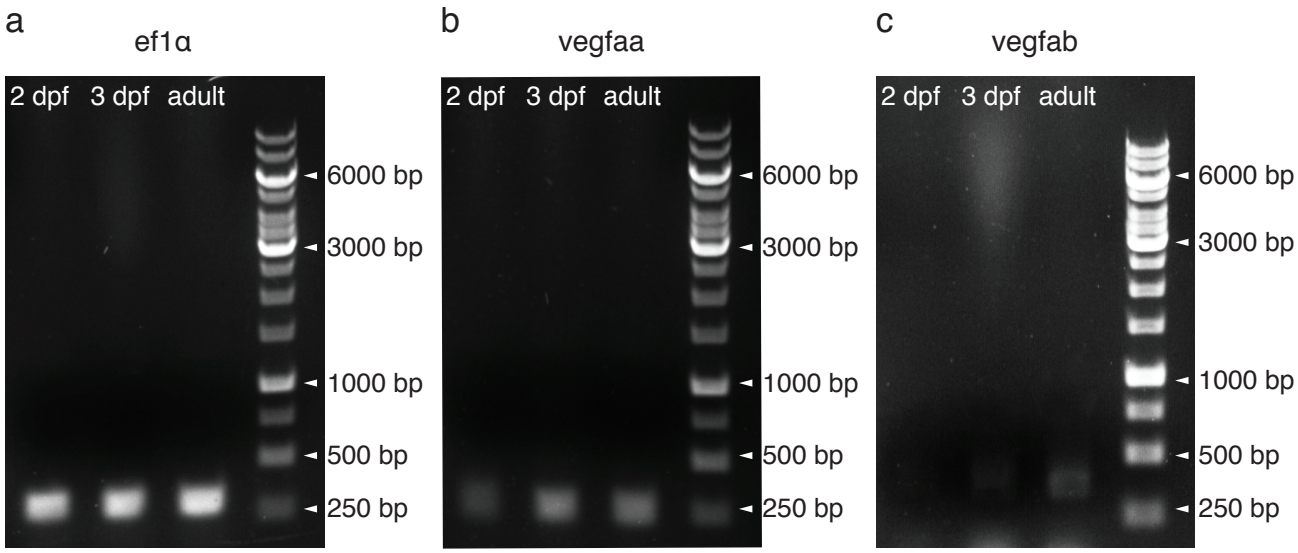


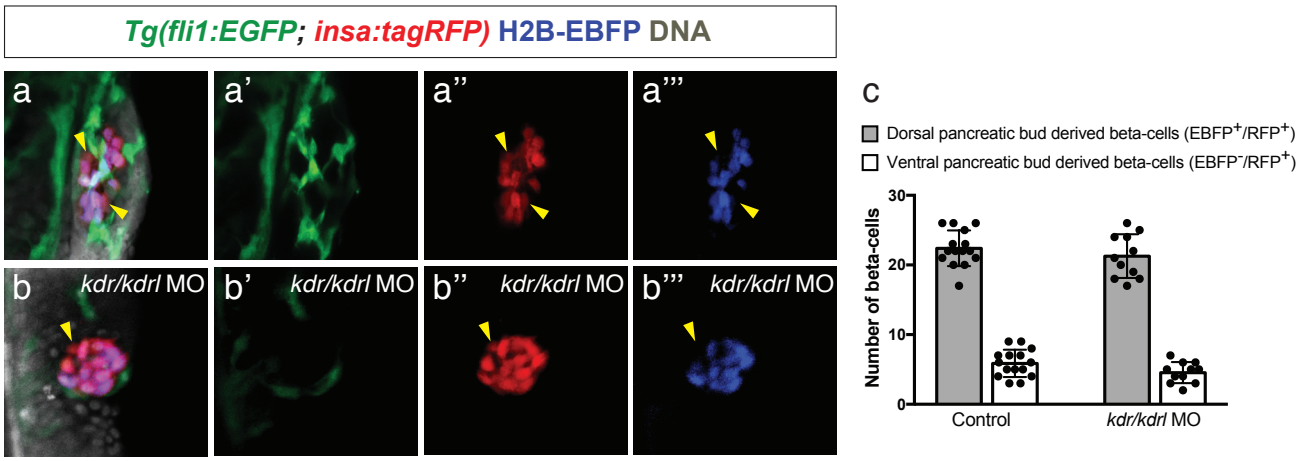
Supplemental Figure 1: Sub-intestinal vein fails to form in SU5416-treated embryos. (**a-b**) Confocal projections of 72 hpf *Tg(fli1:EGFP; insa:tagRFP)* embryos treated with DMSO or SU5416; endothelial cells (green) and beta-cells (red). SIV = sub-intestinal vein. (**c**) Relative expression of *insa* in isolated beta-cells of DMSO-treated and SU5416-treated *Tg(fli1:EGFP; insa:tagRFP)* embryos at 72 hpf. All values were normalized to *ef1α*.



Supplemental Figure 2: Secondary islets form in SU5416-treated fish. (**a-b**) Confocal projections of 6 dpf *Tg(fli1:EGFP; insa:tagRFP)* zebrafish treated with DMSO or SU5416 from 4.5 dpf until 6 dpf. White arrowheads indicate secondary islets; endothelial cells (green) and beta-cells (red). (**c**) Frequency of secondary islets in 6 dpf *Tg(fli1:EGFP; insa:tagRFP)* zebrafish treated with DMSO or SU5416 from 4.5 dpf until 6 dpf. n=14-20. (**d-i**) Images of *Tg(neuroD:GFP)* untreated, DMSO-treated, DAPT-treated, or DAPT and SU5416-treated embryos from 3 until 4.5 dpf. White arrowheads indicate secondary islets. (**j**) The number of secondary islets in untreated, DMSO-treated, DAPT-treated, or DAPT and SU5416-treated embryos. Box-and-whisker plots show median, and circles represent individual zebrafish. n=13-19. *$p < 0.05$ by one-way ANOVA and Tukey post-hoc test.



Supplemental Figure 3: Vegfaa and Vegfab expression in 2 dpf, 3 dpf, and adult beta-cells. (**a-c**) RT-PCR of (**a**) *ef1α*, (**b**) *vegfaa,* and (**c**) *vegfab* on sorted 2 dpf, 3 dpf, and adult beta-cells.



Supplemental Figure 4: Beta-cells derived from the dorsal and ventral pancreatic bud are present in *kdr/kdrl* injected zebrafish. (**a-b'''**) Confocal projections of 72 hpf *Tg(fli1:EGFP; insa:tagRFP)* embryos (**a-a'''**) injected with H2B-EBFP mRNA or (**b-b'''**) co-injected with H2B-EBFP mRNA and *kdr/kdrl* morpholino; endothelial cells (green), beta-cells (red), dorsal pancreatic bud derived beta-cells (blue), and TO-PRO-3 nuclear stain (DNA; grey). Yellow arrowheads indicate beta-cells derived from the ventral pancreatic bud (H2B-EBFP^{-}/RFP^{+}). (**c**) The number of beta-cell derived from the dorsal pancreatic bud (H2B-EBFP2^{+}/RF-P^{+}) and ventral pancreatic bud (H2B-EBFP^{-}/RFP^{+}) at 72 hpf. Bar plots show mean, and circles represent individual zebrafish. n=11-15.