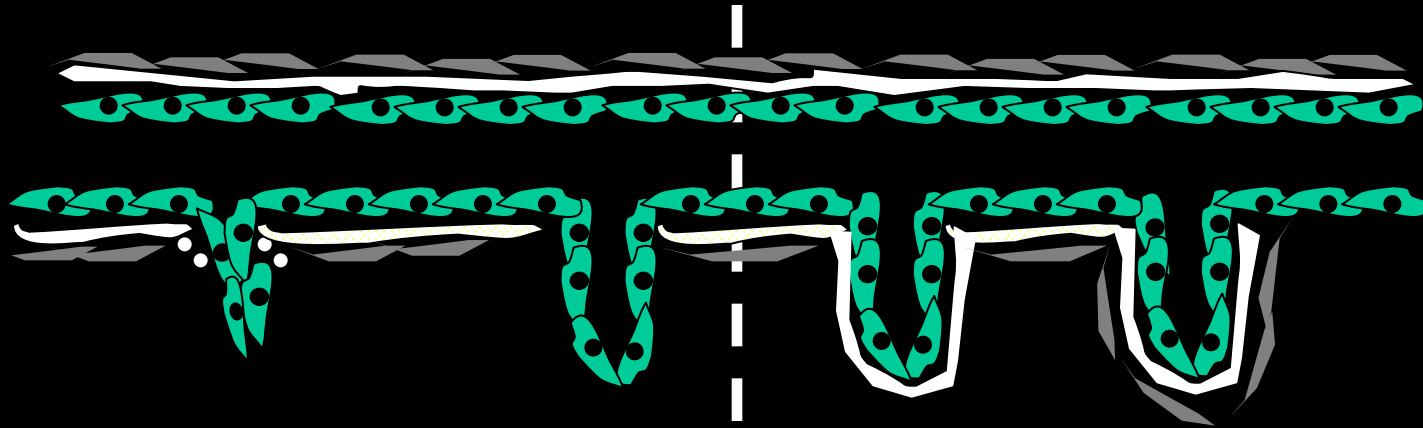


A fluorescence microscopy image of a zebrafish embryo, showing the endothelium. The image displays a complex network of vessels, with green and red signals indicating different components or markers. The green signal is more prominent in the central and lower parts of the image, while the red signal is more prominent in the upper and outer parts. The overall appearance is that of a highly branched and interconnected network of vessels.

***alk1 signaling favors resolution in
the zebrafish endothelium***

Beth L. Roman, PhD
Biochemistry, Molecular, and Cellular Biology
Georgetown University Medical Center

alk1: activation or resolution?



activation

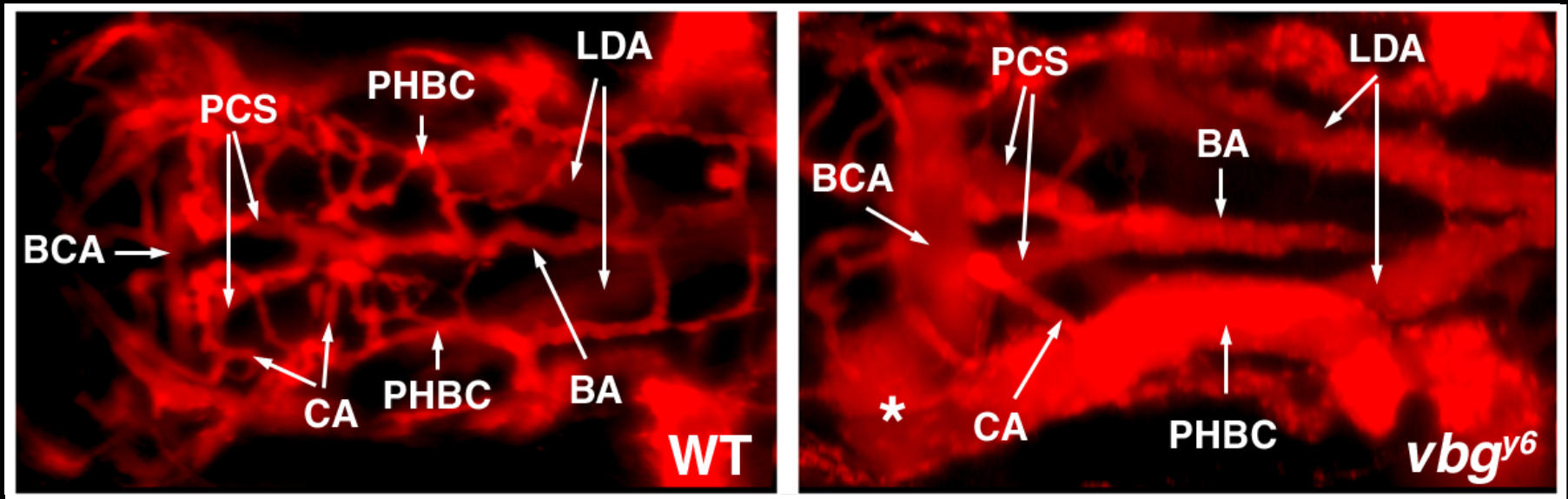
resolution

✓ Alk1* overexpression in cultured endothelial cells

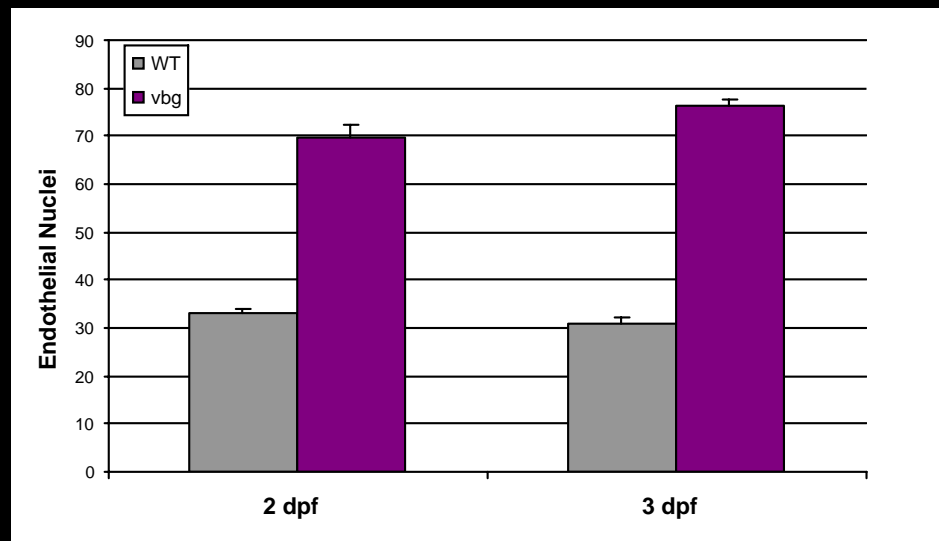
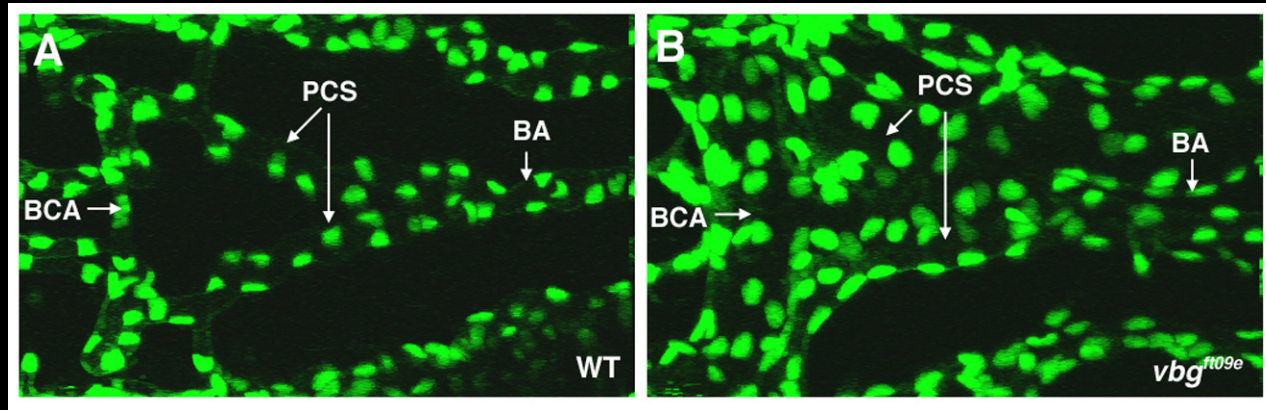
✓ Alk1 loss of function in whole organisms

misrouted circulation in vbg

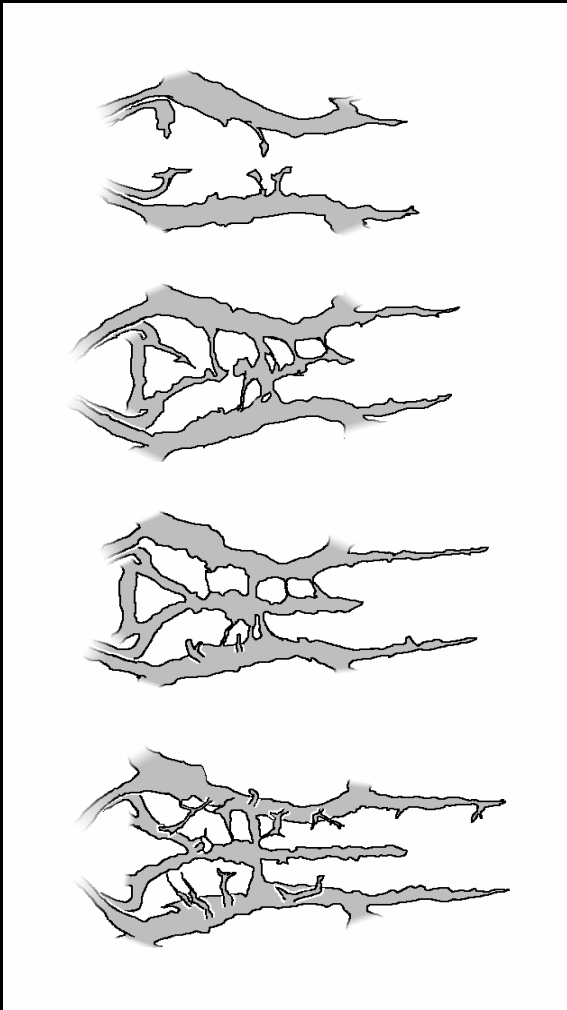
enlarged vessels in vbg



increased endothelial cell number in vbg vessels



the source of the “extra” endothelial cells?

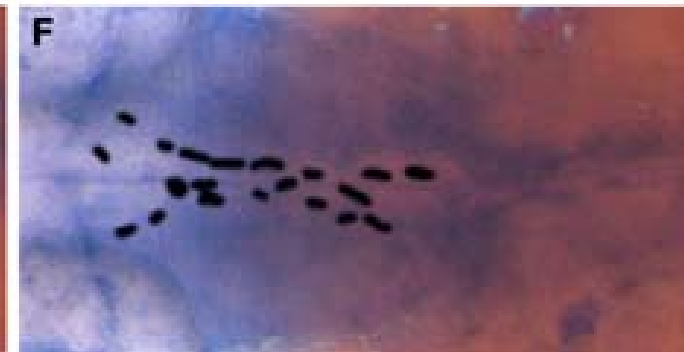
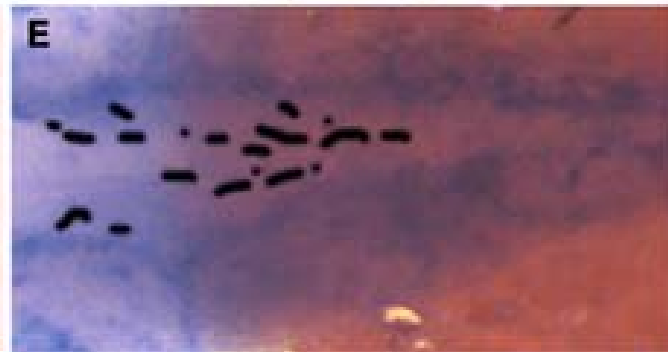
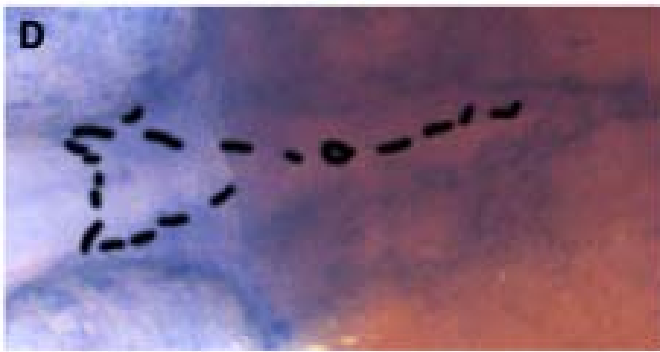
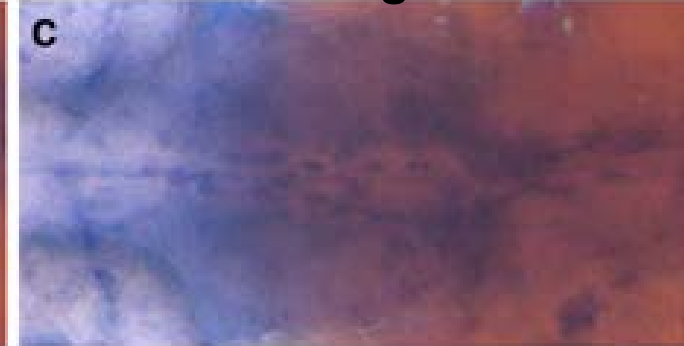
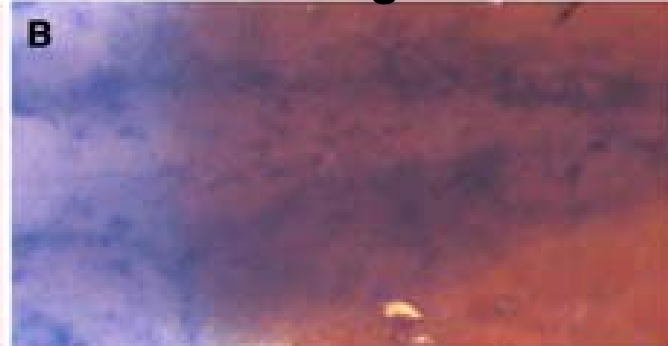
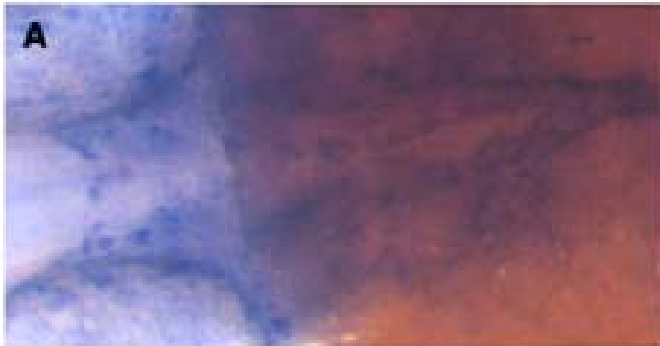


pdgfr β -expressing cells are disorganized in vbg mutants

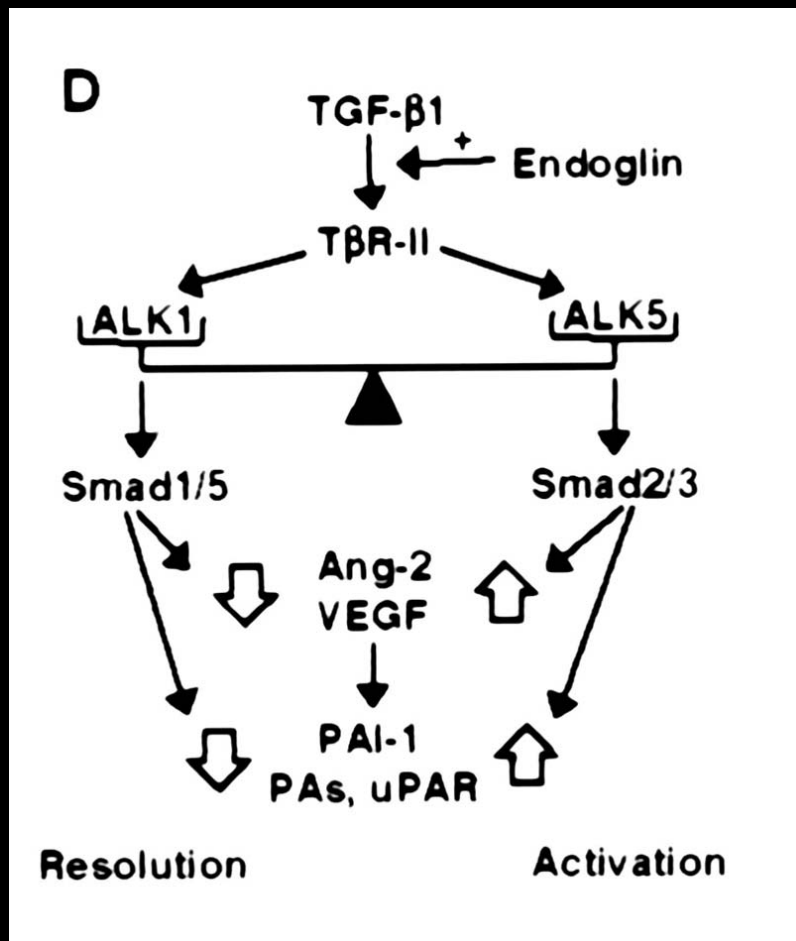
WT

vbg

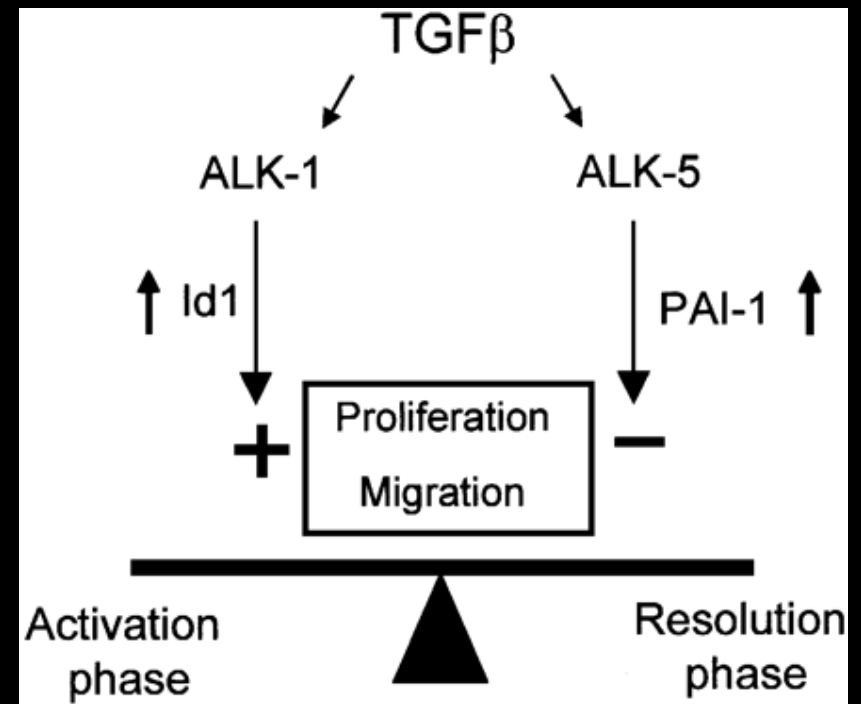
vbg



Alk1 and Alk5: competing type I receptors?

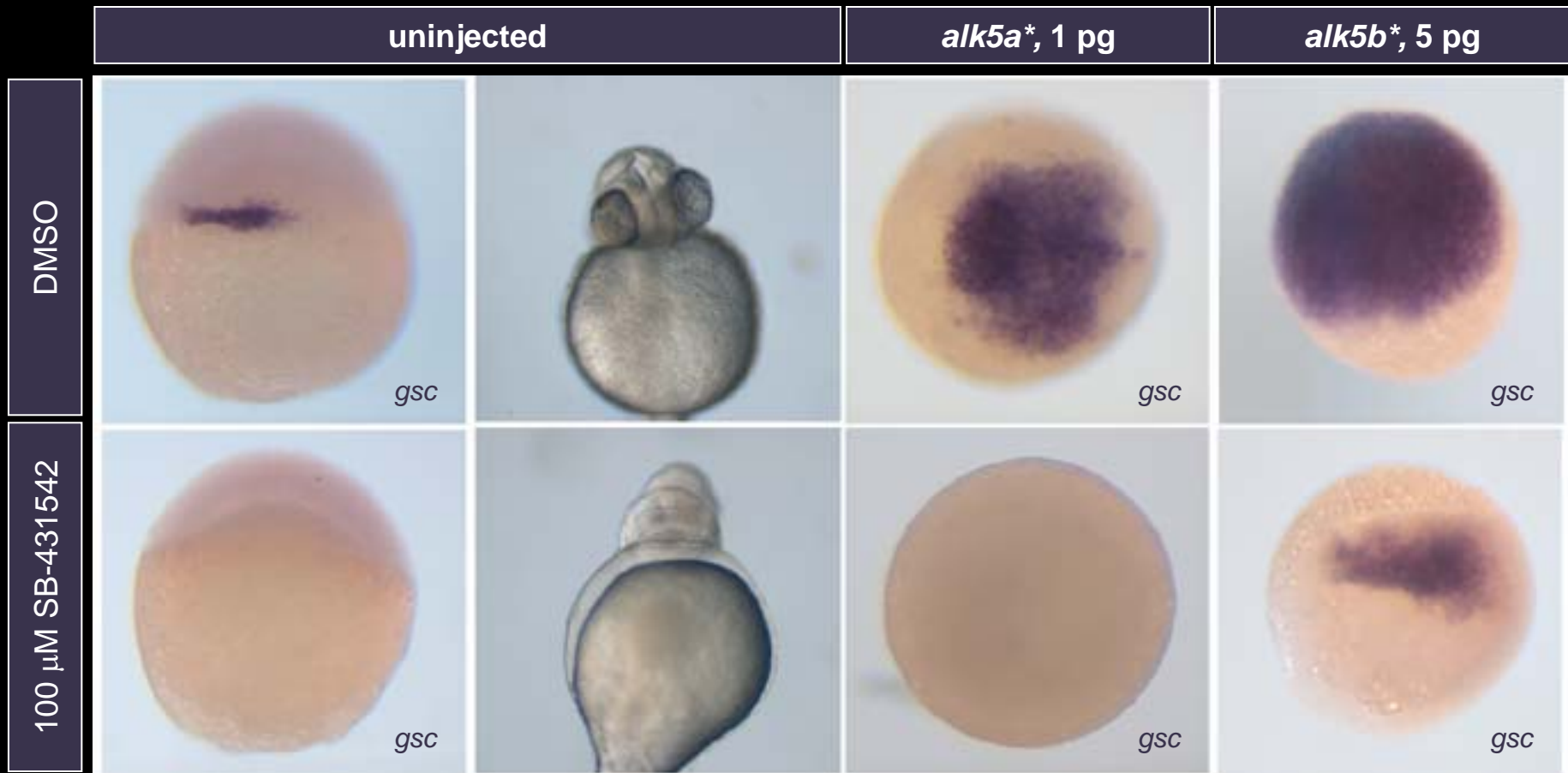


Oh et al. (2000). PNAS 97, 2626.

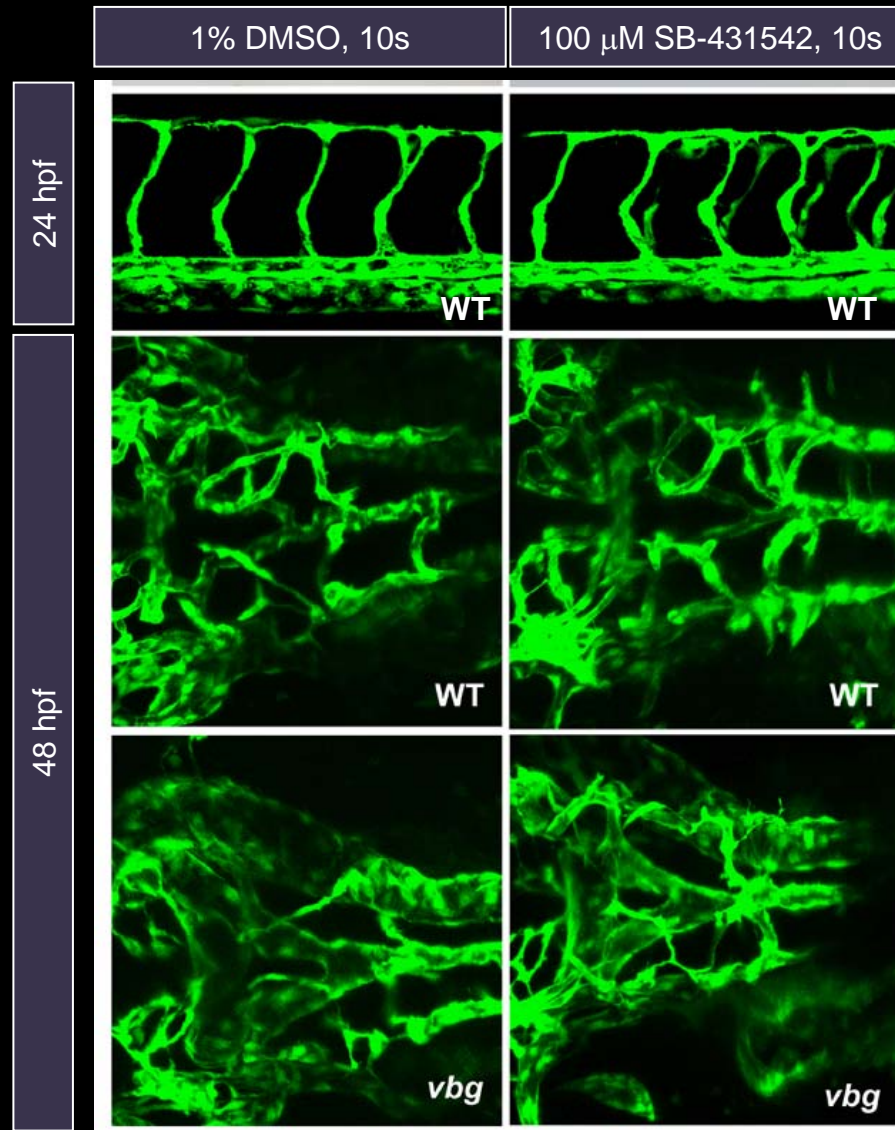


Goumans et al. (2002). EMBO J. 21, 1743

SB-431542 inhibits Alk4 and Alk5 in vivo



Alk5 activity is not required for vascular development in zebrafish



alk5a,b expression patterns

10s/14 hpf

22s/20 hpf

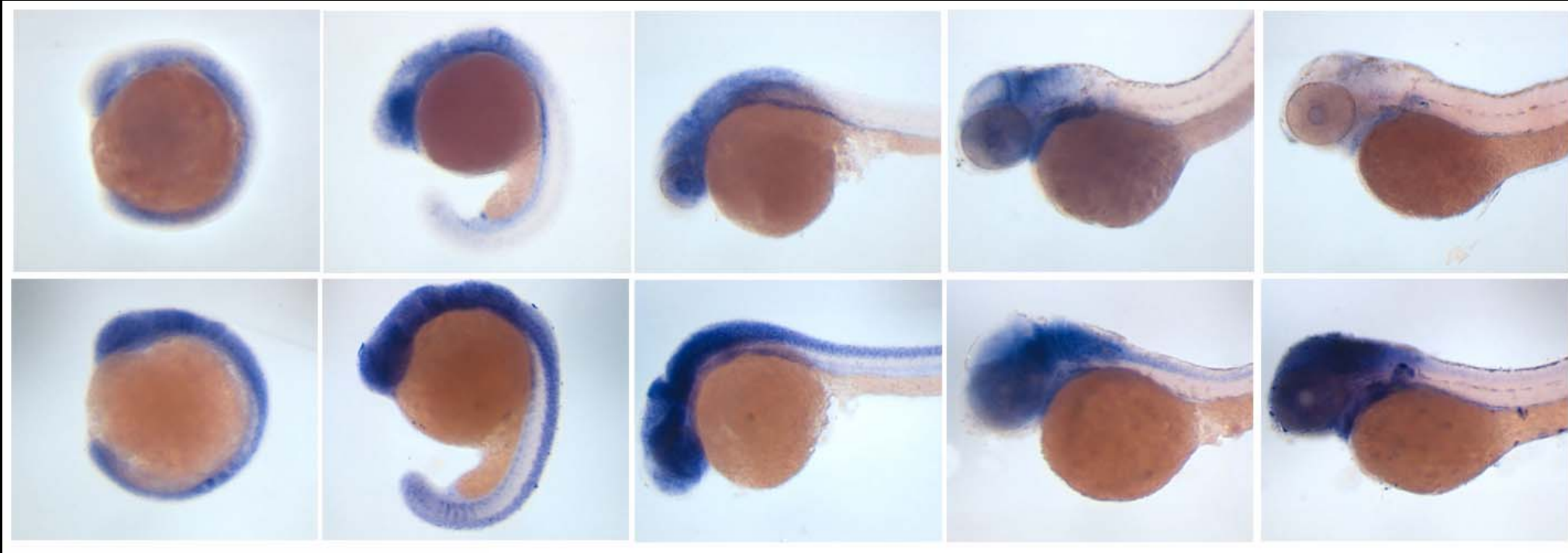
24hpf

40 hpf

48 hpf

alk5a

alk5b



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