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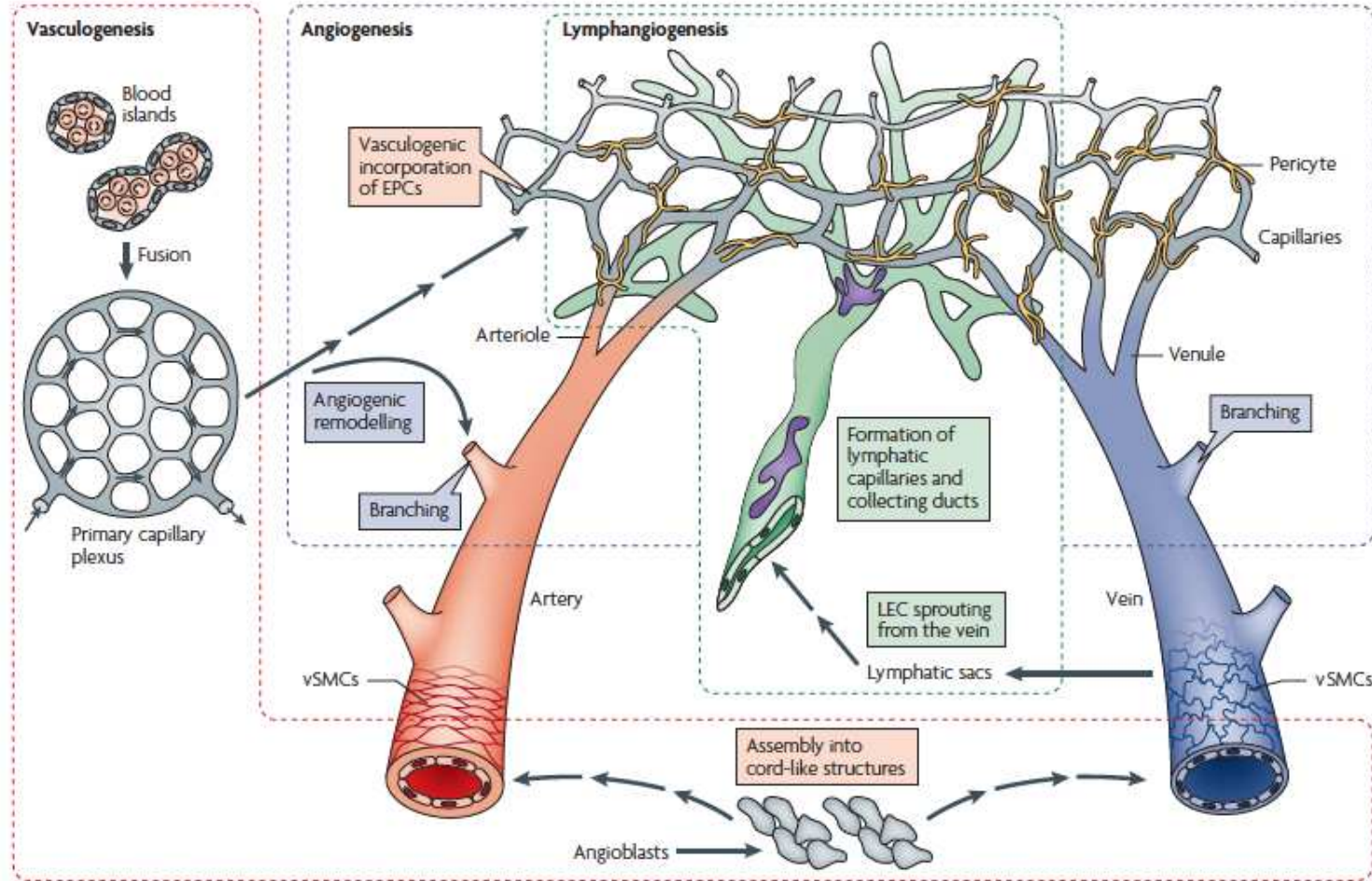
Vascular Health and Angiogenesis in Congenital Heart Care

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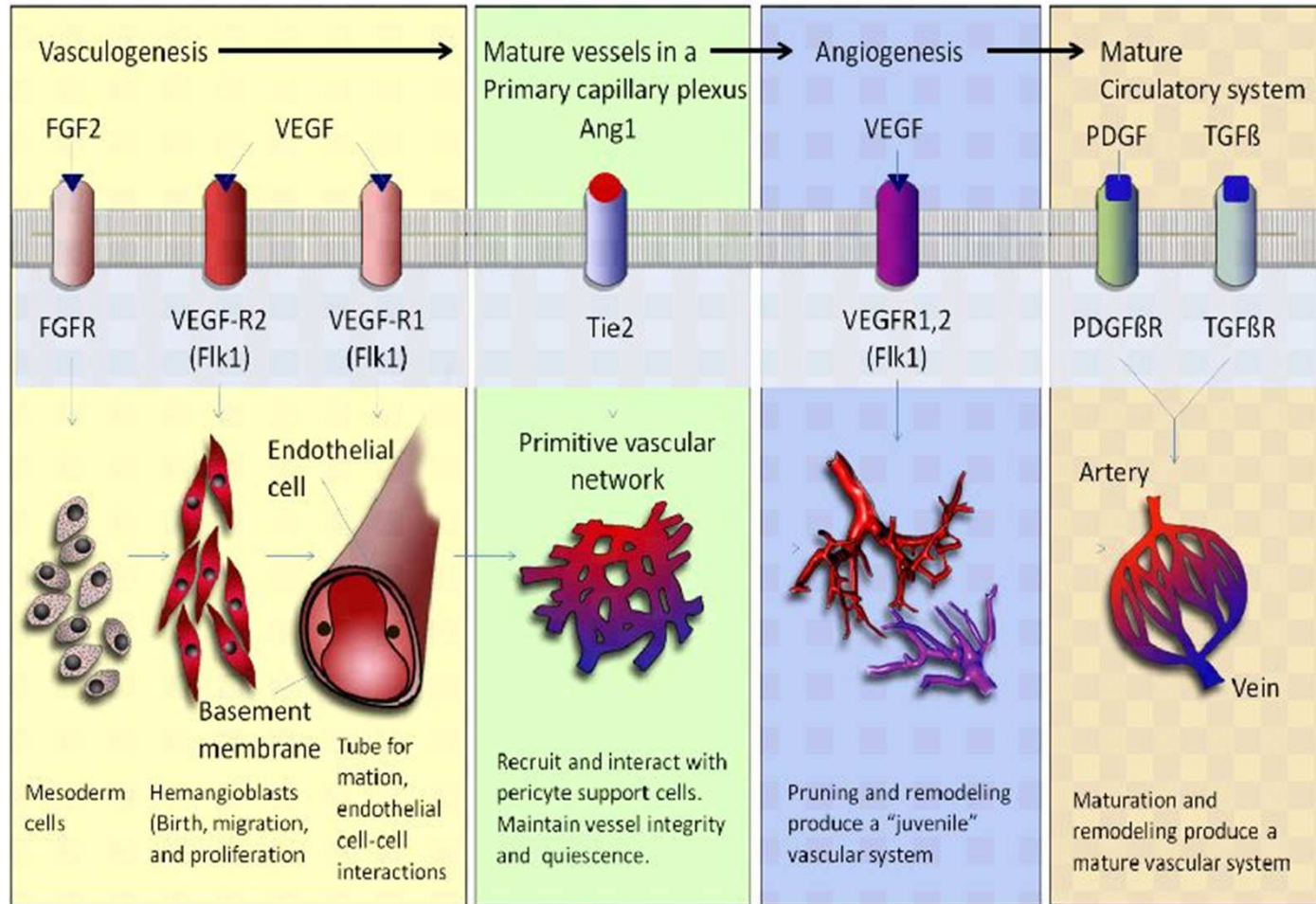
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Angiogenesis



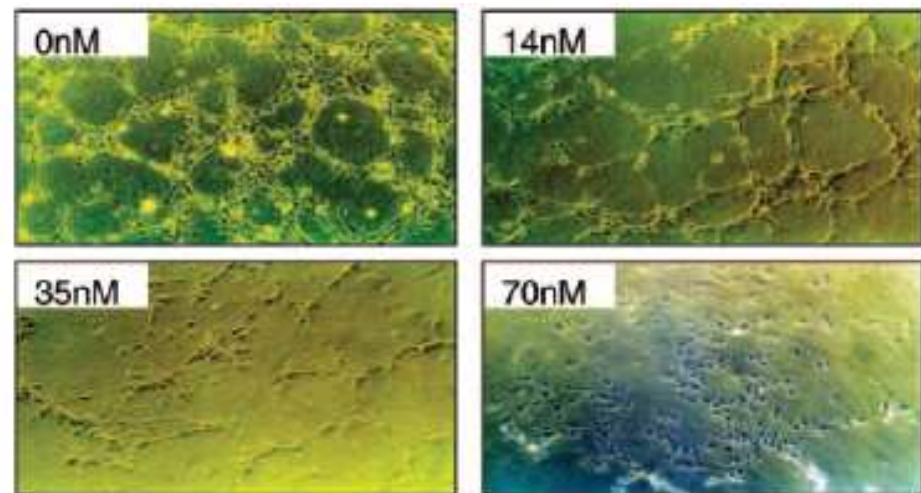
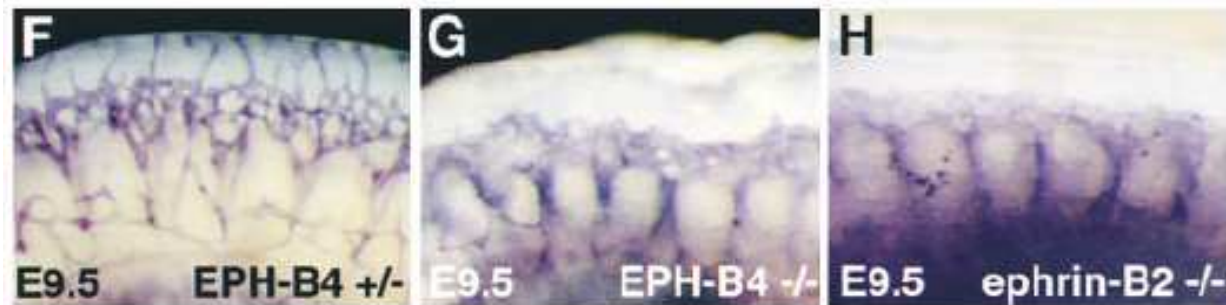
Adams et al. Nat Rev Mol Cell Biol 2007;8:464-78

Angiogenesis



Li et al. 2013;DOI: 10.5772/54109

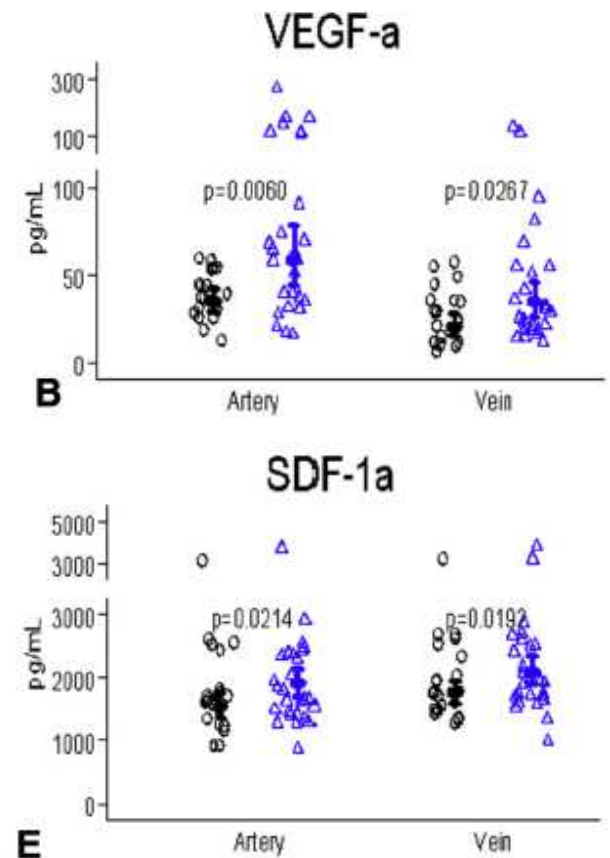
Therapeutic angiogenesis molecules



Gerety et al. Mol Cell 1999;4:403-14
Kertesz et al. Blood 2006;107:2330-8

Pulmonary Aortopulmonary Collaterals

- Seen commonly in setting of
 - Cyanosis
 - Inadequate pulmonary blood flow
 - Pulmonary artery distortion
- Increase in pro-angiogenic factors
- Difference in arterial and venous concentrations of factors
- ? Limited to pulmonary vascular bed



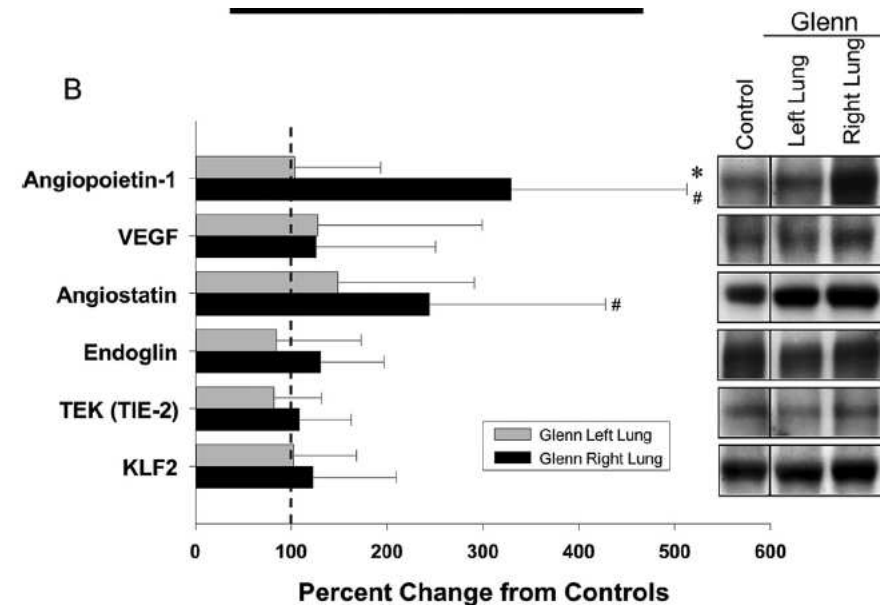
Sandeep et al. *J Thorac Cardiovasc Surg* 2016;151:1126-35

Pulmonary Arteriovenous malformation

- More common after second stage palliation for single ventricle – can resolve with completion Fontan
- Often seen in Kawashima Glenn (interrupted IVC)
- Pulmonary AVM in hepatic failure and HPS
- ?Hepatic factor ?non-pulsatile blood flow

Pulmonary Arteriovenous malformation

- Animal models show increased endothelial cell proliferation
- Imbalance of pro- and anti-angiogenic factors
- Novel molecular therapeutic targets
- ? Isolated to pulmonary bed



Kavarana et al. Ann Thorac Surg 2013;96:1442-9