

HD5 – Mechanisms of Vascular Development

Learning Objectives:

Angiogenesis

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- 1) Understand the cell types of the vasculature and the process of vasculogenesis, angiogenesis, lymphangiogenesis.
 - a. Know sequence of vascular development starting from hemangioblast to specialized vasculature.
 - b. Know the cellular steps in sprouting angiogenesis.

- 2) Know the three major families of angiogenic factors- VEGF, Angiopoietins, Notch ligands and their receptors.
 - a. Understand the functions of different VEGF subtypes, in terms of receptor interaction and cell types of action.
 - b. Understand the combined role of VEGF and Angiopoietins in angiogenesis and vessel maturation.
 - c. Understand the concept of cell-fate determination and the role Notch in vascular development.
 - d. Understand the role of hypoxia in allowing for sufficient vascular density.

- 3) Understand the nature of human retinal vascular syndromes discussed, and the angiogenic factors/receptors known to be involved.
 - a. Retinopathy of Prematurity.
 - b. Familial Exudative Vitreoretinopathy
 - c. Norrie Disease