Title:	The convergence of Notch and MAPK signaling specifies the blood progenitor fate in the Drosophila mesoderm
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Abstract:	Blood progenitors arise from a pool of pluripotential cells ("hemangioblasts") within the Drosophila embryonic mesoderm. The fact that the cardiogenic mesoderm consists of only a small number of highly stereotypically patterned cells that can be queried individually regarding their gene expression in normal and mutant embryos is one of the significant advantages that Drosophila offers to dissect the mechanism specifying the fate of these cells. We show in this paper that the expression of the Notch ligand Delta (Dl) reveals segmentally reiterated mesodermal clusters ("cardiogenic clusters") that constitute the cardiogenic mesoderm. These clusters give rise to cardioblasts, blood progenitors and nephrocytes. Cardioblasts emerging from the cardiogenic clusters accumulate high levels of Dl, which is required to prevent more cells from adopting the cardioblast fate. In embryos lacking Dl function, all cells of the cardiogenic clusters become cardioblasts, and blood progenitors are lacking. Concomitant activation of the Mitogen Activated Protein Kinase (MAPK) pathway by Epidermal Growth Factor Receptor (EGFR) and Fibroblast Growth Factor Receptor (FGFR) is required for the specification and maintenance of the cardiogenic mesoderm; in addition, the spatially restricted localization of some of the FGFR ligands may be instrumental in controlling the spatial restriction of the Dl ligand to presumptive cardioblasts.
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