



Early cardiovascular progenitor cells express transiently the Vascular Endothelial (VE)- Cadherin.

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ABSTRACT

Cell-cell junctions play a major role in tissue formation during embryogenesis. Adherens junctions (AJs) are cell-cell adhesion structures pivotal to morphogenetic processes, lineage specification and proliferation through direct or indirect interactions with signaling pathways. AJs provide adhesive properties between cells through cadherin receptors and the cytoplasmic catenins. The nature of AJs in Isl1⁺ cardiovascular progenitors was examined during *in vitro* mouse Embryonic Stem Cells (ESCs) differentiation and *in vivo*, in mouse embryos. Surprisingly, a percentage of Isl1⁺ cardiac progenitor cells expresses transiently the endothelial-specific VE-cadherin during *in vitro* differentiation at D4-D5. We further report that that this expression pattern recapitulates faithfully the *in vivo* situation in mouse embryo. CRISPR knockout of VE-cadherin in ESCs or disruption of classical cadherins by an AJs dominant-negative mutant under the VE-Cadherin promoter (Pvec) results in severe inhibition of cardiac differentiation.