

WHAT'S NEW AT

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newsletter

## CD34 positive (CD34+) cells

DV Biologics now offers high purity frozen CD34 positive (CD34+) human cells isolated from human prenatal liver.

CD34, a single cell-surface transmembrane glycoprotein, has become one of the most widely used markers of hematopoietic stem cells, expressed in non-quiescent or activated hematopoietic precursors, and absent from differentiated hematopoietic lineages<sup>1</sup>.

During early development, CD34 expression is present in hematopoietic progenitors of the yolk sac, the para-aortic splanchnopleura, and later in the aorta-gonad-meso-nephros. Shortly after the development of the liver primordia, hematopoietic progenitors expressing CD34 start colonizing the liver, which becomes the principal site for hematopoiesis for the rest of embryogenesis, until the hematopoietic progenitors start migrating to the bone marrow<sup>1</sup>.

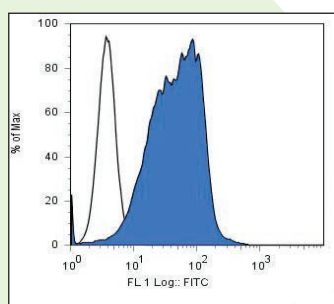
In adults, CD34 is also expressed in vascular endothelia, primarily small vessels, a subset of stromal cells of bone marrow origin, and a subset of muscle-derived progenitor cells<sup>1</sup>.

DV Biologics' CD34+ human cells are isolated using magnetic cell separation and are 95% pure populations, as confirmed by FACS analysis (Fig.1) and Western Blotting (Fig.2).

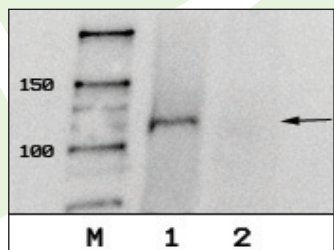
CD34+ cells can be used for various studies on hematopoiesis, differentiation, angiogenesis, colony formation, and surface marker expression.

CD34+ cells can be differentiated into endothelial cells as confirmed by Ac-LDL uptake assay (Fig.3) and expression of the endothelial markers CD31 and Von Willebrand factor VIII (Fig. 4).

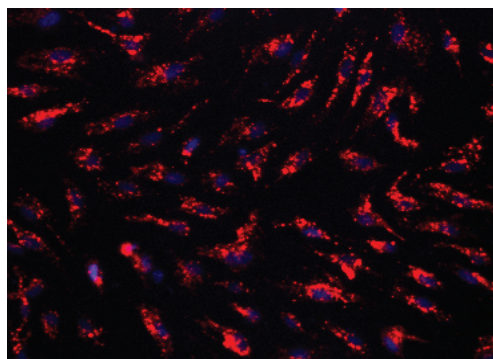
These endothelial cells are also available from DV Biologics.



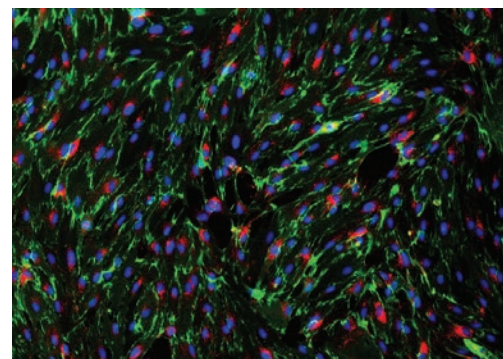
**Fig.1.** Flow cytometry analysis showing CD34+ cells isolated from fetal liver after staining with a CD34-FITC conjugated antibody. 95% of the cells were positive for CD34.



**Fig.2.** Western Blotting analysis of CD34 protein expression (110KDa, black arrow) in the CD34+ cell population after magnetic cell separation. M) Fluorescent marker 1) CD34+ cells 2) Mesenchymal Stem cells, used as a negative control.



**Fig.3.** Ac-LDL uptake assay. CD34+ cells were differentiated into endothelial cells. After few passages, we measured their ability of incorporating acetyl-LDL (shown in red) previously labeled with DiI (1,1'-dioctadecyl-3,3,3',3'-tetramethylindocarbocyanine perchlorate). Nuclei were stained with Hoechst 33432 (shown in blue).



**Fig.4.** Immunocytochemistry assay showing CD34+ cells differentiated into endothelial cells. After few passages, cells express the endothelial markers CD31 (shown in green) and Von Willebrand factor VIII (shown in red). Nuclei were stained with Hoechst 33432 (shown in blue).

# Order Form

Catalog No.	Description	Quantity	Unit Price	Total Price

Shipping and Handling will be added to the order by DV Biologics. Please call for estimate.

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