

Human Umbilical Vein Endothelial Cells (HUVEC)

SKU: 10HU-012

Product Description

Human umbilical vein endothelial cells (HUVEC) are the cells derived from the endothelium of veins from the umbilical cord. They exhibit a cobblestone phenotype when lining vessel walls. HUVECs are commonly used as a laboratory model system for physiological and pharmacological studies, such as macromolecule transport, blood coagulation, angiogenesis, and fibrinolysis ^[1]. Serving as the classic model system, they have been applied into the study of multiple aspects of endothelial function and disease, including normal or tumor-associated angiogenesis, oxidative stress and inflammation related pathways in endothelium under normal and pathological conditions ^[2].

Product Details

Catalog Number: 10HU-012

Organism: *Homo Sapiens*, Human

Cell Type: Endothelial Cells

Tissue: Human Umbilical Cord

Disease: Normal

Package Size: 0.5 x 10⁶ cells/vial

Passage Number: P2

Growth Properties: Adherent

Storage Conditions & Shipment

Product Format/Shipped: Cryopreserved

Storage: Liquid Nitrogen

PRODUCT SHEET

For Research Use Only

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Overview of Human Umbilical Vein Endothelial Cells (HUVEC)

iXCells Biotechnologies provides high quality Human Umbilical Vein Endothelial Cells (HUVEC), which are isolated from human umbilical vein of mix donors, and cryopreserved at P2, with ≥ 0.5 million cells in each vial. HUVEC have “cobblestone” morphology and positive staining with typical endothelial cell markers, including vWF/Factor VIII, VE-Cadherin, and CD31. These HUVEC are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast and other fungi. The cells can further expand no more than 3 passages under the conditions suggested by iXCells Biotechnologies. Additional expansion may decrease the purity.

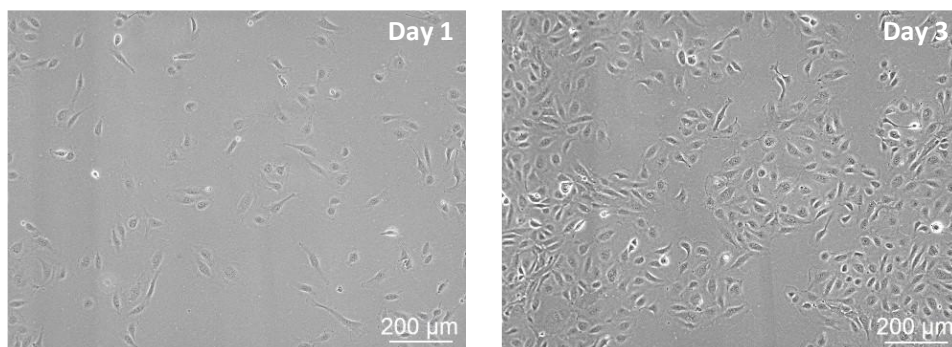


Figure 1. Human Umbilical Vein Endothelial Cells (HUVEC). The cells were recovered, and seeded at 10,000 cells/cm² following iXCells’ protocol. Phase contrast images were taken at the indicated time post recovery.

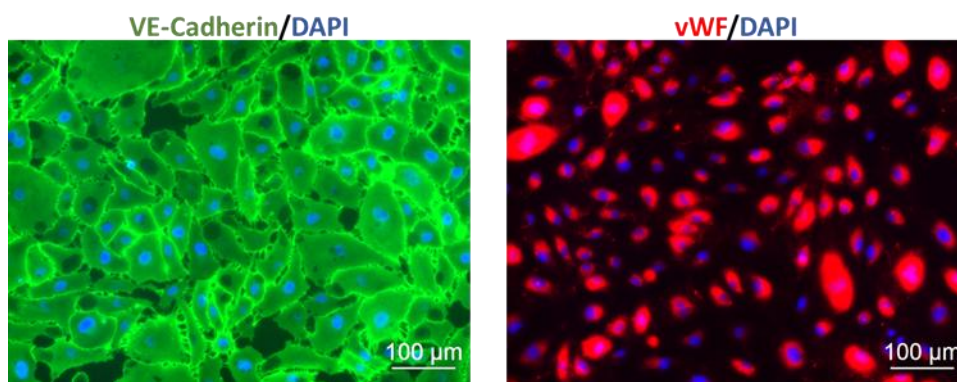


Figure 2. Immunofluorescence staining of HUVEC with antibodies against VE-Cadherin (Green) and vWF (Red). Nuclei were counterstained by DAPI (Blue).

QuickStart Guide – Protocols

NOTE: IXCELLS CELLS ARE CULTURED IN 37°C, 5% CO₂ INCUBATOR. CELLS ARE ONLY WARRANTED IF IXCELLS RECOMMENDED MEDIA AND REAGENTS ARE USED AND IF THE PROVIDED PROTOCOLS ARE FOLLOWED.

Cell Culture Reagents

1. Complete culture medium: Endothelial Cell Growth Medium (Cat# MD-0010), iXCells.
2. Trypsin: 0.05% Trypsin, Cytiva, Cat# SH30236.02.
3. DPBS: DPBS without Calcium, Magnesium, Cytiva, Cat# SH30028.02.

Cell Thawing – Frozen Cells

1. Upon receipt of the frozen cells, it is recommended to thaw the cells and initiate the culture immediately in order to retain the highest cell viability.
2. To thaw the cells, put the vial in 37°C water bath with gentle agitation for 1-2 minutes. Keep the cap out of water to minimize the risk of contamination.
3. Pipette the cells into a 15 mL conical tube with 5 mL fresh Complete Culture Medium.
Note: please prepare the Complete culture medium following the manufacturer's instruction.
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh complete culture medium.
6. Seed the cells in desired culture vessel at 5,000-10,000 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

Safety Precaution: It is highly recommended that protective gloves and clothing should be used when handling frozen vials.

Subculture Procedure

1. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile DPBS (e.g. 5 mL for one T75 flask).
2. Add 3 mL of 0.05% Trypsin-EDTA to the flask and incubate for 5 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
3. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
4. Seed the cells in the new culture vessels at 5,000-10,000 cells/cm². Change the medium every other day until cells reach 80-90% confluence.

Note: Penicillin-Streptomycin, Antibiotics and antimycotics, or other antibiotics are optional in the culture media. iXCells in house tests were performed under antibiotics-free condition for ≥ 3 days by following the recommended protocol, and no bacterial or fungi contamination were observed during the culture period.

References

- [1] Park HJ, Zhang Y, Georgescu SP, Johnson KL, Kong D, Galper JB (2006). "Human umbilical vein endothelial cell and human dermal microvascular endothelial cells offer new insights into the relationship between lipid metabolism and angiogenesis". Stem Cell Rev. 2 (2): 93–102.
- [2] Nallamshetty S, Chan SY, and Loscalzo J. (2013) "Hypoxia: a master regulator of microRNA biogenesis and activation". Free Radic Biol Med. 64: 20-30.

Disclaimers

This product is for laboratory research purposes only and should not be used in humans. While iXCells Biotechnologies strives to provide accurate and current information on this product sheet, we do not guarantee its accuracy. Citations from scientific literature and patents are for informational purposes and may not be confirmed as accurate.

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