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Product Information

Human Pulmonary Microvascular Endothelial Cells (HPMVEC)

Catalog Number	10HU-076	Cell Number	0.5 x 10^6 cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid Nitrogen

Description

The primary human pulmonary microvascular endothelial cells (HPMEC), also termed as Human Lung Microvascular Endothelial Cells (HLMVEC), form a luminal barrier of intra-acinar arterioles that is critical for lung gas exchange and regulation of fluid and solute passage between the blood and interstitial compartments in the lung. They also have metabolic properties that enable it to carry out certain important nonrespiratory function [1]. The HPMEC are among the most important targets of reactive oxygen species elaborated in lung injury. During the lung inflammation, neurohumoral mediators and oxidants act on endothelial cells to induce intercellular gaps permissive for transudation of proteinaceous fluid from blood into the interstitium [2]. The increased permeability leads to the hypoxemia associated with adult respiratory distress syndrome and noncardiogenic pulmonary edema [3].

iXCells Biotechnologies provides high quality HPMEC, which are isolated from human lung tissue and cryopreserved at P2, with >0.5 million cells in each vial. HPMEC express vWF/Factor VIII, CD31 (PECAM), and Dil-Ac-LDL by uptake. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi and can further expand no more than 3 passages in **Endothelial Cell Growth Medium** (Cat# MD-0010) under the condition suggested by iXCells Biotechnologies. Further expansion may decrease the purity.

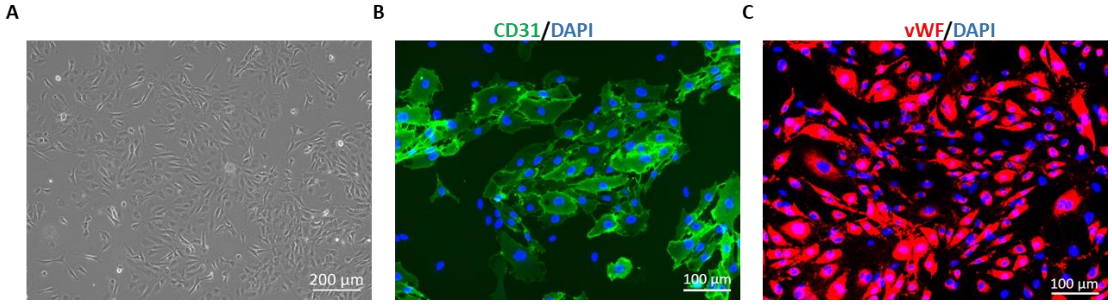

Figure 1. Human Pulmonary Microvascular Endothelial Cells (HPMVEC). **(A)** Phase contrast image of HPaMEC. **(B & C)** Immunofluorescence staining with antibodies against CD31 **(B)** and vWF/Factor VIII **(C)**.

Product Details

Tissue	Human lung tissue
Package Size	0.5 x10^6 cells/vial
Passage Number	P2
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Endothelial Cell Growth Medium (Cat# MD-0010)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Human Pulmonary Microvascular Endothelial Cells (HPMEC), 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 minute. 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 **Endothelial Cell Growth Medium** (Cat# MD-0010).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh culture medium.
6. Culture the cells in T75 flask. Change the medium every other day until the cells reach 80-90% confluence.

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

Standard Culture Procedure

1. HPMVECs can be cultured in **Endothelial Cell Growth Medium** (Cat# MD-0010).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 mL/T75 flask).
3. Add ~3 mL of 0.25% Trypsin-EDTA to the flask and incubate for ~3 minutes at 37°C. Neutralize the enzyme by adding 2-3 volumes of cell culture medium.
4. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed the cells in the new culture vessels at 5 × 10^3 cells/cm^2. Change the medium every other day until the cells reach 80-90% confluence.

Reference

[1] Laura S Mackay,corresponding, Sara Dodd, Iain G Dougall, Wendy Tomlinson, James Lordan, Andrew J Fisher, and Paul A Corris. (2013) Respir Res. 14(1): 23.

[2] Moore T. M., Chetham P. M., Kelly J. J., Stevens T. (1998) Signal transduction and regulation of lung endothelial cell permeability. Interaction between calcium and cAMP. Am J Physiol. 275(2 Pt 1): L203-22.

[3] Kelly JJ, Moore TM, Babal P, Diwan AH, Stevens T, Thompson WJ. (1998) Pulmonary microvascular and macrovascular endothelial cells: differential regulation of Ca2+ and permeability. Am J Physiol. 274 (5 Pt 1): L810-9.

Disclaimers