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Product Information

Human Cardiac Microvascular Endothelial Cells (HCMEC)

Catalog Number	10HU-052	**Cell Number**	0.5 million cells/vial
Species	*Homo sapiens*	**Storage Temperature**	Liquid Nitrogen

Description

The endothelial cells modulate vascular tone by release of several endothelium-derived contracting and relaxing factors, by regulation and degradation of vasoactive peptides, and by enzymes located on the Cardiac microvascular endothelial cells (HCMEC) play important roles in myocardial function. HCMEC regulate vascular tone by releasing and degrading endothelium-derived vasoactive factors, and modulating the local levels of vasoconstrictors and vasodilators through their enzymatic activities. Many of these substances can also modify myocardial contractile behavior [1]. Furthermore, microvasculature has been shown to participate in the regulation of leukocyte recruitment, inflammation, and angiogenesis. They are also capable of trans-differentiating into myofibroblasts, suggesting a role in aberrant accumulation of matrix and fibrotic disorders [2]. HCMEC cultures provide an invaluable tool for understanding HCMEC physiological and pathophysiological relevance in cardiac function and disease.

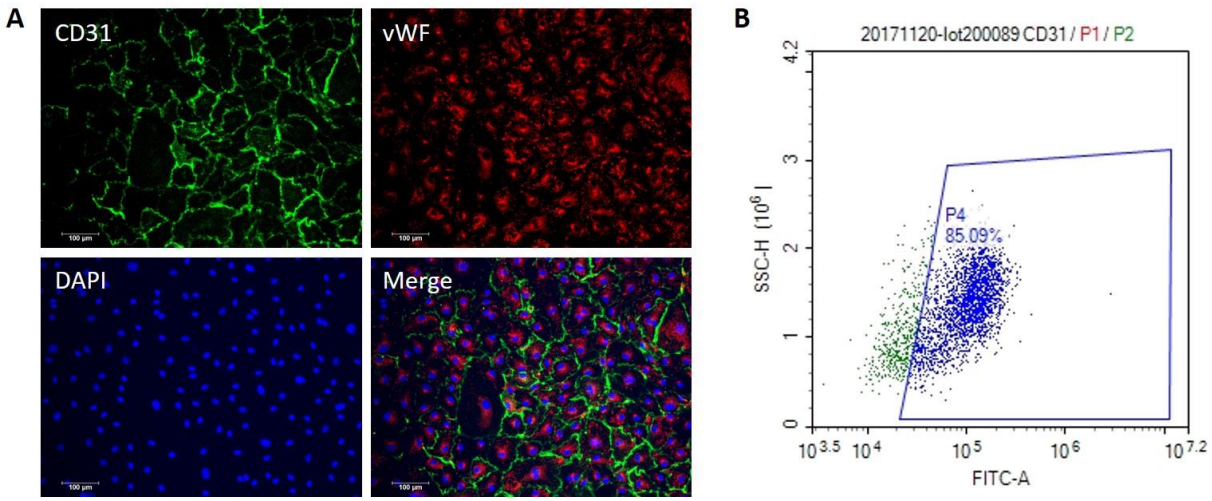

Figure 1. (A) Immunofluorescence staining for vWF/Factor VIII (red) and CD31/PECAM (green). **(B)** Flow analysis showed that 85.09% of the cells are positive for CD31.

iXCells Biotechnologies provides high quality HCMEC, which are isolated from human heart and cryopreserved at P2, with >0.5 million cells in each vial. These HCMEC express vWF/Factor VIII, CD31 (PECAM) (Figure 1 and 2), and Dil-Ac-LDL by uptake. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi and can further expand for 10 population doublings in Endothelial Cell Growth Medium (Cat# MD-0010) under the condition suggested by iXCells

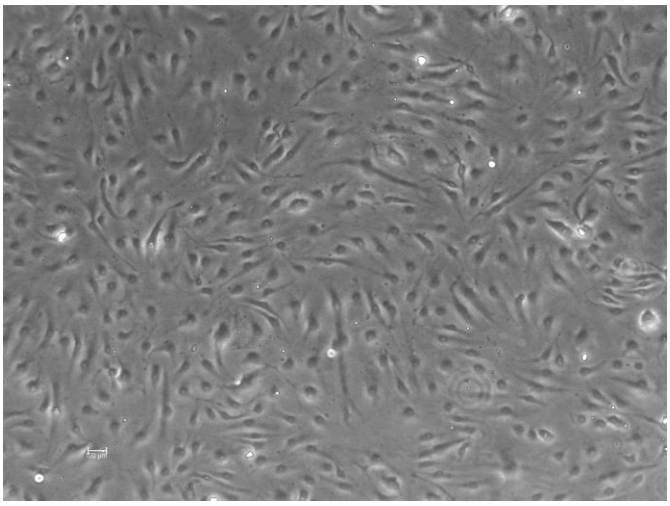

Figure 2. Human Cardiac Microvascular Endothelial Cells (HCMECs) (phase contrast).

Product Details

Tissue	Human heart
Package Size	0.5 x 10^6 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 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 minute. Keep the cap out of water to minimize the risk

of contamination.

3. Pipette the cells into a 15ml conical tube with 5ml fresh Endothelial Cell Growth Medium (Cat# MD-0010).
4. Centrifuge at 1000rpm (~220g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Endothelial Cell Growth Medium.
6. Culture the cell in T75 flask.

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

Standard Culture Procedure

1. HCMECs 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 (5ml/T75 flask).
3. Add ~2.5ml 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 1000rpm (~220g) for 5min 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.

References

[1] Yang, Z. K., Draper, N. J. and Shah, A. M. (1999) Ca2+-independent inhibition of myocardial contraction by coronary effluent of hypoxic rat hearts. Am.J.Physiol.276:H623-632.
[2] Paulus, W. J., P. J. Vantrimpont, and A. M. Shah. Paracrine coronary endothelial control of left ventricular function in humans. Circulation 92: 2119-2162,1995
[3] Shah, A. M. (1996) Paracrine modulation of heart cell function by endothelial cells. Cardiovasc Res, 31(6):847-67.

Disclaimers

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