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Human Glomerular Microvascular Endothelial Cells (HGMEC)

Catalog Number	10HU-061	**Cell Number**	0.5 million cells/vial
Species	*Homo sapiens*	**Storage Temperature**	Liquid Nitrogen

Description

Human Glomerular Microvascular Endothelial Cells (HGMEC) are highly specialized cells with fenestrae and a charged luminal glycocalyx layer, which contribute to the filtration barrier [1,2]. They have a unique constellation of structural features (including absence of diaphragm but retention of a basal lamina), and perform a vital physiological function in allowing filtration of the blood in the glomerulus [3,4]. The study of human HGMEC can enable complete understanding of glomerular filtration, glomerular disease, response to glomerular injury, and the potential for therapeutic manipulations in these contexts.

iXCells Biotechnologies provides high quality HGMEC, which are isolated from human kidneys and cryopreserved at P0 after purification, with ≥ 0.5 million cells in each vial. HGMEC are characterized by immunofluorescence with antibodies specific to vWF/Factor VIII and CD31 (PECAM), and by the formation of microtubular structures in vitro. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. HGMEC can proliferate in Endothelial Cell Growth Medium (Cat# MD-0010), but they are not recommended for further expansion, because the purity of the endothelial population may decrease.

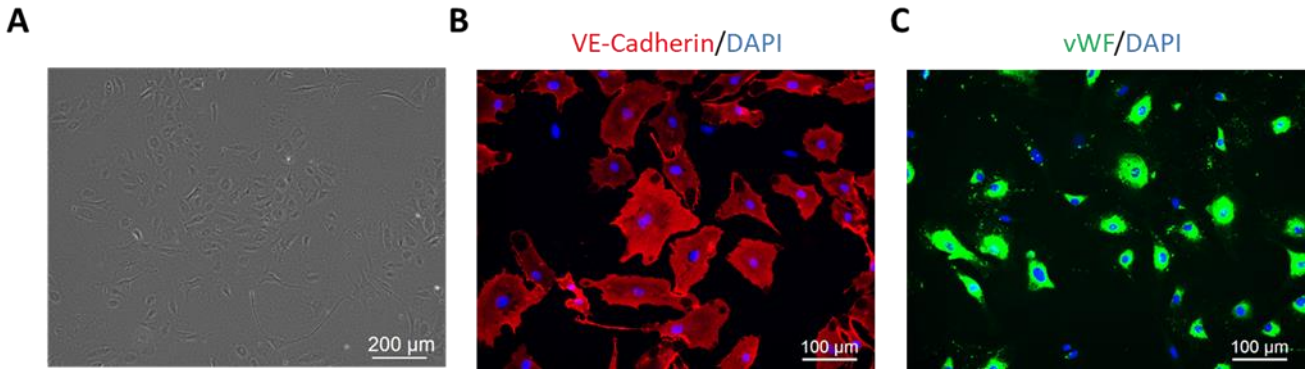

Figure 1. Human Glomerular Microvascular Endothelial Cells (HGMEC). (A) Phase contrast image of HGMEC. (B & C) Immunofluorescence staining with antibodies against VE-Cadherin (B) and vWF/Factor VIII (C).

Product Details

Tissue	Human kidney glomerular, Normal
Package Size	0.5 million 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 ~1-2 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 **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 desired volume of Endothelial Cell Growth Medium.
6. Culture the cell in T75 flask or the desired culture vessel. Change the medium every other day until cells reach 80-90% confluence. We recommend seeding at 5×10^3 cells/cm^2.

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

Standard Culture Procedure

1. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 mL/T75 flask).
2. Add ~2.5 mL of 0.05% 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.
3. Centrifuge at 1,000 rpm (~220 *g*) for 5 minutes and resuspend the cells in desired volume of medium.
4. Seed in the new culture vessels at 5×10^3 cells/cm^2. Change the medium every other day until cells reach 80-90% confluence.

Reference

[1] Ilse Sofia Daehn (2018) Glomerular Endothelial Cell Stress and Cross-Talk With Podocytes in Early Diabetic Kidney Disease. Front Med (Lausanne), 5: 76.

[2] Kester, M., Nowinski, R. J., Holthofer, H., Marsden, P. A. and Dunn, M. J. (1994) Characterization of platelet-activating factor synthesis in glomerular endothelial cell lines. Kidney Int 46(5):1404-12.

[3] Lee, L. K., Meyer, T. W., Pollock, A. S. and Lovett, D. H. (1995) Endothelial cell injury initiates glomerular sclerosis in the rat remnant kidney. J Clin Invest 96(2):953-64.

[4] Simon C. Satchell and Filip Braet. (2009) Glomerular endothelial cell fenestrations: an integral component of the glomerular filtration barrier. Am J Physiol Renal Physiol. 296(5): F947–F956

Disclaimers

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