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Product Information

Human Villous Trophoblasts (HVT)

Catalog Number	10HU-214	Cell Number	0.5 million cells/vial 1.0 million cells/vial
Species	*Homo sapiens*	Storage Temperature	Liquid Nitrogen

Description

The trophoblast begins at the outer covering of the early blastocyst and provides the route of nourishment between the maternal endometrium and the developing embryo. The trophoblast adhesion to the uterine wall is the requisite first step of implantation and, subsequently, placentation. Human villous tryophoblasts (HVT) covering the villi of the placenta provide the surface for the exchange of oxygen and nutrients with the maternal circulation. They synthesize and release chorionic gonadotropin, placental lactogen and angiogenin [1] and express CXCR4, CCR5 and prolactin gene family [2, 3]. They acquire CCR1 as they differentiate to an invasive phenotype at the villous-anchoring sites [4]. The features of HVT, together with the recent establishment of trophoblast stem cells, make them an ideal genetic platform to study cell differentiation and organogenesis.

iXCells Biotechnologies provides high quality HVT, which are isolated from human placental villi and cryopreserved at P1, with >0.5 million cells in each vial. HVT express alpha-and beta-HCG and are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fung. HVT can further expand no more than 3 passages in Trophoblast Growth Medium (Cat# MD-0058) under the condition suggested by iXCells Biotechnologies. Further expansion may decrease the purity.

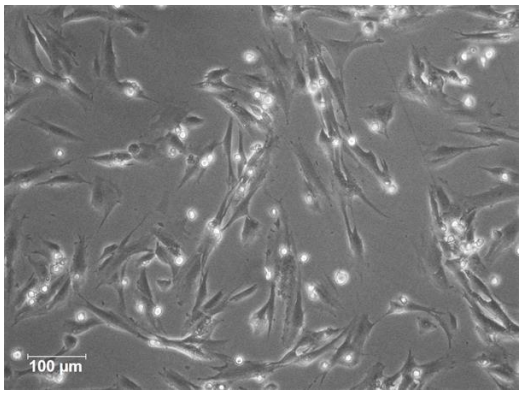

Figure 1. Human Villous Trophoblasts (HVT) phase contrast image

Product Details

Tissue	Human placental villi
Package Size	0.5 million cells/vial; 1.0 million cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Trophoblast Growth Medium (Cat# MD-0058)

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 culture medium.
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. Seed cells at about 10,000-20,000/cm^2. Change the medium every other day until the cells reach 80-90% confluency.

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

Standard Culture Procedure

1. HVT can be cultured in Trophoblast Growth Medium (Cat# MD-0058).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5ml/T75 flask).
3. Add ~2.5mL of 0.05% 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.
4. Centrifuge 1,000 rpm (~220 g) for 5 minutes and resuspend the cells in desired volume of medium.
5. Seed new culture vessels at 10,000-20,000 cells/cm^2. Change the medium every other day until the cells reach 80-90% confluency.

Reference

[1] Pavlov, N., Hatzi, E., Bassagliam Y., Frendo, J. L., Brion, D. E., Badet, J. (2003) “Angiogenin distribution in human term placenta, and expression by cultured trophoblastic cells”. Angiogenesis. 6(4):317-30.
[2] Maldonado-Estrada, J., Menu, E., Roques, P., Vaslin, B., Dautry-Varsat, A., Barre-Sinoussi, F., Chaouat, G. (2003) “Predominant intracellular expression of CXCR4 and CCR5 in purified primary trophoblast cells from first trimester and term human placentae”. Am J Reprod Immunol. 50(4):291-301.
[3] Wiemers, D. O., Ain, R., Ohboshi, S., Soares, M. J. (2003) “Migratory trophoblast cells express a newly identified member of the prolactin gene family”. J Endocrinol. 179(3):335-46.
[4] Sato, Y., Higuchi, T., Yoshioka, S., Tatsumi, K., Fujiwara, H., Fujii, S. (2003) “Trophoblasts acquire a chemokine receptor, CCR1, as they differentiate towards invasive phenotype”. Development. 130(22):5519-32.

Disclaimers