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Product Information

Human Renal Proximal Tubular Epithelial Cells (HRPTEpC)

Catalog Number	10HU-112	**Cell Number**	0.5 million cells/vial
Species	*Homo sapiens*	**Storage Temperature**	Liquid Nitrogen

Description

Human renal proximal tubular epithelial cells (HRPTEpC) play a central role in renal physiology. They reabsorb the substances including the glucose and amino acids as well as control acid-base balance by the excretion of almost all the bicarbonate and the synthesis of ammonia. They are also involved in the excretion of metabolic end products. Furthermore, these cells are particularly sensitive to ischemic injury, and represent a primary target for xenobiotics, such as nephrotoxins (and their metabolites), whose effects can extend up to the kidney failure [1, 2]. HRPTEpC express IL-2R alpha and MHC class II antigens during inflammation, after renal transplantation, or in crescentic glomerulonephritis [3]. HRPTEpC culture provides a valuable *in vitro* model for studying the mechanisms of proximal tubular cell physiology and pathophysiology, as well as the potential mechanisms underlying nephrotoxins-induced renal toxicity.

iXCells Biotechnologies provides high quality HRPTEpC, which are isolated from human kidneys and cryopreserved at P1, with ≥ 0.5 million cells in each vial. HRPTEpC express cytokeratin-18, -19, vimentin and ZO-1[4]. They are negative for HIV-1, HBV, HCV, mycoplasma, bacteria, yeast, and fungi. HRPTEpC can be expanded for no more than 3 passages using **Epithelial Cell Growth Medium** (Cat# MD-0041) under the conditions provided by iXCells Biotechnoliges. Further expansion may decrease the purity of the epithelial population.

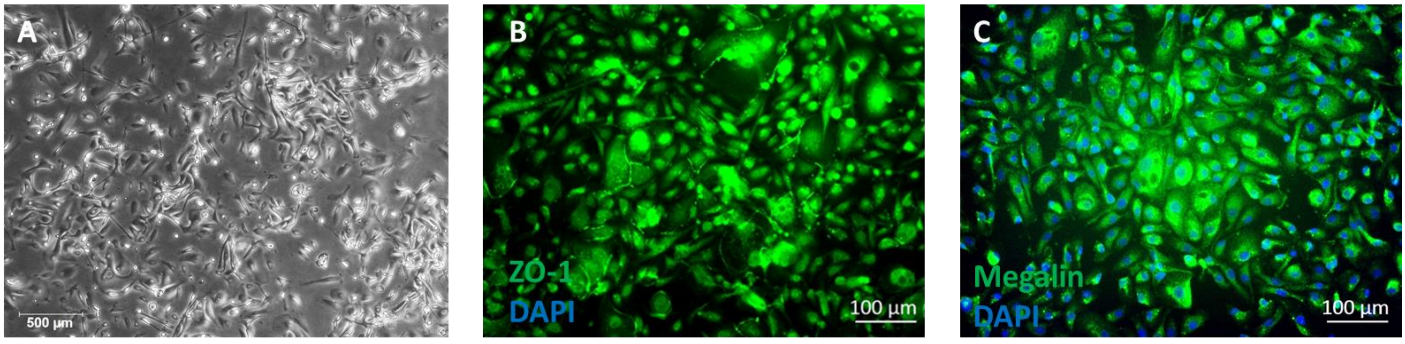

Figure 1. Human renal proximal tubular epithelial cells (HRPTEpC). (**A**) Phase contrast image of HPRTEpC. (**B & C**) Immunofluorescence staining with antibodies against ZO-1 (B) and Megalin (C).

Product Details

Tissue	Normal human kidney
Package Size	0.5 million cells/vial
Passage Number	P1
Shipped	Cryopreserved
Storage	Liquid nitrogen
Growth Properties	Adherent
Media	Epithelial Cell Growth Medium (Cat# MD-0041)

Protocols

Thawing of Frozen Cells

1. Upon receipt of the frozen Human renal proximal tubular epithelial cells (HRPTEpC), 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 **Epithelial Cell Growth Medium** (Cat# MD-0041).
4. Centrifuge at 1,000 rpm (~220 g) for 5 minutes under room temperature.
5. Remove the supernatant and resuspend the cells in fresh Epithelial Cell Growth Medium.
6. Culture the cells in the T75 flask. 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.*

Standard Culture Procedure

1. HRPTEpC can be cultured in **Epithelial Cell Growth Medium** (Cat# MD-0041).
2. When cells reach ~80-90% confluence, remove the medium, and wash once with sterile PBS (5 mL for one T75 flask).
3. Add 3 mL of 0.25% 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.
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 cells reach 80-90% confluence.

References

[1] van Kooten, C., van der Linde, X., Woltman, A. M., van Es, L. A. and Daha, M. R. (1999) “Synergistic effect of interleukin-1 and CD40L on the activation of human renal tubular epithelial cells”. Kidney Int 56(1):41-51.

[2] Schmouder, R. L., Strieter, R. M., Wiggins, R. C., Chensue, S. W. and Kunkel, S. L. (1992) “In vitro and in vivo interleukin-8 production in human renal cortical epithelia”. Kidney Int 41(1):191-8.

[3] Wuthrich, R. P., Glimcher, L. H., Yui, M. A., Jevnikar, A. M., Dumas, S. E. and Kelley, V. E. (1990) “MHC class II, antigen presentation and tumor necrosis factor in renal tubular epithelial cells”. Kidney Int 37(2):783-92.

[4] Cynthia Van der Hauwaert ,Grégoire Savary ,Viviane Gnemmi ,François Glowacki ,Nicolas Pottier,Audrey Bouillez,Patrice Maboudou,Laurent Zini,Xavier Leroy,Christelle Cauffiez,Michaël Perrais ,Sébastien Aubert. (2013) “Isolation and Characterization of a Primary Proximal Tubular Epithelial Cell Model from Human Kidney by CD10/CD13 Double Labeling”. PLOS One 8(6): e66750

Disclaimers