Rat Renal Proximal Tubular Epithelial Cells (RRPTEpiC)

Catalog #R4100

Cell Specification

Renal proximal tubular epithelial cells (RPTEpiC) play a crucial role in renal function. They reabsorb nearly all the glucose and amino acids in the glomerular filtrate, while allowing substances of no nutritional value to be excreted into the urine. They are also a major site of injury in a variety of congenital, metabolic, and inflammatory diseases. RPTEpiC can produce inflammatory mediators, such as cytokines or chemokines, and actively participate in acute inflammatory processes by affecting and directing leukocyte chemotaxis via the production of IL-8 [1, 2]. RPTEpiC express IL-2R alpha and MHC class II antigens during inflammation, after renal transplantation, and during crescentic glomerulonephritis, suggesting that these cells have the capacity to participate in the pathogenesis of immune renal injury [3]. To study the relationship between proximal tubular cells and a variety of renal diseases, the RPTEpiC culture is a useful *in vitro* model.

RRPTEpiC from ScienCell Research Laboratories are isolated from rat kidney. RRPTEpiC are cryopreserved at passage one and delivered frozen. Each vial contains >5 x 10^5 cells in 1 ml volume. RRPTEpiC are characterized by immunofluorescence with antibodies specific to cytokeratin-18. RRPTEpiC are negative for mycoplasma, bacteria, yeast, and fungi. RRPTEpiC are guaranteed to further culture under the conditions provided by ScienCell Research Laboratories*; however, RRPTEpiC are not recommended for long-term cultures due to limited expansion capacity and senescence after subculturing*.

Recommended Medium

It is recommended to use Epithelial Cell Medium-animal (EpiCM-a, Cat. #4131) for culturing RRPTEpiC *in vitro*.

Product Use

RRPTEpiC are for research use only. They are not approved for human or animal use, or for application in *in vitro* diagnostic procedures.

Storage

Upon receiving, directly and immediately transfer the cells from dry ice to liquid nitrogen, and keep the cells in liquid nitrogen until they are needed for experiments.

Shipping

Dry ice.

References

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

[2] Schmouder RL, Strieter RM, Wiggins RC, Chensue SW, Kunkel SL. (1992) “In vitro and in vivo interleukin-8 production in human renal cortical epithelia.” *Kidney Int*. 41: 191-8.

[3] Wuthrich RP, Glimcher LH, Yui MA, Jevnikar AM, Dumas SE, Kelley VE. (1990) “MHC class II, antigen presentation and tumor necrosis factor in renal tubular epithelial cells.” *Kidney Int*. 37: 783-92.

Instructions for culturing primary cells

Caution: **Cryopreserved primary cells are very delicate. Thaw the vial in a 37ºC water bath and return the cells to culture as quickly as possible with minimal handling! Do not centrifuge the cells after thawing as this can damage the cells.**

Initiating the culture:

Note: ScienCell primary cells must be cultured in a 37ºC, 5% CO_2 incubator. Cells are only warranted if ScienCell media and reagents are used and the recommended protocols are followed.

1. Prepare a poly-L-lysine-coated culture vessel (2 µg/cm^2, T-75 flask is recommended). Add 10 ml of sterile water to a T-75 flask and then add 15 µl of poly-L-lysine stock solution (10 mg/ml, Cat. #0413). Leave the vessel in a 37ºC incubator overnight (or for a minimum of one hour).
2. Prepare complete medium. Decontaminate the external surfaces of medium bottle and medium supplement tubes with 70% ethanol and transfer them to a sterile field. Aseptically transfer supplement to the basal medium with a pipette. Rinse the supplement tube with medium to recover the entire volume.
3. Rinse the poly-L-lysine-coated vessel twice with sterile water and then add 20 ml of complete medium. Leave the vessel in the sterile field and proceed to thaw the cryopreserved cells.
4. Place the frozen vial in a 37ºC water bath. Hold and rotate the vial gently until the contents completely thaw. Promptly remove the vial from the water bath, wipe it down with 70% ethanol, and transfer it to the sterile field.
5. Carefully remove the cap without touching the interior threads. Gently resuspend and dispense the contents of the vial into the equilibrated, poly-L-lysine-coated culture vessel. A seeding density of 7,000-10,000 cells/cm^2 is recommended.

   Note: Dilution and centrifugation of cells after thawing are not recommended since these actions are more harmful to the cells than the effect of residual DMSO in the culture. It is also important that cells are plated in poly-L-lysine-coated culture vessels to promote cell attachment.
6. Replace the cap or lid of the culture vessel and gently rock the vessel to distribute the cells evenly. Loosen cap if necessary to allow gas exchange.
7. Return the culture vessel to the incubator.
8. For best results, do not disturb the culture for at least 16 hours after the culture has been initiated. Refresh culture medium the next day to remove residual DMSO and unattached cells, then every 2-3 days thereafter.

Renal proximal epithelial cells are not recommended for long-term cultures due to limited expansion capacity and senescence after subculturing.

Note: We do not recommend cryopreservation of primary cells by the end user. Refreezing cells may damage them and affect cell performance. ScienCell does not guarantee primary cells cryopreserved by the end user.

Caution: Handling animal-derived products is potentially biohazardous. Always wear gloves and safety glasses when working with these materials. Never mouth pipette. We recommend following the universal procedures for handling products of human origin as the minimum precaution against contamination [1].

[1] Grizzle WE, Polt S. (1988) "Guidelines to avoid personal contamination by infective agents in research laboratories that use human tissues." *J Tissue Cult Methods*. 11: 191-9.