ATCC

Product Sheet

RPTEC/TERT1 (ATCC® CRL-4031™)

Please read this FIRST

Storage Temp.
Liquid nitrogen vapor phase

Biosafety Level
2

Intended Use

This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

Complete Growth Medium

The base medium for this cell line is ATCC-formulated DMEM:F12 Medium Catalog No. 30-2006.
To make the complete growth medium, add the following components to the base medium:

- 5 pM triiodo-L-thyronine
- 10 ng/mL recombinant human EGF
- 3.5 µg/mL ascorbic acid
- 5.0 µg/mL human transferrin
- 5.0 µg/mL insulin
- 25 ng/mL prostaglandin E_1
- 25 ng/mL hydrocortisone
- 8.65 ng/mL sodium selenite
- 0.1 mg/mL G418
- 1.2 g/L sodium bicarbonate

Note: Do not filter complete medium.
This medium is formulated for use with a 5% CO_2 in air atmosphere.

Citation of Strain

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: RPTEC/TERT1 (ATCC® CRL-4031™)

American Type Culture Collection
PO Box 1549
Manassas, VA 20108 USA
www.atcc.org

800.638.6597 or 703.365.2700
Fax: 703.365.2750
Email: Tech@atcc.org

Or contact your local distributor

Description

Organism: *Homo sapiens*, human
Immortalization Method: hTERT expression
Tissue: Renal cortex; proximal tubules, epithelium
Cell Type: Epithelial cells immortalized with pLXSN-hTERT retroviral transfection
Age: Adult
Gender: Male
Morphology: Epithelial-like
Growth Properties: Adherent
DNA Profile:
CSF1PO: 11
D13S317: 11, 13
D16S539: 11, 12
D5S818: 9, 11
D7S820: 10
THO1: 9, 9.3
TPOX: 8, 11
vWA: 16, 18
Amelogenin: XY

Batch-Specific Information

Refer to the Certificate of Analysis for batch-specific test results.

SAFETY PRECAUTION

ATCC highly recommends that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials leak when submersed in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris.

Unpacking & Storage Instructions

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Handling Procedure for Frozen Cells

To ensure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If storage of the frozen culture is necessary upon arrival, store the vial in liquid nitrogen vapor phase and **NOT** at -70°C. Storage at -70°C will result in loss of viability.

1. Prepare a 25 cm^2 or a 75 cm^2 culture flask containing the recommended complete culture medium. Prior to the addition of the vial contents, the vessel containing the growth medium should be placed in the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6) and to avoid excessive alkalinity of the medium during recovery of the cells.
2. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
3. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All operations from this point on should be carried out under strict aseptic conditions.
4. Transfer the vial contents to a centrifuge tube containing 9.0 mL of complete culture medium and centrifuge the cell suspension at approximately 250 x *g* for 5 to 7 minutes.
5. Discard the supernatant and resuspend the cells in fresh growth medium (see the batch-specific information for the recommended dilution ratio). Add this suspension to the prepared culture vessel.
6. Incubate the culture at 37°C in a suitable incubator.
7. A 5% CO_2/95% air atmosphere is recommended if using the medium described on this product sheet.

Handling Procedure for Flask Cultures

The flask was seeded with cells, incubated, and completely filled with medium at ATCC to prevent loss of cells during shipping.

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1. Upon receipt visually examine the culture for macroscopic evidence of any microbial contamination. Using an inverted microscope (preferably equipped with phase-contrast optics), carefully check for any evidence of microbial contamination. Also check to determine if the majority of cells are still attached to the bottom of the flask; during shipping the cultures are sometimes handled roughly and many of the cells often detach and become suspended in the culture medium (but are still viable).
2. **If the cells are still attached,** aseptically remove all but 5 to 10 mL of the shipping medium. The shipping medium can be saved for reuse. Incubate the cells at 37°C in a 5% CO_2 in air atmosphere until they are ready to be subcultured.
3. **If the cells are not attached,** aseptically remove the entire contents of the flask and centrifuge at 125 x *g* for 5 to 10 minutes. Remove shipping medium and save. Resuspend the pelleted cells in 10 mL of this medium and add to 25 cm^2 flask. Incubate at 37°C in a 5% CO_2 in air atmosphere until cells are ready to be subcultured.

Population Doubling Capacity

As part of our quality control, we have tested this cell line for its ability to grow for a minimum of 15 population doublings after recovery from cryopreservation. In addition, it has been verified that no gross changes are observed in karyotype and morphology during the first 10 population doublings.

Subculturing Procedure

Volumes are given for a 75 cm^2 flask; proportionally reduce or increase amount of dissociation medium for culture vessels of other sizes.

1. Subculture when the culture is about 90% confluence. Expected cell yield is between 1.5 x 10^5 and 2 x 10^5 viable cells/cm^2.
2. Remove and discard culture medium.
3. Add 2.0 to 3.0 mL of 0.25% (w/v) trypsin-0.53 mM EDTA solution to the flask and observe cells under an inverted microscope until the cell layer is dispersed (usually within 15 to 20 minutes). **Note:** To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Place at 37°C to facilitate dispersal.
4. To stop trypsinization, add 2.0 to 3.0 mL of 0.1% Soybean Trypsin Inhibitor and aspirate cells by gently pipetting.
5. Transfer cell suspension to a 15-mL centrifuge tube and spin at approximately 250 x *g* for 5 to 10 minutes.
6. Discard supernatant and resuspend cells in fresh growth medium. Add appropriate aliquots of the cell suspension to new culture vessels. An inoculum of 4 to 6 x 10^4 viable cells/cm^2 is recommended.
7. Incubate cultures at 37°C.

Subcultivation ratio: A subcultivation ratio of 1:3 to 1:4 is recommended.
Medium renewal: 2 to 3 times weekly
Note: For more information on enzymatic dissociation and subculturing of cell lines consult Chapter 13 in Culture Of Aminal Cells: A Manual of Basic Techniques by R. Ian Freshney, 5th edition, published by Wiley-Liss, N.Y., 2005.

Cryopreservation Medium

DMEM:F12, 90%; DMSO, 10%
Store in liquid nitrogen vapor. Avoid immersing vials into liquid nitrogen.

Comments

The RPTEC/TERT1 cells specifically respond to parathyroid hormone (PTH) but not arginine vasopressin (AVP), and react with enhanced ammonia genesis on lowering of the environmental pH.
The RPTEC/TERT1 cells exhibit sodium-dependent uptake of phosphate as well as intact functionality of the megalin/cubilin transport system.
RPTEC/TERT1 cells show the characteristic morphology and functional properties of normal proximal tubular epithelial cells.
At high cell densities, the RPTEC/TERT1 cells form characteristic "domes", maintain ultrastructural organization with tight junctions, densely packed microvilli and primary cilium, indicating functional cell polarization.
When cultured on the Corning™ Transwell™ Permeable membrane cell culture insert, the RPTEC/TERT1 cells at confluence form intact functional barrier as indicated by stabilized Trans-Epithelial Electrical Resistance (TEER) across the membrane.

References

References and other information relating to this product are available online at www.atcc.org.

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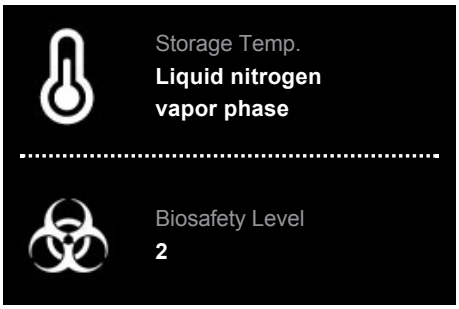

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Biosafety Level: 2

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the *Biosafety in Microbiological and Biomedical Laboratories* from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

ATCC Warranty

The viability of ATCC® products is warranted for 30 days from the date of shipment, and is valid only if the product is stored and cultured according to the information included on this product information sheet. ATCC lists the media formulation that has been found to be effective for this strain. While other, unspecified media may also produce satisfactory results, a change in media or the absence of an additive from the ATCC recommended media may affect recovery, growth and/or function of this strain. If an alternative medium formulation is used, the ATCC warranty for viability is no longer valid.

Disclaimers

This product is intended for laboratory research purposes only. It is not intended for use in humans.
While ATCC uses reasonable efforts to include accurate and up-to-date information on this product sheet, ATCC makes no warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. ATCC does not warrant that such information has been confirmed to be accurate.
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