

RTE-2 Cells | 500327

General information

Description

RTE-2 is a rat tracheal epithelial cell line originally derived from normal tracheal epithelium and subsequently immortalized to enable continuous in vitro propagation. The cells exhibit epithelial morphology characterized by polygonal, cobblestone-like growth patterns when cultured to confluence. RTE-2 cells retain key structural and functional properties of airway epithelial cells, including the formation of tight intercellular junctions and expression of epithelial cytokeratins, making them a relevant model for respiratory epithelial biology.

Functionally, RTE-2 cells have been widely used to investigate mechanisms of airway epithelial differentiation, mucosal barrier integrity, and responses to environmental stimuli. They demonstrate the capacity to polarize under appropriate culture conditions and can express junctional proteins associated with epithelial barrier formation. In addition, RTE-2 cells respond to inflammatory mediators and oxidative stress, providing a controlled in vitro platform to study signaling pathways involved in airway inflammation and epithelial injury.

Due to their stable growth characteristics and preserved epithelial phenotype, RTE-2 cells are frequently employed in studies of respiratory toxicology, host-pathogen interactions, and airway remodeling. As a rodent-derived airway epithelial model, RTE-2 offers a reproducible system for mechanistic investigations that complement in vivo pulmonary research.

Organism Rat

Tissue Tongue

Synonyms RTE2, RTE 2, Rat Tongue Epithelial line 2

Characteristics

Breed/Subspecies Sprague-Dawley

Morphology Epithelial-like

Cell type Keratinocyte

Growth properties Adherent

Regulatory Data

Citation RTE-2 (Cytion catalog number 500327)

Biosafety level 1

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NCBI_TaxID	10116
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CellosaurusAccession	CVCL_5889
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Biomolecular Data

Tumorigenic	No
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Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO ₃ , w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
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Supplements	Supplement the medium with 10% FBS
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Dissociation Reagent	Accutase
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Subculturing	Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.
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Fluid renewal	2 to 3 times per week
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Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.
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Thawing and Culturing Cells

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
6. Centrifuge the mixture at $300 \times g$ for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

Incubation Atmosphere

37°C , 5% CO_2 , humidified atmosphere.

Flask Coating

None

Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately -78°C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

Storage Conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about -150 to -196°C . Storage at -80°C is acceptable only as a short interim step before transfer to liquid nitrogen.

Quality Control & Molecular Analysis

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Sterility

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.

To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.