

STC-1 Cells | 305230

General information

Description

The STC-1 cell line is a widely used model derived from a murine enteroendocrine tumor. These cells are notable for their robust secretion of various gastrointestinal hormones, including cholecystokinin (CCK), secretin, and somatostatin. Due to their hormone-secreting capabilities, STC-1 cells are instrumental in studying gastrointestinal physiology and the regulation of digestive processes. Their response to nutrient stimulation makes them particularly useful for investigating the mechanisms underlying hormone release and action in the gut.

STC-1 cells exhibit characteristics typical of enteroendocrine cells, including the presence of dense core secretory granules and the ability to form polarized monolayers in culture. These features allow researchers to use STC-1 cells for in vitro models of gut hormone secretion and to explore the interactions between enteroendocrine cells and other cell types in the intestinal epithelium. Additionally, their murine origin provides a relevant model for comparative studies between human and rodent gastrointestinal physiology.

Organism

Mouse

Tissue

Duodenum

Disease

Neuroendocrine adenoma

Characteristics

Breed/Subspecies

C57BL/6J

Age

10-13 weeks

Gender

Unspecified

Morphology

Epithelial

Cell type

Intestinal neuroendocrine cell

Growth properties

Adherent

Regulatory Data

Citation

STC-1 (Cytion catalog number 305230)

Biosafety level

1

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NCBI_TaxID 10090**CellosaurusAccession** CVCL_J405

Biomolecular Data

Protein expression Secretin**Viruses** Transformant: Murine polyomavirus (strain A2), Simian virus 40 (SV40)

Handling

Culture Medium DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO₃, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)**Supplements** Supplement the medium with 10% FBS**Dissociation Reagent** Accutase**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.**Seeding density** 2 to 4 x 10⁴ cells/cm²**Fluid renewal** 2 to 3 times per week**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 x 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% CO₂, humidified atmosphere.

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.