

Beta-TC-6 Cells | 305181**General information****Description**

Beta-TC-6 cells is a cell line derived from insulinoma tissue in mice. These cells are crucial in scientific studies focused on diabetes and insulin signalling.

Originating from a transgenic mouse, Beta-TC-6 cells carry a pseudogene construct comprising the SV40 early region, which the rat insulin gene promoter regulates. This genetic composition leads to insulin secretion in response to glucose levels.

These cells exhibit epithelial morphology and primarily reside in the pancreas tissue. In addition to insulin production, these cells possess small amounts of glucagon and somatostatin. The adherence of Beta-TC-6 cells allows for convenient cultivation and manipulation during experiments and assays.

Beta-TC-6 cells provide a valuable tool for scientific investigations in diabetes and insulin signalling. Their unique genetic composition, insulin-secreting capabilities, and adherence properties make them ideal for studying the intricate processes involved in glucose regulation and pancreatic function.

Organism

Mouse

Tissue

Pancreas

Disease

Mouse insulinoma

Synonyms

beta-TC-6, beta-TC6, beta TC6, BetaTC6, betaTC6

Characteristics**Breed/Subspecies**

(C57BL/6J x DBA/2J)F2 transgenic RIP1Tag2

Morphology

Epithelial

Growth properties

Adherent

Regulatory Data**Citation**

Beta-TC-6 (Cytion catalog number 305181)

Biosafety level

1

NCBI_TaxID

10090

Beta-TC-6 Cells | 305181**CellosaurusAccession** CVCL_0605**GMO Status** GMO-S1: This murine pancreatic β -cell line (Beta-TC-6) contains an SV40 Large T Antigen construct introduced by transfection, supporting immortalization. The insert is integrated into TC-6-derived pancreatic cells. This classification applies only within Germany and may differ elsewhere.**Biomolecular Data****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 15% heat-inactivated 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.**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 $300 \times g$ 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.

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.