

alpha TC1 clone 6 Cells | 305740

General information

Description

The alphaTC1 Clone 6 (α TC1 clone 6) is a glucagon-producing murine pancreatic alpha cell line established from a transgenic mouse tumor model. The parental α TC1 line was derived from an adenoma formed in mice expressing the SV40 large T-antigen oncogene under the control of the rat preproglucagon promoter. To isolate pure alpha cell populations, the parental α TC1 line was subjected to clonal selection, resulting in several clones including α TC1 clone 6. This specific clone is notable for its exclusive production of glucagon without detectable insulin secretion, as confirmed by radioimmunoassay and the absence of preproinsulin mRNA transcripts by Northern blot analysis.

α TC1 clone 6 exhibits typical alpha-cell characteristics, including the presence of dense secretory granules consistent with glucagon storage as visualized by electron microscopy. Immunocytochemical analysis confirmed positive glucagon staining and negative results for insulin, somatostatin, and pancreatic polypeptide, indicating lineage-specific hormone expression. Unlike the uncloned parental α TC1 line, which co-expressed insulin and glucagon, clone 6 represents a more functionally and transcriptionally refined alpha cell model. The line also responds to cytokine exposure, such as interferon-gamma (IFN- γ), with inducible expression of MHC class I and II molecules, although at a lower constitutive level than beta-cell lines. This property makes α TC1 clone 6 suitable for immunological studies involving pancreatic endocrine cells and cytokine-mediated gene regulation.

Organism

Mouse

Tissue

Pancreas, islets of Langerhans

Disease

Mouse islet cell adenoma

Synonyms

alpha TC1 clone 6, alphaTC clone 6, alpha-TC1.6, alphaTC1.6, alpha-TC1-6, alpha TC1-6, alpha TC1.6, aTC1 Clone 6, aTC1-6

Characteristics

Age

Age unpecified

Gender

Sex unspecified

Morphology

Epithelial

Cell type

Pancreatic alpha cell

Growth properties

Adherent, loosely attached clusters and some single cells in suspension

Regulatory Data

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Citation	alpha TC1 clone 6 (Cytion catalog number 305740)
Biosafety level	2
NCBI_TaxID	10090
CellosaurusAccession	CVCL_B036
GMO Status	GMO-S1: This murine pancreatic alpha-cell line contains an SV40 large T antigen construct introduced by transfection, enabling immortalization. This classification applies only within Germany and may differ elsewhere.

Biomolecular Data

Protein expression	H-2b; H-2d, expressed
Antigen expression	Glucagon
Mutational profile	

Handling

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.