3T3-Swiss Albino

400103

GENERAL INFORMATION

Description

The 3T3-Swiss Albino cell line is a fibroblast cell line derived from the tissues of a Swiss albino mouse embryo. Developed in the 1960s by George Todaro and Howard Green, this line was one of the first to be established for the purpose of long-term cultivation and research of fibroblast cells. The name "3T3" refers to the protocol used for subculturing these cells: "3" days interval and "T3" for the population density at which cells were seeded (3 x 10^5 cells per 20 cm^2 flask).
3T3-Swiss Albino cells are commonly used as a model system for studying fibroblast biology, including cellular aging, transformation, and the effects of various pharmaceuticals and toxins on cellular health and replication. They are particularly noted for their robustness and reliability in supporting the replication of various mammalian viruses and for producing viral vaccines. Additionally, these cells are instrumental in cancer research, providing a consistent model for examining the cellular mechanisms of oncogenesis and the interaction of cancer cells with connective tissue environments.
Genetically, 3T3-Swiss Albino cells are characterized by a stable karyotype, which facilitates their use in genetic studies. They are highly adaptable to various in vitro conditions, making them extremely valuable for genetic, cytological, and biochemical studies. Their role in the development of biomedical research cannot be overstated, providing crucial insights into cellular processes and potential therapeutic targets in various diseases.

Tissue	Embryonic

Applications

This cells have been used to study cancer development and progression, embryonic development and differentiation, signaling pathways involved in cellular processes such as cell growth and differentiation, and as a substrate for the production of monoclonal antibodies and the expression of recombinant proteins for production and purification.

Synonyms

- 3T3 Swiss Albino
- 3T3
- Swiss-3T3
- Swiss 3T3
- Swiss3T3

CLASSIFICATION

Organism	Mouse
Sex	Male
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Fibroblast-like
Cell type	Fibroblast
Tumourigenic	No
Ploidy status	Hypertriploid

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Karyotype

2n=40

Doubling time	18 hours

IDENTIFIERS

Citation

3T3-Swiss Albino (Cytion catalog number 400103)

NCBI TaxID	10090
Cellosaurus	CVCL_0120

EXPRESSION AND SUSCEPTIBILITY

Viruses

Tested and found negative for ectromelia virus (mousepox).

Virus susceptibility

Polyomavirus, SV40

Reverse transcriptase	Negative

Products

T

HANDLING AND CULTURE

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)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

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	0,5 to 3 x 10^4 cells/cm^2
Fluid renewal	2 times per week
Post-thaw recovery	After thawing, plate the cells at 5 x 10^4 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 48 hours.

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Breed / subspecies	Swiss albino
Donor age	Embryo

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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