T2

305228

GENERAL INFORMATION

Description

The T2 cell line is a derivative of the T1 human lymphoblastoid cell line and is characterized by its unique properties related to antigen processing and presentation. These cells are deficient in the transporter associated with antigen processing (TAP), resulting in the inability to effectively transport peptides into the endoplasmic reticulum for loading onto major histocompatibility complex (MHC) class I molecules. This deficiency makes T2 cells particularly valuable in immunological research, especially in studies related to the presentation of antigens and the function of MHC class I molecules. By using T2 cells, researchers can better understand the mechanisms of immune recognition and the role of TAP in antigen presentation.
T2 cells are also known for their application in cytotoxic T lymphocyte (CTL) assays. Due to their TAP deficiency, these cells express very low levels of surface MHC class I molecules unless exogenous peptides are added. This property allows for the precise study of peptide-MHC interactions and the evaluation of CTL responses to specific antigens. Furthermore, T2 cells are used in vaccine development research, particularly in designing strategies that enhance the presentation of antigens to the immune system. Their unique characteristics make T2 cells a crucial tool in both basic and applied immunology research.

Synonyms

- T2 (174 x CEM.T2)
- T2(174 x CEM.T2)
- 174xCEM.T2
- CEMx721.174.T2

CLASSIFICATION

Organism	Human
Growth properties	Suspension
Biosafety level	2

CHARACTERISTICS

Morphology	Lymphoblast

IDENTIFIERS

Citation

T2 (Cytion catalog number 305228)

NCBI TaxID	9606
Cellosaurus	CVCL_2211

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

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

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Supplements

Supplement the medium with 10% heat-inactivated FBS

Subculturing

Suspension cells: Remove cells from substrate by pipetting with fresh medium. To obtain single cells, pass the suspension several times through a 22 gauge needle and dispense into new flasks.

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.

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.

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

PRODUCT DETAILS

Composition table

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