Product sheet

T2 Cells | 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.
Organism	Human
Synonyms	T2 (174 x CEM.T2), T2(174 x CEM.T2), 174xCEM.T2, CEMx721.174.T2

Characteristics

Morphology	Lymphoblast
Growth properties	Suspension

Regulatory Data

Citation	T2 (Cytion catalog number 305228)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_2211

Biomolecular Data

Handling

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

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.