SUP-T1

305642

GENERAL INFORMATION

Description

SUP-T1 is a human T-cell lymphoblastic lymphoma (T-LBL) cell line derived from the pleural effusion of a child diagnosed with T-cell non-Hodgkin lymphoma. It carries the characteristic t(8;14)(q24;q11) chromosomal translocation, which juxtaposes the MYC oncogene to the T-cell receptor alpha/delta (TCRα/δ) locus. This translocation leads to MYC overexpression, promoting cellular proliferation and inhibiting apoptosis, which are key drivers of lymphomagenesis. Due to this genetic hallmark, SUP-T1 serves as an important model for studying the molecular mechanisms underlying aggressive T-cell malignancies and testing targeted therapies.
Genomic analyses of SUP-T1 have identified additional oncogenic alterations, including deletions and rearrangements affecting the CDKN2A gene, a critical tumor suppressor involved in cell cycle regulation. Loss of CDKN2A leads to dysregulated cell cycle progression, further contributing to the aggressive phenotype of this lymphoma. These findings make SUP-T1 a valuable model for investigating both MYC-driven oncogenesis and the role of tumor suppressor loss in T-cell malignancies.
Recent studies utilizing next-generation sequencing (NGS) and transcriptomic profiling have provided deeper insights into the viral status and mutational landscape of SUP-T1. Screening for viral sequences using RNA-Seq data has confirmed that SUP-T1 is free of Epstein-Barr virus (EBV) and other common viral contaminants, ensuring its reliability for controlled in vitro experiments. Additionally, its genetic profile has been incorporated into large-scale pharmacogenomic datasets, which facilitate the identification of targeted therapeutic strategies for T-cell lymphomas. SUP-T1 continues to be a crucial tool in preclinical research, particularly in the development of novel treatments for aggressive T-cell malignancies.

Tissue	Pleural effusion
Disease	Lymphoblastic Lymphoma; T-cell

Synonyms

- Sup-T1
- SUPT-1
- SupT-1
- Sup T-1
- SUP T-1
- SUP T1
- Sup T1
- SupT1
- SUPT1
- Tsup-1
- VB
- Stanford University Pediatric T-cell line 1

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast

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Cell type	T lymphoblast

Karyotype

92, XXYY, -2, -2, -9, -9, the following markers are present: 2inv(2*) (p21q11), +2inv(2*), del(2*)(Q21), 2del(4)(q31q35), 2del(5)(p13p14), 2del(6)(q23q27), 2inv(14)(q11q32), t(7;9)(q34;q34), der(9)t(7;9)

Doubling time	28 hours

IDENTIFIERS

Citation

SUP-T1 (Cytion catalog number 305642)

NCBI TaxID	9606
Cellosaurus	CVCL_1714

EXPRESSION AND SUSCEPTIBILITY

Protein expression

Immunoglobulin (cytoplasmic)

Antigen expression

Leu-6 (CD1a) +; Leu-4 (CD3) +; Leu-3 (CD4) +; Leu-1 (CD5) +; Leu-9 (CD7) +; Leu-2a (CD8) +; OKT-10 (CD38) +

Mutational profile

Mutation: EGFR, Simple, p.Cys251Tyr (c.752G>A), Heterozygous; Mutation: KIT, Simple, p.Arg177His (c.530G>A), Heterozygous; Mutation: MET, Simple, p.Arg191Trp (c.571C>T), Heterozygous; Mutation: PIK3CA, Simple, p.Glu545Asp (c.1635G>T), Heterozygous; Mutation: PIK3CA, Simple, p.Glu970Lys (c.2908G>A), Heterozygous; Mutation: PTCH1, Simple, p.Arg682Cys (c.2044C>T), Heterozygous; Mutation: SPRY4, Simple, p.Arg25Trp (c.73C>T), Heterozygous; Mutation: TP53, Simple, p.Arg267Leu (c.800G>T), Heterozygous

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.

Supplements

Supplement the medium with 10% FBS

Seeding density	2-5 x10^5 cells/mL
Fluid renewal	2 to 3 times per week

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

Donor age	8 years
Ethnicity	Caucasian

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