Product sheet

Toledo Cells | 305351

General information

Description	The Toledo cell line is a diffuse large B-cell lymphoma (DLBCL) cell line that was originally established from the peripheral blood of a patient with DLBCL who later developed a secondary lymphoma in the brain following high-dose chemotherapy and bone marrow transplantation. This cell line exhibits a complex karyotype with multiple chromosomal aberrations but does not possess the typical translocations associated with Burkitt's lymphoma. One of the unique characteristics of the Toledo cell line is its lack of immunoglobulin (Ig) polypeptide chain expression, and it also lacks detectable constant (C) region gene segments. Despite this, Toledo retains the ability to undergo somatic hypermutation in its variable (V) gene segments, a phenomenon typically observed in germinal center B cells. Intriguingly, Toledo accumulates intraclonal mutations at a higher frequency than other lymphoma cell lines such as Daudi and Raji, despite the absence of significant clonal mutations. This suggests that the mutation process may have continued in vitro after transformation, potentially offering a valuable model for studying the molecular mechanisms of somatic hypermutation.
Organism	Human
Tissue	Peripheral blood
Disease	Diffuse large B-cell lymphoma germinal center B-cell type
Applications	3D cell culture, Immunology
Synonyms	TOLEDO

Characteristics

Age	Adult
Gender	Female
Ethnicity	Caucasian
Morphology	Lymphoblast
Growth properties	Suspension

Regulatory Data

Citation	Toledo (Cytion catalog number 305351)

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Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_3611

Biomolecular Data

Antigen expression	CD10 +, CD19 +, CD20 +, CD38 +, CD23 -, CD39 -
Viruses	EBV -, HBV -, HCV -, HIV-1 -, HIV-2 -, HTLV-1/2 -, MLV -, SMRV -
Mutational profile	Mutation: KRAS, Simple, p.Gly13Asp (c.38G>A), Heterozygous; Mutation: TP53, Simple, p.Glu198fs (c.592_596del5), Unspecified

Handling

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% FBS
Dissociation Reagent	None
Doubling time	50 hours
Subculturing	Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of 5 x 10^5 cells/ml and keep the cell concentration within the range of 3 x 10^5 to 1 x 10^6 cells/ml for optimal growth.
Seeding density	2 to 4 x 10^5 cells/ml
Fluid renewal	Every 2 to 3 days
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 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

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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.