Nalm-6

300297

GENERAL INFORMATION

Description

The Nalm-6 cell line, derived from the peripheral blood of a patient with B-cell precursor acute lymphoblastic leukemia (ALL), has become a critical tool in leukemia research. The human cell line Nalm 6 encapsulates the biological characteristics of B-cell ALL, providing a unique window into the disease's genomic landscape, including genome instability and DNA repair mechanisms.
The utility of Nalm-6 cells extends to studying the efficacy of available therapeutic targets and existing resistance mechanisms. The cell line's sensitivity to cytotoxic agents and its role in elucidating the homologous recombination (HDR) repair functions are of particular interest, especially concerning the HDR cells' ability to correct DNA damage.
The Nalm6 cell line is a reliable model for studying the complex nature of acute leukemia. It facilitates research into the gene expression profiles involved in glycolysis, lipid and carbohydrates metabolism, and the mTORC1 pathway, highlighting the metabolic reprogramming in leukemia cells. Furthermore, the cell line's application in reverse genetics and whole transcriptome analysis aids in dissecting the intricate molecular networks driving leukemia progression and resistance.
Research utilizing the Nalm-6 cell line, including studies on clonal variants like clone G5 and resistant cell lines such as those with a high HPRT mutation frequency or C9 with resistance index, provides insights into leukemia's heterogeneity. The exploration of leukemia dynamics, especially in the context of glucocorticoid resistance and MSH2 expression, underscores the potential for developing more targeted and effective treatments for ALL.
In summary, the Nalm-6 cell line is a pivotal resource in leukemia research, offering profound insights into B-cell ALL through its applications in studying genomic instability, DNA repair mechanisms, therapeutic target efficacy, resistance mechanisms, and the underlying molecular pathways influencing leukemia's complex biology and heterogeneity.

Tissue	Blood
Disease	Adult B acute lymphoblastic leukemia

Synonyms

- NALM-6
- NALM 6
- Nalm 6
- NALM6
- Nalm6
- NALM-6-M1

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Round cells
Cell type	B cell precursor
Doubling time	35 to 40 hours

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IDENTIFIERS

Citation

Nalm-6 (Cytion catalog number 300297)

NCBI TaxID	9606
Cellosaurus	CVCL_0092

EXPRESSION AND SUSCEPTIBILITY

Reverse transcriptase	Negative

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

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.

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	19 years

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