MOLM-16

305831

GENERAL INFORMATION

Description

MOLM-16 is a human leukemia cell line derived from the peripheral blood of an adult woman with minimally differentiated acute myeloid leukemia (AML-M0) at relapse. This line exhibits a distinctive immunophenotype consistent with a myeloid/natural killer (NK) precursor leukemia, expressing CD7, CD13, CD33, CD34, and CD56. Additionally, it displays features of megakaryocytic differentiation, evidenced by the expression of markers such as CD41, CD61, CD36, CD62P, CD110, CD151, thrombospondin, von Willebrand factor (vWF), and fibrinogen. The presence of platelet peroxidase in the nuclear envelope, observed by electron microscopy, further confirms its megakaryoblastic lineage characteristics.
MOLM-16 demonstrates cytokine-dependent growth and responds to a range of hematopoietic growth factors including erythropoietin (EPO), granulocyte-macrophage colony-stimulating factor (GM-CSF), interleukin-3 (IL-3), PIXY321, and thrombopoietin (TPO). Cytogenetic analysis reveals complex karyotypic abnormalities such as t(6;8)(q21;q24.3) and t(9;18)(q13;q21), indicating genomic instability common in acute leukemia. The cell line lacks expression of T- and B-lymphoid markers, consistent with its myeloid/NK precursor profile, and is negative for myeloperoxidase (MPO) activity, a hallmark of AML-M0. Due to its unique combination of myeloid, NK, and megakaryocytic features, MOLM-16 serves as a valuable in vitro model for investigating the biology of minimally differentiated AML, megakaryopoiesis, and leukemic differentiation pathways.

Tissue	Peripheral blood
Disease	Adult acute myeloid leukemia

Synonyms

- MOLM16

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Cell type	Epithelial like
Doubling time	ca. 50-80 hours

IDENTIFIERS

Citation

MOLM-16 (Cytion catalog number 305831)

NCBI TaxID	9606
Cellosaurus	CVCL_2120

EXPRESSION AND SUSCEPTIBILITY

Mutational profile

Mutation: TP53, Simple, p.Val173Met (c.517G>A), Heterozygous (Cosmic-CLP=1330948), TP53, Simple, p.Cys238Ser (c.713G>C), Heterozygous (Cosmic-CLP=1330948)

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

Dissociation reagent	Accutase
Seeding density	1 to 3 x 10^4 cells/cm^2
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	77 years

Ethnicity	Japanese

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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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