MOLM-13

305393

GENERAL INFORMATION

Description

The MOLM-13 cell line is a human acute myeloid leukemia (AML) cell line, originally derived from a patient diagnosed with AML-M5a (acute monocytic leukemia, FAB classification). This line was established at the time of disease relapse, following prior progression from myelodysplastic syndrome (MDS). MOLM-13 cells harbor the MLL-AF9 gene fusion resulting from an insertion, ins(11;9)(q23;p22p23), and exhibit additional chromosomal abnormalities such as trisomy 8, a common feature associated with AML.
In terms of phenotypic characteristics, MOLM-13 cells express myeloid and monocyte-associated markers including CD33, CD13, and CD15. However, they lack expression of CD34, a marker of hematopoietic stem and progenitor cells, distinguishing them from other leukemia subtypes. MOLM-13 cells also display monoblastoid morphology with fine chromatin and prominent nucleoli. Functionally, they are capable of differentiation into macrophage-like cells upon exposure to specific cytokines such as interferon-gamma (IFN-γ) and tumor necrosis factor-alpha (TNF-α), which also enhance expression of myelomonocytic markers.
MOLM-13 serves as a critical model for studying leukemogenesis, particularly mechanisms underlying MLL-rearranged leukemias. It is also widely used in preclinical research, including the evaluation of novel therapies such as CD70-specific CAR-T cells, which have demonstrated efficacy against MOLM-13 in vitro and in xenograft models. This makes MOLM-13 an invaluable tool for exploring targeted therapeutic approaches for high-risk AML.

Tissue	Peripheral blood
Disease	Adult acute myeloid leukemia

Synonyms

- MOLM13
- Molm13
- Molm 13

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast-like

IDENTIFIERS

Citation

MOLM-13 (Cytion catalog number 305393)

NCBI TaxID	9606
Cellosaurus	CVCL_2119

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EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD3 -, CD4 +, CD14 -, CD15 +, CD19 -, CD33 +, CD34 -, cy CD68 +, HLA-DR -

Mutational profile

Mutation: FLT3, unexplicit, internal tandem duplication; Gene fusion: KMT2A-MLLT3, MLL-MLLT3, MLL-AF9

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	Maintain culture between 4 x 10^5 to 2 x 10^6 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	20 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.

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