**Product sheet**

# MOLM-13 Cells | 305393

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| **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.<br><br>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.<br><br>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. |
| **Organism** | Human |
| **Tissue** | Peripheral blood |
| **Disease** | Adult acute myeloid leukemia |
| **Synonyms** | MOLM13, Molm13, Molm 13 |

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| **Age** | 20 years |
| **Gender** | Male |
| **Ethnicity** | Japanese |
| **Morphology** | Lymphoblast-like |
| **Growth properties** | Suspension |

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| **Citation** | MOLM-13 (Cytion catalog number 305393) |
| **Biosafety level** | 1 |
| **NCBI_TaxID** | 9606 |
| **CellosaurusAccession** | CVCL_2119 |

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| **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 |

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| **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 |
| **Seeding density** | Maintain culture between 4 x $10^5$ to 2 x $10^6$ cells/mL |
| **Fluid renewal** | 2 to 3 times per week |
| **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.

**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.