**Product sheet**

# MOLM-16 Cells | 305831

## General information

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| **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.<br><br>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. |
| **Organism** | Human |
| **Tissue** | Peripheral blood |
| **Disease** | Adult acute myeloid leukemia |
| **Synonyms** | MOLM16 |

## Characteristics

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| **Age** | 77 years |
| **Gender** | Female |
| **Ethnicity** | Japanese |
| **Cell type** | Epithelial like |
| **Growth properties** | Suspension |

## Regulatory Data

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| **Citation** | MOLM-16 (Cytion catalog number 305831) |
| **Biosafety level** | 1 |
| **NCBI_TaxID** | 9606 |
| **CellosaurusAccession** | CVCL_2120 |

## Biomolecular Data

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| **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

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| **Culture Medium** | RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L $NaHCO_3$ (Cytion article number 820700a) |
| **Supplements** | Supplement the medium with 10% FBS |
| **Dissociation Reagent** | Accutase |
| **Doubling time** | ca. 50-80 hours |
| **Seeding density** | 1 to 3 x $10^4$ cells/$cm^2$ |
| **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.<br>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.<br>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.<br>4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.<br>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.<br>6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.<br>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.<br>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.<br><br>To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections. |