

NOMO-1 Cells | 305604

General information

Description

The NOMO-1 cell line is derived from a 31-year-old female patient diagnosed with acute monocytic leukemia (AML-M5a). This cell line exhibits promonocytic characteristics, making it a robust model for studying monocytic leukemia and differentiation. NOMO-1 cells demonstrate responsiveness to differentiation-inducing agents such as phorbol esters (e.g., 12-o-tetradecanoyl phorbol-13-acetate or TPA), leading to their maturation into macrophage-like cells. Upon differentiation, the cells exhibit increased expression of markers like fibronectin and secretion of interleukins IL-1 α and IL-1 β , which are critical for immune response and inflammation pathways.

These cells also play a pivotal role in studying the coagulation and fibrinolysis systems. NOMO-1 cells secrete tissue factor (TF), plasminogen activator (PA), and plasminogen activator inhibitor (PAI), with the secretion levels modulated by differentiation inducers. TPA treatment enhances the production of TF and PA, particularly the urokinase-type PA (uPA), while also increasing PAI secretion, suggesting NOMO-1's relevance in understanding hemostasis and thrombosis mechanisms in leukemia.

Genetically, NOMO-1 cells harbor the t(9;11)(p22;q23) translocation, resulting in the MLL-AF9 fusion gene, which is a hallmark of certain AML subtypes. This translocation drives leukemogenesis by dysregulating gene expression programs associated with hematopoietic differentiation and proliferation. The presence of this translocation makes NOMO-1 a vital tool for exploring MLL-rearranged leukemias and evaluating targeted therapies.

Organism

Human

Tissue

Bone marrow

Disease

Adult acute monocytic leukemia

Synonyms

Nomo-1, NOMO1

Characteristics

Age

31 years

Gender

Female

Ethnicity

Japanese

Morphology

Lymphoblast-like

Growth properties

Suspension

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Regulatory Data

Citation	NOMO-1 (Cytion catalog number 305604)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1609

Biomolecular Data

Antigen expression	CD3 -, CD4 +, CD13 +, CD14 -, CD15 +, CD19 -, CD33 +, CD34 -, HLA-DR +
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Handling

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% heat-inactivated FBS
Seeding density	0.5 - 1 x 10 ⁶ cells/mL
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% CO₂, 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.

To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.