Product sheet

M-07e Cells | 305105

General information

Description	The M-07e cell line is a subline derived from the original M-07 human leukemic cell line, which was established from the peripheral blood of a 6-month-old girl diagnosed with acute megakaryoblastic leukemia (AML M7). This particular subline was isolated to create a factor-dependent cell line that requires interleukin-3 (IL-3) or granulocyte macrophage colony-stimulating factor (GM-CSF) for growth, even in the presence of fetal calf serum. M-07e cells exhibit robust proliferation in response to a variety of cytokines, including GM-CSF, interferons (IFN-alpha, IFN-beta, IFN-gamma), IL-2, IL-3, IL-4, IL-6, IL-15, nerve growth factor (NGF), stem cell factor (SCF), tumor necrosis factor-alpha (TNF-alpha), and thrombopoietin (TPO). However, their dependency on IL-3 or GM-CSF for sustained growth makes them a valuable tool in bioassays designed to measure the biological activity of these specific cytokines. Notably, M-07e cells are highly sensitive to IL-3 and GM-CSF, making them ideal for use in assays where detecting low levels of these cytokines is crucial. For instance, bioassays using M-07e cells can detect as little as 25-50 pg/mL of IL-3 or GM-CSF, making it comparable to or even more sensitive than traditional assays like the CFU-GM or CML blast proliferation assays. However, the cell line has a tendency to become cytokine-independent within 3-4 weeks in culture, likely due to the outgrowth of cytokine-independent subpopulations, which suggests careful monitoring is necessary when using these cells for long-term studies. The availability of exome and RNA sequence data further enhances the utility of M-07e cells in research focused on leukemia and hematopoiesis. M-07e cells have also been employed to establish a quantitative bioassay for GM-CSF and IL-3, which is essential in both clinical and research settings. The bioassay developed with this cell line has proven to be convenient, reliable, and sensitive, making it particularly useful for assessing the pharmacological effects of hematopoietic growth factor therapies. The detailed responsiveness of M-07e cells to various cytokines, combined with their well-documented growth characteristics, underscores their value in experimental hematology, particularly in studies related to leukemia and the therapeutic application of cytokines.
Organism	Human
Tissue	Peripheral blood
Disease	Childhood acute megakaryoblastic leukemia
Synonyms	M-07E, M-O7e, M07-e, M07e, Mo7e, MO7e, M07E, MO7E

Characteristics

Age	6 months
Gender	Female
Ethnicity	European

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Morphology	Lymphoblast
Growth properties	Suspension

Regulatory Data

Citation	M-07e (Cytion catalog number 305105)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_2106

Biomolecular Data

Handling

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 heat-inactivated 15% FBS, GM-CSF (10 ng/mL), add 2.5 g/L glucose and 10 mM HEPES
Doubling time	40 to 46 hours
Subculturing	Gently homogenize the cell suspension in the flask by pipetting up and down, then take a representative sample to determine the cell density per ml. Dilute the suspension to achieve a cell concentration of 0.5 x 10^6 cells/ml with fresh culture medium, and aliquot the adjusted suspension into new flasks for further cultivation.
Fluid renewal	Every 2 days
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.

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.

Quality Control & Molecular Analysis

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.