Product sheet

OCI-AML3 Cells | 305432

General information

Description	OCI-AML3 is a human acute myeloid leukemia (AML) cell line derived from a patient with acute myelomonocytic leukemia (FAB classification M4). This cell line is extensively used in leukemia research due to its well-characterized genetic profile and relevance to studying AML pathogenesis and therapeutic response. OCI-AML3 cells are particularly notable for harboring a heterozygous mutation in the nucleophosmin (NPM1) gene, a common alteration in AML that is associated with abnormal localization of the NPM1 protein to the cytoplasm, as well as a DNMT3A R882C mutation, which is implicated in epigenetic dysregulation. These features make OCI-AML3 a highly relevant model for studying key molecular mechanisms in AML. OCI-AML3 cells grow in suspension and exhibit characteristics of immature myeloid cells with monoblast-like morphology. The cell line has been widely used to study apoptosis, proliferation, and differentiation pathways in AML, as well as the molecular consequences of NPM1 and DNMT3A mutations. It is also a valuable model for investigating the role of epigenetic regulation in leukemogenesis, as DNMT3A mutations are known to contribute to global changes in DNA methylation patterns. OCI-AML3 is a preferred model for preclinical drug development and screening, particularly for evaluating epigenetic modulators such as DNA methyltransferase inhibitors and histone deacetylase inhibitors, as well as small-molecule inhibitors targeting signaling pathways and anti-apoptotic proteins. This cell line is also utilized in studies examining mechanisms of drug resistance and the development of combination therapy strategies. Overall, OCI-AML3 remains a critical tool for advancing the understanding of AML biology and for identifying novel therapeutic approaches for this aggressive hematologic malignancy.
Organism	Human
Tissue	Peripheral blood
Disease	acute myeloid leukemia
Synonyms	OCI-Aml-3, OCI/AML-3, OCI-AML3, OCI/AML3, OCI AML3, OCIAML3, Ontario Cancer Institute-Acute Myeloid Leukemia-3

Characteristics

Age	57 years
Gender	Male
Ethnicity	Caucasian
Morphology	Epithelial-like
Growth properties	Suspension

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Regulatory Data

Citation	OCI-AML3 (Cytion catalog number 305432)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1844

Biomolecular Data

Viruses	EBV -, HBV -, HCV -, HIV-1 -, HIV-2 -, HTLV-1/2 -, MLV -, SMRV -
Mutational profile	Mutation: 2978, DNMT3A, p.Arg882Cys (c.2644C>T), Heterozygous; Mutation: NRAS, p.Gln61Leu (c.182A>T), Homozygous; Mutation: NPM1, p.Trp288Cysfs*12 (c.860_863dupTCTG), Heterozygous
Karyotype	Hyperdiploid karyotype - 48(45-50)2n>X/XY, +1, +5, +8, der(1)t(1;18)(p11;q11), i(5p), del(13)(q13q21), dup(17)(q21q25) - sideline with r(Y)x1-2 - hemizygous for RB1

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 20% FBS
Doubling time	30-40 hours
Seeding density	2 to 5 x 10^5 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.

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.