SKM-1

305627

GENERAL INFORMATION

Description

The SKM-1 cell line is a human leukemia model established from the peripheral blood of a patient with acute monoblastic leukemia that developed from myelodysplastic syndrome (MDS). These cells exhibit immature morphological features, such as a high nucleus-to-cytoplasm ratio and fine azurophilic granules, making them an excellent model for studying the molecular and cellular mechanisms of leukemia, particularly the transition from MDS to acute myeloid leukemia (AML).
Genetic analysis of SKM-1 has revealed important chromosomal abnormalities, including del(9)(q13;q22) and der(17)t(17:?)(p13:?); the latter alteration involves the p53 gene, which is overexpressed and harbors mutations in this cell line. These findings highlight the role of p53 in clonal evolution and progression of myeloid malignancies. SKM-1 cells are also characterized by their expression of myelomonocytic markers, including CD4, CD13, and CD33, as well as their positivity for butyrate esterase activity, which aligns with their monoblastic lineage. This cell line is widely used in research on leukemogenesis, drug resistance, and the molecular pathways underlying leukemia. For instance, SKM-1 provides a platform for exploring the impacts of p53 dysfunction and other genetic lesions on cell proliferation and therapeutic response. It also serves as a model for investigating novel therapeutic strategies for myelodysplastic syndromes and secondary AML.

Tissue	Peripheral blood
Disease	acute myeloid leukemia

Synonyms

- SKM1

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Round cells
Doubling time	48 hours

IDENTIFIERS

Citation

SKM-1 (Cytion catalog number 305627)

NCBI TaxID	9606
Cellosaurus	CVCL_0098

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD3 -, CD4 (+), CD13 +, CD14 -, CD15 +, CD19 -, CD33 +, HLA-DR +;

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Mutational profile

Mutation: ASXL1, Simple, p.Tyr591Ter (c.1773C>A), Homozygous; Mutation: BCORL1, Simple, c.4619-1G>A, Homozygous, Splice acceptor Mutation; Mutation: EZH2, Simple, p.Tyr646Cys (c.1937A>G), Heterozygous; Mutation: KRAS, Simple, p.Lys117Asn (c.351A>C), Homozygous; Mutation: TP53, Simple, p.Arg248Gln (c.743G>A), Homozygous

Viruses

EBV -, HBV -, HCV -, HIV-1 -, HIV-2 -, HTLV-1/2 -, MLV -, SMRV -

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 15% FBS

Dissociation reagent	None
Seeding density	0.3 to 1 x 10^6 cells/ml
Fluid renewal	2 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

DONOR

Donor age	76 years
Ethnicity	Japanese

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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