KG-1a

300234

GENERAL INFORMATION

Description

The KG-1a cell line is a subline derived from the original KG-1 cell line, which was established from the bone marrow of a patient diagnosed with acute myeloid leukemia (AML). KG-1a cells are classified as a human myeloid leukemia cell line and are particularly characterized by their immature, undifferentiated state. Unlike the parent KG-1 cells, which are primarily in the myeloblast stage, KG-1a cells exhibit a more primitive phenotype, resembling early myeloid progenitors or even stem cells. This makes them an invaluable tool for studying hematopoiesis, leukemia progression, and the molecular mechanisms underlying myeloid differentiation.
KG-1a cells express various surface markers typical of early hematopoietic progenitors, such as CD34, CD38, and HLA-DR, while lacking markers associated with mature myeloid cells. This profile makes them highly suitable for research into stem cell biology and the development of leukemia therapies. Additionally, KG-1a cells are often used in drug screening assays to evaluate the efficacy of potential anti-leukemic compounds, particularly those targeting leukemic stem cells. Their ability to maintain an undifferentiated state in vitro also provides a robust model for gene expression studies and functional assays related to leukemia pathogenesis.
As with other cell lines derived from human tissue, KG-1a cells are intended for research use only and are not suitable for therapeutic or in vivo applications. They require careful handling under sterile conditions, and their growth characteristics necessitate specific culture conditions, including the use of RPMI-1640 medium supplemented with fetal bovine serum. Researchers utilizing the KG-1a cell line can gain significant insights into the early stages of leukemic transformation and the role of hematopoietic progenitors in cancer biology.

Tissue	Bone marrow
Disease	Acute myelogenous leukemia

Synonyms

- KG-1A
- KG1A
- KG1a

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Cell type	Myeloblast
Doubling time	45 hours

IDENTIFIERS

Citation

KG-1a (Cytion catalog number 300234)

NCBI TaxID	9606
Cellosaurus	CVCL_1824

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EXPRESSION AND SUSCEPTIBILITY

Antigen expression

HLA A30, A31, B35, Cw4

Isoenzymes

G6PD, B, PGM1, 1-2, PGM3, 0, ES-D, 1, Me-2, 1, AK-1, 0, GLO-1, 2

Viruses

EBNA (EBNA): negative

Reverse transcriptase	Negative

HANDLING AND CULTURE

Culture medium

IMDM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 25 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 3.024 g/L NaHCO3 (Cytion article number 820800a)

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

Supplements

Supplement the medium with 10% FBS

Subculturing

Transfer the cell suspension into sterile centrifuge tubes. Collect the cells by spinning down at 300xg for 3 minutes. Discard the supernatant and resuspend the pelleted cells in fresh cell culture medium. Adjust to an optimal cell density between 1 - 3 x 10^5 cells/ml. Split the cells when a maximum cell density of 1 - 2 x 10^6 cells/ml is reached.

Fluid renewal	Every 3 days
Post-thaw recovery	Allow the cells to recover from the freezing process for at least 24 hours.

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	59 years
Ethnicity	Caucasian

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