

**Kasumi-1 Cells | 300226****General information****Description**

The Kasumi-1 cell line was derived from the peripheral blood of a 7-year-old Japanese boy with acute myeloid leukemia (AML), specifically the FAB M2 subtype, during a relapse following bone marrow transplantation. This cell line is a valuable resource for researchers studying hematologic malignancies, especially those involving the t(8;21) chromosomal translocation. This translocation leads to the formation of the AML1-ETO fusion gene, a critical factor in certain subtypes of AML. Kasumi-1 cells thus serve as an essential model for investigating the molecular mechanisms of AML and testing potential therapeutic approaches.

Kasumi-1 cells possess characteristics of both myeloid and macrophage lineages, making them particularly useful for studies on myeloid differentiation. These cells can be induced to differentiate into macrophage-like cells when cultured with phorbol 12-myristate 13-acetate (TPA), providing a robust system for exploring the pathways involved in myeloid lineage commitment and differentiation. This differentiation capacity enhances the utility of Kasumi-1 cells in research focused on both AML biology and broader myeloid cell development processes.

**Organism** Human**Tissue** Blood**Disease** Acute myeloblastic leukemia**Synonyms** KASUMI-1, Kasumi 1, KASUMI1, Kasumi1**Characteristics****Age** 7 years**Gender** Male**Ethnicity** Japanese**Morphology** Round cells showing marked variations in both size and nuclear cytoplasmic ratio.**Cell type** Myeloblast (AML-acute myeloid leukemia)**Growth properties** Suspension**Regulatory Data****Citation** Kasumi-1 (Cytion catalog number 300226)

**Kasumi-1 Cells | 300226****Biosafety level** 1**NCBI\_TaxID** 9606**CellosaurusAccession** CVCL\_0589**Biomolecular Data****Antigen expression** CD4+ (37.1%, coexpressed with CD34 and CD33), CD13+(OKM13), CD15+(LeuM1), CD33+, CD34+(MY10), CD38+(OKT10, 50.1%), CD71+(Nu-TERf), HLA-DR+(OKDR).**Karyotype** T(8,21) chromosome translocation**Handling****Culture Medium** RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO<sub>3</sub> (Cytion article number 820700a)**Supplements** Supplement the medium with 10% heat-inactivated FBS**Doubling time** 40 to 45 hours**Subculturing** Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of  $5 \times 10^5$  cells/ml and keep the cell concentration within the range of  $3 \times 10^5$  to  $1 \times 10^6$  cells/ml for optimal growth.**Seeding density**  $1 \times 10^5$  cells/ml**Fluid renewal** Add fresh medium (20 to 30% by volume) every 2 to 3 days**Post-Thaw Recovery** About one 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  $-150^{\circ}\text{C}$  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  $37^{\circ}\text{C}$  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  $300 \times g$  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

$37^{\circ}\text{C}$ , 5%  $\text{CO}_2$ , humidified atmosphere.

### Flask Coating

None

### Shipping Conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately  $-78^{\circ}\text{C}$  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  $-196^{\circ}\text{C}$ . Storage at  $-80^{\circ}\text{C}$  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.