

JVM-3 Cells | 305266

General information

Description

JVM-3 is a human B-cell prolymphocytic leukemia (B-PLL) cell line established from the peripheral blood of a 73-year-old Caucasian male patient. The line grows in suspension as lymphoblastoid cells either singly or in loose clumps and is a widely used model for B-PLL, a rare and aggressive mature B-cell leukemia. JVM-3 harbors TP53 mutations (p.Pro1435Leu heterozygous and p.Lys601Asn heterozygous), which inactivate the tumor suppressor function of p53 and are associated with resistance to chemotherapy in B-cell malignancies. The line is cultured in 90% RPMI 1640 + 10% heat-inactivated FBS.

JVM-3 is applicable in B-PLL research, including studies of mature B-cell leukemia biology, TP53 mutation-associated drug resistance, BCR signalling pathway analysis, evaluation of targeted therapies (BTK inhibitors, venetoclax, CD20-targeting antibodies), and pharmacological drug screening for B-cell malignancies. It is also used in comparative studies of B-cell leukemia subtypes and as a xenograft model in immunocompromised hosts.

Organism

Human

Tissue

Peripheral blood

Disease

B-cell prolymphocytic leukemia

Metastatic site

Peripheral blood (leukemic)

Applications

B-cell prolymphocytic leukemia research; mature B-cell leukemia biology; TP53-mutant drug resistance; BTK inhibitor evaluation; venetoclax sensitivity; CD20-targeting antibody testing; B-cell leukemia drug screening

Synonyms

JVM3

Characteristics

Age

73 years

Gender

Male

Ethnicity

Caucasian

Morphology

lymphoblastoid cells growing singly or in clumps in suspension;

Cell type

B lymphoblast

Growth properties

suspension

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Regulatory Data

Citation	JVM-3 (Cytion catalog number 305266)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1320

Biomolecular Data

Mutational profile	Mutation: p.Pro1435Leu, Heterozygous; Mutation: p.Lys601Asn, Heterozygous
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Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO ₃ (Cytion article number 820700a)
Supplements	Supplement the medium with 10% heat-inactivated FBS
Dissociation Reagent	Not required (suspension culture)
Doubling time	~30 hours
Subculturing	Dilute the culture to $2-5 \times 10^5$ cells/ml with fresh pre-warmed complete medium every 2–3 days. Count viable cells before passaging. Centrifugation (300×g, 5 min) may be used to exchange medium when needed.
Split ratio	1 to 3
Seeding density	$3 \text{ to } 5 \times 10^5$ cells/ml
Fluid renewal	Every 2 to 3 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.

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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% CO₂, 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