MV4-11

300295

GENERAL INFORMATION

Description

The MV-4-11 cell line, isolated from the blast cells of a child with biphenotypic B-myelomonocytic leukemia, serves as a critical resource in the study of acute leukemias, particularly acute myeloid leukemia (AML). MV4-11 cells are characterized by their high proliferation rate and the presence of certain genetic abnormalities. A translocation between chromosomes 4 and 11 leads to the creation of the MLL-AF4 fusion gene, which plays a crucial role in leukemogenesis and contributes to the aggressive nature of leukemia. The presence of the MLL-AF4 fusion gene makes these cells particularly relevant for understanding the molecular mechanisms underlying leukemogenesis and studies on targeted therapies that aim to disrupt the function of this oncogenic fusion protein.
Additionally, MV4-11 cells can be used to study the biology of leukemia stem cells, drug resistance mechanisms, and the role of the bone marrow microenvironment in leukemia progression. The cell line is further instrumental in metabolomics and transcriptomic profiles research, providing a comprehensive understanding of the metabolic alterations and redox adaptation in leukemia. The ability of MV-4-11 cells to respond to various cancer research chemicals, including inhibitors like venetoclax, and their role in studying resistant cells.
In conclusion, the MV-4-11 cell line is a crucial tool in leukemia research, offering a versatile platform for investigating the complex biology of acute myeloid leukemia, testing the efficacy of therapeutic agents, and exploring the potential of targeted treatments in overcoming drug resistance.

Tissue	Blood
Disease	Acute monocytic leukemia

Synonyms

- MV-4-11
- MV-4:11
- MV4:11
- MV 4
- 11
- MV4
- 11
- MV411
- MV(4
- 11)

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Round cells
Cell type	Myelomonocytic, biphenotypic

Karyotype

48, xY, t(4,11)(q21,q23), +8, +19

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IDENTIFIERS

Citation

MV4-11 (Cytion catalog number 300295)

NCBI TaxID	9606
Cellosaurus	CVCL_0064

EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD4 (40-96%), CD10 (4-11%), CD15 (96-99%)

Mutational profile

FLT3mut (a FLT3 internal tandem duplication was verified by PCR)

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 10% FBS

Subculturing

Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of 5 x 10^5 cells/ml and keep the cell concentration within the range of 3 x 10^5 to 1 x 10^6 cells/ml for optimal growth.

Seeding density	5 x 10^5 cells/mL
Post-thaw recovery	Please allow the cells to recover from the freezing process for at least 48 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	10 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