RS4:11

305360

GENERAL INFORMATION

Description

The RS4:11 cell line is derived from a 32-year-old female patient with relapsed acute lymphoblastic leukemia (ALL) characterized by the t(4:11)(q21:q23) chromosomal translocation. This translocation results in the formation of the **KMT2A-AFF1 (formerly MLL-AF4)** fusion gene, which is a hallmark of this leukemia subtype. RS4:11 cells exhibit a biphenotypic profile, co-expressing both B-cell and monocytic markers, reflecting the mixed-lineage characteristics associated with this genetic rearrangement. The cell line is widely used as a model for understanding the biology of KMT2A-rearranged leukemias, which are associated with aggressive disease and poor prognosis.
RS4:11 cells display features typical of pre-B lymphoblasts, including expression of markers such as CD19, HLA-DR, and terminal deoxynucleotidyl transferase (TdT), along with rearranged immunoglobulin heavy and light chain genes. Interestingly, upon treatment with differentiation-inducing agents like phorbol esters, RS4:11 cells adopt a monocyte-like phenotype, highlighting their lineage plasticity. This characteristic makes the cell line particularly valuable for studying the molecular drivers of differentiation and lineage commitment in leukemia.
Genetically, the t(4:11) translocation disrupts the **KMT2A gene at 11q23**, fusing it with **AFF1 (AF4)** on 4q21, leading to a chimeric protein that aberrantly regulates gene expression, including Hox genes involved in hematopoietic development. RS4:11 cells have also been used to study secondary mutations, such as those in **FLT3**, which contribute to leukemogenesis and treatment resistance. The cell line serves as a robust preclinical model for testing targeted therapies, including inhibitors of the KMT2A-AFF1 interaction and agents aimed at associated signaling pathways.

Tissue	Bone marrow
Disease	Adult B acute lymphoblastic leukemia

Synonyms

- RS4-11
- RS4
- 11
- RS 4
- 11
- RS(4
- 11)
- RS411

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast-like
MSI status	Instable, high MSI reported

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IDENTIFIERS

Citation

RS4:11 (Cytion catalog number 305360)

NCBI TaxID	9606
Cellosaurus	CVCL_0093

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2,1 mM stabiles Glutamin, w: 2,0 g/L NaHCO3 Medium (Cytion 820700a)

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

Supplements

Supplement the medium with 10% heat-inactivated FBS

Seeding density	Seed cultures at 3-5 x 10^5 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	32 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