Product sheet

RS4:11 Cells | 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.
Organism	Human
Tissue	Bone marrow
Disease	Adult B acute lymphoblastic leukemia
Synonyms	RS4-11, RS4;11, RS 4;11, RS(4;11), RS411

Characteristics

Age	32 years
Gender	Female
Ethnicity	Caucasian
Morphology	Lymphoblast-like
Growth properties	Suspension

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Regulatory Data

Citation	RS4:11 (Cytion catalog number 305360)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0093

Biomolecular Data

MSI-status	Instable, high MSI reported

Handling

Culture Medium	Alpha MEM, w: 2.0 mM stable Glutamine, w: Ribonucleosides, w: Deoxyribonucleosides, w: 1.0 mM Sodium pyruvate, w: 2.2g/L NaHCO3, w/o: Ascorbic acid (GIBCO, Catalog No. A1049001. We do not supply this product; please consider other suppliers. Please let us know if you need further assistance.)
Supplements	Supplement the medium with 20% heat-inactivated FBS
Seeding density	Seed cultures at 3-5 x 10^5 cells/mL
Fluid renewal	2 to 3 times per 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.

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% 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 °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

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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.