Product sheet

SUP-B15 Cells | 305385

General information

Description	SUP-B15 is a human B-cell precursor acute lymphoblastic leukemia (BCP-ALL) cell line derived from the bone marrow of a child with Philadelphia chromosome-positive (Ph+) ALL. It is characterized by the presence of the BCR-ABL1 fusion gene, resulting from the t(9;22)(q34;q11) chromosomal translocation, which is a hallmark of Ph+ ALL. This translocation leads to the production of the constitutively active BCR-ABL1 tyrosine kinase, driving leukemogenesis by promoting uncontrolled proliferation and inhibiting apoptosis. As a result, SUP-B15 has been widely utilized in leukemia research, particularly for studying the molecular mechanisms underlying Ph+ ALL and for testing tyrosine kinase inhibitors (TKIs) such as imatinib and dasatinib. Studies have shown that SUP-B15 cells exhibit overexpression of the MDM2 gene, which negatively regulates the tumor suppressor protein p53. This overexpression occurs despite the presence of wild-type p53, suggesting that MDM2-mediated inactivation of p53 contributes to leukemic cell survival. The deregulation of p53 signaling in SUP-B15 and other BCP-ALL cell lines highlights potential therapeutic vulnerabilities, particularly for MDM2 inhibitors that aim to restore p53 function and induce apoptosis in leukemic cells. Comprehensive genomic and transcriptomic profiling of SUP-B15 has provided additional insights into its molecular landscape. Whole-exome and RNA sequencing studies have identified mutations and gene expression patterns associated with leukemia progression and drug resistance. In pharmacogenomic analyses, SUP-B15 has been included in large-scale drug sensitivity screening efforts, such as those conducted in the Cancer Cell Line Encyclopedia (CCLE). These studies have helped define its responsiveness to various targeted therapies, including TKIs and other small-molecule inhibitors. Given its well-characterized genetic background and clinical relevance, SUP-B15 remains a crucial model for preclinical leukemia research and drug development.
Organism	Human
Tissue	Bone marrow
Disease	Acute lymphoblastic leukemia ALL
Applications	3D cell culture, Immune system disorder research, Immunology
Synonyms	Sup-B15, SUPB-15, SUPB15, SupB15, SupB15W, SupB15WT

Characteristics

Age	8 years
Gender	Male
Ethnicity	Caucasian
Morphology	Lymphoblast

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Cell type	B lymphoblast
Growth properties	Suspension

Regulatory Data

Citation	SUP-B15 (Cytion catalog number 305385)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0103

Biomolecular Data

Protein expression	Immunoglobulin (cytoplasmic)
Antigen expression	CD1a -; CD2 -; CD3 -; CD4 -; CD5 -; CD8 -; CD10 +; CD13 +; CD38 +; CD71 +; HLA DR +
Mutational profile	Gene Fusion: ABL1 + HGNC, HGNC:1014, BCR, Name(s)=BCR-ABL1, BCR-ABL, Note=BCR exon 1 fused to ABL1 exon 2 (e1a2 transcript)
Karyotype	46, XY; the following markers are present: t(9;22)(q34;q11), t(4;14) (p11;q24), der(4)t(1;4) (p11;q33), t(9;22) (q34;q11), der(10)t(3;10) (q25;q26), add(16); Philadelphia chromosome is present.

Handling

Culture Medium	IMDM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 25 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 3.024 g/L NaHCO3 (Cytion article number 820800a)
Supplements	Supplement the medium with 20% FBS and 0.05 mM 2-mercaptoethanol
Doubling time	18 hours
Seeding density	2 to 4 X 10^5 cells/mL

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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.
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

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.