Product sheet

BC-3 Cells | 305748

General information

Description	The BC-3 cell line is a human primary effusion lymphoma (PEL) model derived from the pleural effusion of an HIV-negative patient. It represents a rare subtype of B-cell non-Hodgkin lymphoma that typically presents as lymphomatous effusions in body cavities such as the pleura, pericardium, or peritoneum, often in the absence of detectable solid tumor masses. BC-3 is distinguished by its exclusive infection with Kaposi's sarcoma-associated herpesvirus (KSHV or HHV-8) and complete absence of Epstein-Barr virus (EBV), a feature that sets it apart from most other PEL cell lines, which are typically dually infected. Immunophenotypically, BC-3 cells express leukocyte common antigen (CD45) but lack classical B-cell (e.g., CD19, CD20, CD21, CD22) and T-cell (e.g., CD2, CD3, CD4, CD5, CD8) lineage markers, consistent with the undifferentiated immunophenotype of PEL. However, they do show variable expression of activation markers such as CD30, CD38, CD54, and HLA-DR. Genotypically, BC-3 exhibits clonal immunoglobulin gene rearrangements indicative of B-cell origin, but lacks c-myc oncogene rearrangements. Importantly, Southern blot and PCR analyses confirmed the presence of an intact ~170 kb KSHV genome, and electron microscopy demonstrated herpesvirus-like capsids, validating the line as a productive source of infectious KSHV particles. BC-3 is included in the LL-100 panel of leukemia and lymphoma cell lines and clusters distinctly with other PEL models in transcriptomic analyses. It exhibits expression of PEL-characteristic genes such as PRDM1/BLIMP1, IL-10, SLAMF7, and members of the S100A family. These markers reflect a post-germinal center B-cell phenotype and underscore BC-3's utility as a biologically relevant model for studying KSHV pathogenesis, PEL biology, and therapeutic strategies targeting KSHV-associated malignancies.
Organism	Human
Tissue	Pleural effusion
Disease	Primary effusion lymphoma
Applications	Immunology
Synonyms	BC3

Characteristics

Age	85 years
Gender	Male
Ethnicity	Caucasian
Morphology	Lymphoblast

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Growth properties	Suspension

Regulatory Data

Citation	BC-3 (Cytion catalog number 305748)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_1080

Biomolecular Data

Antigen expression	CD30 +; CD38 +; CD45 +; CD 54 +; CD71 +; HLA-DR +; EMA + (epithelial membrane antigen); CD2 -; CD3 -; CD4 -; CD5 -, CD8 -; CD19 -; CD20 -; CD21 -; CD22 -
Mutational profile	Mutation: Gene deletion, CDKN2A, Homozygous

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 20% FBS
Dissociation Reagent	None
Doubling time	ca. 50-60 hours
Seeding density	2.5 to 10 x 10^5 cells/cm^2
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + **5% 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

BC-3 Cells | 305748

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.