BC-3

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.

Tissue	Pleural effusion
Disease	Primary effusion lymphoma

Applications

Immunology

Synonyms

- BC3

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	2

CHARACTERISTICS

Morphology	Lymphoblast
Doubling time	ca. 50-60 hours

IDENTIFIERS

Citation

BC-3 (Cytion catalog number 305748)

NCBI TaxID	9606

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Cellosaurus	CVCL_1080

EXPRESSION AND SUSCEPTIBILITY

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 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 20% FBS

Dissociation reagent	None
Seeding density	2.5 to 10 x 10^5 cells/cm^2
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) + 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.

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	85 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.

Disclaimer

Our cells are provided for in vitro laboratory research purposes exclusively and are not intended for clinical or diagnostic use, nor are they to be administered to humans or used for veterinary purposes. Users must adhere to all applicable guidelines and regulations for the handling and use of these cells in a research setting.

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