

Daudi Cells | 302009

General information

Description

The Daudi cell line was established in 1967 from a 16-year-old African boy diagnosed with Burkitt's Lymphoma, a type of lymphoma. Named after the patient from whom it was derived, the Daudi cell line is characterized by its Epstein-Barr Virus (EBV) positivity, a common feature in Burkitt's lymphoma and several other lymphoproliferative disorders. The EBV infection within these cells offers a unique model for studying the virus's role in tumorigenesis, particularly in the context of B-cell malignancies.

Daudi human cells lack expression of the classical Major Histocompatibility Complex (MHC) class I molecules on their surface, which is attributed to the absence of beta-2-microglobulin, a crucial component responsible for the correct intracellular folding and processing of the MHC class I molecule in the endoplasmic reticulum. The lack of beta-2-microglobulin in the Daudi cell line leads to a lack of glycosyl modifications necessary for proper cell surface expression of these molecules.

The Daudi cell line is extensively utilized in immunology research, particularly in studies involving the immunodepletion of lymphocyte subpopulations, including lymphocytes, natural killer cells, and peripheral blood mononuclear cells.

In summary, the Daudi cell line serves as a critical resource for advancing our knowledge in various research fields, from the basic understanding of cell biology to the development of targeted therapies for cancer treatment.

Organism Human

Tissue Blood

Disease Burkitt lymphoma

Applications Analysis of B cell surface antigens, testing of cytotoxic drugs, mutational analysis, analysis of apoptotic mechanisms, assay development.

Synonyms DAUDI, NK-10A, NK-10a, NK 10a, NK10a, N, GM03190, GM3190, GM03190A, GM17346

Characteristics

Age 16 years

Gender Male

Ethnicity African

Morphology Round cells

Cell type B lymphoblast

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Growth properties Suspension

Identifiers / Biosafety / Citation

Citation Daudi (Cytion catalog number 302009)

Biosafety level Daudi cells do not release Epstein-Barr virus (EBV) when cultured, classifying them as Risk Group 1. However, when used for genetic experiments, they should be treated as Risk Group 2 cells.

Expression / Mutation

Antigen expression CD10+, CD19+, CD20+, CD21+, CD22+, CD23-, CD24-, CD32+, CD37+, CD38+, CD39-, CD40+, CD54+, CD72+, CD73-, CD75+, CD77+, CD81+, CD82+, CD83-, CD84+, CD86+

Karyotype 46, almost diploid

Handling

Culture Medium RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO₃ (Cytion article number 820700a)

Medium supplements Supplement the medium with 10% FBS

Subculturing Maintain cultures by periodically adding or replacing the medium. Initiate cultures with a density of 2×10^5 cells/ml and keep the cell concentration within the range of 1×10^5 to 1×10^6 cells/ml for optimal growth.

Seeding density 3×10^5 cells/ml

Fluid renewal 2 times per week

Freezing recovery Fast (48 hours)

Freeze medium CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

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Handling of cryopreserved cultures

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. Optionally, skip centrifugation but remove any remaining freezing medium after 24 hours.
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.

Quality control / Genetic profile / HLA

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.

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STR profile

Amelogenin: x,y
CSF1PO: 12
D13S317: 11,12
D16S539: 10,12
D5S818: 8,13
D7S820: 8,10
TH01: 6,7
TPOX: 8,11
vWA: 15,17
D3S1358: 16,18
D21S11: 34,35
D18S51: 16,18
Penta E: 7,9
Penta D: 10,12
D8S1179: 14
FGA: 21,26
D19S433: 12,14

HLA alleles

A*: 01:02, 02:01.1900 18:01
B*: 02:01.1900 10:01, 02:01.1900 10:02
C*: 03:02:02, 06:02:01
DRB1*: 13:01:01, 13:02:01
DQA1*: 01:02:01, 01:03:01
DQB1*: 06:02:01, 06:04:01
DPB1*: 02:01:02, 106:01
E: 01:03:02, 01:03:05