Sigma-Aldrich®

Data Sheet

CUTLL1 Human T-cell Lymphoblastic Lymphoma Cell Line

Cancer Cell Line

Cat. # SCC286

pack size: ≥1x10^6 viable cells/vial

FOR RESEARCH USE ONLY
NOT FOR USE IN DIAGNOSTIC PROCEDURES
NOT FOR HUMAN OR ANIMAL CONSUMPTION

Store at: liquid nitrogen

Background

T-cell acute lymphoblastic lymphoma (T-ALL) is a rare but aggressive form of non-Hodgkin lymphoma, with a high relapse rate and poor long-term survival.[1] The majority of T-cell lymphoblastic leukemias and lymphomas harbors activating mutations in the *NOTCH1* gene, a key signaling component required for T-cell development.[2] Drugs targeting the Notch pathway are thus promising avenues for treatment of T-cell lymphoblastic leukemias.

Lack of response of human T-ALL cell lines to Notch inhibitors has hampered the clinical applicability of these models. CUTLL1 is a human T-cell lymphoblastic lymphoma cell line derived from a relapsed patient that harbors a t(7;9)(q34;q34) chromosomal translocation resulting in expression of a *TCRB-NOTCH1* fusion transcript and aberrant Notch signaling.[3] CUTLL1 cells demonstrate high sensitivity to gamma-secretase inhibitors, which act on the Notch pathway. CUTLL1 cells express markers of immature T-cells including CD3, CD4, CD8 and TCRαβ.[3] The CUTLL1 cell line is a valuable and clinically relevant model for T-cell lymphoblastic lymphoma.

Source

The CUTLL1 cell line was established from pleural effusion of a relapsed 14-year-old male patient suffering from T-cell lymphoblastic lymphoma.[2]

Quality Control Testing

- Each vial contains ≥ 1X10^6 viable cells.
- Cells are tested negative for infectious diseases by a Human Essential CLEAR panel by Charles River Animal Diagnostic Services.
- Cells are verified to be of human origin and negative for inter-species contamination from mouse, rat, chinese hamster, Golden Syrian hamster, and Non-human Primate (NHP) as assessed by a Contamination Clear panel by Charles River Animal Diagnostic Services
- Cells are negative for mycoplasma contamination.

EMD Millipore Corporation, 28820 Single Oak Drive, Temecula, CA 92590, USA 1-800-437-7500

Ver. 1.0/22122020/Cat.# SCC286-DS/AN

Short Tandem Repeat (STR) Profile

D3S1358: 14, 15, 17
TH01: 6, 7, 9.3
D21S11: 29, 31.2, 32.2, 33.2, 34.2
D18S51: 13, 14, 16, 20, 21
Penta E: 8, 10, 12
D5S818: 9, 10, 12
D13S317: 8, 10, 11, 12
D7S820: 8, 10
D16S539: 9, 10, 11
CSF1PO: 10, 11, 13
Penta D: 10, 11, 12, 12.4, 14
vWA: 16, 18, 19
D8S1179: 11, 12, 13
TPOX: 8, 10
FGA: 19, 21, 22, 24
Amelogenin: X, Y

Cancer cell lines are inherently genetically unstable. Genetic instability may arise in the form of loss of heterozygosity of alleles at one or more genetic sites with increased passages.

Storage and Handling

CUTLL1 Human T-Cell Lymphoblastic Lymphoma Cell Line should be stored in liquid nitrogen until use. The cells can be cultured for at least 10 passages after initial thawing without significantly affecting the cell marker expression and functionality.

Representative Data

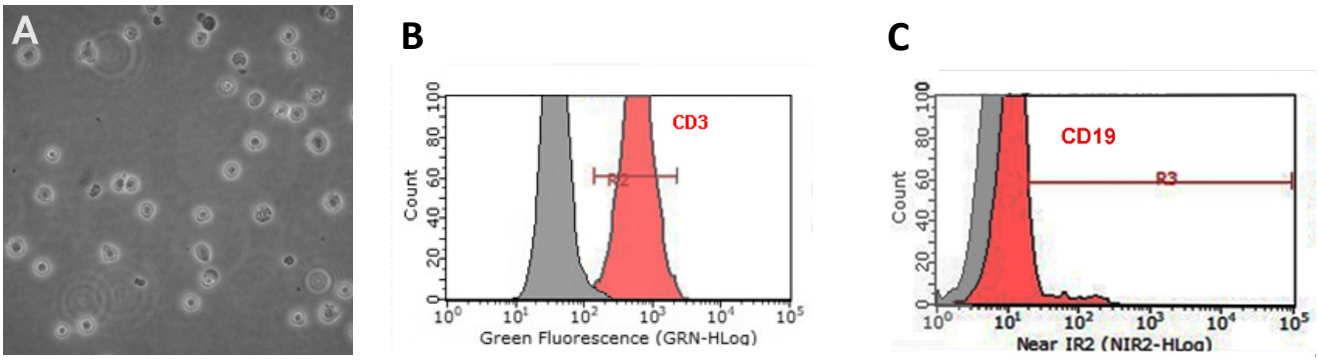

Figure 1. CUTLL1 cells one day after thaw (A). Cells express CD3, a marker for immature T-cells (B). Cells are negative for CD19, a marker for B lymphocyte (C).

Protocols

Upon thaw, CUTLL1 cells may exhibit lower cell viability; we recommend that the cells be thawed in RPMI-1640 medium containing 20% FBS. Once the cells have recovered their proliferative ability after 1-2 passages, you can transition to expansion medium containing 10% FBS.

CUTLL1 cells grow as suspension cells and thus do not require enzymatic detachment or dissociation. Passage when the cell density reaches 1–1.5 million cells/mL. Optimal plating density should be ~200,000 - 250,000 cells/mL. The cells should not be grown at excessively high densities.

1. Do not thaw the cells until the recommended medium is on hand. Cells are thawed in RPMI-1640 (Sigma R8758) containing 20% FBS (Sigma ES-009-B). Once established, media can be changed to 10% FBS
2. Remove the vial of frozen CUTLL1 cells from liquid nitrogen and incubate in a 37°C water bath. Closely monitor until the cells are completely thawed. Maximum cell viability is dependent on the rapid and complete thawing of frozen cells.

   IMPORTANT: Do not vortex the cells.
3. As soon as the cells are completely thawed, disinfect the outside of the vial with 70% ethanol. Proceed immediately to the next step.
4. In a laminar flow hood, use a 1 or 2 mL pipette to transfer the cells to a sterile 15 mL conical tube. Be careful not to introduce any bubbles during the transfer process.
5. Using a 10 mL pipette, slowly add dropwise 9 mL of CUTLL1 Thaw Medium containing 20% FBS (Step 1 above) to the 15 mL conical tube.

   IMPORTANT: Do not add the entire volume of media all at once to the cells. This may result in decreased cell viability due to osmotic shock.
6. Gently mix the cell suspension by slowly pipetting up and down twice. Be careful not to introduce any bubbles.

   IMPORTANT: Do not vortex the cells.
7. Centrifuge the tube at 300 x g for 2-3 minutes to pellet the cells.
8. Decant as much of the supernatant as possible. Steps 5-8 are necessary to remove residual cryopreservative (DMSO).
9. Resuspend the cells in 15 – 20 mL of CUTLL1 Thaw Medium containing 20% FBS.
10. Transfer the cell suspension to a T75 flask.
11. Incubate the cells at 37°C in a humidified incubator with 5% CO_2. CUTLL1 suspension cells require media replenishment every 2-3 days. Once established, transition cells to Expansion Medium containing 10% FBS. Passage cells when the cell density is at 1 -1.5 million cells/mL.
12. Cells are typically plated at a density of 200,000 - 250,000 cells/mL

Cryopreservation of Cells

CUTLL1 Human T-Cell Lymphoblastic Lymphoma Cell Line may be frozen in CUTLL1 Expansion Medium and 10% DMSO using a Nalgene slow freeze Mr. Frosty container.

References

1. *Cancer J.* 2012; 18(5): 432-8.
2. *Science* 2004; 306(5694): 269-71.
3. *Leukemia 2006; 20(7): 1279-87.*

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