H9 (derivative of HuT 78)

300460

GENERAL INFORMATION

Description

The H9 cell line, derived from a clonal derivative of the HUT 78 T-cell line from an adult patient with Sezary syndrome, exhibits specific clinical characteristics making it highly relevant in HIV research. It is notably permissive for HIV-1 replication, facilitating the isolation and propagation of HIV-1 from the blood of patients with AIDS and pre-AIDS conditions. This feature underscores its utility in studying viral behaviors and testing antiviral strategies under varied clinical scenarios.
Karyotypically, H9 is near triploid with a modal chromosome number of 69, ranging from 58 to 74, and exhibits a 2.5% frequency of higher ploidies. The cell line displays an extremely complex karyotype, with nearly 60% of the chromosomes per cell consisting of structurally altered marker chromosomes, including translocations such as t(3p4q), t(5q6q), t(5p6p), and deletions like del(7)(q32). Such chromosomal abnormalities contribute to the line's unique genetic profile, influencing its behavior and response to viral infections. The absence of normal chromosomes N4, N5, N6, N7, N10, N13, N18, N19, N20, and X further distinguishes its genetic makeup.
Moreover, the H9 cell line is tumorigenic in nature, demonstrated by successful subcutaneous tumor formation in nude mice when inoculated with 10(7) cells. It expresses a range of antigens including CD4 and various human leukocyte antigens (HLA) like A1, B62, C3, DR4, and DQ3, which play critical roles in immune recognition and response. Its susceptibility to HIV-1 and expression of genes like interleukin-2 (IL-2) are pivotal for investigating immune responses and viral interactions, making H9 a vital tool in the landscape of immunological and virological research.

Tissue	Blood
Disease	Sezary syndrome (aggressive form of cutaneous T-cell lymphoma)
Metastatic site	Peripheral blood

Synonyms

- HT clone H9
- HT(H9)
- H 9
- H-9

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Lymphoblast
Cell type	T cell

IDENTIFIERS

Citation

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NCBI TaxID	9606
Cellosaurus	CVCL_1240

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

CD4+

Protein expression

Interleukin 2 (IL-2)

Isoenzymes

AK-1, 0, ES-D, 1, G6PD, B, GLO-I, 1, Me-2, 0, PGM1, 1, PGM3, 0

Virus susceptibility

HIV-1 (HTLV-III)

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 10% FBS

Subculturing

Gently homogenize the cell suspension in the flask by pipetting up and down, then take a representative sample to determine the cell density per ml. Dilute the suspension to achieve a cell concentration of 1 x 10^5 cells/ml with fresh culture medium, and aliquot the adjusted suspension into new flasks for further cultivation.

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) + 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.

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	53 years
Ethnicity	European

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.

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