Product sheet

HL-60 Cells | 300209

General information

Description	HL-60 cells, originating from a 36-year-old female with acute promyelocytic leukemia, serve as a vital model in cancer research, particularly in studying hematological malignancies, due to their ability to differentiate into mature white blood cells and mimic innate immune responses, aiding in the understanding of leukemic progression, cellular oncogene expression, and therapeutic target identification. The ability of HL-60 cells to differentiate into mature white blood cells, such as granulocytes and monocytes, through agents like dimethyl sulfoxide (DMSO) or retinoic acid, underscores their significance in studies related to human myeloid cell differentiation and sheds light on the mechanisms underpinning leukemic progression and the efficacy of therapeutic interventions. HL-60 human myeloid leukemia cells are integral to research focusing on apoptosis, cell activation, and the cell cycle, including the regulation of key oncogenes like the c-myc proto-oncogene and tumor necrosis factor (TNF-alpha). Their capability to form extracellular traps, structures involved in trapping and killing pathogens, which mirrors the innate immune response seen in primary neutrophils, makes HL-60 cells a useful model for studying the immune aspects of leukemia and how leukemic cells interact with the immune system. Moreover, the responsiveness of HL-60 cells to signaling pathways such as the MAPK pathway and various kinases is crucial for dissecting the molecular mechanisms driving leukemic cell proliferation and differentiation. This aspect is particularly beneficial for identifying therapeutic targets and developing new treatment strategies for leukemia. HL-60 cells are a critical resource in cancer research, offering insights into hematological malignancies, leukemic progression, and potential therapeutic targets through their unique differentiation capabilities and mimicry of immune responses.
Organism	Human
Tissue	Blood
Disease	Acute promyelocytic leukemia
Applications	Transfection host
Synonyms	HL 60, HL.60, HL60

Characteristics

Age	36 years
Gender	Female
Ethnicity	Caucasian

Morphology	Round cells
Cell type	Lymphoblast
Growth properties	Suspension

Identifiers / Biosafety / Citation

Citation	HL-60 (Cytion catalog number 300209)
Biosafety level	1

Expression / Mutation

Receptors expressed	complement, Fc
Isoenzymes	G6PD, B, PGM1, 1, PGM3, 1, ES-D,1, Me-2, 1, AK-1, 1, GLO-1, 1
Oncogenes	myc+
Reverse transcriptase	negative
Products	tumor necrosis factor (TNF), also known as tumor necrosis factor alpha (TNF-alpha, TNF alpha), after stimulation with phorbol myristic acid

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 x 10^5 cells/ml and keep the cell concentration within the range of 1 x 10^5 to 1 x 10^6 cells/ml for optimal growth.
Seeding density	2 x 10^5 cells/ml

Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)

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,x **CSF1PO**: 13,14 **D13S317**: 8,11 **D16S539**: 11 **D5S818**: 12 **D7S820**: 11,12 **TH01**: 7,8 **TPOX**: 8,11 **vWA**: 16 **D3S1358**: 16 **D21S11**: 29,30 **D18S51**: 14 **Penta E**: 13 **Penta D**: 10,12 **D8S1179**: 13 **FGA**: 22,24 **D1S1656**: 15 **D6S1043**: 11,12 **D2S1338**: 17 **D12S391**: 18,20 **D19S433**: 14
HLA alleles	**A***: 01:01:01 **B***: 57:01:01 **C***: 06:02:01 **DRB1***: 07:01:01 **DQA1***: 02:01:01 **DQB1***: 03:03:02 **DPB1***: 04:01:01, 13:01:01 **E**: 01:01:01, 01:09