PLH

302137

GENERAL INFORMATION

Description

The PLH cell line is an Epstein-Barr virus (EBV)-transformed human lymphoblastoid cell line derived from a patient with congenital adrenal hyperplasia (CAH) due to steroid 21-hydroxylase (21-OHase) deficiency. This autosomal recessive disorder, which impairs cortisol biosynthesis, is strongly linked to specific HLA haplotypes, particularly HLA-Bw47;DR7. The PLH line is homozygous for this haplotype and has been used as a genetic model to investigate the molecular basis of 21-OHase deficiency. It is especially valuable in studying gene deletions affecting the cytochrome P-450C21 gene, which is responsible for 21-hydroxylation, a crucial step in cortisol production. Molecular analyses using DNA probes confirmed that PLH cells exhibit a homozygous deletion of one of the two P-450C21 genes, consistent with the loss of 21-hydroxylase activity observed in affected individuals.
The PLH cell line was part of the Fourth Asia-Oceania Histocompatibility Workshop (4AOHW) panel, which aimed to provide a well-characterized set of EBV-transformed lymphoblastoid cell lines representing diverse MHC alleles and haplotypes. These panels serve as essential resources for histocompatibility studies, HLA typing development, and immunogenetics research. The selection of PLH for inclusion in the 4AOHW reflected its unique MHC genotype and disease relevance, contributing to both the standardization of HLA allele assignments and studies exploring the genetic architecture of immune-related disorders.

Tissue	Adrenal gland
Disease	Classic congenital adrenal hyperplasia due to 21-hydroxylase deficiency
Metastatic site	Peripheral blood

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Suspension

CHARACTERISTICS

Morphology	Lymphoblast
Cell type	B Cell

IDENTIFIERS

Citation

PLH (Cytion catalog number 302137)

NCBI TaxID	9606
Cellosaurus	CVCL_E810

EXPRESSION AND SUSCEPTIBILITY

Viruses

Epstein-Barr virus (EBV)

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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	Unspecified
Ethnicity	Scandinavian, 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.

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

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