COX

302138

GENERAL INFORMATION

Description

The COX cell line is a reference B-lymphoblastoid cell line (B-LCL) derived from a human donor and transformed with Epstein-Barr virus (EBV). It is frequently used in immunogenetics and histocompatibility research due to its inclusion in the International Histocompatibility Working Group (IHWG) panels. The COX cell line represents a specific major histocompatibility complex (MHC) haplotype, HLA-A1-B8-Cw7-DR3-DQ2, associated with susceptibility to autoimmune diseases such as type 1 diabetes, systemic lupus erythematosus, and myasthenia gravis. This haplotype is notable for its high degree of linkage disequilibrium, making the cell line an essential model for studying MHC-related genetic associations.

The genomic sequence of the COX haplotype has been completely characterized as part of the MHC Haplotype Project. It spans approximately 4.8 Mb, encompassing the class I, II, and III regions of the MHC, as well as the extended class I region. Detailed sequencing revealed over 16,000 single nucleotide polymorphisms (SNPs) and numerous structural variations, providing insights into the genetic architecture of this region. The COX cell line's comprehensive MHC characterization makes it a key resource for understanding immune system function and the genetic basis of HLA-associated diseases.

In research, the COX cell line is used for fine mapping of disease-associated loci within the MHC, as well as for functional studies on antigen processing and presentation. Its well-defined genetic profile allows for comparative studies with other MHC haplotypes, aiding in the identification of disease risk variants and potential therapeutic targets. Additionally, the cell line is involved in the evaluation of new sequencing and genotyping technologies, serving as a standard reference in immunogenetic studies.

Tissue	Peripheral blood
Disease	Burkitt lymphoma

Synonyms

- LCL (DR3)

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	2

CHARACTERISTICS

Morphology	Round cells
Cell type	B lymphoblast

IDENTIFIERS

Citation

COX (Cytion catalog number 302138)

NCBI TaxID	9606
Cellosaurus	CVCL_E534

EXPRESSION AND SUSCEPTIBILITY

Viruses

Transformed by EBV

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% heat-inactivated 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.

Seeding density	5 x 10^5 cells/cm^2
Post-thaw recovery	After thawing, plate the cells at 5 x 10^5 cells/cm^2 and allow the cells to recover from the freezing process and to adhere for at least 24 hours.

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	Age unspecified
Ethnicity	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