Product sheet

COX Cells | 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.
Organism	Human
Tissue	Peripheral blood
Disease	Burkitt lymphoma
Synonyms	LCL (DR3)

Characteristics

Age	Age unspecified
Gender	Male
Ethnicity	Caucasian
Morphology	Round cells
Cell type	B lymphoblast

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Growth properties	Suspension

Regulatory Data

Citation	COX (Cytion catalog number 302138)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	CVCL_E534

Biomolecular Data

Viruses	Transformed by EBV

Handling

Culture Medium	RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
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.
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.

Thawing and Culturing Cells	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. 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.
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
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.
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.

Quality Control & Molecular Analysis

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.