Product sheet

B-LCL-CDG1 Cells | 302012

General information

Description	B-LCL-CDG1 is an EBV-transformed B lymphocyte cell line derived from a patient diagnosed with PMM2-CDG, a congenital disorder of glycosylation (CDG). This rare metabolic disorder arises from mutations in the *PMM2* gene, which encodes phosphomannomutase 2 (PMM2), an essential enzyme in the glycosylation pathway. Mutations in *PMM2* disrupt the synthesis of glycosylated oligosaccharide chains, leading to defective glycosylation of various glycoproteins and glycosphingolipids in tissues and blood. The disorder is characterized by multisystemic manifestations, often affecting neurological, hepatic, and endocrine functions. As an EBV-transformed lymphoblastoid cell line, B-LCL-CDG1 provides a valuable in vitro model for studying the molecular and cellular consequences of *PMM2* deficiency. This cell line can be used to investigate glycosylation defects, PMM2 enzyme activity, and potential therapeutic interventions, including gene correction and substrate supplementation. B-LCL-CDG1, alongside other CDG patient-derived cell lines, serves as a crucial resource for understanding the pathophysiology of CDGs and evaluating novel treatment strategies for these disorders.
Organism	Human
Tissue	Peripheral blood
Disease	Congenital Disorders of Glycosylation
Metastatic site	Not applicable (EBV-transformed B-LCL; non-metastatic)
Applications	Genotyping of CDG effects in immune cells. Functional testing (e.g. B cell surface antigens). Testing of cytotoxic drugs. Mutational analysis. Analysis of apoptotic mechanisms. HLA-typing. Impact of defective glycosylation of distinct cellular glycoproteins on diverse functions.

Characteristics

Gender	Female
Ethnicity	Caucasian
Morphology	Round cells
Cell type	B lymphocyte
Growth properties	Suspension, Cluster

Regulatory Data

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Citation	B-LCL-CDG1 (Cytion catalog number 302012)
Biosafety level	2
NCBI_TaxID	9606
CellosaurusAccession	Not assigned
GMO Status	GMO-S2: This B-LCL contains a stably maintained EBV episome encoding viral latent-phase genes (EBNA-1/-2/-3, LMP-1/-2). EBV is classified as a risk group 2 pathogen; BSL-2 containment required. This classification applies within Germany; regulations may differ elsewhere.

Biomolecular Data

Viruses	Transformant: 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	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 5 x 10^5 cells/ml for optimal growth.
Fluid renewal	Once the medium colour turned into yellow
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

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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.