**Product sheet**

# B-LCL-CDG5 Cells | 302016

## General information

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| **Description** | B-LCL-CDG5 is an EBV-transformed B lymphocyte cell line derived from a patient with PMM2-CDG, a congenital disorder of glycosylation (CDG) caused by mutations in the *PMM2* gene. This disorder impairs the proper synthesis and attachment of glycan structures to glycoproteins and glycolipids, affecting multiple organ systems. The deficiency in phosphomannomutase 2 (PMM2) disrupts the conversion of mannose-6-phosphate to mannose-1-phosphate, a critical step in glycosylation, leading to defects in cellular function and systemic complications.<br><br>As an EBV-immortalized B cell line, B-LCL-CDG5 serves as a crucial model for studying the biochemical and molecular effects of *PMM2* mutations. This cell line enables researchers to investigate glycosylation defects, PMM2 enzymatic activity, and the cellular consequences of impaired glycosylation. Additionally, it provides a platform for testing potential therapeutic approaches, such as pharmacological chaperones, enzyme enhancement therapies, or substrate supplementation strategies. B-LCL-CDG5, in combination with other CDG patient-derived cell lines, aids in advancing our understanding of PMM2-CDG and the development of targeted treatment options. |
| **Organism** | Human |
| **Tissue** | Peripheral blood |
| **Disease** | EBV-transformed B lymphoblastoid cell line (B-LCL); PMM2-CDG (congenital disorder of glycosylation, patient-derived) |
| **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

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

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## Regulatory Data

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| **Citation** | B-LCL-CDG5 (Cytion catalog number 302016) |
| **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 a risk group 2 pathogen; BSL-2 containment required. This classification applies within Germany; regulations may differ elsewhere. |

## Biomolecular Data

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| **Viruses** | Transformant: EBV |

## Handling

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| **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 |
| **Post-Thaw Recovery** | Medium |
| **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. |

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| **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.<br>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.<br>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.<br>4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.<br>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.<br>6. Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.<br>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.<br>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.<br><br>To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections. |