IM-9

302151

GENERAL INFORMATION

Description

IM-9 is a human lymphoblastoid cell line established in 1967 from the bone marrow of an adult woman diagnosed with multiple myeloma. Originally believed to be derived from myeloma cells, subsequent research, including findings published by Pellat-Deceunynk et al. in 1995, has indicated that IM-9 cells are more accurately classified as Epstein-Barr Virus-positive (EBV+) B-lymphoblastoid cells rather than malignant myeloma cells. This distinction is crucial for researchers using this cell line, as it affects the interpretation of experimental outcomes related to myeloma studies.

IM-9 cells have been extensively characterized in the literature and are noted for synthesizing Immunoglobulin G (IgG). They are also known to express receptors for insulin and calcitonin, making them valuable for studying hormone-receptor interactions. Additionally, these cells express BCL2 mRNA, a gene involved in regulating apoptosis, which is often studied in the context of cancer and immune cell survival. Due to their high expression of insulin receptors, IM-9 cells are frequently used in research focused on insulin signaling and metabolic disorders, providing insights into insulin resistance mechanisms.

The IM-9 cell line remains a significant resource for various research applications, particularly in the fields of immunology, cancer biology, and metabolic studies. However, given the revised understanding of their origin, it is critical to use IM-9 cells with the recognition that they are not representative of malignant myeloma cells. As always, these cells are intended exclusively for in vitro research and are not suitable for therapeutic or in vivo use.

Tissue	Bone marrow

Synonyms

- IM 9
- IM9
- GM04680

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Suspension
Biosafety level	2

CHARACTERISTICS

Morphology	Round cells in cluster
Cell type	B lymphoblast

IDENTIFIERS

Citation

IM-9 (Cytion catalog number 302151)

NCBI TaxID	9606
Cellosaurus	CVCL_1305

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EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD19+, CD20+, CD23+, CD27+, CD80+, CD83+, CD138+, MHC I+, MHC II+

Viruses

EBV+ free of human pathogenic viruses SV40, JC/BK, HBV, HCV, HIV.

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.

Fluid renewal	2 to 3 times per week
Post-thaw recovery	Fast

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	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