MEG-01

300482

GENERAL INFORMATION

Description

The MEG-01 cell line is a human megakaryoblast cell line established from the bone marrow of a 55-year-old male patient who was in the megakaryoblastic crisis phase of Chronic Myelogenous Leukemia (CML). This cell line was developed in 1983 at Nagoya University School of Medicine, Japan. The patient from whom MEG-01 was derived was positive for the Philadelphia chromosome (Ph1), a hallmark of CML. The MEG-01 cells exhibit a hyperdiploid karyotype with a modal chromosome number of 56 to 58, consistently showing the presence of the Ph1 chromosome, which is a result of the t(9;22) chromosomal translocation.
MEG-01 cells have mixed growth properties, demonstrating both adherent and suspension characteristics in culture. These cells express several markers and antigens characteristic of megakaryocytic lineage, including CD41, CD61, and CDw14. They also test positive for cytoplasmic Factor VIII, surface GPIIb/IIIa, and various enzymatic activities such as periodic acid-Schiff (PAS) reaction, alpha naphthyl acetate esterase, and acid phosphatase. Interestingly, MEG-01 cells are negative for myeloperoxidase, alpha naphthyl butyrate esterase, naphthol AS-D chloroacetate esterase, and alkaline phosphatase, which helps distinguish them from other myeloid cells.
MEG-01 has been a valuable model for studying human megakaryopoiesis, platelet production, and the biosynthesis of proteins unique to the megakaryocytic lineage, such as platelet-derived growth factor (PDGF) and glycoproteins like GPIIb/IIIa. Due to its well-characterized genetic background and its ability to express key megakaryocyte markers, MEG-01 serves as a significant tool in the investigation of leukemia and platelet biogenesis mechanisms, although it is not intended for therapeutic or in vivo applications.

Tissue	Bone marrow
Disease	Chronic myeloid leukemia

Synonyms

- Meg-01
- MEG01
- Meg01

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Adherent and suspension
Biosafety level	1

CHARACTERISTICS

Morphology	Myoblast-like
Cell type	Megakaryoblast

IDENTIFIERS

Citation

MEG-01 (Cytion catalog number 300482)

NCBI TaxID	9606
Cellosaurus	CVCL_0425

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EXPRESSION AND SUSCEPTIBILITY

Antigen expression

CD41 +, CD61 +, CDw14 +

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% FBS

Dissociation reagent	Accutase

Subculturing

Gather the suspension cells in a 15 ml tube and gently wash the adherent cells with PBS lacking calcium and magnesium (use 3-5 ml for T25 flasks and 5-10 ml for T75 flasks). Apply Accutase (1-2 ml for T25 flasks, 2.5 ml for T75 flasks) ensuring full coverage of the cell layer. Allow the cells to incubate at room temperature for 10 minutes. Following incubation, combine and centrifuge both the suspension and adherent cells. After centrifugation, carefully resuspend the cell pellet and transfer the cell suspension into new flasks containing fresh medium.

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	55 years
Ethnicity	East Asian

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

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