Product sheet

LP-1 Cells | 300321

General information

Description	The LP-1 cell line is a well-established human multiple myeloma cell line derived from a patient with multiple myeloma. It is characterized by its t(4;14)(p16;q32) translocation, which results in the dysregulated expression of fibroblast growth factor receptor 3 (FGFR3). This genetic aberration is a hallmark of a subset of multiple myeloma cases and is associated with the pathogenesis and progression of the disease. LP-1 cells express a functional FGFR3, which, when activated, can engage the MAP kinase signaling pathway, promoting cell proliferation and survival. Notably, LP-1 carries a non-activating F384L mutation in the FGFR3 gene, distinguishing it from other myeloma cell lines with activating mutations of FGFR3. LP-1 cells are useful for studying the role of FGFR3 in multiple myeloma, particularly in the context of non-activating mutations. Research has shown that in multiple myeloma, FGFR3 mutations and other common oncogenic mutations, such as those in the Ras family, are typically mutually exclusive, suggesting that these mutations may contribute to tumorigenesis through similar or overlapping pathways. This makes LP-1 an invaluable model for exploring the molecular mechanisms underlying multiple myeloma and for testing targeted therapies aimed at the FGFR3 pathway. In addition to its relevance in FGFR3-related studies, LP-1 is also significant in research focused on the broader aspects of myeloma biology, including the role of cytokines like interleukin-6 (IL-6) in cell survival and proliferation. This cell line has been instrumental in studies that investigate the interactions between myeloma cells and their bone marrow microenvironment, as well as in the development of novel therapeutic strategies aimed at disrupting these interactions to control disease progression.
Organism	Human
Tissue	Peripheral blood
Disease	Multiple myeloma
Applications	Model to study the process of B lymphocyte maturation.
Synonyms	LP1

Characteristics

Age	56 years
Gender	Female
Morphology	Elongated single cells
Growth properties	Suspension

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Regulatory Data

Citation	LP-1 (Cytion catalog number 300321)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0012

Biomolecular Data

Products	IgG lambda
Karyotype	Chromosome modal numer 73, distribution from 60 to 79 chromosomes

Handling

Culture Medium	IMDM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 25 mM HEPES, w: 1.0 mM Sodium pyruvate, w: 3.024 g/L NaHCO3 (Cytion article number 820800a)
Supplements	Supplement the medium with 20% heat inactivated FBS
Subculturing	It is recommended to seed the cells into a 24 well plate and cultivate for one week after thawing. Exchange the medium by dilution. Later on, the cells can be cultivated in regular cell culture flasks. Maintain culture between 0.5 to 1 x10^6 cells/ml. Incubate at 5% CO_2, 37 degree Celsius.
Seeding density	7 x 10^5 cells/well of a 24 to well to plate.
Post-Thaw Recovery	Viability may be low after thawing.
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.