TF-1

300434

GENERAL INFORMATION

Description

TF-1 cells are erythroblasts isolated from the bone marrow of a 35-year-old Asian male diagnosed with severe pancytopenia in 1987. These cells are a pivotal model for studying the complex processes of proliferation and differentiation within myeloid progenitor cells. As a cell line, TF-1 is heavily utilized in hematological research to understand the underlying mechanisms that govern cell cycle regulation and development in myeloid lineages.
In addition to their primary role in hematopoietic research, TF-1 cells serve as a robust system for examining the impact of various cytokines on cell survival and growth. Their dependence on specific growth factors such as granulocyte-macrophage colony-stimulating factor (GM-CSF) and interleukin-3 (IL-3) for proliferation makes them an excellent tool for studying cytokine-mediated signaling pathways. This characteristic also makes TF-1 cells useful in evaluating the efficacy of new pharmacological agents that aim to modulate these pathways, thereby contributing significantly to therapeutic advances in treating myeloid disorders and other related diseases.

Tissue	Bone marrow
Disease	Erythroleukemia

Applications

The TF-1 cell line can be applied in various systems due to their responsiveness to multiple cytokines. They provide a good system to investigate the proliferation and differentiation of myeloid progenitor cells. Sensitive to GM-CSF, IL-3, EPO.

Synonyms

- TF1
- MFD-1

CLASSIFICATION

Organism	Human
Sex	Male
Growth properties	Suspension
Biosafety level	1

IDENTIFIERS

Citation

TF-1 (Cytion catalog number 300434)

NCBI TaxID	9606
Cellosaurus	CVCL_0559

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

TF-1 cells do not express glycophorin A or carbonyl anhydrase I.

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.1 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, 5 ng/ml GM-CSF; for long-term culture: IL-3

Subculturing

Initiate cultures with a cell density of 2 x 10^5 cells/ml and maintain them within the range of 1 x 10^5 to 1 x 10^6 cells/ml. For subculturing, transfer the cell suspension to a fresh cell culture flask pre-filled with the correct volume of fresh culture medium.

Seeding density	> 2 x 10^5 cells/ml
Fluid renewal	2 to 3 times per week

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	35 years
Ethnicity	Japanese

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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