**Product Sheet**

**TF-1 (ATCC® CRL-2003™)**

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**Please read this FIRST**

- **Storage Temp.** liquid nitrogen vapor phase
- **Biosafety Level** 1

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**Intended Use**

This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

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**Complete Growth Medium**

The base medium for this cell line is ATCC-formulated RPMI-1640 Medium, Catalog No. 30-2001. To make the complete growth medium, add the following components to the base medium: 2 ng/ml recombinant human GM-CSF, fetal bovine serum to a final concentration of 10%.

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**Citation of Strain**

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: TF-1 (ATCC® CRL-2003™)

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**Description**

- **Organism:** Homo sapiens, human
- **Tissue:** bone marrow
- **Disease:** erythroleukemia
- **Cell Type:** erythroblast
- **Age:** 35 years
- **Gender:** male
- **Morphology:** lymphoblast

**Growth Properties:** suspension

**DNA Profile:**
- Amelogenin: X,Y
- CSF1PO: 13,14
- D1S59: 8,9
- D16S539: 9,12
- D5S818: 13
- D7S820: 12
- TH01: 7,9
- TPOX: 8
- vWA: 15,17

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**Batch-Specific Information**

Refer to the Certificate of Analysis for batch-specific test results.

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**SAFETY PRECAUTION**

ATCC highly recommends that protective gloves and clothing always be used and a full face mask always be worn when handling frozen vials. It is important to note that some vials leak when submerged in liquid nitrogen and will slowly fill with liquid nitrogen. Upon thawing, the conversion of the liquid nitrogen back to its gas phase may result in the vessel exploding or blowing off its cap with dangerous force creating flying debris.

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**Unpacking & Storage Instructions**

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

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**Handling Procedure for Frozen Cells**

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at -70°C. Storage at -70°C will result in loss of viability.

1. Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 minutes).
2. Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
3. Transfer the vial contents to a centrifuge tube containing 9.0 mL complete culture medium, and spin at approximately 125 x g for 5 to 7 minutes.
4. Resuspend cell pellet with the recommended complete medium (see the specific batch information for the culture recommended dilution ratio), and dispense into new culture flask. It is important to avoid excessive alkalinity of the medium during recovery of the cells. It is suggested that, prior to the addition of the vial contents, the culture vessel containing the complete growth medium be placed into the incubator for at least 15 minutes to allow the medium to reach its normal pH (7.0 to 7.6).
5. Incubate the culture at 37°C in a suitable incubator. A 5% CO₂ in air atmosphere is recommended if using the medium described on this product sheet.

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**Handling Procedure for Flask Cultures**

The flask was seeded with cells (see specific batch information), grown, and completely filled with medium at ATCC to prevent loss of cells during shipping.

1. Upon receipt visually examine the culture for macroscopic evidence of any microbial contamination. Using an inverted microscope (preferably equipped with phase-contrast optics), carefully check for...
2. Incubate the flask in an upright position for several hours at 37°C. After the temperature has equilibrated, aseptically remove the entire contents of the flask and centrifuge at 125 x g for 5 to 10 minutes. Remove shipping medium and save for reuse. Resuspend the cell pellet in 10 mL of this medium.
3. From this cell suspension remove a sample for a cell count and viability. Adjust the cell density of the suspension to 1 X 10^5 viable cells/mL in the shipping medium.
4. Incubate the culture, horizontally, at 37°C in a 5% CO₂ in air atmosphere. Maintain the cell density of the culture as suggested under the subculture procedure.

Subculturing Procedure

Cultures can be maintained by the addition of fresh medium. Alternatively, cultures can be established by centrifugation with subsequent resuspension at 2 X 10^4 viable cells/mL. Do not allow the cell concentration to reach 7 X 10^5 cells/mL. Corning® T-75 flasks (catalog #431464) are recommended for subculturing this product.

Interval: Maintain cultures between 3 X 10^4 and 5 X 10^5 viable cells/mL

Medium Renewal: Add fresh medium every 2 to 3 days (depending on cell density)

Cryopreservation Medium

Complete growth medium described above supplemented with 5% (v/v) DMSO. Cell culture tested DMSO is available as ATCC Catalog No. 4-X.

Comments

The cells are completely dependent on interleukin 3 (IL-3) or granulocyte-macrophage colony-stimulating factor (GM-CSF) for long term growth. The cells DO NOT RESPOND to interleukin 5 (IL-5). TF-1 cells respond to a variety of other lymphokines and cytokines such as interleukin 1 (IL-1), interleukin 4 (IL-4), interleukin 6 (IL-6), interleukin 9 (IL-9), Interleukin 11 (IL-11), interleukin 13 (IL-13), stem cell factor (SCF), leukemia inhibitory factor (LIF) and nerve growth factor (NGF). TF-1 cells do not express glycophorin A or carbonyl anhydrase I.

The morphological and cytochemical features, and the constitutive expression of globin genes, indicate the commitment of the cells to the erythroid lineage. Hemin and delta-aminolevulinic acid induce hemoglobin synthesis, and TPA induces dramatic differentiation of the TF-1 cells into macrophage-like cells. The TF-1 cell line is unique because of its responsiveness to multiple cytokines.

References

References and other information relating to this product are available online at www.atcc.org.

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the Biosafety in Microbiological and Biomedical Laboratories from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

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Please read this FIRST

Storage Temp.
liquid nitrogen
vapor phase

Biosafety Level
1

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