

Description

eGFP/Firefly Luciferase THP-1 Cell Line is a THP-1 cell line expressing firefly luciferase and enhanced GFP (eGFP) driven by an EF1a promoter. The cells were generated by transduction with Firefly Luciferase-eGFP lentivirus (BPS Bioscience #78741), which is a SIN (self-inactivating) lentivirus.

Background

THP-1 is a human monocytic leukemia cell line, derived from the peripheral blood of a 1-year-old male with acute monocytic leukemia. THP-1 cells have Fc and C3b receptors and lack surface and cytoplasmic immunoglobulins. THP-1 cell line provides a valuable model for studying the mechanisms involved in macrophage differentiation, and for exploring the regulation of macrophage-specific genes as they relate to physiological functions displayed by these cells.

Application

- *In vitro* and *in vivo* bioluminescence imaging (BLI) and fluorescence imaging.
- Use as target cells in CAR-T or NK co-culture killing assays.

Materials Provided

Components	Format
2 vials of frozen cells	Each vial contains $>1 \times 10^6$ cells in 1 ml of Cell Freezing Medium (BPS Bioscience #79796)

Parental Cell Line

THP-1 cells, human monocytic, leukemia, suspension

Mycoplasma Testing

The cell line has been screened to confirm the absence of Mycoplasma species.

Materials Required but Not Supplied

These materials are not supplied with the cell line but are necessary for cell culture and cellular assays. BPS Bioscience's reagents are validated and optimized for use with this cell line and are highly recommended for best results. Media components are provided in the Media Formulations section below.

Media Required for Cell Culture

Name	Ordering Information
Thaw Medium 2	BPS Bioscience #60184
Growth Medium 2M	BPS Bioscience #78181

Storage Conditions

Cells are shipped in dry ice and should immediately be thawed or stored in liquid nitrogen upon receipt. Do not use a -80°C freezer for long term storage. Contact technical support at support@bpsbioscience.com if the cells are not frozen in dry ice upon arrival.

Media Formulations

For best results, the use of validated and optimized media from BPS Bioscience is *highly recommended*. Other preparations or formulations of media may result in suboptimal performance.



Note: Thaw Media do *not* contain selective antibiotics. However, Growth Media *do* contain selective antibiotics, which are used to maintain selective pressure on the cell population expressing the gene of interest.

Cells should be grown at 37°C with 5% CO₂. BPS Bioscience's cell lines are stable for at least 10 passages when grown under proper conditions.

Media Required for Cell Culture

Thaw Medium 2 (BPS Bioscience #60184):

RPMI-1640 medium supplemented with 10% FBS, 1% Penicillin/Streptomycin.

Growth Medium 2M (BPS Bioscience #78181):

RPMI-1640 medium supplemented with 10% FBS, 1% Penicillin/Streptomycin plus 1 µg/ml of Puromycin.

Cell Culture Protocol

Note: THP-1 cells are derived from human material and thus the use of adequate safety precautions is recommended.

Cell Thawing

1. Swirl the vial of frozen cells for approximately 60 seconds in a 37°C water bath. As soon as the cells are thawed (it may be slightly faster or slower than 60 seconds), quickly transfer the entire content of the vial to a tube containing 10 ml of pre-warmed Thaw Medium 2.

Note: Leaving the cells in the water bath at 37°C for too long will result in rapid loss of viability.

2. Immediately spin down the cells at 300 x *g* for 5 minutes, remove the medium and resuspend the cells in 5 ml of pre-warmed Thaw Medium 2.
3. Transfer the resuspended cells to a T25 flask or T75 flask and incubate at 37°C in a 5% CO₂ incubator.
4. After 24 hours of culture, check for cell viability. For a T25 flask, add 3-4 ml of Thaw Medium 2, and continue growing in a 5% CO₂ incubator at 37°C until the cells are ready to passage.
5. Cells should be passaged before they reach a density of 2 x 10⁶ cells/ml. Switch to Growth Medium 2M at first and subsequent passages.

Cell Passage

1. Dilute the cell suspension into new culture vessels before they reach a density of 2 x 10⁶ cells/ml, with Growth Medium 2M. The sub-cultivation ratio should maintain the cells between 0.2 x 10⁶ cells/ml and 2 x 10⁶ cells/ml.

Cell Freezing

1. Spin down the cells at 300 x *g* for 5 minutes. Remove the medium and resuspend the cell pellet in 4°C Cell Freezing Medium (BPS Bioscience #79796) at a density of ~2 x 10⁶ cells/ml.

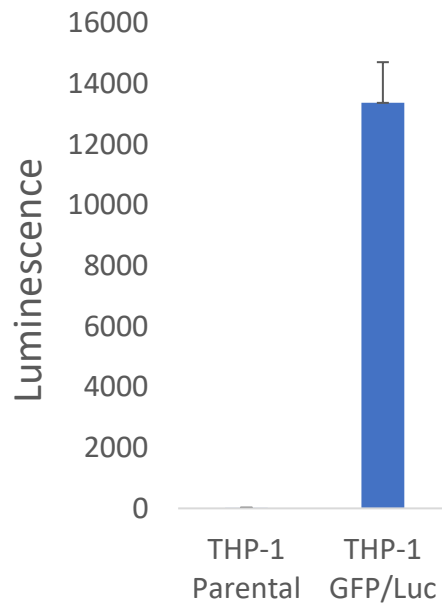
2. Dispense 1 ml of cell suspension into each cryogenic vial. Place the vials in an insulated container for slow cooling and store at -80°C overnight.
3. Transfer the vials to liquid nitrogen the next day for long term storage.



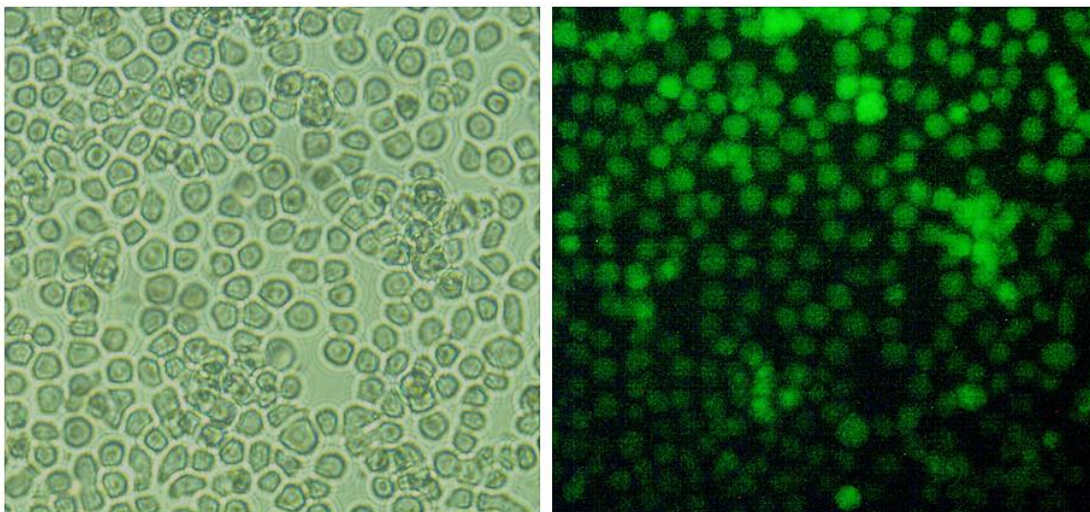
Note: It is recommended to expand the cells and freeze at least 10 vials at an early passage for future use.

Validation Data

A



B



Bright field

Fluorescent

C

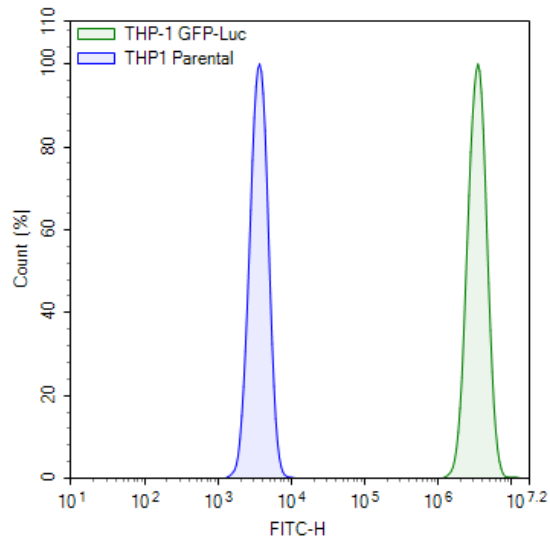


Figure 1. eGFP expression and luciferase activity in the eGFP/Firefly Luciferase THP-1 Cell Line.

A. Luciferase activity in eGFP/Firefly Luciferase THP-1 cells and THP-1 parental cells was measured using One Step™ Luciferase Assay System (BPS Bioscience #60690). **B.** Bright field (left) and fluorescent (right) image of GFP/Firefly Luciferase THP-1 cells. **C.** 25,000 eGFP/Firefly Luciferase THP-1 cells and parental THP-1 cells were analyzed by flow cytometry for eGFP expression. The THP-1 Parental cells are shown in blue, and the eGFP/Firefly Luciferase THP-1 cells are shown in green.

Data shown is representative. For lot-specific information, please contact BPS Bioscience, Inc. at support@bpsbioscience.com.

License Disclosure

Visit for the label license and other key information about this product.

Troubleshooting Guide

Visit bpsbioscience.com/cell-line-faq for detailed troubleshooting instructions. For all further questions, please email support@bpsbioscience.com.

Related Products

Products	Catalog #	Size
Firefly Luciferase Lentivirus	79692	500 µl x 2
Firefly Luciferase-eGFP Lentivirus	78741	500 µl x 2
eGFP/Firefly Luciferase U-87 MG Cell Line	78904	2 vials
eGFP/ Firefly Luciferase MM.1S Cell Line	78376	2 vials