

Description

Firefly Luciferase NALM6 Cell Line is a NALM6 cell line constitutively expressing the firefly (*Photinus pyralis*) luciferase reporter gene under the control of a CMV promoter.

Background

NALM6 is a human B cell precursor leukemia cell line derived from the peripheral blood of a patient with acute lymphoblastic leukemia. NALM6 is a unique cell line that contains features that allow for highly efficient gene targeting via homologous recombination, the process of random gene shuffling, or nucleotide cross-over. The cell line also contains a near-diploid karyotype and is easy to transfect, making NALM6 an ideal model for knock-out or knock-in studies of gene functions. The signal generated by the firefly luciferase is proportional to cell numbers.

Application(s)

- Use as an internal control in CAR-T or NK co-culture killing assays
- *In vitro* and *in vivo* bioluminescence imaging

Materials Provided

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

Parental Cell Line

NALM6, human precursor B cell lymphoblasts derived from a patient with acute lymphoblastic 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 2D	BPS Bioscience #79639

Materials Required for Cellular Assay

Name	Ordering Information
ONE-Step™ Luciferase Assay System	BPS Bioscience #60690
96-well Flat Clear Bottom White Polystyrene TC-treated Microplates	Corning #3610
Luminometer	

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 2D (BPS Bioscience #79639):

RPMI 1640 medium supplemented with 10% FBS, 1% Penicillin/Streptomycin plus 200 µg/ml of Hygromycin B.

Cell Culture Protocol

Cell Thawing

1. Retrieve a cell vial from liquid nitrogen storage. Keep on dry ice until ready to thaw.
2. When ready to thaw, swirl the vial of frozen cells for approximately 60 seconds in a 37°C water bath. Once cells are thawed (it may be slightly faster or slower than 60 seconds), quickly transfer the entire content of the vial to an empty 50 ml conical tube.
Note: Leaving the cells in the water bath at 37°C for too long will result in rapid loss of viability.
3. Using a 10 ml serological pipette, slowly add 10 ml of pre-warmed Thaw Medium 2 to the conical tube containing the cells. Thaw Medium 2 should be added dropwise while gently rocking the conical tube to permit gentle mixing and avoid osmotic shock.
4. 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.
5. Transfer the resuspended cells to a T25 flask or T75 flask and incubate at 37°C in a 5% CO₂ incubator.
6. After 24 hours of culture, check for viability. For a T25 flask, add 3-4 ml of fresh Thaw Medium 2 and continue growing culture in a 5% CO₂ incubator at 37°C until the cells are ready to passage.
7. Cells should be passaged before they reach 1 x 10⁶ cells/ml. At first passage and subsequent passages, use Growth Medium 2D.

Cell Passage

Dilute the cell suspension into new culture vessels before they reach a density of 1 x 10⁶ cells/ml, but no less than 0.2 x 10⁶ cells/ml, in Growth Medium 2D. The sub-cultivation ratio should maintain the cells between 0.2 x 10⁶ cells/ml and 1 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 $\sim 2 \times 10^6$ 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

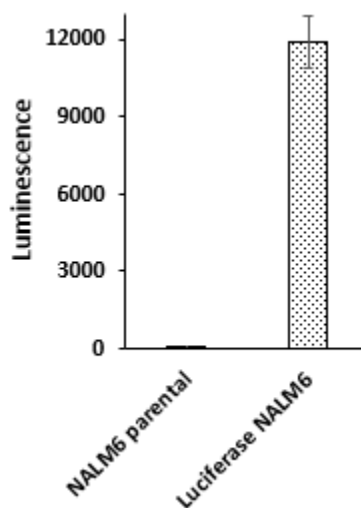


Figure 1: Luciferase activity in Firefly Luciferase NALM6 Cell Line.

Firefly Luciferase NALM6 cells were seeded into a 96-well plate at 2.68×10^5 cells/well in 100 μ l Thaw Medium 2, and luciferase activity was measured using the ONE-Step™ Luciferase Assay System.

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

References

- Li Y, Zuo C, Gu L., 2021 *Cancer Cell Int.* 21(1):623.
 Adachi N, Nishijima H, Shibahara K., 2008 *Biosci Trends.* 2(5):169-180.

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Troubleshooting Guide

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

Related Products

<i>Products</i>	<i>Catalog #</i>	<i>Size</i>
Firefly Luciferase Lentivirus	79692	2 vials
Firefly Luciferase-eGFP Lentivirus	79980	2 vials
Firefly Luciferase CCRF-CEM Cell Line	78495	2 vials
Firefly Luciferase KG-1 Cell Line	78493	2 vials
Firefly Luciferase NK-92 Cell Line	78400	2 vials
Firefly Luciferase SKOV-3 Cell line	78425	2 vials