

Description

Firefly Luciferase KG1 Cell Line is a KG-1 cell line constitutively expressing the firefly (*Photinus pyralis*) luciferase reporter under the control of a CMV promoter.

Background

KG-1 is a human myeloblast cell line derived from the bone marrow of a patient with acute myelogenous leukemia. KG-1 cells possess the unique feature of being completely dependent on colony-stimulating factors (CSFs) for colony formation and have myeloid characteristics. Further, KG-1 has been used as a model system to study dendritic cell differentiation. The cell line KG-1 is an ideal model system for the study of myeloid differentiation and cancer therapies. The signal generated by the firefly luciferase is proportional to the cell number and provides an easy assay readout.

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 $>1 \times 10^6$ cells in 1 ml of Cell Freezing Medium (BPS Bioscience #79796)

Parental Cell Line

KG-1, human myeloblast cell line derived from the bone marrow of a patient with acute myelogenous leukemia.

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 15	BPS Bioscience #78412
Growth Medium 15A	BPS Bioscience #78413

Materials Required for Cellular Assay

Name	Ordering Information
ONE-Step™ Luciferase Assay System	BPS Bioscience #60690
96-Well Flat Bottom Microplate, TC-Treated Luminometer	Corning #3610

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 15 (BPS Bioscience #78412):

IMDM medium supplemented with 20% FBS, 1% Penicillin/Streptomycin.

Growth Medium 15A (BPS Bioscience #78413):

IMDM medium supplemented with 20% FBS, 1% Penicillin/Streptomycin, plus 100 µg/ml Hygromycin B.

Cell Culture Protocol

Note: KG1 cells are derived from human material and thus the use of adequate safety precautions is recommended.

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 15 to the conical tube containing the cells. Thaw Medium 15 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 15.
5. Transfer the resuspended cells to a T25 flask and incubate at 37°C in a 5% CO₂ incubator.
6. After 24 hours of culture, check for cell viability. For a T25 flask, add 3-4 ml of Thaw Medium 15, and continue growing in a 5% CO₂ incubator at 37°C until the cells are ready to passage.

- Cells should be passaged before they reach a density of 1×10^6 cells/ml. At first passage and subsequent passages, use Growth Medium 15A.

Cell Passage

Dilute the cell suspension into new culture vessels before they reach a density of 1×10^6 cells/ml, but no less than 0.2×10^6 cells/ml in Growth Medium 15A. The sub-cultivation ratio should maintain the cells between 0.2×10^6 cells/ml and 1×10^6 cells/ml.

Cell Freezing

- Spin down the cells at $300 \times g$ 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.
- 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.
- 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

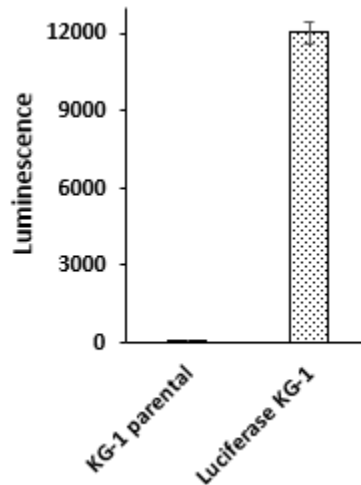


Figure 1: Luciferase activity in Firefly Luciferase KG-1 Cell Line.

Firefly Luciferase KG1 cells were seeded into a 96-well plate at 1.17×10^5 cells/well in 100 μl Thaw Medium 15. 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

- Ning, J., et al., 2011 *J. Biomed. Biotech.* 2011: 1–9.
 Koeffler H.P., et al., 1980 *Blood* 56(3):344-50.

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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 NK-92 Cell Line	78400	2 vials
Firefly Luciferase SKOV-3 Cell line	78425	2 vials

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