**Description**

Recombinant RPMI 8226 cells stably expressing firefly (*Photinus pyralis*) luciferase. These cells naturally express human B-Cell Maturation Antigen (BCMA) and represent a relevant cell line-derived xenograft (CDX) model.

**Background**

RPMI 8226 cells are human B cells isolated from a plasmacytoma/myeloma patient. RPMI 8226 cells constitutively express BCMA and offer a physiologically relevant platform to evaluate cancer-directed immunotherapies, such as Chimeric Antigen Receptor (CAR) T cells. The Firefly Luciferase RPMI 8226 Cell Line makes an excellent target to measure specific killing by CAR-T or NK cells targeting BCMA or other targets of interest.

**Application**

- Use as a target cell in co-culture cytotoxicity assays.
- Perform bioluminescence imaging of tumor growth *in vivo.*
- Assess the effect of therapeutic compounds on cell proliferation *in vivo* and *in vitro.*

**Materials Provided**

| Components | Format |
|---|---|
| 2 vials of frozen cells | Each vial contains 2 x $10^6$ cells in 1 ml of cell freezing medium (BPS Bioscience #79796) |

**Parental Cell Line**

RPMI 8226, human B cells isolated from a plasmacytoma/myeloma patient, 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 10 | BPS Bioscience #79704 |
| Growth Medium 10A | BPS Bioscience #79835 |

**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, it is *highly recommended* to use these validated and optimized media from BPS Bioscience. 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 for maintaining the presence of the transfected gene(s) over passages. Cells should be grown at 37°C with 5% $CO_2$. BPS Bioscience's cell lines are stable for at least 15 passages when grown under proper conditions.

*Media Required for Cell Culture*

*Thaw Medium 10 (BPS Bioscience #79704):*
RPMI 1640 medium supplemented with 10% FBS, 1 mM Sodium pyruvate, 1% Non-essential amino acids, 1% Penicillin/streptomycin.

*Growth Medium 10A (BPS Bioscience #79835):*
RPMI 1640 medium supplemented with 10% FBS, 1 mM Sodium pyruvate, 1% Non-essential amino acids, 1% Penicillin/streptomycin plus 400 µg/ml of Geneticin.

**Cell Culture Protocol**

*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 contents of the vial to a tube containing 10 ml of pre-warmed Thaw Medium 10 **(no Geneticin)**.
   **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 10 **(no Geneticin)**.

3. Transfer the resuspended cells to a T25 flask and incubate at 37°C in a 5% $CO_2$ incubator.

4. After 24 hours of culture, check for cell viability. For a T25 flask, add 3-4 ml of Thaw Medium 10 **(no Geneticin)**, and continue growing in a 5% $CO_2$ incubator at 37°C until the cells are ready to passage.

5. Fresh media should be added every 2-4 days, and cells should be split weekly at 1:5 to 1:10, before they reach a density of 2 x $10^6$ cells/ml. At first passage and subsequent passages, use Growth Medium 10A **(contains Geneticin)**.

*Cell Passage*

Dilute the cell suspension into new culture vessels before they reach a density of 2 x $10^6$ cells/ml, at no less than 0.2 x $10^6$ cells/ml of Growth Medium 10A **(contains Geneticin)**. The sub-cultivation ratio should maintain the cells between 0.2 x $10^6$ cells/ml and 2 x $10^6$ 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 Freezing Medium (BPS Bioscience #79796, or 10% DMSO + 90% FBS) at a density of ~2 x $10^6$ cells/ml.

2. Dispense 1 ml of cell aliquots into cryogenic vials. 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 storage.

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

**A. Validation Data**

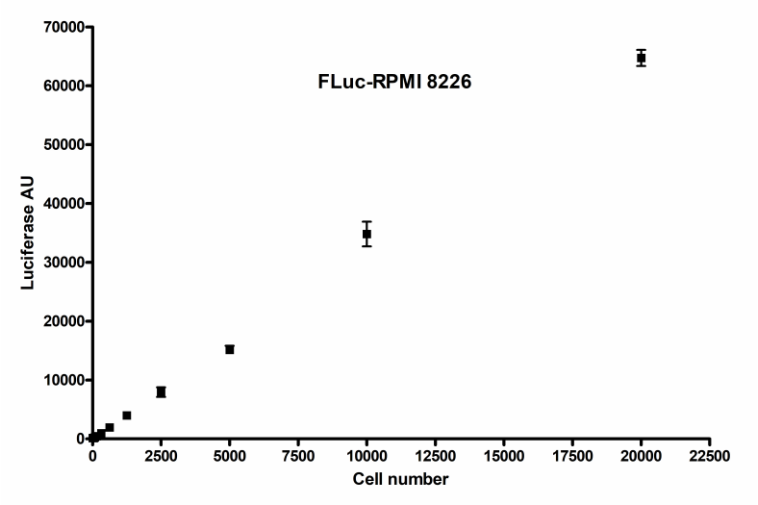


*Figure 1: Luciferase activity of Firefly Luciferase RPMI 8226 recombinant cells.*
Firefly Luciferase RPMI 8226 recombinant cells were seeded into a 96-well plate at the indicated numbers/well, and luciferase activity was measured using the ONE-Step™ luciferase assay system (BPS Bioscience #60690).

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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**

| *Products* | *Catalog #* | *Size* |
|---|---|---|
| Firefly Luciferase THP-1 Cell Line | 78409 | 2 vials |
| Firefly Luciferase NK-92 Cell Line | 78400 | 2 vials |
| eGFP NK-92 Cell Line | 78399 | 2 vials |
| Anti-BCMA CAR-T Cells | 78660 | 1 vial/5 vials |
| Anti-BCMA CAR Lentivirus (Clone C11D5.3 ScFv-CD8-4-1BB-CD3ζ) | 78655 | 50 µl |
| Anti-BCMA Antibody | 101219 | 100 µg |