

**Description**

Recombinant SKOV-3 cells constitutively expressing the firefly (*Photinus pyralis*) luciferase reporter gene under the control of a CMV promoter.

**Background**

SKOV-3 is a human cell line with epithelial-like morphology that was derived from the ascitic fluid of a patient with ovarian adenocarcinoma. Dysfunctional apoptosome activation, a characteristic of SKOV-3, is linked to the pathogenesis of ovarian carcinoma and chemoresistance. This cell line is hypodiploid and exhibits high tumorigenicity when injected into nude mice. It is also resistant to tumor necrosis factors and some cytotoxic drugs. SKOV-3 is an ideal model for research on estrogen and antiestrogen-resistant ovarian cancer. 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 $2 \times 10^6$ cells in 1 ml of cell freezing medium (BPS Bioscience #79796)

**Parental Cell Line**

SKOV-3, human cell line derived from a patient with ovarian adenocarcinoma, adherent

**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 7	<a href="#">BPS Bioscience #60185</a>
Growth Medium 7D	<a href="#">BPS Bioscience #78200</a>

**Materials Required for Cellular Assay**

Name	Ordering Information
ONE-Step™ Luciferase Assay System	<a href="#">BPS Bioscience #60690</a>
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, 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<sub>2</sub>. BPS Bioscience's cell lines are stable for at least 15 passages when grown under proper conditions.

#### Media Required for Cell Culture

*Thaw Medium 7 (BPS Bioscience #60185):*

McCoy's 5A medium with 10% FBS, 1% Penicillin/Streptomycin

*Growth Medium 7D (BPS Bioscience #78200):*

McCoy's 5A medium with 10% FBS, 1% Penicillin/Streptomycin, plus 100 µg/ml of Hygromycin

### 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 7 (**no Hygromycin**).

**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 7 (**no Hygromycin**).
3. Transfer the resuspended cells to a T25 flask and incubate at 37°C in a 5% CO<sub>2</sub> incubator.
4. After 24 hours of culture, check for cell viability. For a T25 flask, add 2-3 ml of Thaw Medium 7 (**no Hygromycin**), and continue growing in a 5% CO<sub>2</sub> incubator at 37°C until the cells are ready to passage.
5. Cells should be passaged before they reach a density of 1 x 10<sup>6</sup> cells/ml. At first passage and subsequent passages, use Growth Medium 7D (**contains Hygromycin**).

#### Cell Passage

1. Aspirate the medium, wash the cells with phosphate buffered saline (PBS), and detach the cells from the culture vessel with 0.05% Trypsin/EDTA.

- Once the cells have detached, add Growth Medium 7D and transfer to a tube. Spin down cells at 300 x g for 5 minutes, remove the medium and resuspend the cells in Growth Medium 7D (**Contains Hygromycin**). Seed into new culture vessels at the desired sub-cultivation ratio of 1:4 to 1:5 weekly or twice per week.

#### Cell Freezing

- 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  $\sim 2 \times 10^6$  cells/ml.
- 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.
- 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.

#### Validation Data

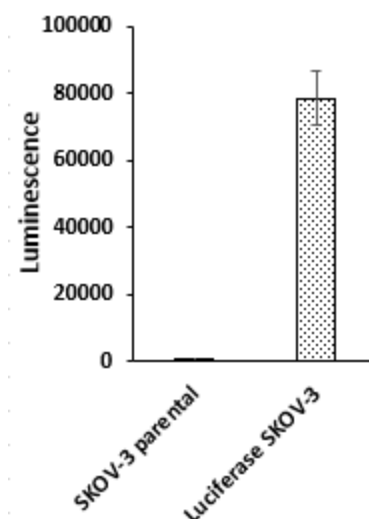


Figure 1: Luciferase activity in Firefly Luciferase SKOV-3 recombinant cells.

Firefly Luciferase SKOV-3 recombinant cells were seeded into a 96-well plate at  $1.3 \times 10^5$  cells/well in 100  $\mu$ l Thaw Medium 7, and the luciferase activity was measured using the ONE-Step™ Luciferase Assay System (BPS Bioscience #60690).

#### References

- Hallas-Potts, A., *et al.* 2019. *Sci Rep* 9: 5515  
 Kaur, A., *et al.* 2016. *Front. Immunology* 7: 599  
 Wenhui H., *et al.* 1995. *J. Steroid Biochem. Molec. Biol.* 55: 279-289

#### License Disclosure

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**Troubleshooting Guide**

Visit [bpsbioscience.com/cell-line-faq](https://bpsbioscience.com/cell-line-faq) for detailed troubleshooting instructions. For all further questions, please email [support@bpsbioscience.com](mailto: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 NALM6 Cell Line	78494	2 vials
Firefly Luciferase NK-92 Cell Line	78400	2 vials