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Produktinformation

- Forschungsprodukte & Biochemikalien
- Zellkultur & Verbrauchsmaterial
- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

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See the following pages for more information!

Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Description

PSMA Knockout 22Rv1 Cell Line is a human prostate carcinoma epithelial 22Rv1 cell line in which PSMA (Prostate-Specific Membrane Antigen, also known as Folate hydrolase 1 or FOLH1) has been genetically removed using CRISPR/Cas9 genome editing with a lentivirus encoding the CRISPR/Cas9 gene and sgRNA (single guide RNA) targeting human PSMA.

This cell line has been validated by genomic sequencing and flow cytometry.

Background

PSMA (Prostate-Specific Membrane Antigen, also known as Folate hydrolase 1 or FOLH1) is highly expressed in prostate cancer cells and is used as a prognostic indicator of prostate cancer. The enzyme has folate hydrolase and peptidase activity. PSMA/FOLH1 is used in the clinic as a target for PET (positron emission tomography) imaging of prostate cancer, and as a therapeutic target for radiopharmaceuticals. It is also expressed in other tumor types and in a few normal tissues. PSMA is the target of CAR (chimeric antigen receptor)-T cells and bispecific antibodies currently under development.

22Rv1 cell line is derived from a human prostate cancer xenograft propagated in mice and is known to form tumors in nude mice. It is mostly dihydrotestosterone-independent for growth but expresses androgen receptor (AR) variant AR-V7 which is involved in resistance to anti-androgen treatment. The cell line responds to androgen stimulation, making it one of the few available cellular models for prostate cancer studies.

Application

- Negative control in PSMA imaging and radioligand binding studies.
- Control in the development of ADCs (antibody drug conjugates), CAR-Ts, and BiTEs (bispecific T-cell engagers) targeting PSMA.

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

22Rv1, Human epithelial, prostate carcinoma cells, 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 2	BPS Bioscience #60184

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.
Cells should be grown at 37°C with 5% CO_2. 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 (ATCC modification) supplemented with 10% FBS, 1% Penicillin/Streptomycin.

Note: Although the cells do not need to be grown in puromycin to maintain PSMA knockout, the cells are puromycin resistant.

Cell Culture Protocol

Note: 22Rv1 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 contents 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% CO_2 incubator.

4. After 24 hours of culture, check for cell attachment and viability. Change medium to fresh Thaw Medium 2 and continue growing in a 5% CO_2 incubator at 37°C until the cells are ready to passage.

5. Replace media every 2-3 days until cells reach 90% confluency. At first passage and subsequent passages, use Thaw Medium 2.

Cell Passage

1. Aspirate the medium, wash the cells with phosphate buffered saline (PBS) without Ca^{2+}/Mg^{2+}, and detach the cells from the culture vessel with 0.25% Trypsin/EDTA.

2. Once the cells have detached, add Thaw Medium 2 and transfer to a tube.

3. Spin down cells at 300 *x g* for 5 minutes, remove the medium and resuspend the cells in Thaw Medium 2.

4. Seed into new culture vessels at the recommended sub-cultivation ratio of 1:2 to 1:5 once or twice per week.

Cell Freezing

1. Aspirate the medium, wash the cells with PBS without Ca^{2+}/Mg^{2+}, and detach the cells from the culture vessel with 0.25% Trypsin/EDTA.

2. Once the cells have detached, add Growth Medium and count the cells.

3. Spin down the cells at 300 *x g* for 5 minutes, remove the medium and resuspend the cells in 4°C Cell Freezing Medium (BPS Bioscience #79796) at ~2 x 10^6 cells/ml.

4. Dispense 1 ml of cell suspension into each cryogenic vial.

5. Place the vials in an insulated container for slow cooling and store at -80°C overnight.

6. 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

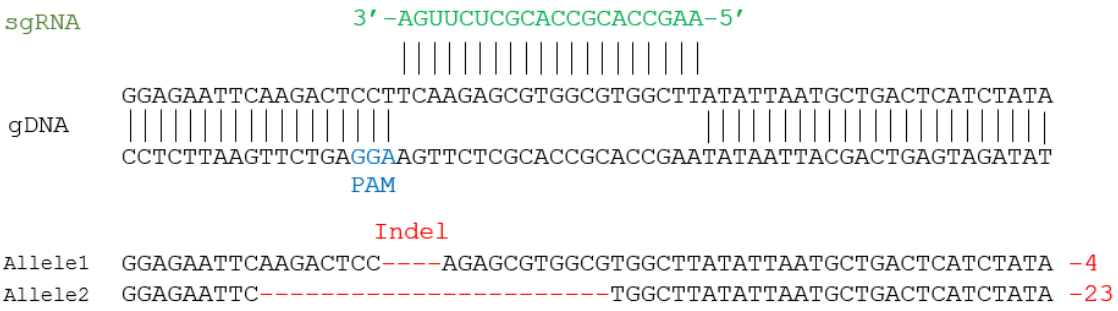

Figure 1: Genomic sequencing of PSMA in the PSMA Knockout 22Rv1 Cell Line.
Genomic DNA from PSMA Knockout 22RV1 cells was isolated and sequenced. The PAM (Protospacer Adjacent Motif) is shown in blue, the sgRNA (synthetic guide RNA) is shown in green, and the Indels (Insertions/Deletions) in the two PSMA alleles are highlighted in red. The PSMA genomic DNA is labeled as gDNA.

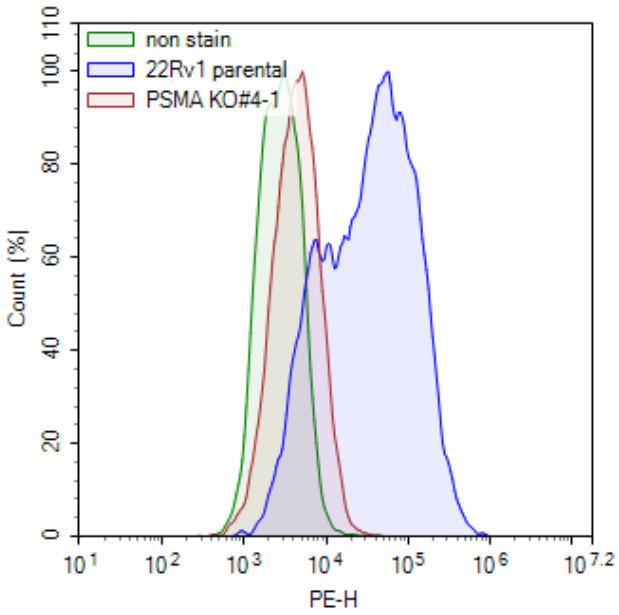

Figure 2: PSMA expression analysis in PSMA Knockout 22Rv1 Cell Line by flow cytometry.
Flow cytometry was performed using a PE anti-human PSMA (FOLH1) Antibody (BioLegend #342504). Parental 22Rv1 cells (blue) were compared to PSMA Knockout 22Rv1 cells (red). Unstained parental 22Rv1 cells are shown in green. The Y-axis is the % cell number. The X-axis is the intensity of PE.

Data shown is representative.

License Disclosure
Visit bpsbioscience.com/license for the label license and other key information about this product.

Troubleshooting Guide
Visit bpsbioscience.com/cell-line-faq for detailed troubleshooting instructions. For lot-specific information and all other questions, please visit https://bpsbioscience.com/contact.

Notes
The CRISPR/CAS9 technology is covered under numerous patents, including U.S. Patent Nos. 8,697,359 and 8,771,945, as well as corresponding foreign patents applications, and patent rights.

Related Products

Products	*Catalog #*	*Size*
PSMA (FOLH1) – CHO Recombinant Cell Line (High, Medium, or Low Expression)	79641	2 vials
PSMA Lentivirus	78726	500 µl x 2
Anti-PSMA Antibody	101695	50 µg
FluoSite™ Anti-PSMA Antibody, PE-Labeled	101976	25 tests/ 100 tests
FluoSite™ Anti-PSMA Antibody, FITC-Labeled	101977	25 tests/ 100 tests

Version 080725