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Description

Recombinant CD7 CHO-K1 cell lines expressing full-length human CD7 receptor (accession number: NM_006137.6). Surface expression of human CD7 was confirmed by flow cytometry. Each stable clonal cell line was selected for high or medium levels of CD7 expression to mimic different stages of cancer target cells with various CD7 expression levels.

Background

The CD7 antigen is a single-domain immunoglobulin superfamily molecule. It plays an essential role in T-cell interactions and T-cell/B-cell interaction during early lymphoid development. CD7 is highly expressed on malignant immature T cells and is generally absent on malignant mature T cells, such as CD4+ Sezary leukemia and HTLV-1+ adult T-cell leukemia cells. Interestingly, loss of CD7 antigen is observed in the subset of CD4+ memory T cells in some pathological conditions. Several studies indicate that the number of CD4+ CD7- T cells increase in chronic inflammation and various T-cell malignancies. CD7 is expressed in 95% of T-cell acute lymphoblastic leukemia (T-ALL) cases, which makes it an ideal target for T-ALL treatment.

Application

- Screen for compound activity on antibody-mediated CD7 signaling for immunotherapy research and drug discovery.
- Characterize CD7 antibodies and ligands.

Materials Provided

Components	Format
2 vials of frozen cells	Each vial contains 2×10^6 cells in 1 ml of 10% DMSO

Parental Cell Line

CHO-K1 Chinese Hamster Ovary, epithelial-like 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.

Materials Required for Cell Culture

Name	Ordering Information
Thaw Medium 3	BPS Bioscience #60186
Growth Medium 3B	BPS Bioscience #79529

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% CO₂. BPS Bioscience's cell lines are stable for at least 15 passages when grown under proper conditions.

Media Required for Cell Culture

Thaw Medium 3 (BPS Bioscience #60186):

Ham's F-12 medium supplemented with 10% FBS, 1% Penicillin/Streptomycin.

Growth Medium 3B (BPS Bioscience #79529):

Ham's F-12 medium supplemented with 10% FBS, 1% Penicillin/Streptomycin plus 500 µg/ml of Hygromycin B.

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 3 (**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 3 (**no hygromycin**).
 3. Transfer the resuspended cells to a T25 flask or T75 flask and incubate at 37°C in a 5% CO₂ incubator.
 4. After 24 hours of culture, check for cell attachment and viability. Change medium to fresh Thaw Medium 3 (**no hygromycin**), and continue growing in a 5% CO₂ incubator at 37°C until the cells are ready to passage.
 5. Cells should be passaged before they are fully confluent. At first passage and subsequent passages, use Growth Medium 3B (**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 0.25% Trypsin/EDTA.
2. Once the cells have detached, add Growth Medium 3B 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 3B (**contains hygromycin**). Seed into new culture vessels at the desired sub-cultivation ratio of 1:6 to 1:8 weekly or twice per week.

Cell Freezing

1. Aspirate the medium, wash the cells with phosphate buffered saline (PBS), and detach the cells from the culture vessel with 0.25% Trypsin/EDTA.
2. Once the cells have detached, add Growth Medium 3B 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 Freezing Medium (BPS Bioscience #79796, or 10% DMSO + 90% FBS) at ~2 x 10⁶ cells/ml.

4. 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.
5. 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

Cell surface expression of human CD7 in CHO-K1 cells was confirmed by flow cytometry.

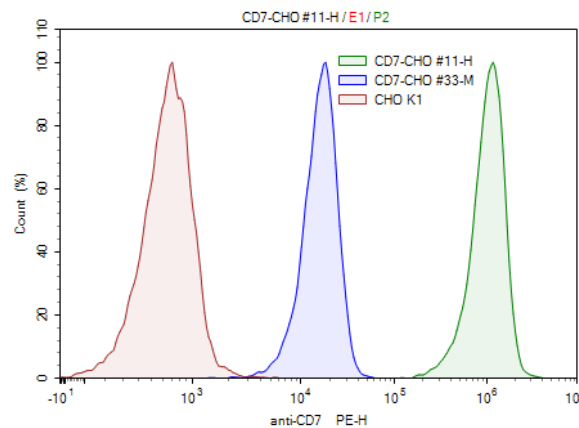


Figure 1: Flow cytometry analysis of cell surface expression of human CD7 in CHO-K1 cells. CD7 CHO cell Lines (H, M) or control parental CHO-K1 cells were stained with PE-labeled anti-CD7 antibody (Biolegend, #982706) and analyzed by flow cytometry. Y-axis is the % cell number. X-axis is the intensity of PE. Red: parental control. Blue: medium level of CD7 expression. Green: high level of CD7 expression.

Sequence

Human CD7 sequence (accession number: NM_006137.6)

MAGPPRLLLL PLLLALARGL PGALAAQEVQ QSPHCTTVPV GASVNICST SGGLRGIYLR QLGPQPQDII YYEDGVVPTT
 DRRFRGRIDF SGSQDNLIT MHRLQLSDTG TYTCQAITEV NVYGSGLTLVL VTEEQSQGWH RCSDAPPRAS ALPAPPTGSA
 LPDPQTASAL PDPPAASALP AALAVISFLL GLGLGVACVL ARTQIKKLCs WRDKNsAACV VYEDMSHSRC NTLSSPNQYQ

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 all further questions, please email support@bpsbioscience.com.

Related Products

<i>Products</i>	<i>Catalog #</i>	<i>Size</i>
Notch Signaling Pathway Notch1/CSL Reporter - HEK293 Cell Line	60652	2 vials
CSL Reporter – HEK293 Cell line	79754	2 vials
Notch1 Pathway Reporter Kit (Human)	79503	500 rxns.
Notch1 Pathway Reporter Kit (Mouse)	79504	500 rxns.