

Description

HER3 CHO Cell Line is a CHO-K1 cell line expressing HER3 (human epidermal growth factor receptor 3) (NM_001982.2, also known as receptor tyrosine-protein kinase erbB-3) under the control of a cytomegalovirus (CMV) promoter. This cell line was generated by lipid-mediated transfection followed by hygromycin selection and limited dilution. Individual clones were screened for HER3 expression levels by flow cytometry, and a clone was selected to generate this cell line.

Background

HER3 (human epidermal growth factor receptor 3) is a transmembrane protein encoded by the ERB3 gene. HER3 is broadly expressed in human tissues however, increased expression of HER3 has been linked to a variety of solid tumors including ovarian, breast, colon, and gastric cancers and correlates with decreased overall survival in colorectal cancer patients. HER3 has the unique property of being inherently catalytically inactive but still being able to participate in ligand binding, forming heterodimers with nearby receptors of the HER family. The formation of these dimers initiates a cascade of downstream signaling steps critical to cell proliferation. The binding and subsequent phosphorylation of HER3 by HER2 or EGFR (epidermal growth factor receptor) has been found to play a role in tumor growth and drug resistance. Due to its cell surface expression in a variety of cancers and correlation with decreased survival, HER3 is a prospective therapeutic target for antibody-drug conjugate (ADC) development.

Applications

- Screen therapeutic antibodies and ADCs (antibody-drug conjugates) targeting HER3.
- Co-culture assays with HER3-directed CAR-T cells.

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

CHO-K1 cells, 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.

Media 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, 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 3 (BPS Bioscience #60186):

F-12K medium supplemented with 10% FBS, 1% Penicillin/Streptomycin.

Growth Medium 3B (BPS Bioscience #79529):

F-12K 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.

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 3.
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 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.

Cell Passage

1. Aspirate the medium, wash the cells with phosphate buffered saline (PBS) without Ca²⁺/Mg²⁺, 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.
3. Spin down cells at 300 x g for 5 minutes, remove the medium and resuspend the cells in Growth Medium 3B.
4. Seed into new culture vessels at the recommended sub-cultivation ratio of 1:6 to 1:12 once or twice per week.

Cell Freezing

1. Aspirate the medium, wash the cells with PBS without $\text{Ca}^{2+}/\text{Mg}^{2+}$, 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 $300 \times g$ for 5 minutes, remove the medium and resuspend the cells in 4°C Freezing Medium (BPS Bioscience #79796) at $\sim 2 \times 10^6$ 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.

A. Validation Data

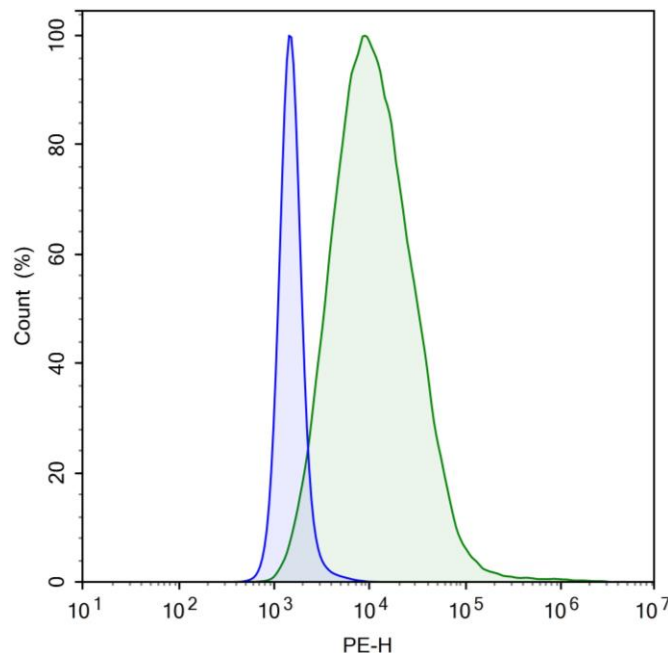


Figure 1: Flow cytometry analysis of HER3 cell surface expression in HER3 CHO Cell Line.

HER3 CHO cell line (green) and control parental CHO-K1 cells (blue) were stained with PE anti-human erbB3/HER-3 Antibody (Biolegend #324706) and analyzed by flow cytometry. Y-axis represents the % cell number. X-axis indicates PE intensity.

Data shown is representative. For lot-specific information, please contact BPS Bioscience, Inc. at support@bpsbioscience.com.

Sequence

Human ERBB3/HER3 sequence (accession number NM_001982.2)

MRANDALQVLGLLFLSLARGSEVGNSQAVCPGTLNGLSVTGAENQYQTLKLYERCEVVMGNLEIVLTGHNADLSFLQWIREVT
 GYVLVAMNEFSTLPLPNLRVVRGTQVYDYGKFAIFVMLNYNTSSHALRQLRLTQLTEILSGGVYIEKNDKLCHMDTIDWRDIVRD
 RDAEIVVKDNGRSCPPCHEVCKGRCWGPGEEDCQTLTKTICAPQCNGHCFGNPNQCCHDECAGGCSGPQDTCFACRFND
 SGACVPRCPQLVYNKLTQLEPNPHTKYQYGGVVCASCPHNFVVDQTSCVRACPPDKMEVDKNGLKMCEPCGGGLCPKACEGT
 GSGSRFQTVSSNIDGFVNCTKILGNLDFLITGLNGDPWHKIPALDPEKLNVFRTVREITGYLNIQSWPPHMHNFVFSNLTTIGG
 RSLYNRGFSLLIMKLNLVTSLGFRSLKEISAGRIYISANRQLCYHHSLNWTKVLRGPTEERLDIKHNRPRRDCVAEGKVCPLCSSG
 GCWGPVGPQCLSCRNYSRGGVCVTHCNFLNGEPREFAHEAECFSCHEPCQPMEGTATCNGSGSDTCAQCAHFRDGPCHVSSC
 PHGVLGAKGPIYKYPDVQNECRPCHENCTQGCKGPELQDCLGQTLVLIGKTHLTMALTVIAGLVVIFMMLGGTFLYWRGRIQN
 KRAMRRYLERGESIEPLDPSEKANKVLARIFKETELRKLKVLGSGVFGTVHKGVWIPEGESIKIPVICIKVIEDKSGRQSFQAVTDHML
 AIGSLDHAHIVRLLGLCPGSSSLQVLTQYLPLGSLLDHVRQHRGALGPQLLNWGVQIAKGMYYLEEHGMVHRNLAARNVLLKSPS
 QVQVADFGVADLLPPDDKQLLYSEAKTPIKWMALESIHFQKTYHQSDVWSYGVTVWELMTFGAEPYAGLRLAEVPLLEKGERL
 AQPQICTIDVYVMVMVKCWMIDENIRPTFKELANEFTRMARDPPRYLVIKRESGPGIAPGPEPHGLTNKKLEEVELEPELDDLLE
 AEEDNLATTTLSALSPLVGTLNRPGRSQSLSPSSGYMMPMNQGNLGECSQESAVSGSSERCPRPVSHPMPRGCLASESEGHV
 TGSEAELEKQVSMCRSRSRSPRGRDSAYHSQRHSLTPVTPSPGLEEEDVNGYVMPDTHLKGTPSSREGTLSSVGLSSVLG
 TEEDEDEEYEMNRRRRHSPHPPRPSLEELGYEYMDVGSLSASLGSTQSCPLHPVPIMPTAGTTPDEDEYEMNRQRDGGG
 PGGDYAAMGACPASEQGYEEMRAFQGPQGHQAPHVHYARLKLRSLEATDSAFDNDPDYWHSRLFPKANAQRT

References

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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>
HER2 CHO Recombinant Cell Line	79612	2 vials
HER2 Kinase Assay Kit	40721	96 reactions
HER2, GST-Tag Recombinant	40230	10 µg
EGFR Kinase Assay Kit	40321	96 reactions
HER3, His-Tag Recombinant	101647	20 µg/50 µg
HER3 (E928G), GST-Tag Recombinant	101645	20 µg/50 µg

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