Description

Claudin-17 (CDLN17) CHO Cell Line is a CHO cell line that expresses human Claudin-17 (NM_012131.3) under the control of a cytomegalovirus (CMV) promoter. This cell line was generated by transfection with human Claudin-17 (accession number NM_012131.3) followed by geneticin selection and limited dilution. Individual clones were screened for Claudin-17 expression levels by flow cytometry, and a clone was selected to generate this cell line.

This cell line has been validated by flow cytometry.

Background

Human claudin 17 (CLDN17) is a tight junction protein with a complex and tissue-dependent role in cancer, sometimes acting as a tumor suppressor and other times as a promoter. In some contexts, like in oral cancer, CLDN17 expression is downregulated, and its restoration has been shown to inhibit cancer cell invasion and migration by blocking the epithelial-mesenchymal transition (EMT) process. However, in other cancers such as hepatocellular carcinoma (HCC), high CLDN17 expression is associated with poor prognosis and increased metastasis, with the Tyk2/STAT3 (TYK2-mediated Janus kinase (JAK)/Signal Transducer and Activator of Transcription) signaling pathway identified as a potential mechanism. Given this context-specific behavior, scientists are investigating CLDN17 as a potential diagnostic or prognostic biomarker.

Application

- Screen therapeutic antibodies and ADCs (Antibody Drug Conjugates) targeting Claudin-17.
- Co-culture assays with Claudin-17-targeting Chimeric Antigen Receptor (CAR) T-cells.

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

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 3D	BPS Bioscience #79539

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.

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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% CO_2. BPS Bioscience's cell lines are stable for at least 10 passages when grown under proper conditions.

Additional Note: Claudin-17 is sensitive to trypsin. For routine cell passaging, use 0.05% Trypsin/EDTA; however, for flow cytometry assays, use enzyme-free Cell Dissociation Buffer in PBS (Thermo Fisher).

Media Required for Cell Culture

Thaw Medium 3 (BPS Bioscience #60186):

F-12K Medium (Kaighn's Modification of Ham's F-12 Medium) supplemented with 10% FBS, 1% Penicillin/Streptomycin.

Growth Medium 3D (BPS Bioscience #79539):

F-12K Medium (Kaighn's Modification of Ham's F-12 Medium) supplemented with 10% FBS, 1% Penicillin/Streptomycin plus 1 mg/ml 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 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% CO_2 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% CO_2 incubator at 37°C until the cells are ready for passage.

5. Cells should be passaged before they are fully confluent. At first passage and subsequent passages, use Growth Medium 3D.

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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 0.05% Trypsin/EDTA.

2. Once the cells have detached, add Growth Medium 3D 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 3D.

4. Seed into new culture vessels at the recommended sub-cultivation ratio of 1:16 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 0.05% Trypsin/EDTA.

2. Once the cells have detached, add Growth Medium 3D 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. 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 long term storage.

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

Cell preparation for Flow cytometry assay

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 Cell Dissociation Buffer, enzyme-free, PBS (Thermofisher).

2. Once the cells have detached, add Growth Medium 3D and transfer to a tube.

3. Spin down cells at 300 *x g* for 5 minutes, remove the medium and resuspend the cells in Cell Staining Buffer (BioLegend).

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Validation Data

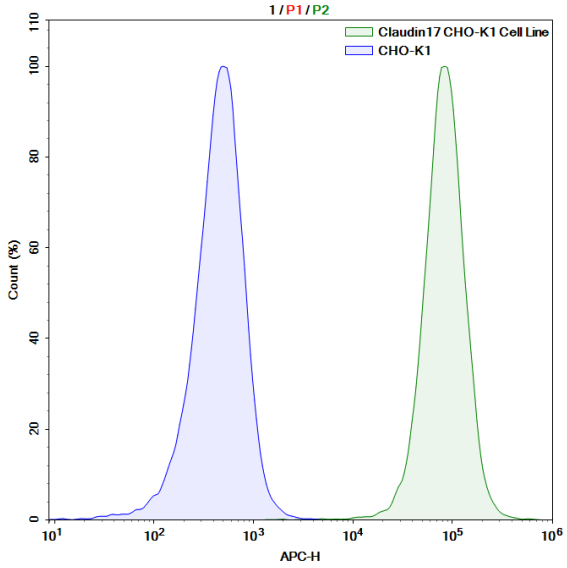

Figure 1: Flow cytometry analysis of Claudin-17 cell surface expression in Claudin-17 CHO Cell Line. Claudin-17 CHO cells (green) and parental CHO cells (blue) were stained with Human Claudin-17 Alexa Fluor® 647- conjugated Antibody (R&D Systems #IC4619R) and analyzed by flow cytometry. The y-axis shows the % cell number, and the x-axis shows the APC intensity.

Data shown is representative.

Sequence

Human Claudin-17 sequence (accession number NM_012131.3)
MAFYPLQIAGLVLGFLGMVGTLATTLLPQWRVSAFVGSNIIVFERLWEGLWMNCIRQARVRLQCKFYSSLLALPPALETARALMC
VAVALSLIALLIGICGMKQVQCTGSNERAKAYLLGTSGVLFILTGIFVLIPVSWTANIIIRDFYNPAIHIGQKRELGAALFLGWASAAV
LFIGGGLLCGFCCCNRKKQGYRYPVPGYRVPHTDKRRNTTMLSKTSTSYV*

References

Li X., *et al.*, 2023 *Oncol. Rep.* 49(3):120.
Li J., *et al.*, 2021 *Am. J. Cancer Res.* 11(7):3406.
Sun L., *et al.*, 2018 *Diagn. Pathol.* 13(1):72.

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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.

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Related Products

Products	*Catalog #*	*Size*
Claudin-18 Isoform 1 CHO Cell Line	78361	2 vials
Claudin-18 Isoform 2 CHO Cell Line (High, Medium or Low Expression)	78533	2 vials
Claudin-18 Isoform VLP	102625	25 µg/ 50 µg

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