Description

CD36 HEK293 Cell Line is a clonal HEK293 cell line stably expressing full length human CD36. Two cell lines were selected for medium and high levels of CD36 expression compared to the parental HEK293 cell line.

Background

CD36 (cluster of differentiation 36) is also known as platelet glycoprotein 4, fatty acid translocase (FAT), scavenger receptor class B member 3 (SCARB3), and glycoprotein 88 (GP88). It is expressed in many cell types including erythrocytes, monocytes, differentiated adipocytes, skeletal muscle cells, mammary and intestinal epithelial cells, and endothelial cells. CD36 is one of the major glycoproteins present at the surface of platelets.

CD36 has intricate biological functions, depending on the cell type and ligand. CD36 is a glycoprotein receptor for matrix proteins such collagen, fibronectin, and thrombospondin, acting as an adhesion molecule. Its binding to thrombospondin contributes to vascular biology and angiogenesis, and it also binds lipids such as oxidized phospholipids and low-density lipoprotein, lipoproteins, and long-chain fatty acids. Ligand-induced formation of CD36 clusters initiates signal transduction and internalization of receptor-ligand complexes. CD36 regulates cellular fatty acid metabolism in both health and disease by importing its lipid ligands inside cells and by facilitating the cellular uptake of long-chain fatty acids, thereby participating in muscle metabolism, energy storage in adipocytes, and the processing of dietary fat in the intestine.

CD36 is involved in various diseases that involve the immune and vascular systems and in diseases for which lipid metabolism is important such as diabetes and obesity, inflammation, atherosclerosis, heart disease, and Alzheimer's disease. In addition, since lipids are an important energy source for tumor cells, CD36 is associated with cancer. Thus, upregulated CD36 expression has been observed in multiple types of cancer and is correlated with poor clinical outcomes. Finally, it plays a role in malaria through its capacity to mediate the adhesion of erythrocytes infected by the parasite responsible for the disease, *Plasmodium falciparum*.

Application(s)

- Characterization of antibodies against CD36.
- Screening of binding of inhibitors or neutralizing antibodies to CD36.

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

HEK293, Human Embryonic Kidney, 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 1	BPS Bioscience #60187
Growth Medium 1V	BPS Bioscience #78551

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℃ 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 1 (BPS Bioscience #60187):
MEM medium supplemented with 10% FBS, 1% non-essential amino acids, 1 mM Na pyruvate, 1% Penicillin/Streptomycin.

Growth Medium 1V (BPS Bioscience #78551):
MEM medium supplemented with 10% FBS, 1% non-essential amino acids, 1 mM Na pyruvate, 1% Penicillin/Streptomycin plus 0.33 µg/ml Puromycin.

Cell Culture Protocol

Cell Thawing

1. Retrieve a cell vial from liquid nitrogen storage. Keep on dry ice until ready to thaw.

2. When ready to thaw, swirl the vial of frozen cells for approximately 60 seconds in a 37°C water bath. Once cells are thawed (it may be slightly faster or slower than 60 seconds), quickly transfer the entire content of the vial to an empty 50 ml conical tube.
Note: Leaving the cells in the water bath at 37°C for too long will result in rapid loss of viability.

3. Using a 10 ml serological pipette, slowly add 10 ml of pre-warmed Thaw Medium 1 to the conical tube containing the cells. Thaw Medium 1 should be added dropwise while gently rocking the conical tube to permit gentle mixing and avoid osmotic shock.

4. 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 1.

5. Transfer the resuspended cells to a T25 flask or T75 flask and incubate at 37°C in a 5% CO_2 incubator.

6. After 24 hours of culture, check for cell attachment and viability. Change medium to fresh Thaw Medium 1 and continue growing culture in a 5% CO_2 incubator at 37°C until the cells are ready to be split.

7. Cells should be passaged before they are fully confluent. At first passage and subsequent passages, use Growth Medium 1V.

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 1V 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 1V**.**

4. Seed into new culture vessels at the recommend sub-cultivation ratio of 1:6 to 1:8 weekly 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 0.05% Trypsin/EDTA.

2. Once the cells have detached, add Growth Medium 1V 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.

A. Validation Data

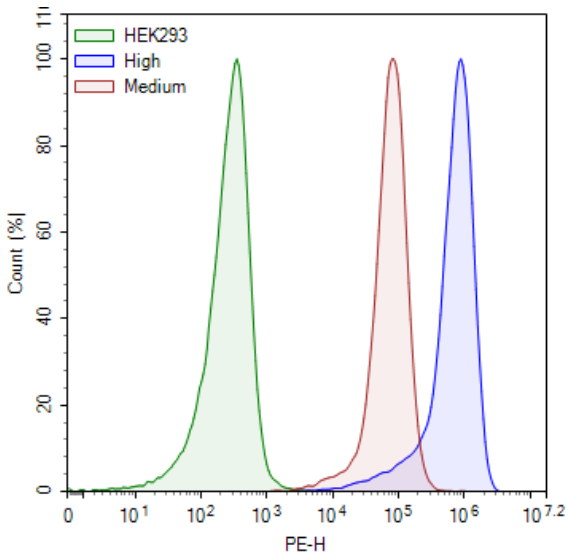

Figure 1: Cell surface expression of CD36 in the CD36 HEK293 Cell Line.
One million cells were stained with 5 µl of PE-conjugated anti CD36 antibody (BioLegend #336206) for 30 minutes on ice, washed three times, and analyzed by flow cytometry. CD36 HEK293 Cell Line High Expression cells (blue) and Medium Expression cells (red) was compared to parental HEK293 cells (green). Y-axis represents the cell count. X-axis indicates the PE intensity.

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

Sequence

>NM_000072.3 CD36 molecule [*Homo sapiens*]
MGCDRNCGLIAGAVIGAVLAVFGGILMPVGDLLIQKTIKKQVVLEEGTIAFKNWVKTGTEVYRQFWIFDVQNPQEVMMNSSNI
QVKQRGPYTYRVRFLAKENVTQDAEDNTVSFLQPNGAIFEPSLSVGTEADNFTVLNLAVAAASHIYQNQFVQMILNSLINKSKSS
MFQVRTLRELLWGYRDPFLSLVPYPVTTTVGLFYPYNNTADGVYKVFNGKDNISKVAIIDTYKGKRNLSYWESHCDMINGTDAAS
FPPFVEKSQVLQFFSSDICRSIYAVFESDVNLKGIPVYRFVLPSKAFASPVENPDNYCFCTEKIISKNCTSYGVLDISKCKEGRPVYISLP
HFLYASPDVSEPIDGLNPNEEEHRTYLDIEPITGFTLQFAKRLQVNLLVKPSEKIQVLKNLKRNYIVPILWLNETGTIGDEKANMFRS
QVTGKINLLGLIEMILLSVGVVMFVAFMISYCACRSKTIK

References

1. Ruan C., *et al.*, 2022 *J Cancer Res Clin Oncol.* 148(7): 1551-1558.
2. Glatz J.F.C., *et al.*, 2022 *Curr Opin Lipidol.* 33(2): 103-111.

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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

Products	*Catalog #*	*Size*
CD36, Avi-His-Tag Recombinant	101184	100 µg
CD36, Fc Fusion, Avi-Tag Recombinant	101813	25 µg/ 100 µg
Fibronectin-1, Human Recombinant	90143	100 µg