Technical Manual

Human Phospho-PDGFR-beta (Y751) and Total PDGFR-beta PharmaGenie ELISA Kit

- Catalogue Code: SBRS1927
- Sandwich Principle
- Research Use Only

Contents

Key features and Sample Types

Aliases:

Platelet-derived growth factor receptor beta (PDGF-R-beta) (PDGFR-beta) (EC 2.7.10.1) (Beta platelet-derived growth factor receptor) (Beta-type platelet-derived growth factor receptor) (CD140 antigen-like family member B) (Platelet-derived growth factor receptor 1) (PDGFR-1) (CD antigen CD140b)

Gene ID:

5159

Gene Names:

PDGFR / PDGFR1 / PDGFRB

Uniprot:

P09619

Detection method:

Sandwich

Sample Type:

Serum, Plasma and other biological fluids

Reactivity:

Human

Storage:

2-8°C for 6 months

Expiry:

See Kit Label

Introduction

How do our ELISA kits work?

Assay Genie's Phospho-PDGFRb (Tyr751) and Total PDGFRb ELISA kit is a very rapid, convenient and sensitive assay kit that can monitor the activation or function of important biological pathways in Human cell lysates. By determining phosphorylated PDGFRb protein in your experimental model system, you can verify pathway activation in your cell lysates. You can simultaneously measure numerous different cell lysates without spending excess time and effort in performing a Western Blotting analysis.

This Sandwich ELISA kit is an in vitro enzyme-linked immunosorbent assay for the measurement of Human phospho-PDGFRb and total PDGFRb. An anti-pan PDGFRb antibody has been coated onto a 96-well plate. Samples are pipetted into the wells and PDGFRb present in a sample is bound to the wells by the immobilized antibody and the wells are washed. In select wells, rabbit anti-phosphoPDGFR-beta (Tyr751) antibody is added to detect phosphorylated PDGFRb. In the remaining wells, biotinylated anti-pan-PDGFR-beta antibody is used to detect pan PDGFRb. After washing away unbound antibody, HRP-conjugated anti-rabbit IgG or HRP-Streptavidin is pipetted into the wells. The wells are again washed, a TMB substrate solution is added to the wells and color develops in proportion to the amount of PDGFRb (Tyr751) or pan PDGFRb bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.

Storage & Expiry

The entire kit may be stored at -20°C for up to 6 months from the date of shipment. Avoid repeated freeze-thaw cycles. For extended storage, it is recommended to store at -80°C. For prepared reagent storage, see table below.

Kit Contents

Each kit contains reagents for 96 assays including:

No.	Component	96-Well Kit	Storage
1	Microplate coated with PDGFRb	8 x 12	1 month at -20°C*
2	Wash Buffer Concentrate (20X)	25ml	1 month at 4°C*
3	Positive Control-JPVS001-1	1 vials (lyophilized)	1 week at -80°C
4	Phospho Detection Antibody PDGFRb (Tyr751)	1 vials	5 days at 4°C
5	Pan Detection Antibody PDGFRb	1 vials	5 days at 4°C
6	HRP-conjugated anti-rabbit IgG concentrate (1000X)	25µl	Do not store and reuse.
7	HRP-Streptavidin Concentrate (300x)	200µl	Do not store and reuse.
8	TMB One-Step Substrate Reagent	12ml	N/A
9	Stop Solution	8ml	N/A
10	Assay Diluent (5X concentrated buffer)	15ml	1 month at 4°C
11	Cell Lysate Buffer (2X)	5ml	1 month at 4°C

*Return unused wells to the pouch containing desiccant pack, reseal along entire edge.

Additional materials required:

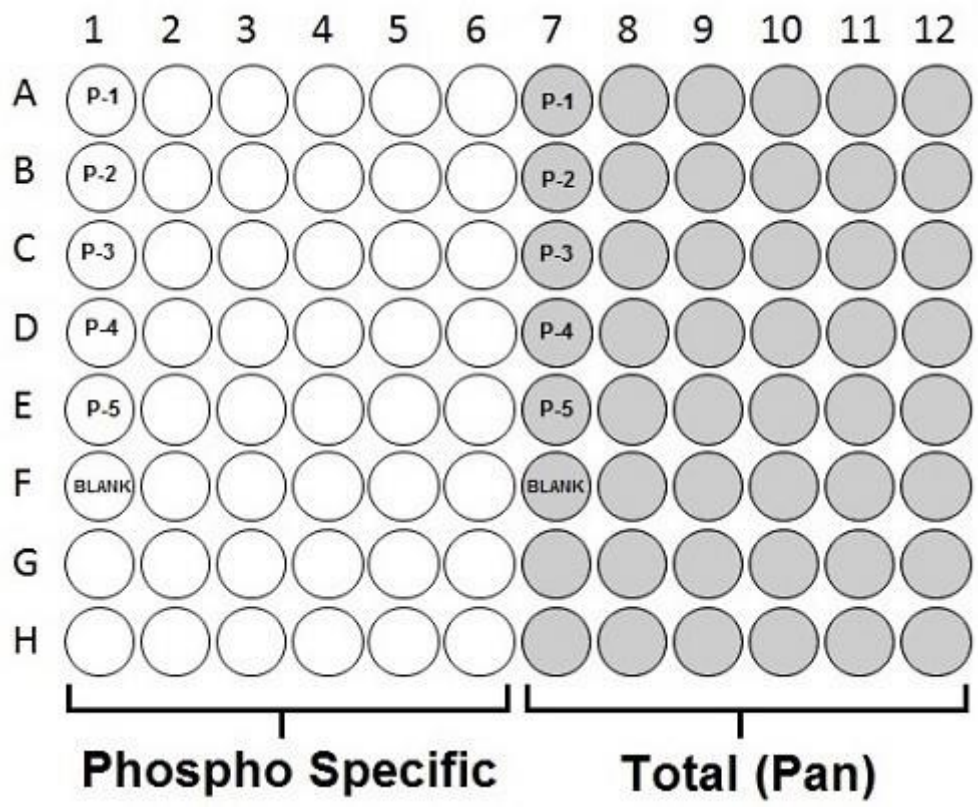
1. Microplate reader capable of measuring absorbance at 450 nm.
2. Protease and Phosphatase inhibitors.
3. Shaker.
4. Precision pipettes to deliver 2 µl to 1 ml volumes.
5. Adjustable 1-25 ml pipettes for reagent preparation.
6. 100 ml and 1 liter graduated cylinders.
7. Absorbent paper.
8. Distilled or deionized water.
9. Log-log graph paper or computer and software for ELISA data analysis.
10. Tubes to prepare the positive control or sample dilutions.

Sample Preparation

Cell Lysate Preparation: Rinse the cells with PBS, making sure to remove any remaining PBS before adding the lysis buffer. Solubilize cells at 4 x 10^7 cells/ml in prepared Cell Lysate Buffer (see Reagent Preparation step 3). Pipette up and down to resuspend the pellet. Incubate the lysates with shaking at 2-8°C for 30 minutes. Microcentrifuge at 13,000 rpm for 10 minutes at 2-8°C and transfer the supernatantes into a clean test tube. Lysates should be used immediately or aliquoted and stored at -70°C. Avoid repeated freeze-thaw cycles. Thawed lysates should be kept on ice prior to use.

For the initial experiment, we recommend a serial dilution, such as a 5-fold to 50- fold dilution, for your cell lysates with prepared Assay Diluent (see Reagent Preparation step 2) before use.

Note: The fold dilution of sample used depends on the abundance of phosphorylated proteins and should be determined empirically. More of the sample can be used if signals are too weak. If signals are too strong, the sample can be diluted further



Reagent Preparation

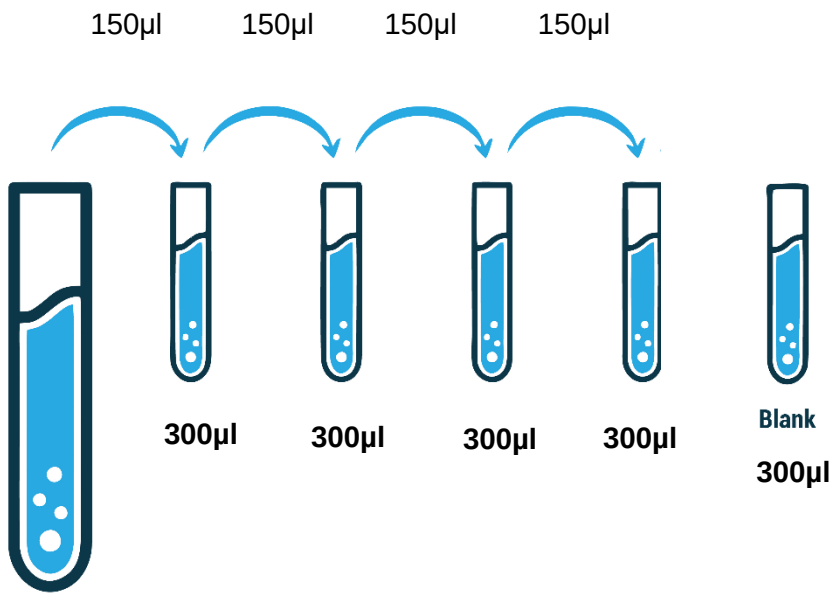
1. Bring all reagents and samples to room temperature (18 - 25ºC) before use

2. 5X Assay Diluent should be diluted 5-fold with deionized or distilled water before use.

3. Cell lysate buffer (Item J) should be diluted 2-fold with deionized or distilled water (for cell lysate and tissue lysate). We also recommend the addition of protease and phosphatase inhibitors (not included) to the lysis buffer prior to use.

4. Preparation of Positive Control: Briefly spin the Positive Control Vial. Add 400 µl of prepared 1X Assay Diluent into Positive Control to prepare a Positive Control (P-1) solution. Gently mix the powder to allow it to dissolve thoroughly. If a precipitate is seen in the solution after mixing, this can be removed by a quick centrifuge of the positive control vial, and then pipetting the supernate only for the assay. Pipette 300 µl 1X Assay Diluent into each tube. Use the Positive Control (P-1) solution to produce a dilution series (shown below). Mix each tube thoroughly before the next transfer. 1X Assay Diluent serves as the blank (P-0).

DILUTION SERIES



5. If the Wash Concentrate (20X) contains visible crystals, warm to room temperature and mix gently until dissolved. Dilute 20 ml of Wash Buffer Concentrate into deionized or distilled water to yield 400 ml of 1X Wash Buffer.

6. Preparation of Detection Antibodies:

a. Preparation of rabbit anti-phospho-PDGFR-beta (Tyr751) antibody: Briefly spin the vial of rabbit anti-phospho-PDGFR-beta (Tyr751). Add 100 µl of 1X Assay Diluent into the vial to prepare a phospho detection antibody concentrate. Pipette up and down to mix gently (the concentrate can be stored at 4°C for 5 days or at -80°C for one month). The concentrate should then be diluted 55-fold with 1X Assay Diluent and used in step 4 of the Assay Procedure.

b. Preparation of biotinylated anti-pan-PDGFR-beta antibody: Briefly spin the vial of biotinylated anti-pan-PDGFR-beta .Add 100 µl of 1X Assay Diluent into the vial to prepare a pan detection antibody concentrate. Pipette up and down to mix gently (the concentrate can be stored at 4°C for 5 days or at -80°C for one month). The concentrate should then be diluted 55-fold with 1X Assay Diluent and used in step 4 of the Assay Procedure

7. Preparation of HRP-conjugated concentrates:

a. Preparation of HRP-conjugated anti-rabbit IgG: Briefly spin the vial of HRP-conjugated anti-rabbit IgG concentrate before use. HRP-conjugated anti-rabbit IgG should be diluted 1000-fold with 1X Assay Diluent and used in step 7 of the Assay Procedure.

b. Preparation of HRP-Streptavidin: Briefly spin the vial of HRP-Streptavidin concentrate before use. HRP-Streptavidin should be diluted 300- fold with 1X Assay Diluent and used in step 7 of the Assay Procedure.

For example: Briefly spin the vial. Add 5 µl of HRP-conjugated anti-rabbit IgG concentrate into a tube with 5 mL 1x Assay Diluent, pipette up and down to mix gently to prepare a 1000-fold diluted HRP-conjugated anti-rabbit IgG solution. Mix well.

Assay Procedure

1. Bring all reagents and samples to room temperature (18 - 25ºC) before use. It is strongly recommended to run all positive controls and samples in at least duplicate. It is also recommended to run the positive controls in singlet for each of the pan and phospho-specific antibodies.

2. See plate layout (page 6) and label removable 8-well strips as appropriate for your experiment.

3. Add 100 µl of positive control (see Reagent Preparation step 4) or sample into appropriate wells. Cover the wells and incubate for 2.5 hours at room temperature or overnight at 4ºC with gentle shaking.

4. Discard the solution and wash 4 times with 1X Wash Solution. Wash by filling each well with Wash Buffer (300 µl) using a multi-channel Pipette or auto-washer. Complete removal of liquid at each step is essential for good performance. After the last wash, remove any remaining Wash Buffer by aspirating or decanting. Invert the plate and blot it against clean paper towels.

5. Add 100 µl of prepared 1X rabbit anti-phospho-PDGFR-beta (Tyr751) antibody (see Reagent Preparation step 6a) into the wells designated to detect phosphorylated protein. Add 100 µl of prepared 1X biotinylated anti-pan PDGFR-beta antibody (see Reagent Preparation step 6b) to the remaining wells to detect pan protein. Incubate for 1 hour at room temperature with gentle shaking.

6. Discard the solution. Repeat the wash as in step 4.

7. Add 100 µl of prepared HRP-conjugated anti-rabbit IgG solution (see Reagent Preparation step 7a) to the wells corresponding with rabbit anti-phospho PDGFR-beta (Tyr751) in order to detect phosphorylated protein. To the remaining wells (corresponding with biotinylated anti-pan-PDGFR-beta), add 100 µl of prepared HRP-Streptavidin solution (see Reagent Preparation step 7b) in order to detect pan protein. Incubate for 1 hour at room temperature with gentle shaking.

8. Discard the solution. Repeat the wash as in step 4.

9. Add 100 µl of TMB One-Step Substrate Reagent to each well. Incubate for 30 minutes at room temperature in the dark with gentle shaking.

10. Add 50 µl of Stop Solution to each well. Read at 450 nm immediately.

Assay Procedure Summary

1. Prepare all reagents, samples and standards as instructed.
2. Add 100 µl positive control or sample to each well. Incubate 2.5 hours at room temperature or overnight at 4ºC with gentle shaking.

3. Add 100 µl prepared detection antibody to each well. Incubate for 1 hour at room temperature with gentle shaking.

4. Add 100 µl prepared HRP-Conjugated solution. Incubate for 1 hour at room temperature with gentle shaking.

5. Add 100 µl TMB One-Step Substrate Reagent to each well. Incubate 30 minutes at room temperature.

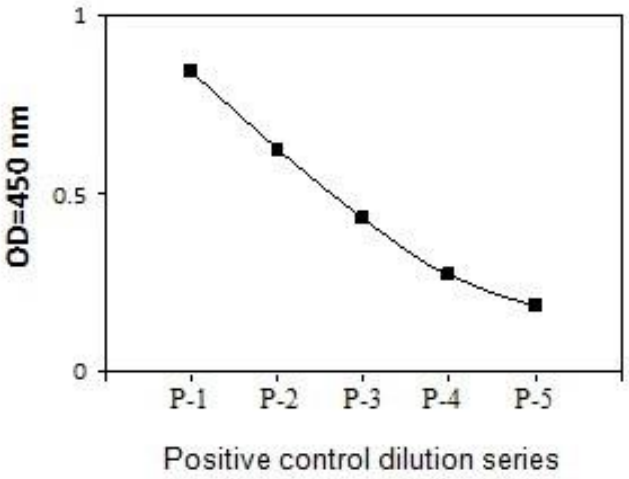
6. Add 50 µl Stop Solution to each well. Read at 450 nm immediately.

Typical Data

Calculate the mean absorbance for each sample. Then, subtract the average zero (blank) optical density from each sample mean and set of singlet positive controls.

A. Positive Control

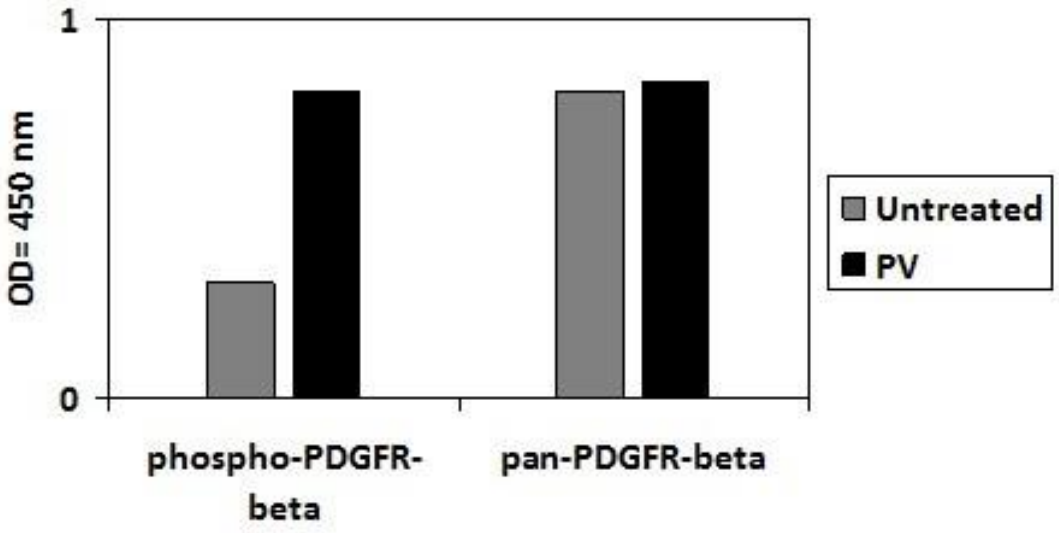
Jurkat cells were treated with PV (Pervanadate). Cells were solubilzed at 4 x 10^7 cells/ml in Cell Lysate Buffer. Serial dilutions of lysates were analyzed in this ELISA (see Reagent Preparation step 4).



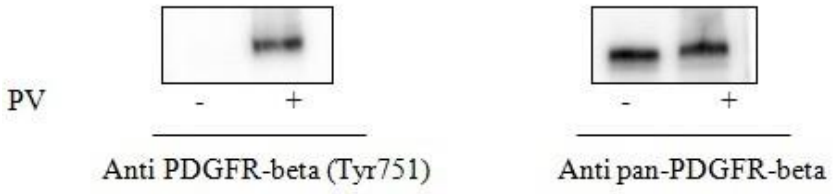
B. PV Stimulation of Jurkat Cell Line

Jurkat cells were untreated or treated with PV. Cell lysates were analyzed using this phospho ELISA and Western Blot.

i. ELISA



ii. Western-Blot Analysis



Troubleshooting

Problem	Causes	Solutions
Low signal in samples	• Sample concentration is too low • Improper preparation of detection antibody • Too brief incubation times • Inadequate reagent volumes or improper dilution	• Increase sample concentration • Briefly spin down vials before opening. Dissolve the powder thoroughly. • Ensure sufficient incubation time; assay procedure step 3 may be done overnight • Check pipettes and ensure correct preparation
High signal in samples	• Sample concentration too high	• Reduce sample concentration
Large CV	• Inaccurate pipetting • Air bubbles in wells	• Check pipettes • Remove bubbles in wells
High background	• Plate is insufficiently washed • Contaminated wash buffer	• Review the manual for proper wash. If using a plate washer, ensure that all ports are unobstructed. • Make fresh wash buffer
Low sensitivity	• Improper storage of the ELISA kit • Stop solution • Improper primary or secondary antibody dilution	• Store your standard at <-70ºC after reconstitution, others at 4ºC. Keep substrate solution protected from light. • Add stop solution to each well before reading plate • Ensure correct dilution

Assay Genie 100% money-back guarantee!

If you are not satisfied with the quality of our products and our technical team cannot resolve your problem, we will give you 100% of your money back.

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