

Human CD62P ELISA Kit

Cat#: orb546912 (User Manual)

Assay Principle

The Biorbyt Human SELP Pre-Coated ELISA (Enzyme-Linked Immunosorbent Assay) kit is a solid phase immunoassay specially designed to measure Human SELP with a 96-well strip plate that is pre-coated with antibody specific for SELP. The detection antibody is a biotinylated antibody specific for SELP. The capture antibody is monoclonal antibody from mouse, the detection antibody is polyclonal antibody from goat. The kit contains recombinant Human SELP with immunogen: Expression system for standard: NSO; Immunogen sequence: W42-A771. The kit is analytically validated with ready to use reagents. To measure Human SELP, add standards and samples to the wells, then add the biotinylated detection antibody. Wash the wells with PBS or TBS buffer, and add Avidin-Biotin-Peroxidase Complex (ABC-HRP). Wash away the unbounded ABC-HRP with PBS or TBS buffer and add TMB. TMB is substrate to HRP and will be catalyzed to produce a blue color product, which changes into yellow after adding acidic stop solution. The density of the yellow product is linearly proportional to Human SELP in the sample. Read the density of the yellow product in each well using a plate reader, and benchmark the sample wells' readings against the standard curve to determine the concentration of Human SELP in the sample.

Overview

Product Name	Human P-Selectin / CD62P Fast ELISA Kit
Reactive Species	Human
Size	96wells/kit, with removable strips.
Description	The Fast version of Picokine ELISA kits, assay takes less than 1.5 hours. Detect Human P Selectin/SELP with <5pg/ml sensitivity. Format: 96-well plate with removable strips. Compatible samples: cell culture supernates, serum and plasma(heparin, EDTA, citrate). This is a TMB colorimetric sandwich ELISA kit with short assay time and fast experiment set up. P Selectin/SELP tissue specificity: Stored in the alpha-granules of platelets and Weibel-Palade bodies of endothelial cells. Upon cell activation by agonists, P-selectin is transported rapidly to the cell surface.
Sensitivity	<5pg/ml *The sensitivity or the minimum detectable dose (MDD) is the lower limit of target protein that can be detected by the kit. It is determined by adding two standard deviations to the mean O.D. value of twenty (20) blank wells and calculating the corresponding concentration.
Detection Range	156pg/ml-10000pg/ml
Storage Instructions	Store at 4°C for 6 months, at -20°C for 12 months. Avoid multiple freeze-thaw

Uniprot ID Cycles (Shipped with wet ice.)
P16109

Technical Details

Capture/Detection Antibodies The capture antibody is monoclonal antibody from mouse, the detection antibody is polyclonal antibody from goat.

Specificity Natural and recombinant Human SELP

Immunogen Expression system for standard: NSO; Immunogen sequence: W42-A771

Cross Reactivity There is no detectable cross-reactivity with other relevant proteins.

Notice Before Application

Please read the following instructions before starting the experiment.

1. To inspect the validity of experiment operation and the appropriateness of sample dilution proportion, pilot experiment using standards and a small number of samples is recommended.
2. Before using the Kit, spin tubes and bring down all components to the bottom of tubes.
3. Don't let 96-well plate dry, for dry plate will inactivate active components on plate.
4. Don't reuse tips and tubes to avoid cross contamination.
5. Avoid using the reagents from different batches together.

Kit Components/Materials Provided

Description	Quantity	Volume
Anti-Human SELP Pre-coated 96-well strip microplate	1	12 strips of 8 wells
Human SELP Standard	2	10ng/tube
Human SELP Biotinylated antibody (50x)	1	130 µl
Avidin-Biotin-Peroxidase Complex (30x)	1	400 µl
Sample Diluent	1	30ml
Antibody Diluent	1	12ml
Avidin-Biotin-Peroxidase Diluent	1	12ml
Wash Buffer	1	Powder pack for 1000ml
Color Developing Reagent (TMB)	1	10ml
Stop Solution	1	10ml
Plate Sealers	4	Piece

Required Materials That Are Not Supplied

Microplate Reader capable of reading absorbance at 450nm.

Automated plate washer (optional)

Pipettes and pipette tips capable of precisely dispensing 0.5 µl through 1 ml volumes of aqueous solutions.

Multichannel pipettes are recommended for large amount of samples.

Deionized or distilled water.

500ml graduated cylinders.

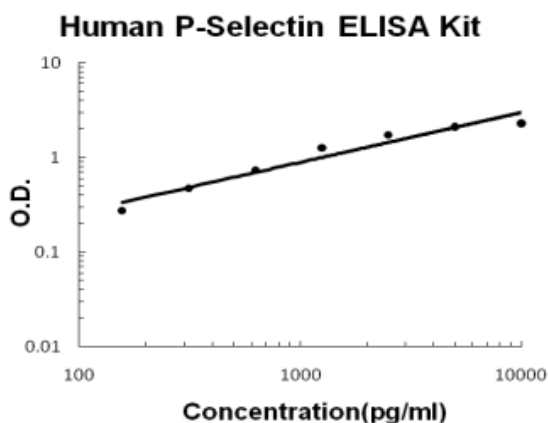
Test tubes for dilution.

Human P-Selectin / CD62P Fast ELISA Kit Standard Curve Example

Highest O.D. value might be higher or lower than in the example. The experiment result is statistically significant if the highest O.D. value is no less than 1.0.

Concentration0 (pg/ml)	156	312	625	1250	2500	5000	10000
O.D.	0.033	0.273	0.474	0.728	1.264	1.714	2.290

Human P-Selectin ELISA Kit standard curve



A standard curve is provided for demonstration only. A standard curve should be generated for each set of samples assayed.

Intra/Inter Assay Variability

Biorbyt spend great efforts in documenting lot to lot variability and make sure our assay kits produce robust data that are reproducible.

Intra-Assay Precision (Precision within an assay): Three samples of known concentration were tested on one plate to assess intra-assay precision.

Inter-Assay Precision (Precision across assays): Three samples of known concentration were tested in separate assays to assess interassay precision.

Sample	Intra-Assay Precision			Inter-Assay Precision		
	1	2	3	1	2	3
n	16	16	16	24	24	24
Mean(pg/ml)	322	1820	5020	331	1849	5389
Standard deviation	15.63	121.94	256.02	21.18	144.22	301.78
CV(%)	4.7%	6.7%	5.6%	6.4%	7.8%	5.6%

Reproducibility

To assay reproducibility, three samples with differing target protein concentrations were assayed using four different lots.

Lots	Lot1 (pg/ml)	Lot2 (pg/ml)	Lot3 (pg/ml)	Lot4 (pg/ml)	Mean (pg/ml)	Standard Deviation	CV (%)
Sample 1	322	316	323	357	329	16.1	4.8%
Sample 2	1820	1756	2051	1775	1850	118.06	6.3%
Sample 3	5020	5825	5171	5716	5433	343.86	6.3%

*number of samples for each test n=16.

Preparation Before The Experiment

All reagents

Bring all reagents to 37°C prior to use. Also the TMB incubation time estimate (20-25min) is based on 37°C.

Wash buffer

Dissolve the included powder in 1000ml of deionized water. Excess wash buffer can be stored for up to one week at 4°C.

Biotinylated Anti-Human SELP antibody

It is recommended to prepare this reagent immediately prior to use by diluting the Human SELP Biotinylated antibody (50x) 1:50 with Antibody Diluent. Prepare 50 µl by adding 1 µl of Biotinylated antibody (50x) to 49 µl of Antibody Diluent. Mix gently and thoroughly and use within 2 hours of generation.

Avidin-Biotin-Peroxidase Complex

It is recommended to prepare this reagent immediately prior to use by diluting the Avidin-Biotin-Peroxidase Complex (30x) 1:30 with Avidin-Biotin-Peroxidase Diluent. Prepare 400 µl by adding 10 µl of Avidin-Biotin-Peroxidase Complex (30x) to 390 µl of Avidin-Biotin-Peroxidase Diluent. Mix gently and thoroughly and use within 2 hours of generation.

Human SELP Standard

It is recommended that the standards be prepared no more than 2 hours prior to performing the experiment. Use one 10ng of lyophilized Human SELP standard for each experiment. Gently spin the vial prior to use.

Reconstitute the standard to a stock concentration of 10ng/ml using 1ml of sample diluent. Allow the standard to sit for a minimum of 10 minutes with gentle agitation prior to making dilutions.

Microplate

The included microplate is coated with capture antibodies and ready-to-use. It does not require additional washing or blocking. The unused well strips should be sealed and stored in the original packaging.

Dilution of Human SELP Standard

1. Number tubes 1-8. Final Concentrations to be Tube # 1 –10000pg/ml, #2 –5000pg/ml, #3 – 2500pg/ml, #4 – 1250pg/ml, #5 – 625pg/ml, #6 –312.5pg/ml, #7 – 156.25pg/ml, #8 – Sample Diluent serves as the zero standard (0pg/ml).
2. For standard #1, add 1000µl of undiluted standard stock solution to tube #1.
3. Add 300 µl of sample diluent to tubes # 2-7.
4. To generate standard #2, add 300 µl of standard #1 from tube #1 to tube #2 for a final volume of 600 µl. Mix thoroughly.
5. To generate standard #3, add 300 µl of standard #2 from tube #2 to tube #3 for a final volume of 600 µl. Mix thoroughly.
6. Continue the serial dilution for tube #4-7.

Sample Preparation and Storage

These sample collection instructions and storage conditions are intended as a general guideline and the sample stability has not been evaluated.

Cell culture supernatants

Clear sample of particulates by centrifugation, assay immediately or store samples at -20°C.

Serum

Use a serum separator tube (SST) and allow serum to clot at room temperature for about four hours. Then, centrifuge for 15 min at approximately 1,000 x g. assay immediately or store samples at -20°C.

Plasma

Collect plasma using heparin, EDTA or citrate as an anticoagulant. Centrifuge for 15 min at approximately 1,000 x g. Assay immediately or store samples at -20°C.

*Note: it is important to not use anticoagulants other than the ones described above to treat plasma for other anticoagulants could block the antibody binding site.

Sample Dilution

The target protein concentration should be estimated and appropriate sample dilutions should be selected such that the final protein concentration lies near the middle of the linear dynamic range of the assay.

It is recommended to prepare 150 μl of sample for each replicate to be assayed. The samples should be diluted with sample diluent and mixed gently.

Assay protocol

It is recommended that all reagents and materials be equilibrated to 37°C/room temperature prior to the experiment (see Preparation Before The Experiment if you have missed this information).

1. Prepare all reagents and working standards as directed previously.
2. Remove excess microplate strips from the plate frame and seal and store them in the original packaging.
3. Add 50 μl of the standard, samples, or control per well. And add 50 μl of the prepared 1x Biotinylated Anti-Human SELP antibody per well. Add 50 μl of the sample diluent buffer and 50 μl of the prepared 1x Biotinylated Anti-Human SELP antibody into the control well (Zero well). At least two replicates of each standard, sample, or control is recommended.
4. Cover with the plate sealer provided and incubate for 60 minutes at RT.
5. Wash the plate 3 times with the 1x wash buffer.
 - a. Discard the liquid in the wells into an appropriate waste receptacle. Then, invert the plate on the benchtop onto a paper towel and tap the plate to gently blot any remaining liquid. It is recommended that the wells are not allowed to completely dry at any time.
 - b. Add 300 μl of the 1x wash buffer to each assay well. (For cleaner background incubate for 60 seconds between each wash).
 - c. Repeat steps a-b 2 additional times.
6. Add 100 μl of the prepared 1x Avidin-Biotin-Peroxidase Complex into each well. Cover with plate sealer provided and incubate for 15 minutes at RT.
7. Wash the plate 5 times with the 1x wash buffer.
 - a. Discard the liquid in the wells into an appropriate waste receptacle. Then, invert the plate on the benchtop onto a paper towel and tap the plate to gently blot any remaining liquid. It is recommended that the wells are not allowed to completely dry at any time.
 - b. Add 300 μl of the 1x wash buffer to each assay well. (For cleaner background incubate for 60 seconds between each wash).
 - c. Repeat steps a-b 4 additional times.
8. Add 90 μl of Color Developing Reagent to each well and incubate in the dark for 30 minutes at RT (or 25-30 minutes at 37°C). (The optimal incubation time must be empirically determined. A guideline to look for is blue shading the top four standard wells, while the remaining standards remain clear.)
9. Add 100 μl of Stop Solution to each well. The color should immediately change to yellow.
10. Within 30 minutes of stopping the reaction, the O.D. absorbance should be read with a microplate reader at 450nm.

Data Analysis

Average the duplicate readings for each standard, sample, and control. Subtract the average zero standard O.D. reading. It is recommended that a standard curve be created using computer software to generate a four parameter logistic (4-PL) curve-fit. Alternatively, plot the mean absorbance for each standard against the concentration. The measured concentration in the sample can be interpolated by using linear regression of each average relative OD against the standard curve generated using curve fitting software. This will

generate an adequate but less precise fit of the data. For diluted samples, the concentration reading from the standard curve must be multiplied by the dilution factor.

Background on SELP

P-selectin, also called GMP-140, CD62, or selectin P, is a 140-kD adhesion molecule, expressed at the surface of activated cells, that mediates the interaction of activated endothelial cells or platelets with leukocytes. It is stored in secretory granules and expressed at the plasma membrane after cell activation. It is known to play an important role in atherosclerosis. The major ligand for P-selectin on leukocytes is P-selectin glycoprotein ligand-1 (PSGL-1). The standard product used in this kit is recombinant human P-Selectin, excluding intercellular P-Selectin and transmembrane domain. It has 730 amino acids sequence with the molecular mass of 80 KDa.

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