



Enabling Legendary Discovery™

Human CD26 (DPP4)

ELISA MAX™ Deluxe Set

Cat. No. 449304



BioLegend's ELISA MAX™ Deluxe Set contains the components necessary for the accurate quantification of natural and recombinant human CD26 (DPP4). The set is designed for cost-effective and accurate quantification of human CD26 (DPP4) in serum, plasma, saliva, urine, and cell culture supernatant. BioLegend's ELISA MAX™ Deluxe Sets are sensitive, accurate, and robust.

It is highly recommended that this instruction sheet be read in its entirety before using this product. Do not use this set beyond the expiration date.

Materials Provided

1. Human CD26 (DPP4) ELISA MAX™ Capture Antibody (200X)
2. Human CD26 (DPP4) ELISA MAX™ Detection Antibody (200X)
3. Human CD26 (DPP4) Standard Lyophilized
4. Avidin-HRP (1000X)
5. Substrate Solution D
6. Coating Buffer B (5X)
7. Assay Diluent B (5X)

Introduction

CD26, also known as Dipeptidyl peptidase-4 (DPP4), is a serine exopeptidase expressed by many cell types. It can exist as both a membrane protein and an active soluble form. CD26 has important roles in many processes including but not limited to cell signaling, immune regulation, and apoptosis. For instance, it can act as a co-stimulatory receptor for T-cells activation. Additionally, it can cleave multiple chemokines and peptide hormones such as glucagon, shortening their activity. Due to its abundance and multifunctional characteristic, CD26 can be a biomarker for multiple diseases such as immune dysfunction, obesity, diabetes, and cancer.

Principle of the Test

BioLegend ELISA MAX™ Deluxe Set contains pre-optimized essential reagents and additional buffers and solutions for Sandwich ELISA assay. A human CD26 (DPP4) specific capture antibody is first coated on a 96-well plate. Standards and samples are added to the wells, and human CD26 (DPP4) binds to the immobilized capture antibody. Next, a biotinylated anti-human CD26 (DPP4) detection antibody is added, producing an antibody-antigen-antibody "sandwich". The Avidin-HRP reagent is subsequently added, followed by TMB Substrate, producing a blue color in proportion to the concentration of CD26 present in wells. Then Stop Solution should be added to wells to terminate the reaction. This step changes the reaction color from blue to yellow. The absorbance in wells should be read at 450nm and 570nm using a microplate reader.

For research purposes only. Not for use in diagnostic or therapeutic procedures.

449304_R01

Materials to be Provided by the End-User

- Microwell plates: BioLegend Cat. No. 423501 is recommended
- Wash Buffer: BioLegend Cat. No. 421601 is recommended, or PBS + 0.05% Tween-20
- Stop Solution: BioLegend Cat. No. 423001 is recommended, or acid solution, e.g. 2N H₂SO₄
- Plate Sealers: BioLegend Cat. No. 423601 is recommended
- PBS (Phosphate-Buffered Saline): 8.0 g NaCl, 1.16 g Na₂HPO₄, 0.2 g KH₂PO₄, 0.2 g KCl, add deionized water to 1 L; pH to 7.4, 0.2 μm filtered
- Deionized (DI) water
- A microplate reader capable of measuring absorbance at 450 nm
- Adjustable pipettes to measure volumes ranging from 2 μL to 1 mL
- Wash bottle or automated microplate washer
- Log-Log graph paper or software for data analysis
- Tubes to prepare standard dilutions
- Timer

Storage Information

- Store kit components between 2°C and 8°C.
- After reconstitution of the lyophilized standard with 1X Assay Diluent B, aliquot into polypropylene vials and store at -70°C for up to one month. Avoid repeated freeze/thaw cycles.
- Prior to use, bring all components to room temperature (18°C-25°C). Upon assay completion return all components to appropriate storage conditions.

Health Hazard Warnings

1. Reagents that contain preservatives may be harmful if ingested, inhaled or absorbed through the skin. Refer to the MSDS online for details (www.biolegend.com/support/#msds).
2. Substrate Solution D is harmful if ingested. Additionally, avoid skin, eye or clothing contact.
3. To reduce the likelihood of blood-borne transmission of infectious agents, handle all serum and/or plasma in accordance with NCLCS regulations.

Specimen Collection and Handling

Cell Culture Supernatant: If necessary, centrifuge to remove debris prior to analysis. Samples can be stored at < -20°C. Avoid repeated freeze/thaw cycles.

Serum: Use a serum separator tube and allow clotting for at least 30 minutes, then centrifuge for 10 minutes at 1,000 X g. Remove serum layer and assay immediately or store serum samples at < -20°C. Avoid repeated freeze/thaw cycles. Serum specimens should be clear and non-hemolyzed.

Plasma: Collect blood sample in a citrate, heparin or EDTA containing tube. Centrifuge for 10 minutes at 1,000 X g within 30 minutes of collection. Assay immediately or store plasma samples at < -20°C. Avoid repeated freeze/thaw cycles. Plasma specimens should be clear and non-hemolyzed.

Saliva: Collect saliva in a tube and centrifuge for 10 minutes at 1000 X g. Collect the liquid layer, assay immediately or store at < -20°C. Avoid repeated freeze/thaw cycles.

Urine: Collect urine in a tube and centrifuge for 10 minutes at 1000 X g to remove particulate matter. Assay immediately or store at < -20°C. Avoid repeated freeze/thaw cycles.

Reagent and Sample Preparation

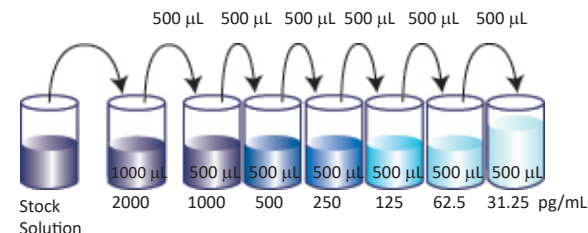
Do not mix reagents from different sets or lots. Reagents and/or antibodies from different manufacturers should not be used with this set. All reagents should be diluted immediately prior to use.

NOTE: Precipitation of 5X Assay Diluent B may be observed when stored long term between 2°C and 8°C. The precipitation does not alter the performance of the Buffer. If heavy precipitation is observed after the dilution to 1X Assay Diluent B, it can be filtered to clarify the solution.

Preparation of 1X Reagent for 1 Plate

| Material | Dilute with |
|------------------------------------|------------------------------|
| 2.4 mL of Coating Buffer B (5X) | 9.6 mL of Deionized Water |
| 60 μL of Capture Antibody (200X) | 12 mL of 1X Coating Buffer B |
| 12 mL of Assay Diluent B (5X) | 48 mL of PBS |
| 60 μL of Detection Antibody (200X) | 12 mL of 1X Assay Diluent B |
| 12 μL of Avidin-HRP (1,000X) | 12 mL of 1X Assay Diluent B |

Lyophilized vials are under vacuum pressure. Reconstitute the Human CD26 (DPP4) Lyophilized Standard by adding the volume of 1X Assay Diluent B to make the 100 ng/mL standard stock solution (Refer to ELISA MAX Kit Lot-Specific Certificate of Analysis/ELISA MAX Kit Protocol). Allow the reconstituted standard to sit for 15 minutes at room temperature, then mix gently prior to making dilutions. Prior to use, prepare 1,000 μL of the top standard at a concentration of 2000 pg/mL from the stock solution in 1X Assay Diluent B. Perform six two-fold serial dilutions of the 2000 pg/mL top standard with 1X Assay Diluent B in separate tubes. After diluting, the Human CD26 standard concentrations are 2000 pg/mL, 1000 pg/mL, 500 pg/mL, 250 pg/mL, 125 pg/mL, 62.5 pg/mL, and 31.25 pg/mL, respectively. 1X Assay Diluent B serves as the zero standard (0 pg/mL).



Samples: In general, an 800-folds dilution in 1X Assay Diluent B is recommended for serum and plasma samples. A 40-folds dilution in 1X Assay Diluent B is recommended for saliva samples. Other samples should be tested initially without any dilution. If dilution is required, samples should be diluted in 1X Assay Diluent B before adding to the wells.

Assay Procedure

Do not use sodium azide in any solutions as it inhibits the activity of the horseradish-peroxidase enzyme.

1. One day prior to running the ELISA, dilute Capture Antibody in 1X Coating Buffer B as described in Reagent Preparation. Add 100 μL of this Capture Antibody solution to all wells of a 96-well plate. Seal plate and incubate overnight (16-18 hrs) between 2°C and 8°C.
2. Bring all reagents to room temperature (RT) prior to use. It is strongly recommended that all standards and samples be run in duplicate or triplicate. A standard curve is required for each assay
3. Wash plate 4 times with at least 300 μL Wash Buffer per well and blot residual buffer by firmly tapping plate upside down on absorbent paper. **All subsequent washes should be performed similarly.**
4. To block non-specific binding and reduce background, add 200 μL 1X Assay Diluent B per well.
5. Seal plate and incubate at RT for 1 hour with shaking on a plate shaker

(e.g. 500 rpm with a 0.3 cm circular orbit). All subsequent incubation with shaking should be performed similarly.

- While plate is being blocked, prepare the appropriate sample dilutions (if necessary) and standards.
- Wash plate 4 times with Wash Buffer.
- Add 100 μ L/well of standards or samples to the appropriate wells. If dilution is required, samples should be diluted in 1X Assay Diluent B before adding to the wells.
- Seal plate and incubate at RT for 2 hours with shaking.
- Wash plate 4 times with Wash Buffer.
- Add 100 μ L of diluted Detection Antibody solution to each well, seal plate and incubate at RT for 1 hour with shaking.
- Wash plate 4 times with Wash Buffer.
- Add 100 μ L of diluted Avidin-HRP solution to each well.
- Seal plate and incubate at RT for 30 minutes with shaking.
- Wash plate 5 times with Wash Buffer. For this final wash, soak wells in Wash Buffer for 30 seconds to 1 minute for each wash. This will help minimize background.
- Add 100 μ L of TMB Substrate Solution and incubate **in the dark** for 10 minutes*. Positive wells should turn blue in color. It is not necessary to seal the plate during this step.
- Stop reaction by adding 100 μ L of Stop Solution to each well. Positive wells should turn from blue to yellow.
- Read absorbance at 450 nm within 30 minutes. If the reader can read at 570 nm, the absorbance at 570 nm can be subtracted from the absorbance at 450 nm.

*Optimal substrate incubation time depends on laboratory conditions

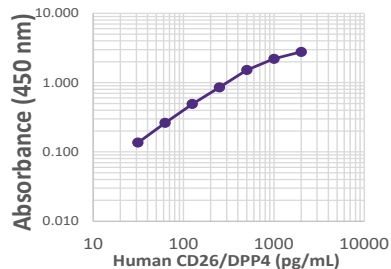
Calculation of Results

Plot the standard curve on log-log axis graph paper with analyte concentration on the x-axis and absorbance on the y-axis. Draw a best fit line through the standard points. To determine the unknown analyte concentrations in the samples, find the absorbance value of the unknown on the y-axis and draw a horizontal line to the standard curve. At the point of intersection, draw a vertical line to the x-axis and read the corresponding analyte concentration. If the samples were diluted, multiply by the appropriate dilution factor. The data is best calculated with computer-based curve-fitting software using a 5- or 4-parameter logistics curve-fitting algorithm. If a test sample's absorbance value falls outside the standard curve ranges, that test sample needs to be reanalyzed at a higher or lower dilution as appropriate.

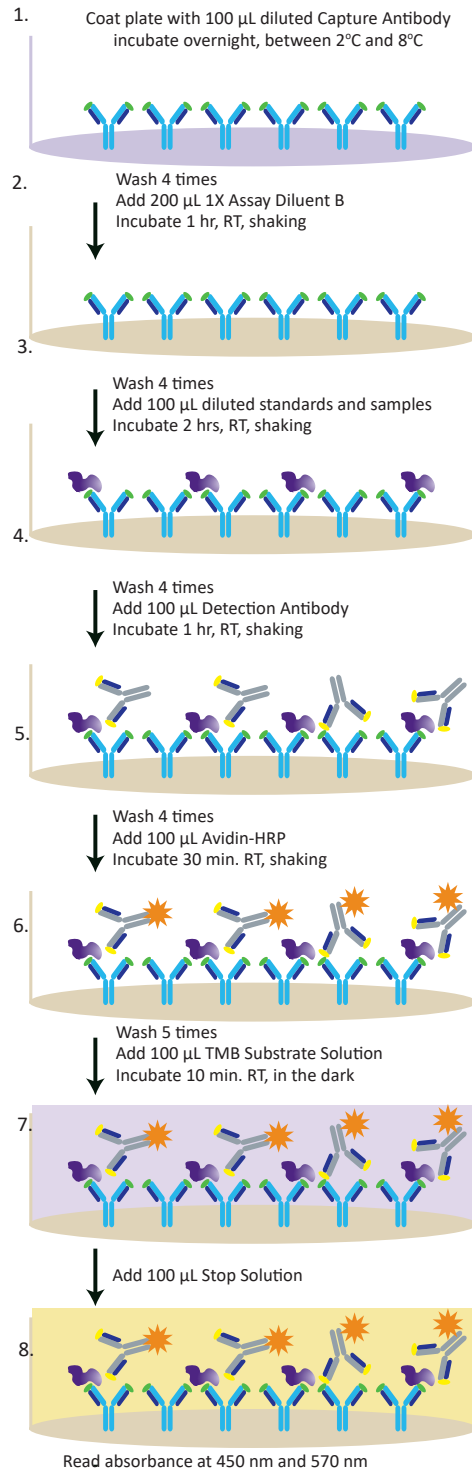
Typical Data

Standard Curve: This standard curve was generated at BioLegend for demonstration purposes only. A standard curve must be run with each assay.

**ELISA MAX™ Deluxe Set
Human CD26 (DPP4)
Full Standard Curve**



Assay Procedure Summary



Read absorbance at 450 nm and 570 nm

Performance Characteristics

Sensitivity: The expected minimum detectable concentration of human CD26 (DPP4) for this set is 5.70 pg/ml.

Specificity: No cross reactivity was observed when this kit was used to analyze multiple human recombinant proteins.

Troubleshooting

High Background:

- Background wells were contaminated.
- Matrix used had endogenous analyte.
- Plate was insufficiently washed.
- TMB Substrate Solution was contaminated.

No signal:

- Incorrect or no antibodies were added.
- Avidin-HRP was not added.
- Substrate solution was not added.
- Wash buffer contains sodium azide.

Low or poor signal for the standard curve:

- Standard was incompletely reconstituted or was stored improperly.
- Reagents were added to wells with incorrect concentrations.
- Plate was incubated with improper temperature, timing or agitation.

Signal too high, standard curves saturated:

- Standard was reconstituted with less volume than required.
- One or more reagent incubation steps were too long.
- Plate was incubated with inappropriate temperature, timing, or agitation.

Sample readings out of range:

- Samples contain no or below detectable levels of analyte.
- Samples contain analyte concentrations greater than highest standard point.

High variations in samples and/or standards:

- Pipetting errors may have occurred.
- Plate washing was inadequate or nonuniform.
- Samples were not homogenous.
- Samples or standard wells were contaminated.

BioLegend, Inc.

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