

Aptplex™ Human Cytokine 3-Plex Panel(C)

Catalog No: MPD002

Product size: 96 T

Intended Use

Aptplex™ Human Cytokine 3-Plex Panel(C) is based on multiplex bead-based technology, enabling simultaneous quantification of multiple analytes from a single sample. This kit is suitable for the *in vitro* quantitative detection of concentrations of the following cytokines in human serum, plasma, cell culture supernatants, and other biological fluids:

CCL2(MCP-1), bFGF, MMP-8, CCL5(RANTES), CXCL10(IP-10), CXCL9(MIG), G-CSF, IFN- α , IFN- γ , IL-10, IL-12p70, IL-17A, IL-18, IL-1 β , IL-2, IL-2RA(sCD25), IL-4, IL-5, IL-6, IL-8(CXCL8), LTA, MMP-9, sCD106(VCAM-1), sCD273(sPD-L2), sCD54(ICAM-1), ST2, TGF- β 1(Free active), TNF- α , VEGF, GM-CSF

Components

Component	Component Name	96T	Storage
MPD002A	Premixed Antibody-Conjugated Beads	2.4 mL×2	2-8°C Protected from light
MPD002B	Biotinylated Detection Antibodies	4.8 mL×2	2-8°C
MPD002C	SA-PE (ready to use)	4.8 mL×2	2-8°C Protected from light
MPD002D	Lyophilized Standard	2 vials	2-8°C
MPD002E	Assay Buffer	5 mL×1	2-8°C
MPD002F	Wash Buffer	30 mL×2	2-8°C
	Plate Sealing Film	5 pieces	
	Manual	1 copy	

Detection Principle

The Aptplex™ assay is a multiplex bead based immunoassay that uses antibody-conjugated magnetic beads with distinct fluorescence intensities to capture target antigens simultaneously. Each target antigen is recognized by a specific capture antibody on the bead and binds with a corresponding biotinylated detection antibody to form a bead-analyte-detection antibody “sandwich complex”. Streptavidin-phycoerythrin (SA-PE) binds to the biotinylated detection antibodies producing a fluorescent signal proportional to the amount of each analyte. The fluorescence of each bead is measured using flow cytometry and correlated with a standard curve to determine analyte concentrations.

Detection Sample Types

- Serum EDTA Plasma
 Cell culture supernatants Other biological fluids

Storage

Material	Storage Conditions	Stability / Notes
Unopened kit	2-8 °C, protected from light	12 months
Opened kit	2-8 °C, protected from light	Up to 30 days
Reconstituted standard	2-8 °C, protected from light	Use within 24 hours

Sample Collection and

1) Serum

Allow whole blood to clot for 1 hour at room temperature or overnight at 2-8 °C, then centrifuge for 20 min at 1000 × g at 2-8 °C. Collect the supernatant for the assay.

2) Plasma

Collect using EDTA-Na₂ as an anticoagulant. Centrifuge 15 min at 1000 × g at 2-8 °C within 30 min of collection. Collect the supernatant for the assay.

3) Cell culture supernatant or other biological fluids

Centrifuge 20 min at 1000 × g at 2-8 °C. Collect the supernatant for the assay.

Materials Not Supplied

- U-bottom 96-well transparent plates
- Vortex mixer
- Incubator suitable for 96-well plate
- Magnetic separator
- Flow cytometer (with PE, APC and APC/Cy7 detection channels).

Standard Preparation Procedure

1. Prepare eight 0.6 mL microcentrifuge tubes and label them 0-7. Leave tube 7 empty. Add 150 μ L of **Assay Buffer** to tubes 0-6.
2. **Reconstitute the lyophilized standard**
 - Briefly centrifuge the tube at 500 × g for 10 s to collect the powder at the bottom.
 - Add 500 μ L of **Assay Buffer** to the vial. Let it stand for 5 min.
 - Mix gently until the lyophilized standard is completely dissolved.
 - Transfer the entire solution to tube 7. This is the highest

Performance parameters

1. Detection range:

For details, please refer to COA

2. Limit of Blank (LoB):

The LoB for all analytes is ≤ 8 pg/mL.

3. Recovery:

The mean recovery ranges from 70% to 120%.

4. Precision:

The intra-assay and inter-assay coefficients of variation (CV) are $\leq 15\%$.

5. Specificity:

No significant cross-reactivity is observed among the analytes included in this kit.

Precautions

1. This product is intended for **research use only** and must be used by qualified professionals. Personnel responsible for data interpretation and reporting should have appropriate technical training.

2. Follow standard laboratory safety practices and reagent handling procedures. This product contains fluorescent dyes. Avoid direct contact with skin and eyes, prevent contamination of food and beverages, and always wear appropriate personal protective equipment, including gloves, during handling.

3. Improper flow cytometer calibration, inadequate fluorescence compensation, or incorrect gating strategies may lead to inaccurate results. Refer to the instrument manufacturer's manual and ensure proper calibration to

sample acquisition.

4. Before use, vortex the bead suspension thoroughly to ensure uniform bead dispersion and to prevent bead aggregation, which may affect assay performance.

5. To prevent cross-contamination, change pipette tips between each well, exercise caution when removing the plate sealer to avoid contact with adjacent wells use fresh tips for different standards or samples, and avoid bubble formation during pipetting. Use of a multichannel pipette is recommended for wash steps.

6. Protect all reactions involving detection antibodies and SA-PE from light throughout the assay to maintain fluorescence signal integrity.

7. Do not mix reagents from different lot numbers or substitute reagents from other manufacturers. Use all components according to the instructions provided in this manual and within their stated expiration dates.