

MOUSE HIGH SENSITIVITY CYTOKINE PANEL 1

ASSAY PROTOCOL

(Part ID : M102-K)

Use

For the detection of 13 mouse cytokines in serum, plasma, tissue homogenates, & bronchial lavage.
Analytes : IFN γ , IL-1 α , IL-1 β , IL-2, IL-4, IL-5, IL-6, IL-10, IL-12p40, IL-12p70, IL-13, KC/GRO, & TNF α

Reagents Supplied

Mouse High Sensitivity Cytokine Panel 1 Beads - Part # M102-B

1 vial containing 1.2 mL of beads coupled to capture antibodies for mouse cytokines in PBS with 0.1% BSA, 0.02% Tween 20 and 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Detection - Part # M102-D

1 vial containing lyophilized biotinylated detection antibodies for mouse cytokines in a buffered protein base containing 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Standard - Part # M102-S

1 vial containing lyophilized protein standards for mouse cytokines in a buffered protein base with 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Blocking Buffer - Part # M102-BL

1 vial containing lyophilized proprietary mix of domestic animal proteins with 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Standard Diluent - Part # M102-SCD

1 vial containing lyophilized proprietary mix of domestic animal proteins with 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Control 1 - Part # M102-C1

1 vial containing low levels of lyophilized mouse cytokines in buffered solution containing domestic animal proteins with 0.05% ProClin 300.

Mouse High Sensitivity Cytokine Panel 1 Control 2 - Part # M102-C2

1 vial containing high levels of lyophilized mouse cytokines in buffered solution containing domestic animal proteins with 0.05% ProClin 300.

Streptavidin PE- Part # SAPE4-250

1 vial containing 0.25mL of Streptavidin-Phycoerythrin at 1mg/mL in a solution containing 0.05% ProClin 300.

Sample Diluent - Part # B113-15

1 bottle containing 15 mL of buffered protein base with 0.05% ProClin 300.

10X Assay Buffer - Part # B100-25

1 bottle containing 25 mL of 10X PBS, 0.5% Tween 20 and 0.05% ProClin 300.

Plate Sealers (3)

Clear Bottom Black Assay Plate

Required Equipment and Materials Not Supplied

- 0.5 mL to 5 mL polypropylene tubes
- Plate washer with magnetic bead separator or manual magnetic bead separator
- Vortex
- Variable volume pipettes and tips (10 µL to 1000 µL)
- Graduated cylinder(s) (50 mL to 1L)
- 1 L bottle
- milliQ H₂O (18.2 MΩ·cm) or equivalent
- Plate shaker (Fisher part #4625Q) or equivalent.
- Luminex100/200, MagPix, or FLEXMAP 3D system

Storage and Stability

Store all kit components at 2-8°C. Do not use beyond the expiration date.

Protocol

Note: Protocol is designed for assaying one (1) 96-well plate

Equipment and Materials Preparation

1. Set up equipment and materials listed above to be accessible throughout the following protocol.
2. **Luminex Settings**

Note: Refer to the instrument's manual.

- a. Adjust the probe height on the Luminex appropriately for the plate being used.

- (1) See lot specific certificate of analysis for standard concentrations

Analyte	IFNγ	IL-1α	IL-1β	IL-2	IL-4	IL-5	IL-6
Bead Region	27	22	15	52	21	34	20
Analyte	IL-10	IL-12p40	IL-12p70	IL-13	KC/GRO	TNFα	
Bead Region	12	47	48	30	42	44	

- (2) Collection parameters
 - (a) Sample Volume: 60 µl
 - (b) Minimum events: 50 per region
 - (c) Flow rate: 60 µL/Min (fast)
 - (d) Doublet Discriminator gates: **Use software settings for running MagPlex beads.**
 - (e) Collect Median RFU (MFI), low or standard PMT setting is recommended

B. Reagent Preparation:

Note: Reconstitute the entire vial for each of the lyophilized supplied reagents. One time use only for Standards and Controls. Blocker and Detection can be frozen within 2 hours and re-used if needed.

1. Reconstitute Lyophilized Reagents

- a. Reconstitute the following reagents according to the table below.

Reagent	Reconstitute In:	Volume
Standard	milliQ H ₂ O	150 µL
Control 1	milliQ H ₂ O	100 µL
Control 2	milliQ H ₂ O	100 µL
Detection	milliQ H ₂ O	4.2 mL
Blocker	milliQ H ₂ O	1.2 mL
Standard Diluent	milliQ H ₂ O	1.2 mL

- b. Vortex at a medium setting.
 c. Allow to sit for a minimum of 10 minutes (not to exceed 1 hour).

2. Assay Buffer

- a. Bring the 10X Assay Buffer to room temperature.
 b. Mix by inversion to bring all salts into solution.
 c. Dilute 1 part 10X Assay Buffer with 9 parts of dH₂O (1X Assay Buffer).
 d. Label with preparation date and store at 2-8°C for up to 1 month.
 e. Aliquot approximately 3mL of 1X Assay Buffer for Streptavidin-PE dilution.

C. Serial Dilution of Standard (1:3.5 Fold)

1. Label 8 polypropylene tubes or PCR strip wells as S1, S2, S3, S4, S5, S6, S7, and S8.
 2. Transfer the reconstituted Standard into the tube/strip well labeled “S8”.
 3. Add the appropriate amount of the Standard Diluent into the labeled tubes/strip wells according to the table below (this will be sufficient for duplicate standard curves):

Standard	Vol of Std Diluent	Vol of Std
S7	125 µL	50 µL of S8
S6	125 µL	50 µL of S7
S5	125 µL	50 µL of S6
S4	125 µL	50 µL of S5
S3	125 µL	50 µL of S4
S2	125 µL	50 µL of S3
S1	125 µL	50 µL of S2

4. Prepare working Standards at 1:3.5. Serial dilute the appropriate amount of Standard into each of the labeled tubes/strip wells with Standard Diluent.
 5. Vortex at a medium setting or mix by pipette to ensure that each Standard is thoroughly mixed.

D. Sample Preparation – Note: Do not dilute controls

1. **Serum/Plasma Samples**

- a. Dilute samples in Sample Diluent 1:5.
 b. For duplicates a suggested dilution of 20µL sample into 80µL Sample Diluent is recommended.

2. **Tissue homogenates**

- a. Dilute samples in 1X Assay Buffer (a suggested concentration for tissue samples is 1000µg/mL).

3. Bronchial lavage samples

- a. Bronchial lavage samples can be run neat or diluted 1:2 in 1X Assay Buffer.

E. Add Standard, Controls, Sample, Blocker and Beads to Plate

1. Add 30 μ L of the Standard, Control or diluted Sample to the appropriate wells of the plate.
2. Add 10 μ L of Blocking Buffer to all wells of the plate.
3. Vortex the Beads at medium speed for 10-20 seconds. Add 10 μ L of the Beads to all wells of the plate.
4. Cover plate. Place on plate shaker and incubate at medium-high speed for 10 seconds then decrease speed to medium and **incubate for 2 hours at room temperature in the dark.**

F. Wash Plate

Wash the plate 3X with 100 μ l of 1X Assay Buffer using either a magnetic bead separator, plate washer or equivalent. (Do not resuspend in buffer following final wash)

G. Add Detection to Plate

1. Vortex the Detection at medium speed for 10-20 seconds. Add 40 μ L of Detection to all wells of the plate.
2. Cover plate. Place on plate shaker and incubate at medium-high for 10 seconds then decrease speed to medium and **incubate for 1 hour at room temperature in the dark.**

H. Prepare Streptavidin PE (SAPE) and Add to Plate

1. Dilute SAPE (1mg/mL) **1:10** in 1X Assay Buffer. For a 96-well plate, dilute 225 μ L of SAPE into 2025 μ L of 1X Assay Buffer.
2. Add 20 μ L of diluted SAPE to all wells of the plate.
3. Cover plate. Place on plate shaker and incubate at medium-high speed for 10 seconds then decrease speed to medium and **incubate for 30 minutes at room temperature in the dark.**

I. Wash Plate

1. Wash the plate 3X with 100 μ l of 1X Assay Buffer using either a magnetic bead separator, plate washer or equivalent.
2. Resuspend in 100 μ l of 1X Assay Buffer.

J. Mix Plate

1. Place plate on plate shaker and mix at medium speed for 5 minutes.

K. Read Plate

1. Read the plate on the Luminex instrument.

Conditions of Sale

FOR IN VITRO RESEARCH USE ONLY

DO NOT USE FOR DIAGNOSTIC PROCEDURES. DO NOT USE IN HUMANS OR IN ANIMALS