

# Bio-Plex Pro™ Mouse Cytokine, Chemokine, and Growth Factor Assays

MAGNETIC SEPARATION ENABLED

Mouse Group I, Mouse Group II, and Mouse Group III Panels

- Automated or vacuum-based wash steps
- All-in-one kit format
- Flexible ordering options



## Familiar Assays, New Format

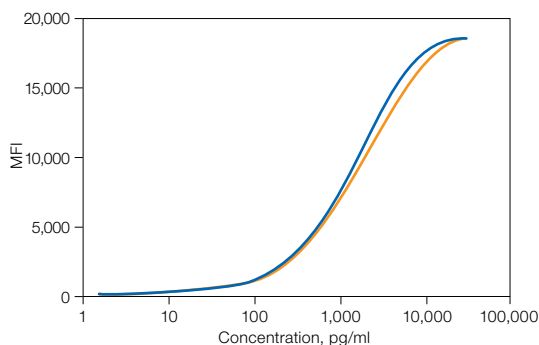
The Bio-Plex Pro mouse cytokine, chemokine, and growth factor assays are magnetic bead-based multiplex assays that offer excellent performance for the detection of multiple biomarkers in a single experiment, using as little as 12.5  $\mu$ l of serum, plasma, or other fluids. Antibodies and buffer compositions are the same as the familiar nonmagnetic mouse group I and group II assays, but with three major improvements:

- The option for a simplified workflow. The assays are on magnetic beads (MagPlex beads from Luminex Corporation), which facilitate automation of wash steps using a magnetic bead washer
- Convenient one-stop ordering. All assay reagents and buffers are now available in a single kit
- New custom ordering options. You can order from our premixed kit offerings, have your select targets custom-blended, or order your select targets custom-shipped and mix them yourself

## Benefits of Magnetic Bead-Based Assays

Magnetic bead-based assays allow optional magnetic separation during wash steps by using an automated magnetic bead washer. This innovation greatly simplifies the assay process by eliminating the need for a vacuum manifold and may improve the inter-assay CV.

Mouse IL-1 $\alpha$



Comparison of standard curves of the magnetic bead-based Bio-Plex Pro assay (—) and original polystyrene bead-based Bio-Plex assays (---). For all 32 mouse cytokine assays, transfer to the Bio-Plex Pro format resulted in comparable or improved performance.

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## Assay Performance Definitions

**Assay working range** — the range of concentration in which the assay is both precise and accurate. Boundaries of the range are the lower limit of quantitation (LLOQ) and the upper limit of quantitation (ULOQ). The intra-assay %CV and the inter-assay %CV provided in the fourth and fifth columns of Table 1 represent the highest %CV obtained within the assay working range.

## Sensitivity (limit of detection or LOD) —

the concentration of analyte on the standard curve for which the corresponding signal value is above the background value plus 2 standard deviations. Note that the definition of sensitivity is different from that of the LLOQ.

## Assay Performance Characteristics

**Table 1. Representative working assay range\*, sensitivity, and precision\*\*.** Values were experimentally determined from five assay runs.

Target	Assay Range, pg/ml	Sensitivity, pg/ml	Intra-Assay, %CV	Inter-Assay, %CV
<b>Mouse Group I: 23-plex panel</b>				
IL-1 $\alpha$	1.84–21,093	0.2	3	29
IL-1 $\beta$	10.36–60,631	9.4	4	7
IL-2	3.72–51,857	0.6	3	19
IL-3	1.55–21,632	0.2	2	15
IL-4	6.98–9,372	2.1	3	20
IL-5	3.57–13,315	0.3	4	14
IL-6	0.74–12,053	0.2	3	16
IL-9	6.89–28,208	12.5	4	9
IL-10	2.95–12,066	1.0	4	5
IL-12 (p40)	1.53–25,024	0.4	2	7
IL-12 (p70)	1.62–26,507	2.3	3	7
IL-13	47.2–57,011	38.7	4	5
IL-17A	2.65–43,337	0.8	3	10
Eotaxin	257.9–4,636	147.4	4	5
G-CSF	5.1–84,244	0.6	3	12
GM-CSF	21.2–3,401	5.6	3	24
IFN- $\gamma$	1.84–30,164	1.2	4	6
KC	3.2–18,202	0.3	3	30
MCP-1	22.4–41,873	3.7	5	7
MIP-1 $\alpha$	256.2–15,565	36.3	3	11
MIP-1 $\beta$	3.33–24,798	0.8	3	8
RANTES	2.78–8,759	0.6	4	4
TNF- $\alpha$	5.8–59,626	1.4	3	6
<b>Mouse Group II: 9-plex panel</b>				
IL-15	5.7–37,501	6.6	6	3
IL-18	81.4–29,761	31.8	8	18
Basic FGF	4.8–35,500	2.2	8	8
LIF	3.5–57,366	0.6	4	12
M-CSF	1.5–24,221	0.4	4	14
MIG	183–46,393	3.4	5	21
MIP-2	32–8,574.2	0.4	5	13
PDGF-BB	10.4–36,939	4.3	5	10
VEGF	27.2–32,771	1.6	4	15
<b>Mouse Group III</b>				
CD40L	3.6–11,245	0.4	4	14
IL-17F	1–6,362	0.1	5	5
IL-21	6–8,207	2.8	3	15
IL-22	0.5–8,433	0.1	4	5
IL-23p19	3.4–55,764	0.7	5	6
IL-25***	168–98,266	9.0	9	12
IL-27p28***	63.4–117,521	29.2	9	6
IL-31	2.5–41,313	5.2	6	6
IL-33	0.5–7,343	0.2	5	12
ICAM-1†	2.9–23,723	0.78	4	8
MIP-3 $\alpha$	0.7–1,660	0.3	6	13
<b>Mouse Growth Factors</b>				
TGF- $\beta$ 1	1.69–27,616	3.9	4.5	4.9
TGF- $\beta$ 2	14.7–30,080	1.9	6.3	9.1
TGF- $\beta$ 3	2.8–15,031	0.5	6.9	8.2

\* Assay range is LLOQ and ULOQ calculated from five independent assays.

\*\* Data were generated using vacuum manifold. %CV is expected to be lower with magnetic bead washer.

\*\*\* IL-25 and IL-27p28 were measured as a 2-plex.

† ICAM-1 was measured as a singleplex.

## Available Mouse Cytokine, Chemokine, and Growth Factor Assays

Mouse Group I	8-Plex Panel (M60-00007A)	23-Plex Panel (M60-009RDPD)	Th1/Th2 Panel (M60-00003J7)	Th17 6-Plex (M60-00007NY)	Singleplex/ x-Plex™ Bead Regions*
IL-1 $\alpha$		●			● 53
IL-1 $\beta$	●	●		●	● 19
IL-2	●	●	●		● 36
IL-3		●			● 18
IL-4	●	●	●		● 39
IL-5	●	●	●		● 52
IL-6		●		●	● 38
IL-9		●			● 33
IL-10	●	●	●	●	● 56
IL-12 (p40)		●			● 76
IL-12 (p70)		●	●		● 78
IL-13		●			● 37
IL-17A		●		●	● 72
Eotaxin		●			● 74
G-CSF		●			● 54
GM-CSF	●	●	●		● 73
IFN- $\gamma$	●	●	●	●	● 34
KC		●			● 57
MCP-1 (MCAF)		●			● 51
MIP- $\alpha$		●			● 77
MIP-1 $\beta$		●			● 75
RANTES		●			● 55
TNF- $\alpha$	●	●	●	●	● 21

Mouse Group II	9-Plex Panel (MD0-00000EL)	Singleplex/ x-Plex Bead Regions*
IL-15	●	● 42
IL-18**	●	● 20
Basic FGF	●	● 25
LIF	●	● 45
M-CSF	●	● 26
MIG	●	● 44
MIP-2	●	● 27
PDGF-BB	●	● 35
VEGF	●	● 47

Mouse Group III	Th17 8-Plex Panel (171-FA001M)	Singleplex/ x-Plex Bead Regions*
CD40L	●	● 30
IL-17F	●	● 28
IL-21	●	● 14
IL-22	●	● 15
IL-23p19	●	● 61
IL-25 (IL-17E)		● 67
IL-27p28		● 43
IL-31	●	● 29
IL-33	●	● 13
ICAM-1		● 22
MIP-3 $\alpha$	●	● 12

\* You can design a custom assay with a combination of different targets. See ordering options. For more information, go to [www.bio-rad.com/bio-plex/assaybuilder/](http://www.bio-rad.com/bio-plex/assaybuilder/) or contact your local Bio-Rad sales representative.

\*\* IL-18 is not available as a singleplex assay.

### Ordering Options

#### Premixed Panels

Four premixed panels are available in the new all-in-one kit format.\*

#### x-Plex™ Assay

Custom premixed assay panels in the new all-in-one kit format are available as 1 x 96 and 10 x 96 kits. Minimum order of two kits applies if ordering a 6-plex or less.

Go to [www.bio-rad.com/bio-plex/assaybuilder](http://www.bio-rad.com/bio-plex/assaybuilder) for details.

#### Express Assay

Select your singleplex targets of interest in the new all-in-one kit format and mix them yourself for faster delivery and a lower price than the custom blending service.

Available as 1 x 96 kits only for up to a 10-plex maximum. Go to [www.bio-rad.com/bio-plex/assaybuilder](http://www.bio-rad.com/bio-plex/assaybuilder) for details.

\* Includes coupled magnetic beads, detection antibodies, standards, assay buffer, wash buffer, detection antibody diluent, streptavidin-PE, 96-well filter plate, sealing tape, standard diluent, and sample diluent.

#### Individual Components

Separate catalog numbers are also available for:

- Singleplex sets of coupled magnetic beads and detection antibodies
- Standards
- Reagent kits containing assay buffer, wash buffer, detection antibody diluent, streptavidin-PE, 96-well filter plate, sealing tape, standard diluent, and sample diluent

## Ordering Information

Catalog # Description

### Bio-Plex Pro Premixed Mouse Cytokine Panel All-In-One Kits

Premixed panels include reagents, diluents, one 96-well filter plate, and one flat bottom plate. For 10-pack sizes, please go to [www.bio-rad.com/assaybuilder](http://www.bio-rad.com/assaybuilder) for more information.

M60-000007A	<b>Bio-Plex Pro Mouse Cytokine 8-Plex Assay</b> , 1 x 96-well for the detection of IL-1 $\beta$ , IL-2, IL-4, IL-5, IL-10, GM-CSF, IFN- $\gamma$ , TNF- $\alpha$
M60-00003J7	<b>Bio-Plex Pro Mouse Cytokine Th1/Th2 Assay</b> , 1 x 96-well for the detection of IL-2, IL-4, IL-5, IL-10, IL-12(p70), GM-CSF, IFN- $\gamma$ , TNF- $\alpha$
M60-009RDPD	<b>Bio-Plex Pro Mouse Cytokine 23-Plex Assay</b> , 1 x 96-well for the detection of IL-1 $\alpha$ , IL-1 $\beta$ , IL-2, IL-3, IL-4, IL-5, IL-6, IL-9, IL-10, IL-12 (p40), IL-12 (p70), IL-13, IL-17A, eotaxin, G-CSF, GM-CSF, IFN- $\gamma$ , KC, MCP-1 (MCAF), MIP-1 $\beta$ , MIP-1 $\alpha$ , RANTES, TNF- $\alpha$
MD0-00000EL	<b>Bio-Plex Pro Mouse Cytokine 9-Plex Assay</b> , 1 x 96-well for the detection of IL-15, IL-18, basic FGF, LIF, M-CSF, MIG, MIP-2, PDGF-BB, VEGF
M60-00007NY	<b>Bio-Plex Pro Mouse Cytokine Th17 Panel A 6-Plex Group I</b> , 1 x 96-well for the detection of IL-1 $\beta$ , IL-6, IL-10, IL-17A, IFN- $\gamma$ , TNF- $\alpha$
171-FA001M	<b>Bio-Plex Pro Mouse Cytokine Th17 Panel B 8-Plex Group III</b> , 1 x 96-well for the detection of IL-17F, IL-21, IL-22, IL-23p19, IL-31, IL-33, CD40L, MIP-3 $\alpha$
171-W4001M	<b>Bio-Plex Pro TGF-<math>\beta</math> 3-Plex Assay</b> , 1 x 96-well, for the detection of TGF- $\beta$ 1, TGF- $\beta$ 2, and TGF- $\beta$ 3

### Bio-Plex Pro Mouse Cytokine Singleplex Sets, 1 x 96-well, Group I\*

Up to 10 singleplex assays can be mixed.

171-G5001M	<b>IL-1<math>\alpha</math> Set</b>
171-G5002M	<b>IL-1<math>\beta</math> Set</b>
171-G5003M	<b>IL-2 Set</b>
171-G5004M	<b>IL-3 Set</b>
171-G5005M	<b>IL-4 Set</b>
171-G5006M	<b>IL-5 Set</b>
171-G5007M	<b>IL-6 Set</b>
171-G5008M	<b>IL-9 Set</b>
171-G5009M	<b>IL-10 Set</b>
171-G5010M	<b>IL-12 (p40) Set</b>
171-G5011M	<b>IL-12 (p70) Set</b>
171-G5012M	<b>IL-13 Set</b>
171-G5013M	<b>IL-17A Set</b>
171-G5014M	<b>Eotaxin Set</b>
171-G5015M	<b>G-CSF Set</b>
171-G5016M	<b>GM-CSF Set</b>
171-G5017M	<b>IFN-<math>\gamma</math> Set</b>
171-G5018M	<b>KC Set</b>
171-G5019M	<b>MCP-1 (MCAF) Set</b>
171-G5020M	<b>MIP-1<math>\alpha</math> Set</b>
171-G5021M	<b>MIP-1<math>\beta</math> Set</b>
171-G5022M	<b>RANTES Set</b>
171-G5023M	<b>TNF-<math>\alpha</math> Set</b>

Catalog # Description

### Bio-Plex Pro Mouse Cytokine Singleplex Sets, 1 x 96-well, Group II\*

Up to 10 singleplex assays can be mixed.

171-G6001M	<b>IL-15 Set</b>
171-G6002M	<b>Basic FGF Set</b>
171-G6003M	<b>LIF Set</b>
171-G6004M	<b>M-CSF Set</b>
171-G6005M	<b>MIG Set</b>
171-G6006M	<b>MIP-2 Set</b>
171-G6007M	<b>PDGF-BB Set</b>
171-G6008M	<b>VEGF Set</b>

### Bio-Plex Pro Mouse Cytokine Singleplex Sets, 1 x 96-well, Group III\*

Up to 10 singleplex assays can be mixed.

171-GA001M	<b>CD40L Set</b>
171-GA002M	<b>IL-17F Set</b>
171-GA003M	<b>IL-21 Set</b>
171-GA004M	<b>Cytokine IL-22 Set</b>
171-GA005M	<b>IL-23p19 Set</b>
171-GA006M	<b>IL-25 Set</b>
171-GA007M	<b>IL-27p28 Set</b>
171-GA008M	<b>IL-31 Set</b>
171-GA009M	<b>IL-33 Set</b>
171-GA010M	<b>ICAM-1 Set**</b>
171-GA011M	<b>MIP-3<math>\alpha</math> Set</b>

### Bio-Plex Pro TGF- $\beta$ Assays Singleplex Sets, 1 x 96-well

Includes premixed coupled magnetic beads and detection antibodies, standards, buffers, diluents, streptavidin-PE, filter plate, sealing tape requires reagent kit (#171-304070 for vacuum workflow or 171-304070M for magnetic workflow) and standards (#171-X40001).

171-V4001M	<b>Bio-Plex Pro TGF-<math>\beta</math>1 Set</b>
171-V4002M	<b>Bio-Plex Pro TGF-<math>\beta</math>2 Set</b>
171-V4003M	<b>Bio-Plex Pro TGF-<math>\beta</math>3 Set</b>

\* Each singleplex set includes coupled magnetic beads and detection antibodies for the detection of the specified analyte (reagent kits and standards are offered separately).

\*\* ICAM-1 requires Bio-Plex Pro High dilution reagent kit (171-304080M). All other singleplex sets mentioned here require the Bio-Plex Pro Reagent Kit.

## Ordering Information (continued)

Catalog # Description

### Ordering by Individual Components

The following are required for ordering singleplex sets. One reagent kit and one vial of standards are required for one 96-well experiment.

#### Standards

##### Bio-Plex Pro Mouse Cytokine Group I Standards

171-I50001 **Bio-Plex Pro Mouse Cytokine Standards, Group I**, pkg of 1 vial, cytokine standard for detecting 23 mouse cytokines

171-I10501 **Bio-Plex Pro Mouse Cytokine Standards, Group I**, pkg of 50 lot-matched vials, cytokine standard for detecting 23 mouse cytokines

##### Bio-Plex Pro Mouse Cytokine Group II Standards

171-I60001 **Bio-Plex Pro Mouse Cytokine Standards, Group II**, pkg of 1 vial, cytokine standard for detecting 9 mouse cytokines

171-I10502 **Bio-Plex Pro Mouse Cytokine Standards, Group II**, pkg of 50 lot-matched vials, cytokine standard for detecting 9 mouse cytokines

##### Bio-Plex Pro Mouse Cytokine Group III Standards

171-IA0001 **Bio-Plex Pro Mouse Standard Group III**, pkg of 1 vial, cytokine standard for detecting 11 mouse cytokines

171-IA0501 **Bio-Plex Pro Mouse Standard Group III**, pkg of 50 lot-matched vials, cytokine standard for detecting 11 mouse cytokines

##### Bio-Plex Pro TGF- $\beta$ Standards

171-X40001 **Bio-Plex Pro TGF- $\beta$  Standards**, pkg of 1 vial, standard for detecting 3 TGF- $\beta$  analytes

171-X40501 **Bio-Plex Pro TGF- $\beta$  Standards**, pkg of 50 lot-matched vials, standard for detecting 3 TGF- $\beta$  analytes

Catalog # Description

### Reagents

Includes assay buffer, wash buffer, detection antibody diluent, streptavidin-PE, flat bottom plate, sealing tape, standard diluent, sample diluent.

171-304070 **Bio-Plex Pro Reagent Kit**, 1 x 96-well, filter plate

171-304071 **Bio-Plex Pro Reagent Kit**, 10 x 96-well, filter plate

171-304070M **Bio-Plex Pro Reagent Kit with Flat Bottom Plate**, 1 x 96-well, for use with magnetic workflow

171-304080M **Bio-Plex Pro High Dilution Reagent Kit**, 1 x 96-well, flat bottom plate for use with magnetic workflow

### Bio-Plex Pro Wash Stations and Plates

300-34376 **Bio-Plex Pro Wash Station**, includes magnetic plate carrier, waste bottle, 2 buffer bottles

300-34377 **Bio-Plex Pro II Wash Station**, includes magnetic plate carrier, vacuum manifold plate carrier, waste bottle, 2 buffer bottles

171-025001\*\*\* **Bio-Plex Pro Flat Bottom Plates**, 40 x 96-well plates

### Bulk Buffer

171-304500 **Bio-Plex Wash Buffer**, 1.5 L

The Bio-Plex suspension array system includes fluorescently labeled microspheres and instrumentation licensed to Bio-Rad Laboratories, Inc. by the Luminex Corporation.

MagPlex is a trademark of Luminex Corporation.

\*\*\* Required for washing Bio-Plex Pro assays or other magnetic bead-based assays using the magnetic bead washer.



**BIO-RAD**

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