M-CSF

TGF-β3

IL-6

TRAIL

ICAM-1

TNF-α

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CTACK

MIF

TNF-α

IL-4

Bio-Plex® Multiplex System

The Leader in Multiplex Immunoassay Analysis

BIO·RAD

The Bio-Plex Multiplex System

The Bio-Plex System is a flexible, easy-to-use microplate-based multiplex immunoassay system. It enables you to quantify up to 100 different analytes in a single sample, giving you the power to understand complex relationships among proteins in normal and disease states. Multiplex analysis with the Bio-Plex System provides more information with less sample. The Bio-Plex System comprises all products for a complete workflow — from sample prep reagents and diluents to sophisticated data analysis — for unsurpassed sensitivity, precision, and accuracy.

With the Bio-Plex System, you can multiplex:

- Immunoassays
- Receptor-ligand assays
- Nucleic acid hybridization assays
- Enzyme assays

Bio-Plex 200 Multiplex Reader

Bio-Plex 3D Multiplex Reader

Bio-Plex Pro™ Wash Station

Bio-Plex Pro Assays

BIO-PLEX IMMUNOASSAY WORKFLOW

From Multiplex Assay to Results in as Little as 3 Hours

Bio-Plex Assays are designed using microscopic beads, each with a different color code (spectral address) to permit discrimination of individual assays. Beads are dyed with different ratios of two fluorophores and are thus classified into 100 unique bead regions (xMAP technology).

1. Coupled Beads

A Bio-Plex Assay uses a selection of beads with different spectral addresses, each coupled to antibodies against a different target.

- Add coupled beads to wells of a 96-well plate
- Wash

2. Samples

Sample types ranging from serum, urine, milk, and plasma to cell lysates (prepared with a Bio-Plex Cell Lysis Kit) can be used with various Bio-Plex Assays.

- Add samples to wells containing coupled beads
- Incubate 30 min
- Wash
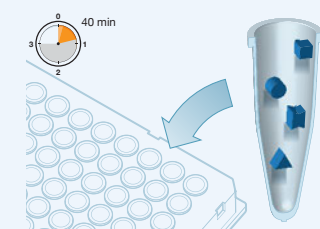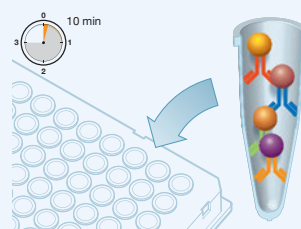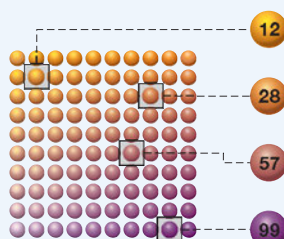
A Multitude of Choices

Bio-Rad offers a continually growing line of assays and associated products for extracellular and intracellular analysis. The assays are relevant to researchers studying everything from cancer to cardiovascular disease and available for use with multiple species and sample types. Go to **bio-rad.com/bioplex** for the most up-to-date target information.

Multiplex Assays in a Variety of Panel Configurations for

- Cytokines, chemokines, and growth factors
- TGF-β
- The Th17 pathway
- Cell signaling
- Cancer
- Diabetes
- Isotyping
- Acute phase
- MMP and TIMP
- Inflammation
- Kidney toxicity and kidney damage

Bio-Plex Assay Finder

Visit **bio-rad.com/findmyassay** to browse available kits by analyte name, compatible species, and research area.

Find the right Bio-Plex Assay with only a few clicks.

- **Browse** the entire catalog of targets alphabetically
- **Filter** by species and research area
- **Email** your customized search results to facilitate ordering
- **Contact** a Bio-Rad representative who can talk to you about your options

Bio-Plex Assay Builder

Design your own custom assays from our selection of hundreds of analytes. Go to **bio-rad.com/assaybuilder** to learn more.

Develop Your Own Assay

Develop unique bead-based multiplex assays with Bio-Plex Pro COOH Beads. Bio-Plex Pro COOH Beads are carboxy-coated beads ready to be covalently coupled to the protein or nucleic acid of your choice.

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3. Detection Antibodies

Biotin-labeled detection antibodies are specific for secondary epitopes on each target.

- Add detection antibodies to wells
- Incubate 30 min
- Wash

4. Reporter

Fluorescently labeled streptavidin reporter binds to the biotin-labeled detection antibodies.

- Add reporter to wells
- Incubate 10 min
- Rinse
- Resuspend in assay buffer

5. Assay

The Bio-Plex Reader first classifies beads by spectral addresses and then quantifies the associated reporter signal intensity.

- Dyed beads are identified by their internal fluorescent signature (bead region)
- Level of target bound to beads is indicated by intensity of reporter signal
- Multiplex data are reported simultaneously

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40 min

70 min

80 min
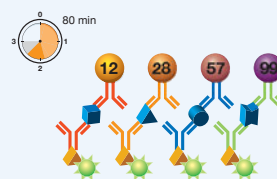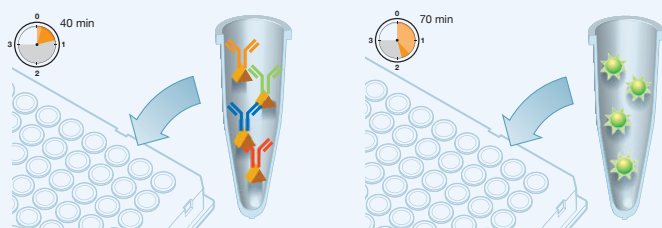
= sEGFR (13.1 pg/ml)

= sVEGFR (5.0 pg/ml)

= sHER-2 (1.4 pg/ml)

= IL-6Ra (3.7 pg/ml)

Bio-Plex Software is the ideal solution to reduce errors, save time, and get up to speed fast.

Reduce errors

- Importing results directly into a database from Bio-Plex Manager data files drastically reduces the need to audit results and eliminates mistakes introduced by copy-and-paste errors

Save time

- Editing analysis options results in instantaneous updates to all the outputs and reduces the time spent creating graphs and performing analysis
- Automating calculations based on the most common comparisons used by biological researchers eliminates time spent organizing data
- Applying a truly integrated solution simplifies and speeds up data analysis

Get up to speed fast

- Truly user-friendly software removes training burden, ensures instrument reliability, and eliminates user error

BIO-PLEX SOFTWARE

Bio-Plex Manager™ Software is the ideal tool for reviewing run data and optimizing results from any xMAP instrument.

Bio-Plex Data Pro™ Software combines multiple instrument runs to efficiently understand what your multiplex data say about your biological system.

Try Bio-Plex Data Pro free for 30 days — Visit **bio-rad.com/ad/datapro** to download it.

The Power of Bio-Plex Assays

Bio-Plex Multiplex Assays deliver more data in less time with less sample and with fewer manual manipulations. The examples to the right show a comparison between a Bio-Plex Assay and conventional methods. In the top panel, a Bio-Plex Phosphoprotein 5-Plex Assay is compared with 5 western blots. On the bottom panel, a Bio-Plex Human Cytokine 27-Plex Assay is compared with 27 ELISA assays.

Proven Results

The Bio-Plex System is the most widely cited multiplex assay platform in life science research today. Application areas include inflammation, autoimmune disease, asthma, diabetes/obesity, cancer, neurological disorders, cardiovascular disease, drug discovery, and vaccine development.

Open Platform

Bio-Plex Pro Magnetic Assays configured on MagPlex Beads are compatible with all xMAP life science instruments supplied by any Luminex partner. Choose from a broad selection of preconfigured and custom assay panels.

Bio-Plex Manager Software supports all Luminex 100 and 200 instruments. In addition, it supports both magnetic and nonmagnetic beads and can analyze data from any xMAP platform. Kits are available to run Bio-Plex Manager on Luminex Assay Readers. For more information, contact your local Bio-Rad sales representative.

Luminex, MagPlex, and xMAP are trademarks of the Luminex Corporation.

The Bio-Plex Suspension Array System includes fluorescently labeled microspheres and instrumentation licensed to Bio-Rad Laboratories, Inc. by the Luminex Corporation.

POWERFUL
Cell Signaling
CONTENT

CST Antibodies developed and validated for Bio-Plex Phosphoprotein and Total Target Assays.

Analysis of 5 phosphoproteins in 12 samples.

	Western Blot	Bio-Plex System
Number of phosphoproteins	5	5
Number of samples	12	12
Total data points	60	60
Number of gels or 96-well plates	5	1
Data points per gel or plate	12	60
Total time required	~8 hr + one overnight incubation	2 hr + one overnight incubation
Sample volume	125 µl	50 µl
Dynamic range	Limited total protein	0.04–10 µg/well*

* The range of total lysate protein in which the analyte can be detected.

Analysis of 27 cytokines in 80 samples.

	ELISA	Bio-Plex System
Number of cytokines	27	27
Number of samples	80	80
Total data points	2,160	2,160
Number of 96-well plates	27	1
Data points per plate	80	2,160
Total time required	>60 hr	3 hr
Sample volume	Serum or plasma, >1 ml* Cell culture supernatant, >1 ml*	Serum or plasma, 12.5 µl Cell culture supernatant, 50 µl

* Based on 50 µl/well of sample.

IL-23

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IL-1α

M-CSF

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ICAM-1

MIF

TGF-β1

TNF-α

IL-17

TGF-β1

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