



Bio-Plex[®] Suspension Array System

The Leader in Multiplex Immunoassay Analysis

BIO-RAD

The Bio-Plex Suspension Array System

The Bio-Plex system is a flexible, easy-to-use microplate-based multiplex immunoassay system. It enables you to quantitate 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
- Enzyme assays
- Receptor-ligand assays
- Nucleic acid hybridization assays



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

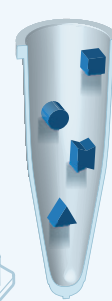
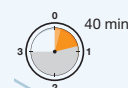
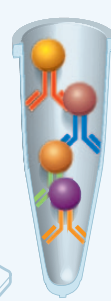
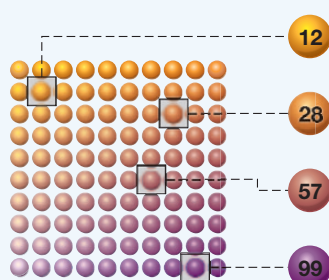
Sample types ranging from serum, urine, milk, and plasma, to cell lysates (prepared with a Bio-Plex cell lysis kit) can be used with various Bio-Plex assays.

- Add samples to wells containing coupled beads
- Incubate 30 min
- Wash

3. Detection

Biotin-labeled antibodies are specific for each target on each bead.

- Add detection antibodies
- Incubate
- 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 for everything from cancer to cardiovascular research and available for use with multiple species and sample types. For the most up-to-date target information, go to www.bio-rad.com/ad/plexibility.

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

Bio-Plex Assay Builder

Design your own custom assays from our selection of hundreds of analytes in four easy steps. With the Assay Builder you can:

- Get a price quote
- Place your order online
- Look up an existing assay by catalog number

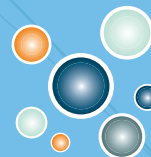
Go to www.bio-rad.com/assaybuilder.

x-Plex Assay



We Mix

Express Assay



You Mix

Develop Your Own Assay

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

- Couple antibodies, antigens, receptors, ligands, enzymes, or nucleic acids
- Couple protein (~6–150 kD) with 1 ml of beads in <5 hr for use in up to 20 microplates
- The Bio-Plex amine coupling kit is available for protein and antibody coupling

3. Couple Antibodies

Couple detection antibodies specific for secondary epitopes to target.

Couple detection antibodies to wells

Incubate 30 min

4. Reporter

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

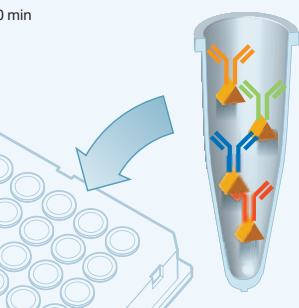
- Add reporter to wells
- Incubate 10 min
- Rinse
- Resuspend in assay buffer

5. Assay

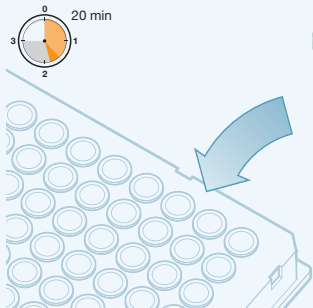
In the Bio-Plex array reader, a red classification laser and a green reporter laser illuminate individual beads to identify each bead's spectral address and associated reporter signal.

- 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

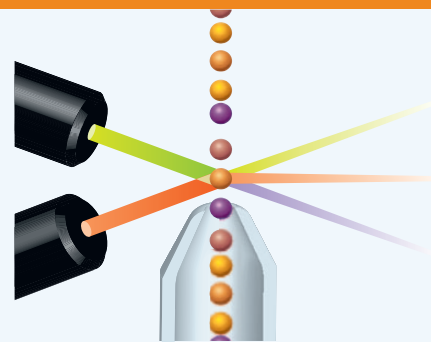
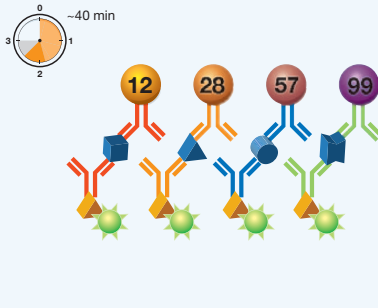
0 min

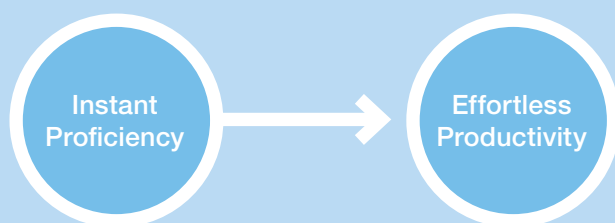


20 min



~40 min





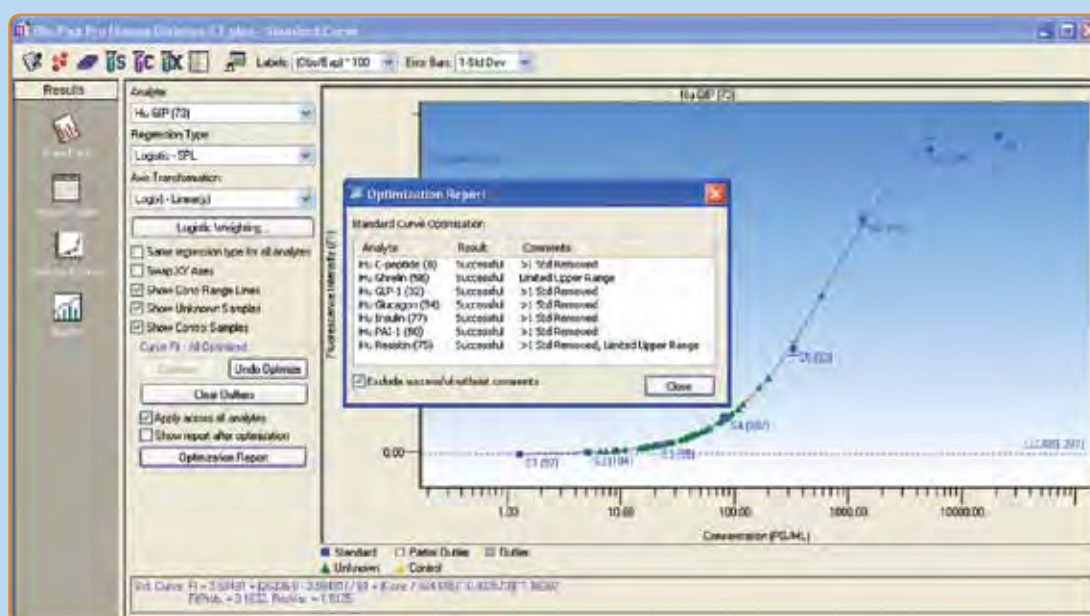
Experience comprehensive flexibility.

Bio-Plex Manager provides easy-to-use analysis capabilities for any scientific investigation. In addition, the software provides data acquisition and instrument maintenance capabilities.*



Become an instant expert with automated data optimization and review functions.

Bio-Plex Manager automatically optimizes then visually demonstrates usable assay range. Easy-to-read reports highlight assay performance issues.*



BIO-PLEX MANAGER SOFTWARE

Over 50% of multiplex assays are run using Bio-Plex Manager software. Try Bio-Plex Manager software and find out why.

* Bio-Plex Manager 6.0 or higher

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 used for research in many areas including Alzheimer's and Parkinson's diseases, diabetes, obesity, cancer, asthma, cystic fibrosis, autoimmune disease, viral infections, and vaccine development.

Open Platform

Bio-Plex Pro™ magnetic assays configured on MagPlex beads are compatible with all xMAP life science instrument supplied by any Luminex partner. Assay cytokines, chemokines, growth factors, the Th17 pathway, TGF-β, diabetes, cancer, and a growing list of targets and applications.

Bio-Plex Manager™ software supports all Luminex 100 and 200 instruments. In addition, it supports both magnetic and polystyrene 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.

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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 | 3 hr + one overnight incubation |
| Sample Volume | 125 µl | 25 µl |
| Dynamic Range | Limited total protein | 50–900 µg/ml |

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 |
| Assay Range | Serum or plasma, 2–3,000 pg/ml Cell culture supernatant, 2–3,000 pg/ml | Serum or plasma, 0.2–3,200 pg/ml Cell culture supernatant, 2.0–32,000 pg/ml |

* Based on 50 µl/well of sample





Bio-Rad
Laboratories, Inc.



*Life Science
Group*

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