The Bio-Plex Suspension Array System
The Bio-Plex system is a flexible, easy-to-use microplate-based bioassay system. The Bio-Plex system 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
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.

For up-to-date reference lists for cytokine and phosphoprotein assays, refer to bulletins 5297 and 5394, respectively, on the enclosed CD or at www.bio-rad.com.

**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.

For up-to-date reference lists for cytokine and phosphoprotein assays, refer to bulletins 5297 and 5394, respectively, on the enclosed CD or at www.bio-rad.com.
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).

**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

**Samples**
Serum, plasma, or cell lysates (prepared with a Bio-Plex cell lysis kit) can be used with Bio-Plex assays.

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

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

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

**Cytokine, Chemokine, and Growth Factor Assays**
- Multiplex assays for human, mouse, and rat cytokines
- Diverse matrices, including serum, plasma, and cell culture supernatants
- Dynamic range across 4 orders of magnitude (~0–32,000 pg/ml)
- Premixed beads and premixed detection antibodies
- Premixed standards for multiplex standard curves

**Phosphoprotein and Total Target Assays**
- Multiplex assays for specific phosphorylation states and expression levels of multiple proteins
- Sample volume as little as 25 µl of cell-culture or tissue lysate
- Highly specific antibodies exclusively developed and validated by Cell Signaling Technology, Inc.
- Higher-specificity sandwich-format assays that minimize cross-reaction with other cellular proteins
- Common buffers for all assays

**Bio-Plex Multiplex Assays**
- A Multitude of Choices
- From Multiplex Assay to Results in As Little As 3 Hours

**Bio-Plex Immunoassay Workflow**
- Coupled Beads
- Samples
- Detection
Bio-Plex™ Isotyping Assays

The Bio-Plex Pro isotyping assays allow multiple analysis of immunoglobulins in only 15 µl of sample. The Bio-Plex Pro family of assays offers excellent sensitivity using either a magnetic washing system or standard vacuum manifold.

- Immunoglobulins (IgG, IgG2, IgG3, IgM, IgA, IgE) can be covalently coupled to the protein or nucleic acid of your choice.
- Bio-Plex COOH beads are carboxy-coated beads ready to couple antibody, antigens, receptors, ligands, enzymes, or nucleic acids.
- Bio-Plex COOH™ isotyping macs, specifically designed for integrated allelic discrimination using Bio-Plex Manager software. Download SNP Manager from www.bio-rad.com/bio-plex/

High-Sensitivity Cytokine Assays

The Bio-Plex™ Precision Pro™ human cytokine assay panel contains highly sensitive, highly reproducible magnetic bead-based assays.

- Assay protocols are similar to Bio-Plex cytokine assays
- Optimized for serum and plasma samples
- Detects IL-1α, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-10, IL-12 (p70), IFN-γ, TNF-α, and TNF-β
- Contains controls for generating QC samples
- All-in-one kit format includes assay, reagent, and diluent components in a single box

Multiplex Nucleic Acid Solutions

Bio-Rad offers the complete solution for bead-based multiplex nucleic acid analysis. Using the Bio-Plex system, you can easily multiplex up to 100 targets in one well and develop cost-effective nucleic acid analysis. Using the Bio-Plex system, you can easily multiplex up to 100 targets in one well and develop cost-effective nucleic acid analysis.

- Premixed conjugated beads
- Premixed detection antibodies
- Premixed standards (cytokines) or controls (phosphoproteins)
- Order buffer, cell lysis, and diluent kits to complete your package.

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
- Couples proteins (6–150 kD) with 1 ml of beads in <5 hr for use in up to 20 multiplexes

Bio-Plex™ Premixed Assay Mixing Service

If the particular combination of cytokine or phosphoprotein targets needed for your research is not available in a Bio-Plex preconfigured assay panel, order what you need with custom-mixed x-Plex assays. You select the specific targets to test, and we mix the multiplex assay panel to order. Go to www.bio-rad.com/bio-plex/x-plex/ to select your preferred combination of targets. x-Plex assays include:

- Premixed conjugated beads
- Premixed detection antibodies
- Premixed standards (cytokines) or controls (phosphoproteins)

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
- Coupled protein (~6–150 kD) with 1 ml of beads in <5 hr for use in up to 20 multiplexes
Bio-Plex Manager™ Software

The Bio-Plex suspension array system is the only bead-based multiplex assay system that provides system control, system validation, calibration, data acquisition, and data analysis in a single software application.

Unique features include:
- User-friendly interface designed around the assay workflow
- Automated functions for startup, calibration, validation, and shutdown
- Sophisticated data analysis tools
- Automatic, real-time error detection and reporting
- XML and Microsoft Excel export function

For more information, refer to bulletin 2880.


In addition to all the features of Bio-Plex Manager 4.1 Standard Edition software, Bio-Plex Manager Security Edition software works with the built-in security features of Microsoft Windows 2000 and Windows XP Professional operating systems to provide tools and reports that allow you to comply with U.S. FDA 21 CFR Part 11 regulations.

Professional Analysis and User-Friendly Instrument Control

Easily access results and protocol; see bulletin 2880 for more information.

Add standards for quantitative assays to each plate, or increase sample throughput by importing external standards from another assay plate.

Calculate percent change in qualitative assays for grouped samples or across all analytes in one simple step.

Automatically calculate the concentration of serially diluted standards.

Automatically calculate % recovery values.

Enter standard curve values and fit the curves to individual analytes or across all analytes in one simple step.

Automatically calculate mean, %CV, standard deviation, and standard error for replicate samples.

Automatically calculate the %recovery values.

Set up experiments easily.

Enter standard curve values and fit the curves to individual analytes or across all analytes in one simple step.

Automatically calculate %CV values.

Automatically calculate mean, %CV, standard deviation, and standard error for replicate samples.
Integrated Solutions

The Bio-Plex 200 system is designed, manufactured, and tested as a complete, integrated system combining xMAP suspension array technology with reliable hardware, dedicated software, and system validation and calibration tools. The fully integrated and validated system ensures accurate and reproducible assay results, plus a single source for all the support you need to maintain your productivity.

- Standardized single-source system components for error-free operation
- Worldwide technical support and on-site field service
- Service agreements for scheduled preventive maintenance

Tools for Optimal Assay Performance

Reliable and reproducible multiple assays require an instrument with proper optical alignment, reporter performance, and fluidics integrity. Performing system validation and reader calibration is the best way to ensure the precision of your assay results and to confidently make comparisons between data sets. The Bio-Plex system offers unique validation tools.

- Automated installation and operational qualification (IQ/OQ)
- Validation kit for IQ/OQ and monthly validation of primary performance parameters, with integrated logs for record-keeping
- Calibration capabilities for both broad-range and low-range standard detection (for more information, refer to bulletin 2900)

Open Platform

The Bio-Plex system can be used with any xMAP assay, including Bio-Plex assays that you develop and those provided by other Luminex partners. Bio-Plex Manager software supports all Luminex 100 and 200 instruments and both magnetic and polystyrene beads. 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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