

## Acute Phase Response

Cancer  
Cardiovascular Disease  
Cytokine Chemokines,  
Growth Factors  
Diabetes  
Gene Expression  
Genotyping  
Immunoglobulin Isotyping  
MicroRNA Expression  
Signal Transduction  
Toxicology

# Bio-Plex Pro™ Human Acute Phase Assay Panel

MAGNETIC SEPARATION ENABLED

$\alpha$ -2-Macroglobulin, CRP, Ferritin, Fibrinogen, Haptoglobin, Procalcitonin, SAA, SAP, Tissue Plasminogen Activator

- Validation in serum, plasma, and tissue culture samples
- Premixed assays for convenience and reproducibility
- Magnetic or vacuum assay separation
- Contains standards and controls
- Includes targets unique to the xMAP platform



## Reliable Multiplex Measurement of Nine Human Acute Phase Markers

Bio-Plex Pro Human Acute Phase Assays deliver accurate and reproducible measurements of nine commonly studied acute phase markers in serum, plasma, and tissue culture supernatant. A snapshot of panel performance is shown here as demonstrated by representative parallelism and linearity of sample dilution in normal human serum and plasma.

These assays are offered as two separate kits to achieve optimal working assay ranges. The Bio-Plex Pro Human Acute Phase 5-Plex Assay requires a 100-fold sample dilution and the Bio-Plex Pro Human Acute Phase 4-Plex Assay requires a 10,000-fold sample dilution as required by the physiological ranges of the analytes. Dividing the targets into panels that require similar dilutions reduces the need to expend assay reagents on multiple dilutions of each sample.

## Magnetic Bead-Based Assays

Magnetic bead-based assays allow optional magnetic separation and automation of wash steps. This innovation greatly simplifies assay processing, eliminating the need for a vacuum manifold.

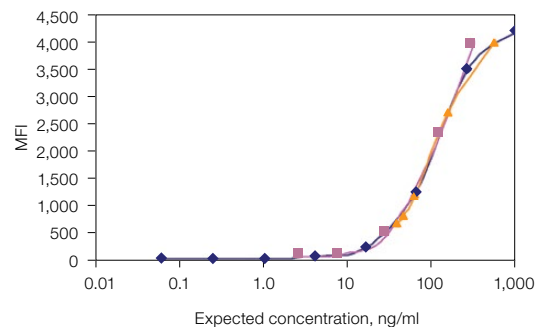
## Performance Characteristics

### Specifications at Standard PMT Setting

Precision	
Intra-assay CV	≤15%
Inter-assay CV	≤25%
Accuracy (% recovery)	70–130%
Cross-reactivity	<0.5%
Matrices	Serum, plasma, culture supernatant, and other biological fluids

### Demonstration of Parallel Standard Curves

Parallelism is a measure of the impact of matrix effect on an assay using different sample matrices. Parallel standard curves generated using matrices such as standard diluent, plasma, and serum demonstrate assay robustness in these sample types. Results are shown for the serum amyloid A (SAA) assay, a member of the Bio-Plex Pro Acute Phase 5-Plex Panel (Figure 1). Comparable results were obtained for the other targets in this panel.



**Fig. 1. Parallelism of standard curves.** Results represent standard curves obtained using standard diluent (◆), human serum (■), and human plasma (▲). Result is shown for the SAA assay. MFI, median fluorescence intensity.



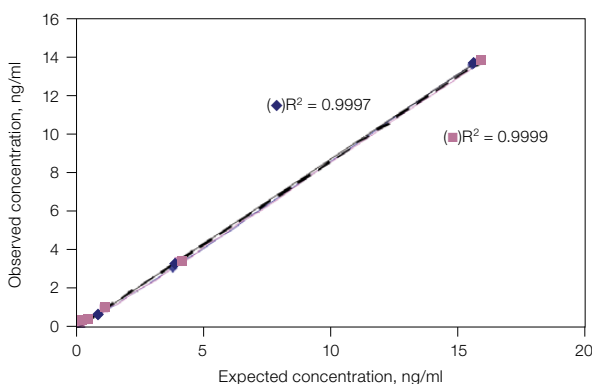
## Representative Assay Ranges, Sensitivity, and Standardization

Target	Working Assay Range*	Sensitivity	Dynamic Ranges**	WHO Standard Reference #	1 IU = x ng***
α-2-Macroglobulin	0.5–1,875 ng/ml	0.25 ng/ml	0.5–7,500 ng/ml	—	—
CRP	0.01–50 ng/ml	0.004 ng/ml	0.01–125 ng/ml	85/506	3.0 x 10 <sup>6</sup>
Ferritin	3.05–50,000 pg/ml	1.3 pg/ml	3.05–50,000 pg/ml	—	—
Fibrinogen	5–813 ng/ml	2.8 ng/ml	1.95–32,000 ng/ml	—	—
Haptoglobin	0.1–500 ng/ml	0.07 ng/ml	0.03–500 ng/ml	—	—
Procalcitonin	14–10,000 pg/ml	11.3 pg/ml	0.61–10,000 pg/ml	—	—
SAA	1–700 ng/ml	1.1 ng/ml	0.06–1,000 ng/ml	—	—
Serum amyloid P (SAP)	0.1–250 ng/ml	0.063 ng/ml	0.02–250 ng/ml	—	—
Tissue plasminogen activator	28–5,000 pg/ml	6.15 pg/ml	0.31–5,000 pg/ml	98/714	2.4 x 10 <sup>-1</sup>

\* Lower limit of quantitation–upper limit of quantitation. \*\* Standard curve ranges. \*\*\* IU, international units.

### Linearity of Dilution

The Bio-Plex Pro Human Acute Phase Assays were tested for their specificity in serum and plasma samples. Serial dilutions of samples containing high levels of the target protein were performed using diluted normal human serum and plasma as diluents. Four-fold serial dilutions show a corresponding linear 4-fold reduction in concentration, demonstrating that the assays did not detect nonspecific proteins in the normal human serum. Results are shown for the C-reactive protein (CRP) assay (Figure 2). Comparable results were achieved for the other targets in this panel.



**Fig. 2. Linearity of sample dilution in normal human serum and plasma.** Results are shown for the Bio-Plex Pro Human Acute Phase CRP Assay. Serum (◆); plasma (■).

### Data Analysis

Bio-Plex Pro Human Acute Phase Assays can be analyzed using Bio-Plex Manager™ Software version 4.0 and higher, as well as Luminex xPONENT and other software. When using other software, including Bio-Plex Manager 3.0 and those provided by Luminex, contact Technical Support or your Bio-Rad field applications specialist for more information.

Visit us at [bio-rad.com/bio-plexproacutephase](http://bio-rad.com/bio-plexproacutephase) for a current listing of Bio-Plex Pro Human Acute Phase Assays.

### Ordering Information

Catalog #	Description
<b>Bio-Plex Pro Human Acute Phase Complete Kits*</b>	
171-A4S07M	<b>Bio-Plex Pro Human Acute Phase 5- + 4-Plex Panel Complete Kit</b> , 1 x 96-well
171-A4C09M	<b>Bio-Plex Human Acute Phase 4-Plex Panel Complete Kit</b> , 1 x 96-well
171-A4C07M	<b>Bio-Plex Pro Human Acute Phase 5-Plex Panel Complete Kit</b> , 1 x 96-well
<b>Bio-Plex Pro Human Acute Phase Assay Kits**</b>	
171-A4007M	<b>Bio-Plex Pro Human Acute Phase 5-Plex Panel</b> , 1 x 96-well, includes coupled beads, detection antibodies, and standards for the detection of ferritin, fibrinogen, procalcitonin, serum amyloid A, tissue plasminogen activator
171-A4008M	<b>Bio-Plex Pro Human Acute Phase 5-Plex Panel</b> , 10 x 96-well
171-A4009M	<b>Bio-Plex Pro Human Acute Phase 4-Plex Panel</b> , 1 x 96-well, includes coupled beads, detection antibodies, and standards for the detection of α-2-macroglobulin, CRP, haptoglobin, serum amyloid P
171-A4010M	<b>Bio-Plex Pro Human Acute Phase 4-Plex Panel</b> , 10 x 96-well
<b>Acute Phase Reagent Kits</b>	
171-304050	<b>Bio-Plex Pro Human Acute Phase Reagent Kit</b> , 1 x 96-well, includes Bio-Plex Pro Reagent Kit and instruction manual
171-304051	<b>Bio-Plex Pro Human Acute Phase Reagent Kit</b> , 10 x 96-well
<b>Acute Phase Diluent Kit***</b>	
171-305050	<b>Bio-Plex Pro Human Acute Phase Diluent Kit</b> , 1 x 96-well, includes 15 ml serum-based diluent and 300 ml serum-free diluent

\* For simplified ordering, the complete kits include the Acute Phase Panel, Acute Phase Reagent Kit, and Acute Phase Diluent Kit.

\*\* One Acute Phase Reagent Kit is required for use with each assay kit.

\*\*\* One Acute Phase Diluent Kit is sufficient to perform the 5-plex and the 4-plex assays.

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