

# Bring Your Biomarkers to Life

Your comprehensive guide to multiplex and single protein detection.

Analyte Quarterly, Vol. 2 2017

- MILLIPLEX® MAP Assays
- SMC™ (Single Molecule Counting) Assays
- ELISA
- RIA
- GyroMark™ HT Assays
- Custom Assay Development











The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.



**MERCK**

# Platforms Fit for Your Purpose

We're here to guide you to choose the best protein detection platform for your needs

## Flexibility and sensitivity: our platforms fit your purpose

Protein Detection Platforms	Fit for Purpose	Quantitative	Sensitivity	Sample Volume	Dynamic Range	Multiplex Capability	Custom Assay Support
<b>Luminex® platform</b>							
	Multiplex detection Flexible platform	Yes	pg/mL	≤ 25 µL	•••		Yes
<b>SMCxPRO™ or Erenna® system</b>							
	Ultrasensitivity High performance	Yes	fg/mL	5–100 µL	•••		Yes
<b>ELISA</b>							
	Plate reader compatibility Most widely cited	Yes	pg/mL	50–100 µL	••		Yes
<b>Gyrolab® workstation</b>							
	Fully automated High precision	Yes	pg/mL	< 5 µL	•••		Yes

• Good Performance    •• Strong Performance    ••• Superior Performance     Not Recommended     Recommended

## MILLIPLEx® MAP multiplex detection: rely on the quality we build into each panel to produce results you trust

In addition to the assay specifications listed in the protocol, we evaluate other performance criteria during our validation process: cross-reactivity, dilution linearity, kit stability, and sample behavior (e.g., detectability and stability). **MILLIPLEx® MAP assays offer the broadest selection of analytes across a wide range of research areas and species.**

## SMC™ assays for use with SMCxPRO™ or Erenna® instruments: Previously undetectable, now quantified, one molecule at a time

Combine a traditional immunoassay workflow with ultrasensitive Single Molecule Counting (SMC™) technology (developed by Singulex®, Inc.) to quantify concentrations down to the femtogram/mL level.

## ELISAs: Quantify your critical targets with our classic assay kits

We have a combined offering of >1800 ELISAs, EIAs and RIAs against numerous soluble circulating and intracellular biomarkers. Search for your target at [SigmaAldrich.com](http://SigmaAldrich.com).

## GyroMark™ HT Kits: High-throughput, nanoliter-scale assays requiring as little as 1 µL of sample

Our custom kits for the Gyrolab® platform are fully validated for reliable use in translational research, with accuracy and precision that meets or exceeds ELISA performance.

## NEW! MILLIPLEX® MAP and Single Protein Detection Kits

Description	Species	Catalog No.
<b>MILLIPLEX® MAP Panels</b>		
Amyloid $\beta$ 1-40 and Amyloid $\beta$ 1-42, 2-plex	Mouse	MABMAG-83K
Cardiovascular Disease Panel 6	Human	HCVD6MAG-67K
Myokine	Rat	RMYOMAG-88K
Hormone Panel	Multi-Species	MSHMAG-21K
<b>ELISAs</b>		
High Molecular Weight Adiponectin	Human	EZHMWAN-65K

## Coming Soon

Description	Species	Catalog No.
<b>MILLIPLEX® MAP Panels</b>		
Autoimmune Autoantibody	Human	Coming Soon!
Bcl-2 Family Apoptosis Panels 1 and 2	Human	Coming Soon!
Immuno-Oncology Checkpoint Protein Panel	Human	Coming Soon!
Neuroscience Panel 2	Human	Coming Soon!

## Custom Premix Kit Option for MILLIPLEX® MAP Panels

We now offer bead mixing for selected MILLIPLEX® MAP kits, so you don't have to do it yourself.

- Available for any number of kits
- Available for any number of analytes within a qualifying kit
- Premixed vials are quality assurance tested to ensure all of the requested beads are included
- Allow up to 10 additional business days

For qualifying kits, look for this symbol in the MILLIPLEX® MAP listings: 



# New Product Spotlight

## SMCxPRO™ Platform

(Cat. No. 95-0100-00)

### Discovery Depends on Detection

The new SMCxPRO™ Immunoassay System offers you a lower cost solution to meet your high sensitivity assay needs.

When the success of your research requires finding and quantifying low levels of proteins, you need technology you can rely on to detect your target.

### This compact benchtop solution offers:

- High sensitivity (femtogram/mL)
- Rapid analysis
- Bead- or plate-based assay format
- Compact: 14" W X 16" H X 17.5" D
- Ready-made to fully customized kits
- Access to over 600 antibody pairs

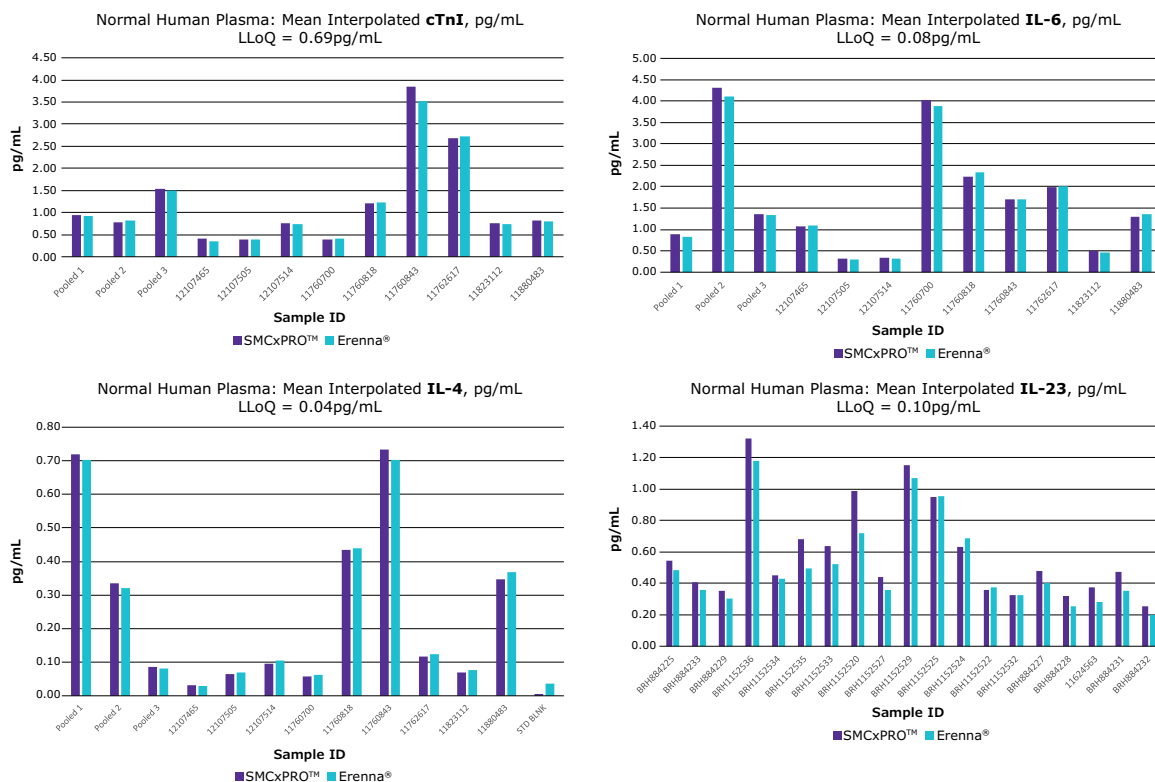


For reliable and affordable protein detection, count on the SMCxPRO™ platform and quantify low-abundant proteins in less than an hour.

Learn more at [MerckMillipore.com/smcxpro](https://www.merckmillipore.com/smcxpro)

## SMCxPRO™ vs. Erenna® Instrument Sample Value Comparisons

Shown below are results for individual and pooled plasma samples from four SMC™ immunoassay kits. The same plate was analyzed first on the SMCxPRO™ instrument, and then on the Erenna® instrument. These results demonstrate that the SMCxPRO™ instrument gives similar sample results to those from the Erenna® instrument and researchers can confidently move from one instrument to the other.



**Figure 1.** For the analytes measured, the mean interpolated concentration of each sample ( $R^2$ ) was nearly identical between the two instruments. Human cTNI (#03-0092-00)  $R^2=0.9944$ , Human IL-6 (#03-0089-01)  $R^2=0.9972$ , Human IL-4 (#03-0052-00)  $R^2=0.9976$ , and Human IL-23 (#03-0112-00)  $R^2=0.9413$ .

## ELISAs

We offer a portfolio of > 1,800 ELISAs and EIAs, covering a diverse range of species and sample types. A variety of research areas are addressed, from inflammation and cardiovascular disease to metabolic and veterinary research. With such a large number of ELISAs, it is impossible to list them all on a single page, so search your target at [merckmillipore.com](https://www.merckmillipore.com). You can also view protocols, performance parameters, and **Certificate of Analysis**.

### ELISA Designations

- Sandwich ELISA
  - Standard off-the-shelf assay
  - Some may be designated “lysate” to accommodate the change from serum, plasma or supernatant
- Custom Sandwich ELISA
  - Requires custom manufacture and validation
  - Upcharge may apply
- EIA
  - Competitive ELISA
- Cell-Based Phosphorylation ELISA
  - For use on cell lysates to detect phosphorylation events

	Cytokines	Metabolic	Cardiovascular	Angiogenesis	Signaling
	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓
	✓	✓		✓	✓
	✓				
	✓	✓			
	✓				
	✓				
	✓				
	✓				
	✓	✓			

## Human High Molecular Weight (HMW) Adiponectin ELISA

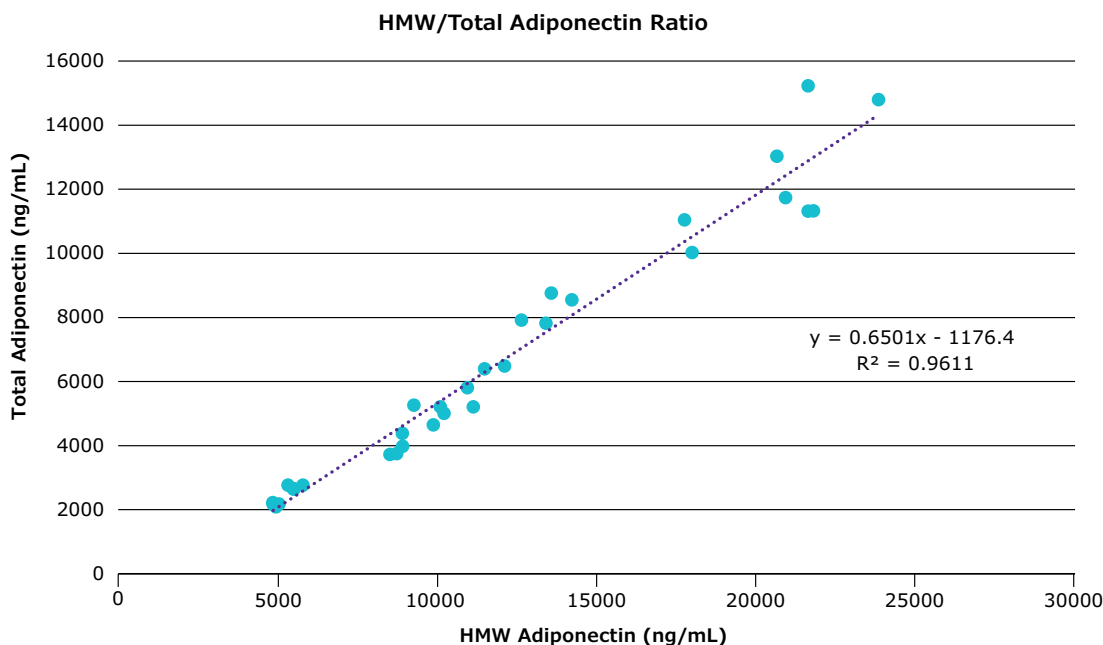
(Cat. No. EZHMWAN-65K)

**Introducing the newest addition to our extensive ELISA portfolio. The Human High Molecular Weight Adiponectin ELISA has been validated to the high standards of our EZ-line of ELISA assays.**

Synthesized by adipocytes, circulating HMW adiponectin mediates insulin sensitization in peripheral tissues and is associated with a lower incidence of diabetes. It is believed to be the most biologically active in terms of maintaining glucose homeostasis. The HMW adiponectin isoform comprises ~50% of all three adiponectin isoforms, giving a HMW/Total ratio of ~0.5.

This kit replaces our discontinued HMW Adiponectin ELISA with an improved, more streamlined workflow. EZHMWAN-65K is a simple sandwich ELISA which first requires a 2.5 hour sample pre-treatment/digestion step. Samples for the assay may include human serum, plasma, adipocyte extracts or culture media. One kit is sufficient to measure 37 samples in duplicate.

Our Human HMW Adiponectin ELISA and Human (Total) Adiponectin ELISA (EZHADP-61K) give a HMW/Total adiponectin ratio of 0.53 (**Figure 2**) which correlates well with the expected value.

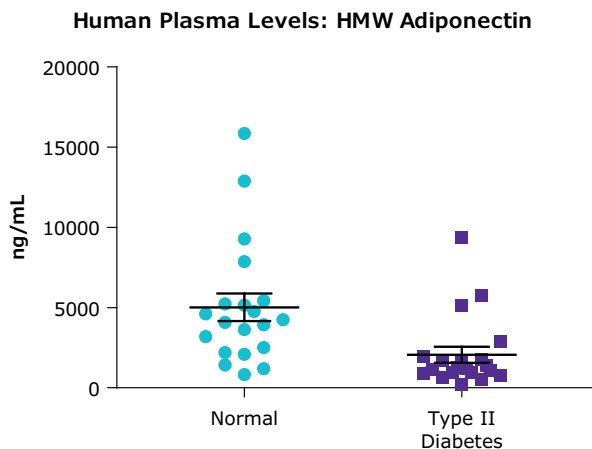


**Figure 2.** Assay of human serum/plasma samples (n=32) in EZHMWAN-65K vs. EZHADP-61K. The resulting HMW/Total adiponectin ratio is 0.53. All samples obtained from BIORECLAMATION, LLC, Westbury, NY.

In **Figure 3**, we show plasma concentrations of HMW Adiponectin from samples from normal/non-diabetic vs. Type II diabetes patients. All were assayed using our new Human HMW Adiponectin ELISA. These results correlate with published results from our previous kit, EZHMWA-64K.<sup>1</sup>

### Reference

1. Sinha, M.K., et al., *Clinical Chemistry*, 53:12, 2144-2151 (2007).



**Figure 3.** HMW Adiponectin concentration (mean ng/mL +/- SEM) from assay of normal/non-diabetic (5013 +/- 860 ng/mL) vs. Type II Diabetes (2064 +/- 499 ng/mL) human plasma samples (n=20 each) using EZHMWAN-65K. Samples were obtained from BIORECLAMATION, Westbury, NY.

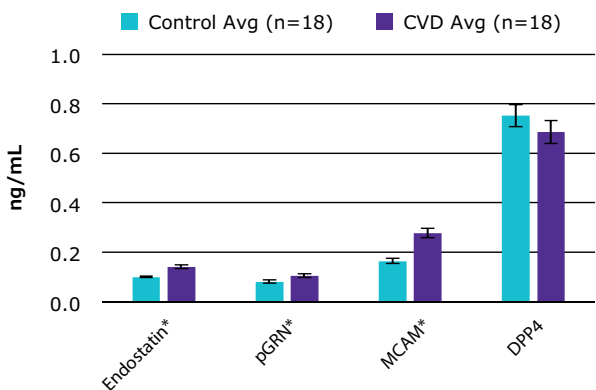
# MILLIPLEX® MAP Human Cardiovascular Disease Panel 6

(Cat. No. HCVD6MAG-67K)

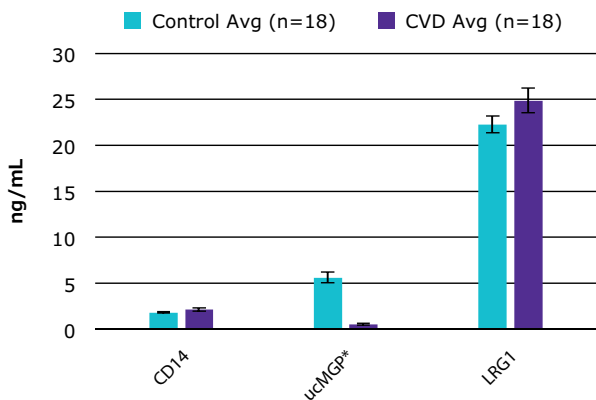
Introducing the 6th in our series of MILLIPLEX® MAP panels to measure the latest biomarkers of cardiovascular disease in human serum, plasma or cell culture samples.

Choose any or all of the following analytes from this 7-plex panel:

- CD14
- DPP4
- Endostatin
- pGRN
- LRG1
- MCAM
- ucMGP



**Figure 4.** Human normal and cardiovascular disease positive (CVD) serum/plasma samples (n=18) were purchased from BIORECLAMATION LLC, Westbury, NY, and assayed using the Human Cardiovascular Disease Panel 6 with a Luminex® 200™ instrument. Data for each analyte are expressed as average ng/mL +/- SEM. The four analytes shown here were found to have the lowest ng/mL concentration in serum/plasma for both normal (non-CVD) and CVD samples. Statistical significance between normal and CVD samples was found in the analytes Endostatin (p=0.0002), pGRN (p=0.03) and MCAM (p=0.00001).



**Figure 5.** From the same assay as described in Figure 3, these four analytes show somewhat higher ng/mL concentrations. Statistical significance was found between the normal and CVD samples for only ucMGP (p=0.0018).



## HUMAN

## Immunology

## Human Cytokine/Chemokine Panel I

- 28 (Cat. No. HCYTMAG-60K)  
 29 (Cat. No. HCYTMAG-60K-PX29)  
 29 (Bulk Cat. No. HCYTMAG60PMX29BK)  
 30 (Cat. No. HCYTMAG-60K-PX30) ♦  
 30 (Bulk Cat. No. HCYTMAG60PMX30BK) ♦  
 38 (Cat. No. HCYTMAG-60K-PX38)  
 38 (Bulk Cat. No. HCYTMAG60PMX38BK)  
 41 (Cat. No. HCYTMAG-60K-PX41)  
 41 (Bulk Cat. No. HCYTMAG60PMX41BK)

sCD40L	IL-9
EGF ♦	IL-10 ♦
Eotaxin/CCL11 ♦	IL-12 (p40) ♦
FGF-2/FGF-basic	IL-12 (p70) ♦
FIt3 Ligand	IL-13 ♦
Fractalkine/CX3CL1	IL-15 ♦
G-CSF ♦	IL-17A/CTLA8 ♦
GM-CSF ♦	IP-10/CXCL10 ♦
GRO	MCP-1/CCL2 ♦
IFN $\alpha$ 2 ♦	MCP-3/CCL7
IFN $\gamma$ ♦	MDC/CCL22
IL-1 $\alpha$ ♦	MIP-1 $\alpha$ /CCL3 ♦
IL-1 $\beta$ ♦	MIP-1 $\beta$ /CCL4 ♦
IL-1Ra ♦	PDGF-AA ▲
IL-2 ♦	PDGF-AB/BB ▲
IL-3 ♦	RANTES/CCL5 ♦▲
IL-4 ♦	TGF $\alpha$
IL-5 ♦	TNF $\alpha$ ♦
IL-6 ♦	TNF $\beta$ /Lymphotoxin- $\alpha$ (LTA) ♦
IL-7 ♦	VEGF-A ♦
IL-8/CXCL8 ♦	

## Human Cytokine/Chemokine Panel II

- 23 (Cat. No. HCP2MAG-62K-PX23)  
 23 (Bulk Cat. No. HCP2MAG62KPX23BK)

6Ckine/CCL21/Exodus-2	IL-28A/IFN $\lambda$ 2
BCA-1/CXCL13	IL-33/NF-HEV (mature)
CTACK/CCL27	LIF
ENA-78/CXCL5	MCP-2/CCL8
Eotaxin-2/CCL24/MPIF-2	MCP-4/CCL13
Eotaxin-3/CCL26	MIP-1 $\delta$ /MIP-5/CCL15
I-309/CCL1	SCF
IL-16	SDF-1/CXCL12
IL-20	TARC/CCL17
IL-21	TPO
IL-23	TRAIL/TNFSF10
	TSLP

## Human Cytokine/Chemokine Panel III

(Cat. No. HCP3MAG-63K)

HCC-1/CCL14 ▲	M-CSF
IL-11	MIG/CXCL9
IL-29/IFN $\lambda$ 1	MIP-3 $\alpha$ /CCL20
I-TAC/CXCL11	MIP-3 $\beta$ /CCL19
LIX/CXCL6/GCP-2	NAP-2/CXCL7 ▲
Lymphotoxin/XCL1	

## Human Cytokine/Chemokine Panel IV

- 24 (Cat. No. HCP4MAG-64K)  
 24 (Cat. No. HCY4MG-64K-PX21)  
 24 (Cat. No. HCP4MG64KPX21BK)

APRIL/TNFSF13	IL-28B/IFN $\lambda$ 3
BAFF/Blys	IL-32 $\alpha$
BRAK/CXCL14	IL-34
CCL28	IL-35
CXCL16	IL-36 $\beta$ /IL-1F8
HCC-4/CCL16	IL-37/IL-1F7
HMGB1 ●	IL-38/IL-1F10
IFN $\beta$	MIP-4/PARC/CCL18
IL-14/ $\alpha$ -Taxilin	MPIF/CCL23
IL-19	YKL40/CHI3L1
IL-24	

## Human High Sensitivity T Cell

- 15 (Cat. No. HSTCMAG-28SK)  
 15 (Cat. No. HSTCMAG28SPMX13) ♦  
 15 (Bulk Cat. No. HSTCMAG28PMX13BK) ♦  
 21 (Cat. No. HSTCMAG28SPMX21)  
 21 (Bulk Cat. No. HSTCMAG28PMX21BK)

Fractalkine/CX3CL1	IL-12 (p70) ♦
GM-CSF ♦	IL-13 ♦
IFN $\gamma$ ♦	IL-17A/CTLA8
IL-1 $\beta$ ♦	IL-21
IL-2 ♦	IL-23
IL-4 ♦	I-TAC/CXCL11
IL-5 ♦	MIP-1 $\alpha$ /CCL3
IL-6 ♦	MIP-1 $\beta$ /CCL4
IL-7 ♦	MIP-3 $\alpha$ /CCL20
IL-8/CXCL8 ♦	TNF $\alpha$ ♦
IL-10 ♦	

## 384-well Human High Sensitivity T Cell

- (Cat. No. HSTC384-28K)  
 21 (Cat. No. HSTCMAG384-PX21)  
 21 (Bulk Cat. No. HSTCMAG384PX21BK)

Fractalkine/CX3CL1	IL-12 (p70)
GM-CSF	IL-13
IFN $\gamma$	IL-17A/CTLA8
IL-1 $\beta$	IL-21
IL-2	IL-23
IL-4	I-TAC/CXCL11
IL-5	MIP-1 $\alpha$ /CCL3
IL-6	MIP-1 $\beta$ /CCL4
IL-7	MIP-3 $\alpha$ /CCL20
IL-8/CXCL8	TNF $\alpha$
IL-10	

## Human Soluble Cytokine Receptor

- (Cat. No. HSCRMAG-32K)  
 14 (Cat. No. HSCRMAG32KPX14)  
 14 (Bulk Cat. No. HSCRMAG32PMX14BK)

sCD30	sIL-6R
sEGFR	sRAGE
sgp130	sTNF RI
sIL-1RI	sTNF RII
sIL-1RII	sVEGFR1/sFit-1
sIL-2Ra	sVEGFR2/sKDR/sFlk-1
sIL-4R	sVEGFR3/sFit-4

## Human Th17

- (Cat. No. HTH17MAG-14K)  
 25 (Cat. No. HT17MG-14K-PX25)  
 25 (Bulk Cat. No. HT17MAG14PMX25BK)

GM-CSF	IL-17E/IL-25
IFN $\gamma$	IL-17F
IL-1 $\beta$	IL-21
IL-2	IL-22
IL-4	IL-23
IL-5	IL-27
IL-6	IL-28A/IFN $\lambda$ 2
IL-9	IL-31
IL-10	IL-33/NF-HEV (mature)
IL-12 (p70)	MIP-3 $\alpha$ /CCL20
IL-13	TNF $\alpha$
IL-15	TNF $\beta$ /Lymphotoxin- $\alpha$ (LTA)
IL-17A/CTLA8	

## Human CD8+ T Cell

- 17 (Cat. No. HCD8MAG-15K)  
 17 (Cat. No. HCD8MAG15K17PMX)  
 17 (Bulk Cat. No. HCD8MAG15KPX17BK)

sCD137/4-1BB/TNFRSF9	IL-4
sFAS/TNFRSF6	IL-5
sFasL	IL-6
GM-CSF	IL-10
Granzyme A	IL-13
Granzyme B	MIP-1 $\alpha$ /CCL3
IFN $\gamma$	MIP-1 $\beta$ /CCL4
IL-2	Perforin
	TNF $\alpha$

## Human Complement Panel 1

(Cat. No. HCMP1MAG-19K)

Adipsin/Factor D	C5a
C2	C9
C4b	Factor I
C5	Mannose-binding Lectin (MBL)

## Human Complement Panel 2

(Cat. No. HCMP2MAG-19K)

C1q	Factor B
C3	Factor H
C3b/iC3b	Factor P/Properdin
C4	

## Human MMP Panel 1

(Cat. No. HMMP1MAG-55K)

MMP-3	MMP-13
MMP-12	

## Human MMP Panel 2

(Cat. No. HMMP2MAG-55K)

MMP-1	MMP-9
MMP-2	MMP-10
MMP-7	



**Human TIMP Panel 1**  
(Serum/Plasma samples)

(Cat. No. HTMP1MAG-54K)

TIMP-1	TIMP-2
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**Human TIMP Panel 2**  
(Cell culture samples)

(Cat. No. HTMP2MAG-54K)

TIMP-1	TIMP-3
TIMP-2	TIMP-4

**Multi-Species TGFβ – Singleplex**(Cat. No. TGFBMAG-64K-01)  
(Bulk Cat. No. TGFBMAG-64K-01BK)

TGFβ1
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**Multi-Species TGFβ – 3 Plex**▼

(Cat. No. TGFBMAG-64K-03)

NON-CONFIGURABLE KIT

TGFβ1	TGFβ3
TGFβ2	

**Immune Response****Human Sepsis Panel 1**

(Cat. No. HSP1MAG-63K)

sFAS/TNFRSF6	MIF
sFasL	PAI-1 (total)
sICAM-1	sVCAM-1

**Human Sepsis Panel 2**

(Cat. No. HSP2MAG-63K)

Granzyme B	MIP-1α/CCL3
HSP70	MIP-1β/CCL4
IL-1α	MMP-8
IL-8/CXCL8	

**Human Sepsis Panel 3**

(Cat. No. HSP3MAG-63K)

Lactotransferrin (LTF)	Resistin
Neutrophil Elastase-2 (ELA2)	Thrombospondin-1 (TSP-1)
NGAL/Lipocalin-2	

**Human Skin**  
(Skin extracts only)

(Cat. No. SKINMAG-50K)

Cortisol ^	Involucrin
Fibronectin	Keratin-1,10
Human Serum Albumin (HSA)	Keratin-6

**Human Immunoglobulin Isotyping**

● (Cat. No. HGAMMAG-301K)

IgA	IgG3
IgG1	IgG4
IgG2	IgM

**Human IgE – Singleplex**

(Cat. No. HGAMMAG-303E)

IgE
-----

**Metabolism/Endocrinology****Human Adipokine Panel 1**  
(Serum/Plasma samples)

(Cat. No. HADK1MAG-61K)

Adiponectin	PAI-1 (total)
Adipsin/Factor D	Resistin
NGAL/Lipocalin-2	

**Human Adipokine Panel 2**  
(Serum/Plasma samples)

(Cat. No. HADK2MAG-61K)

HGF	Leptin
IL-1β	MCP-1/CCL2
IL-6	NGF
IL-8/CXCL8	TNFα
Insulin	

**Human Adipocyte**  
(Cell culture samples)

(Cat. No. HADCYMAG-61K)

Adiponectin	MCP-1/CCL2
HGF	NGF
IL-1β	PAI-1 (total)
IL-6	Resistin
IL-8/CXCL8	TNFα
Leptin	

**Human Diabetes**▼

● (Cat.No. HDIAB-34K-PMX5)

● (Bulk Cat. No. HDIAB34KPMX5BK)

NON-CONFIGURABLE KIT

C-Peptide	Insulin
GLP-1 (active)▶	Leptin
Glucagon▶	

**Human Metabolic Hormone**

(Cat. No. HMHEMAG-34K)

Amylin (active)▶	IL-6
Amylin (total)▶	Insulin
C-Peptide	Leptin
Ghrelin (active)▶	MCP-1/CCL2
GIP (total)	Pancreatic Polypeptide (PP)
GLP-1 (active)▶	PYY (total)
GLP-1 (total)▶	TNFα
Glucagon▶	

**Human Myokine**

(Cat. No. HMYOMAG-56K)

Apelin	IL-15
BDNF	Irisin
Erythropoietin (EPO)	LIF
FABP3	Myostatin/GDF8
FGF21	Oncostatin-M (OSM)
Fractalkine/CX3CL1	Osteonectin/Musclin
FSTL1	Osteonectin/SPARC
IL-6	

**Human Liver Protein**

(Cat. No. HLPFMAG-57K)

α-Fetoprotein (AFP)	FGF-19
ANGPTL3	FGF-21
ANGPTL4	FGF-23
ANGPTL6	HGF
FABP1	

**Human IGF Binding Protein**▶

(Cat. No. HIGFBMAG-53K)

IGFBP1	IGFBP5
IGFBP2	IGFBP6
IGFBP3	IGFBP7
IGFBP4	

**Human IGF**■

(Cat. No. HIGFMAG-52K)

IGF-1	IGF-2
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**Legend key for MILLIPLEX® MAP kits**

- † Analytes which cannot be plexed together:
  - Active and total
  - Free and total
- ◆ Available in Cat. No. listed
- ▼ Premix panel only

- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction

- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format
- Available for custom premix

**Human Pituitary Panel 1**

(Cat. No. HPTP1MAG-66K)

ACTH	FSH
Agouti-Related Protein (AgRP)	GH
CNTF	LH
	TSH

**Multi-Species Steroid/Thyroid Hormone** ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

**Multi-Species Hormone Panel** ■ ^(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

**Cardiovascular****Human CVD Panel 1**

(Cat. No. HCVD1MAG-67K)

BNP	LIX/CXCL6/GCP-2
CK-MB	NT proBNP
CXCL16	Oncostatin-M (OSM)
Endocan-1 (ESM-1)	Placental Growth Factor (PLGF)
FABP3	Troponin I (TnI)
FABP4	
LIGHT	

**Human CVD Panel 2**

(Cat. No. HCVD2MAG-67K)

ADAMTS13	Myoglobin
D-dimer	NGAL/Lipocalin-2
GDF-15	sP-Selectin
sICAM-1	Serum Amyloid A
Myeloperoxidase (MPO)	sVCAM-1

**Human CVD Panel 3 (Acute Phase)**

(Cat. No. HCVD3MAG-67K)

α-1-Acid Glycoprotein (AGP)	Haptoglobin
α-2-Macroglobulin	sL-Selectin
Adipsin/Factor D	Platelet Factor 4 (PF4)/CXCL4
CRP	Serum Amyloid P (SAP)
Fetuin A	von Willebrand Factor (vWF)
Fibrinogen	

**Human CVD Panel 4**

(Cat. No. HCVD4MAG-67K)

sCD31/sPECAM-1	sE-Selectin
dPAPP-A	Thrombomodulin
Follistatin (FST)	Tissue Factor (TF)
Pentraxin-3 (PTX3)	Troponin T (TnT)

**Human CVD Panel 5**

(Cat. No. HCVD5MAG-67K)

ADAM15	Leptin Receptor (LEPR)
Cadherin 13 (CDH13)	MR-ProADM
sCD163	Notch1
Chromogranin-A (CHGA/CGA)	PLA2G7
HSP60	PTGDS
IGF1R	sST2/IL1RL1
LDLR	Syndecan 4 (SYND4)

**Human CVD Panel 6**(Cat. No. HCVD6MAG-67K) **NEW**

sCD14	LRG1
DPP4	MCAM
Endostatin	ucMGP
pGRN	

**Human Apolipoprotein**

(Cat. No. APOMAG-62K)

Apo AI	Apo CII
Apo AII	Apo CIII
Apo B	Apo E

**Bone****Human Bone**

(Cat. No. HBNMAG-51K)

ACTH	Osteocalcin (OC)
DKK1	Osteopontin (OPN)
FGF-23	Osteoprotegerin (OPG)
IL-1β	PTH
IL-6	Sclerostin (SOST)
Insulin	TNFα
Leptin	

**Human RANKL – Singleplex**

(Cat. No. HRNKLMAG-51K-01)

RANKL
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**Cancer****Human Circulating Cancer Biomarker Panel 1**

(Cat. No. HCCBP1MAG-58K)

α-Fetoprotein (AFP)	IL-8/CXCL8
CA125	Leptin
CA15-3	MIF
CA19-9	Osteopontin (OPN)
CEA	Prolactin
CYFRA21-1	PSA (free)†
sFAS/TNFRSF6	PSA (total)†
sFasL	SCF
FGF-2/FGF-basic	TGFα
HCGβ	TNFα
HE4	TRAIL/TNFSF10
HGF	VEGF-A
IL-6	

**Human Circulating Cancer Biomarker Panel 2**

(Cat. No. HCCBP2MAG-58K)

Antithrombin III	Extracellular Matrix Protein 1 (ECM1)
Complement Factor H (CFH)	Vitamin D Binding Protein

**Human Circulating Cancer Biomarker Panel 3**

(Cat. No. HCCBP3MAG-58K)

Cathepsin D	Melanoma Inhibitory Activity (MIA)
Ferritin	Myeloperoxidase (MPO)
Fibroblast Activation Protein (FAP)	Sex Hormone Binding Globulin (SHBG)
Galectin 3	
IGFBP3	

**Human Circulating Cancer Biomarker Panel 4**

(Cat. No. HCCBP4MAG-58K)

ALDH1A1	Kallikrein-6
Carbonic Anhydrase 9 (CA9)	Mesothelin
CD44	Midkine
EpCAM	NCAM1/L1CAM/CD171
Hepsin	Transglutaminase 2 (TGM2)

**Human Cancer/Metastasis Biomarker Panel 1**

(Cat. No. HCMBMAG-22K)

DKK1	Osteoprotegerin (OPG)
GDF-15	Periostin
Neuron-specific Enolase (NSE)	TRAP5
Osteonectin/SPARC	TWEAK
	YKL40/1CHI3L1

**Human Angiogenesis/Growth Factor Panel 1**

(Cat. No. HAGP1MAG-12K)

Angiopoietin-2	HB-EGF
BMP-9	HGF
EGF	IL-8/CXCL8
Endoglin	Leptin
Endothelin-1	Placental Growth Factor (PLGF)
FGF-1/FGF-acidic	VEGF-A
FGF-2/FGF-basic	VEGF-C
Follistatin (FST)	VEGF-D
G-CSF	

**Human Angiogenesis Panel 2**

(Cat. No. HANG2MAG-12K)

Angiostatin/Kringle	sIL-6Ra
sAXL	sNeuropilin-1 (sNRP-1)
sCD31/sPECAM-1	Osteopontin (OPN)
sc-Kit/sStem Cell Factor Receptor (SCFR)	PDGF-AB/BB
sE-Selectin	Tenascin C (TN-C)
sEGFR/sHER1/sErbB1	Thrombospondin-2 (TSP-2)
sHER2/sEGFR2/sErbB2	sTIE-2
sHER3/sEGFR3/sErbB3	suPAR
sHGFR/sc-Met	sVEGFR1/sFlt-1
	sVEGFR2/sKDR/sFlk-1
	sVEGFR3/sFlt-4

**Neuroscience****Human Amyloid Beta and Tau (CSF samples)**

(Cat. No. HNABTMAG-68K)

Amyloid beta 1-40	pTau (Thr181)
Amyloid beta 1-42	Tau (total)

**Human Neuroscience Panel 1 (CSF samples)**

(Cat. No. HNS1MAG-95K)

α-Synuclein	PARK5/Uchl1
Glial Fibrillary Acidic Protein (GFAP)	PARK7/DJ1
Neuron-specific Enolase (NSE)	Transglutaminase 2 (TGM2)

**Human Neurodegenerative Disease Panel 1**

(Cat. No. HNDG1MAG-36K)

α-2-Macroglobulin	Apo E
Apo AI	Complement C3
Apo CIII	Complement Factor H

**Human Neurodegenerative Disease Panel 2**

(Cat. No. HNDG2MAG-36K)

α-1-Antitrypsin (A1AT)	MIP-4/PARC/CCL18
C4	PEDF
CRP	Serum Amyloid P (SAP)

**Human Neurodegenerative Disease Panel 3**

(Cat. No. HNDG3MAG-36K)

BDNF	PAI-1 (total)
Cathepsin D	PDGF-AA
sICAM-1	PDGF-AB/BB
Myeloperoxidase (MPO)	RANTES/CCL5
sNCAM	sVCAM-1

**Human Neurodegenerative Disease Panel 4 (CSF samples)**

(Cat. No. HNDG4MAG-36K)

Amyloid beta 1-40	sRAGE
Amyloid beta 1-42	S100B
GDNF	

**Human Neurological Disorders Panel 3**

(Cat. No. HND3MAG-39K)

Angiotensinogen (AGT)	Osteopontin (OPN)
Contactin-1	Soluble Superoxide Dismutase 1 (sSOD1)
Fetuin A	Soluble Superoxide Dismutase 2 (sSOD2)
Kallikrein-6	

**Human Neuropeptide** ■ ^

(Cat. No. HNPMMAG-35K)

α-MSH	Orexin A
β-Endorphin	Oxytocin
Neurotensin	Substance P

**Human Circadian Stress** ■ ^

(Cat. No. HNCSTMAG-35K)

Cortisol	Melatonin
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**Toxicity****Human Kidney Injury Panel 1 (Urine samples)**

(Cat. No. HKI1MAG-99K)

Calbindin	KIM-1
Collagen IV	Osteoactivin
FABP1	Renin
GSTα	TFF-3
IP-10/CXCL10	TIMP-1

**Human Kidney Injury Panel 2 (Urine samples)**

(Cat. No. HKI2MAG-99K)

α-1-Microglobulin	EGF
Albumin	NGAL/Lipocalin-2
Clusterin	Osteopontin (OPN)
Cystatin C	

**Human Kidney Injury Panel 3 (Urine samples)**

(Cat. No. HKI3MAG-99K)

β-2-Microglobulin RBP4	Uromodulin
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**Human Kidney Injury Panel 4 (Serum/Plasma samples)**

(Cat. No. HKI4MAG-99K)

EGF	Osteopontin (OPN)
FABP1	PTH
IP-10/CXCL10	Renin
KIM-1	

**Human Kidney Injury Panel 5 (Serum/Plasma samples)**

(Cat. No. HKI5MAG-99K)

α-1-Microglobulin	Osteoactivin
Collagen IV	TIMP-1
NGAL/Lipocalin-2	Uromodulin

**Human Kidney Injury Panel 6 (Serum/Plasma samples)**

(Cat. No. HKI6MAG-99K)

β-2-Microglobulin	Cystatin C
Clusterin	RBP4

**Human Liver Injury**

(Cat. No. HLINJMAG-75K)

5'NT/CD73	MDH1
ARG1	SDH
GSTα	

**Legend key for MILLIPLEX® MAP kits**

- † Analytes which cannot be plexed together:
  - Active and total
  - Free and total
- ◆ Available in Cat. No. listed
- ▼ Premix panel only

- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction

- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format
- Ⓚ Available for custom premix

# PRIMATE

## Immunology

### Non-Human Primate Cytokine/Chemokine Panel 1

- ☉ (Cat. No. PRCYTOMAG-40K)
- 23 (Cat. No. PCYTMG-40K-PX23)
- 23 (Bulk Cat. No. PRCYMAG40PMX23BK)

sCD40L	IL-12/23 (p40)
G-CSF	IL-13
GM-CSF	IL-15
IFN $\gamma$	IL-17A/CTLA8
IL-1 $\beta$	IL-18
IL-1Ra	MCP-1/CCL2
IL-2	MIP-1 $\alpha$ /CCL3
IL-4	MIP-1 $\beta$ /CCL4
IL-5	TGF $\alpha$
IL-6	TNF $\alpha$
IL-8/CXCL8	VEGF-A
IL-10	

### Non-Human Primate Cytokine/Chemokine Panel 2

- ☉ (Cat. No. PRCYT2MAG40K)
- 24 (Cat. No. PRCYTMAG40K-PX24)
- 24 (Bulk Cat. No. PRCY2MG40PMX24BK)
- 25 (Cat. No. PRCYTMAG40K-PX25)
- 25 (Bulk Cat. No. PRCY2MG40PMX25BK)

sCD137/4-1BB/ TNFRSF9	IL-17E/IL-25
Eotaxin/CCL11	IL-21
sFasL	IL-22
FGF-2/FGF-basic	IL-23
Fractalkine/CX3CL1	IL-28A/IFN $\lambda$ 2
Granzyme A	IL-31
Granzyme B	IL-33/NF-HEV (mature)
IL-1 $\alpha$	IP-10/CXCL10
IL-2	MIP-3 $\alpha$ /CCL20
IL-4	Perforin
IL-6	RANTES/CCL5 $\blacktriangle$
IL-16	TNF $\beta$ /Lymphotoxin- $\alpha$ (LTA)
IL-17A/CTLA8	

### Multi-Species TGF $\beta$ – Singleplex

- (Cat. No. TGFBMAG-64K-01)
- (Bulk Cat. No. TGFBMAG-64K-01BK)

TGF $\beta$ 1

### Multi-Species TGF $\beta$ – 3 Plex $\blacktriangledown$

- (Cat. No. TGFBMAG-64K-03)

**NON-CONFIGURABLE KIT**

TGF $\beta$ 1	TGF $\beta$ 3
TGF $\beta$ 2	

## Metabolism/ Endocrinology

### Non-Human Primate Metabolic Hormone

- (Cat. No. NHPMHMAG-45K)

Amylin (active) $\blacktriangleright$	Insulin
C-Peptide	Leptin
Ghrelin (active) $\blacktriangleright$	MCP-1/CCL2
GIP (total)	Pancreatic Polypeptide (PP)
GLP-1 (active) $\blacktriangleright$	PYY (total)
Glucagon $\blacktriangleright$	
IL-6	

### Non-Human Primate Pituitary Panel 1

- (Cat. No. NHPPT1MG-46K)

ACTH	FSH
Agouti-Related Protein (AgRP)	GH
CNTF	LH
	TSH

### Multi-Species Steroid/Thyroid Hormone $\blacksquare$ $\wedge$

- (Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

### Multi-Species Hormone Panel $\blacksquare$ $\wedge$

- (Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

# MOUSE

## Immunology

### Mouse Cytokine/Chemokine Panel 1

- ☉ (Cat. No. MCYTOMAG-70K)
- 25 (Cat. No. MCYTOMAG-70K-PMX)  $\blacklozenge$
- 25 (Bulk Cat. No. MCYTMAG70PMX25BK)  $\blacklozenge$
- 32 (Cat. No. MCYTOMAG-70K-PX32)
- 32 (Bulk Cat. No. MCYTMAG70PMX32BK)

Eotaxin/CCL11	IL-13 $\blacklozenge$
G-CSF $\blacklozenge$	IL-15 $\blacklozenge$
GM-CSF $\blacklozenge$	IL-17A/CTLA8 $\blacklozenge$
IFN $\gamma$ $\blacklozenge$	IP-10/CXCL10 $\blacklozenge$
IL-1 $\alpha$ $\blacklozenge$	KC/GRO $\alpha$ /CXCL1 $\blacklozenge$
IL-1 $\beta$ $\blacklozenge$	LIF
IL-2 $\blacklozenge$	LIX
IL-3	MCP-1/CCL2 $\blacklozenge$
IL-4 $\blacklozenge$	M-CSF
IL-5 $\blacklozenge$	MIG/CXCL9
IL-6 $\blacklozenge$	MIP-1 $\alpha$ /CCL3 $\blacklozenge$
IL-7 $\blacklozenge$	MIP-1 $\beta$ /CCL4 $\blacklozenge$
IL-9 $\blacklozenge$	MIP-2/CXCL2 $\blacklozenge$
IL-10 $\blacklozenge$	RANTES/CCL5 $\blacklozenge$
IL-12 (p40) $\blacklozenge$	TNF $\alpha$ $\blacklozenge$
IL-12 (p70) $\blacklozenge$	VEGF-A

### Mouse Cytokine/Chemokine Panel 2

- ☉ (Cat. No. MECY2MAG-73K)
- 15 (Cat. No. MECY2MAG-73KPX)
- 15 (Bulk Cat. No. MECY2MAG73KPBK)

Erythropoietin (EPO)	IL-17A/F
Exodus-2/ CCL21/6Ckine	IL-20
Fractalkine/CX3CL1	MDC/CCL22
IFN $\beta$ 1	MCP-5/CCL12
IFN $\gamma$	MIP-3 $\alpha$ /CCL20
IL-11	MIP-3 $\beta$ /CCL19
IL-16	TARC/CCL17
	TIMP-1

### Mouse High Sensitivity T Cell

- (Cat. No. MHSTCMAG-70K)
- 18 (Cat. No. MHSTCMAG-70KPMX)
- 18 (Bulk Cat. No. MHSTCMAG-70KPBK)

GM-CSF	IL-10
IFN $\gamma$	IL-12 (p70)
IL-1 $\alpha$	IL-13
IL-1 $\beta$	IL17A/CTLA8
IL-2	KC/GRO $\alpha$ /CXCL1
IL-4	LIX
IL-5	MCP-1/CCL2
IL-6	MIP-2/CXCL2
IL-7	TNF $\alpha$

### Mouse Soluble Cytokine Receptor

- ☉ (Cat. No. MSCRMAG-42K)

sCD30	sRAGE
sGP130	sTNF RI
sIL-1RI	sTNF RII
sIL-1RII	sVEGFR1/sFlt-1
sIL-2Ra	sVEGFR2/sKDR/sFlk-1
sIL-4R	sVEGFR3/sFlt-4
sIL-6R	

### Mouse Th17

- ☉ (Cat. No. MTH17MAG-47K)
- 25 (Cat. No. MT17MAG47K-PX25)
- 25 (Bulk Cat. No. MT17MAG47PMX25BK)

sCD40L	IL-17E/IL-25
GM-CSF	IL-17F
IFN $\gamma$	IL-21
IL-1 $\beta$	IL-22
IL-2	IL-23
IL-4	IL-27
IL-5	IL-28B/IFN $\lambda$ 3
IL-6	IL-31
IL-10	IL-33/NF-HEV (mature)
IL-12 (p70)	MIP-3 $\alpha$ /CCL20
IL-13	TNF $\alpha$
IL-15	TNF $\beta$ /Lymphotoxin- $\alpha$ (LTA)
IL-17A/CTLA8	

**Mouse CD8+ T Cell**

- ☐ (Cat. No. MCD8MAG-48K)  
 15 (Cat. No. MCD8MAG48K-PX15)  
 15 (Bulk Cat. No. MCD8MAG48KPX15BK)

sCD137/4-1BB/ TNFRSF9	IL-4
sFas/TNFRSF6	IL-5
sFasL	IL-6
GM-CSF	IL-10
Granzyme B	IL-13
IFN $\gamma$	MIP-1 $\beta$ /CCL4
IL-2	RANTES/CCL5
	TNF $\alpha$

**Multi-Species TGF $\beta$  – Singleplex**

- (Cat. No. TGFBMAG-64K-01)  
 (Bulk Cat. No. TGFBMAG-64K-01BK)

TGF $\beta$ 1

**Multi-Species TGF $\beta$  – 3 Plex ▼**

- (Cat. No. TGFBMAG-64K-03)

NON-CONFIGURABLE KIT

TGF $\beta$ 1	TGF $\beta$ 3
TGF $\beta$ 2	

**Mouse MMP Panel 1 (Serum/Plasma samples)**

- (Cat. No. MMMP1MAG-79K)

MMP-2	MMP-8
MMP-3	

**Mouse MMP Panel 2 (Serum/Plasma samples)**

- (Cat. No. MMMP2MAG-79K)

proMMP-9	MMP-12
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**Mouse MMP Panel 3 (Cell culture samples)**

- (Cat. No. MMMP3MAG-79K)

MMP-2	proMMP-9
MMP-3	MMP-12
MMP-8	

**Immune Response****Mouse Immunoglobulin Isotyping**

- ☐ (Cat. No. MGAMMAG-300K)

IgA	IgG2b
IgG1	IgG3
IgG2a	IgM

**Mouse IgE – Singleplex**

- (Cat. No. MGAMMAG-300E)

IgE

**Metabolism/ Endocrinology****Mouse Adipokine (Serum/Plasma samples)**

- (Cat. No. MADKMAG-71K)

IL-6	PAI-1 (total)
Insulin	Resistin
Leptin	TNF $\alpha$
MCP-1/CCL2	

**Mouse Adipocyte (Cell culture samples)**

- (Cat. No. MADCYMAG-72K)

Adiponectin	PAI-1 (total)
IL-6	Resistin
Leptin	TNF $\alpha$
MCP-1/CCL2	

**Mouse Adiponectin – Singleplex**

- (Serum/Plasma samples)

- (Cat. No. MADPNMAG-70K-01)

Adiponectin

**Mouse Gut Hormone**

- (Cat. No. MGTMAG-78K)

Amylin (active)▶	Leptin
Ghrelin (active)▶	Pancreatic Polypeptide (PP)
GIP (total)	PYY (total)
GLP-1 (active)▶	
Insulin	

**Mouse Metabolic Hormone**

- (Cat. No. MMHMAG-44K)

Amylin (active)▶	Leptin
C-Peptide 2	MCP-1/CCL2
Ghrelin (active)▶	Pancreatic Polypeptide (PP)
GIP (total)	PYY (total)
GLP-1 (active)▶	Resistin
Glucagon▶	TNF $\alpha$
IL-6	
Insulin	

**Mouse Myokine**

- (Cat. No. MMYOMAG-74K)

BDNF	Irisin
Erythropoietin (EPO)★	LIF
FGF-21	Myostatin/GDF8
Fractalkine/CX3CL1	Oncostatin-M (OSM)
Follistatin-like Protein 1 (FSTL1)	Osteocrin/Musclin (OSTN)
IL-6	Osteonectin/SPARC
IL-15	

**Mouse Pituitary**

- (Cat. No. MPTMAG-49K)

ACTH	LH
BDNF	Prolactin
FSH	TSH
GH	

**Multi-Species Steroid/Thyroid Hormone ■ ^**

- (Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

**Multi-Species Hormone Panel ■ ^**

- (Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

**Cardiovascular****Mouse CVD Panel 1**

- (Cat. No. MCVD1MAG-77K)

sCD31/sPECAM-1	PAI-1 (total)
sE-Selectin	sP-Selectin
sICAM-1	Thombomodulin
ProMMP-9	

**Mouse CVD Panel 2**

- (Cat. No. MCVD2MAG-77K)

sCD40L	Oncostatin M
CXCL16	PLGF-2
Endocan-1	Troponin I (TnI)
Follistatin	Troponin T (TnT)
LIGHT	

**Mouse Acute Phase Panel 2**

- (Cat. No. MAP2MAG-76K)

Adipsin/Factor D	CRP
$\alpha$ -1-Acid Glycoprotein (AGP)	Haptoglobin
$\alpha$ -2-Macroglobulin	Serum Amyloid P (SAP)

**Legend key for MILLIPLEX® MAP kits**

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  - Free and total
- ◆ Available in Cat. No. listed
- ▼ Premix panel only
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction

- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format
- ☐ Available for custom premix

## Bone Metabolism

### Mouse Bone

(Cat. No. MBNMAG-41K)

ACTH	Leptin
DKK1	Osteoprotegerin (OPG)
FGF-23	Sclerostin (SOST)
IL-6	TNFα
Insulin	

## Cancer

### Mouse Angiogenesis / Growth Factor Panel 1

(Cat. No. MAGPMAG-24K)

sALK-1	IL-6
Amphiregulin	IL-17A/CTLA8
Angiopoietin-2 ▲	KC/CXCL1
Betacellulin ▲	Leptin
sCD31/sPECAM-1 ▲	MCP-1/CCL2
EGF	MIP-1α/CCL3
Endoglin	Placental Growth Factor (PLGF-2)
Endothelin-1	Prolactin
sFasL	SDF-1/CXCL12
FGF-2/FGF-basic	TNFα
Follistatin (FST)	VEGF-A
G-CSF	VEGF-C
HGF	VEGF-D
IL-1β	

## Neuroscience

### Mouse Amyloid Beta

(Cat. No. MABMAG-83K) **NEW**

Amyloid beta 1-40	Amyloid beta 1-42
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### Mouse Neuropeptide ■ ^

(Cat. No. RMNPMAG-83K)

α-MSH	Orexin A
β-Endorphin	Oxytocin
Neurotensin	Substance P

## Toxicity

### Mouse Kidney Injury Panel 1

(Cat. No. MKI1MAG-94K)

β-2-Microglobulin	Renin
IP-10/CXCL10	TIMP-1
KIM-1	VEGF-A

### Mouse Kidney Injury Panel 2

(Cat. No. MKI2MAG-94K)

Clusterin	NGAL/Lipocalin-2
Cystatin C	Osteopontin (OPN)
EGF	

## RAT

## Immunology

### Rat Cytokine/Chemokine

- ☑ (Cat. No. RECYTMAG-65K)
- 27 (Cat. No. RECYMAG65K27PMX)
- 27 (Bulk Cat. No. RECYMAG65PMX27BK)

EGF	IL-10
Eotaxin/CCL11	IL-12 (p70)
Fractalkine/CX3CL1	IL-13
G-CSF	IL-17A/CTLA8
GM-CSF	IL-18
GROα/KC/CINC-1/CXCL1	IP-10/CXCL10
IFNγ	Leptin
IL-1α	LIX
IL-1β	MCP-1/CCL2
IL-2	MIP-1α/CCL3
IL-4	MIP-2/CXCL2
IL-5	RANTES/CCL5
IL-6	TNFα
	VEGF

### Multi-Species TGFβ – Singleplex

(Cat. No. TGFBMAG-64K-01)  
(Bulk Cat. No. TGFBMAG-64K-01BK)

TGFβ1
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### Multi-Species TGFβ – 3 Plex ▼

(Cat. No. TGFBMAG-64K-03)

**NON-CONFIGURABLE KIT**

TGFβ1	TGFβ3
TGFβ2	

## Metabolism/Endocrinology

### Rat Adipokine (Serum/Plasma samples)

(Cat. No. RADPKMAG-80K)

IL-1β	MCP-1/CCL2
IL-6	PAI-1 (total)
Insulin	TNFα
Leptin	

### Rat Adipocyte (Cell culture samples)

(Cat. No. RADPCMAG-82K)

Adiponectin	MCP-1/CCL2
IL-1β	PAI-1 (total)
IL-6	TNFα
Leptin	

### Rat Metabolic Hormone

(Cat. No. RMHMAG-84K)

Amylin (active)▶	Insulin
C-Peptide 2	Leptin
Ghrelin (active)▶	MCP-1/CCL2
GIP (total)	Pancreatic Polypeptide (PP)
GLP-1 (active)▶	PYY (total)
Glucagon▶	TNFα
IL-6	

## Rat Myokine

(Cat. No. RMYOMAG-88K) **NEW**

BDNF	IL-6
Erythropoietin	IL-15
FGF-21	Irisin
Fractalkine	LIF
FSTL1	Osteocrin (OSTN)
GDF8/Myostatin	Osteonectin/SPARC

## Rat Pituitary

(Cat. No. RPTMAG-86K)

ACTH	LH
BDNF	Prolactin
FSH	TSH
GH	

## Rat Stress Hormone ■

(Cat. No. RSHMAG-69K)

ACTH	Melatonin ^
Corticosterone ^	

## Multi-Species Steroid / Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3 ^
Estradiol	T4 ^
Progesterone	

## Multi-Species Hormone Panel ■ ^

(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

## Rat Thyroid

(Cat. No. RTHYMAG-30K)

T3 ^	TSH
T4 ^	

## Cardiovascular

### Rat Cardiac Injury Panel 1

(Cat. No. RCI1MAG-87K)

Cardiac Troponin I (cTnI)	FABP3
Cardiac Troponin T (cTnT)	Follistatin-like Protein 1 (FSTL1)
Creatine Kinase Muscle (CKM)	Myosin Light Chain 3 (MYL3)
	TIMP-1

### Rat Vascular Injury Panel 1 (Serum/Plasma samples)

(Cat. No. RV1MAG-26K)

Caveolin-1	IL-6
Connective Tissue Growth Factor (CTGF)	MCP-1/ CCL2
GROα/KC/CINC-1/CXCL1	PAI-1 (total)
	TIMP-1
	TNFα
	VEGF

**Rat Vascular Injury Panel 2**  
(Serum/Plasma samples)

(Cat. No. RV2MAG-26K)

Adiponectin	sICAM-1
sE-Selectin	von Willebrand Factor (vWF)

**Rat Vascular Injury Panel 3**  
(Serum/Plasma samples)

(Cat. No. RV3MAG-26K)

α-1-Acid Glycoprotein (AGP)	Fibrinogen ▲
α-2-Macroglobulin (A2M)	Haptoglobin

**Bone Metabolism****Rat Bone Panel 1**  
(Serum/Plasma samples)

(Cat. No. RBN1MAG-31K)

ACTH	Leptin
DKK1	Osteoprotegerin (OPG)
FGF-23	PTH
Insulin	Sclerostin (SOST)

**Neuroscience****Rat Neuropeptide** ■ ^

(Cat. No. RMNPMAG-83K)

α-MSH	Orexin A
β-Endorphin	Oxytocin
Neurotensin	Substance P

**Toxicity****Rat Kidney Toxicity Panel 1**  
(Urine samples)

(Cat. No. RKT1MAG-37K)

Calbindin	KIM-1
Clusterin	Osteopontin (OPN)
GSTα <sup>^</sup>	TIMP-1
IP-10/CXCL10	VEGF-A

**Rat Kidney Toxicity Panel 2**  
(Urine samples)

(Cat. No. RKT2MAG-37K)

α-1-Acid Glycoprotein (AGP)	Cystatin C
Albumin <sup>^</sup>	EGF
β-2-Microglobulin	NGAL/Lipocalin-2

**Rat Liver Injury**

(Cat. No. RLI1MAG-92K)

5'NT/CD73	GSTα
ARG1	SDH
GOT1	

**OTHER SPECIES****Immunology****Canine Cytokine/Chemokine**

- (Cat. No. CCYTOMAG-90K)
- Ⓜ (Cat. No. CCYTMG-90K-PX13)
- Ⓜ (Bulk Cat. No. CCYTMAG90KPX13BK)

GM-CSF	IL-15
IFNγ	IL-18
IL-2	IP-10/CXCL10
IL-6	KC-like
IL-7	MCP-1/CCL2
IL-8/CXCL8	TNFα
IL-10	

**Multi-Species TGFβ – Singleplex**(Cat. No. TGFBMAG-64K-01)  
(Bulk Cat. No. TGFBMAG-64K-01BK)

TGFβ1
-------

**Multi-Species TGFβ – 3 Plex** ▼

(Cat. No. TGFBMAG-64K-03)

**NON-CONFIGURABLE KIT**

TGFβ1	TGFβ3
TGFβ2	

**Metabolism/Endocrinology****Canine Gut Hormone**

(Cat. No. CGTMAG-98K)

Amylin (total) ▶	Insulin
Ghrelin (active) ▶	Leptin
GIP (total)	Pancreatic Polypeptide (PP)
GLP-1 (active) ▶	PYY (total)
Glucagon	

**Canine Pituitary**

(Cat. No. CPTMAG-96K)

ACTH	GH
BDNF	TSH
FSH	

**Multi-Species Steroid/Thyroid Hormone** ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

**Multi-Species Hormone Panel** ■ ^(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

**Toxicity****Canine Kidney Toxicity Expanded Panel 1**  
(Urine samples)

(Cat. No. CKT1MAG-97K)

Clusterin	MCP-1/CCL2
Cystatin C	NGAL/Lipocalin-2
IL-8/CXCL8	Osteopontin (OPN)
KIM-1	

**Canine Kidney Toxicity Panel 2**  
(Urine samples)

(Cat. No. CKT2MAG-97K)

Albumin	RBP4
β-2-Microglobulin	TFF-3

**Immunology****Feline Cytokine/Chemokine**

- Ⓜ (Cat. No. FCYTMAG-20K-PMX)
- Ⓜ (Bulk Cat. No. FCYTMAG20KPX19BK)

**NON-CONFIGURABLE KIT**

sFAS/TNFRSF6	IL-13
Flt3 Ligand	IL-18
GM-CSF	KC/GRO
IFNγ	MCP-1/CCL2
IL-1β	PDGF-BB
IL-2	RANTES/CCL5
IL-4	SCF
IL-6	SDF-1/CXCL12
IL-8/CXCL8	TNFα
IL-12 (p40)	

**Legend key for MILLIPLEX® MAP kits**

- + Analytes which cannot be plexed together:
  - Active and total
  - Free and total
- ◆ Available in Cat. No. listed
- ▼ Premix panel only

- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction

- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format
- Ⓜ Available for custom premix



## Metabolism/ Endocrinology

### Feline Metabolic Hormone

(Cat. No. FMHMAG-29K)

Amylin (active)▶	Insulin
Ghrelin (active)▶	Leptin
GIP (total)	Pancreatic Polypeptide (PP)
GLP-1 (active)▶	PYY (total)
Glucagon▶	

### Multi-Species Steroid/Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

### Multi-Species Hormone Panel ■ ^

(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

## Immunology

### Porcine Cytokine/Chemokine

● (Cat. No. PCYTMAG-23K)

Ⓜ (Cat. No. PCYTMG-23K-13PX)

Ⓜ (Bulk Cat. No. PCYTMAG23PMX13BK)

GM-CSF	IL-6
IFN $\gamma$	IL-8/CXCL8
IL-1 $\alpha$	IL-10
IL-1 $\beta$	IL-12
IL-1Ra	IL-18
IL-2	TNF $\alpha$
IL-4	

### Multi-Species TGF $\beta$ - Singleplex

(Cat. No. TGFBMAG-64K-01)

(Bulk Cat. No. TGFBMAG-64K-01BK)

TGF $\beta$ 1

### Multi-Species TGF $\beta$ - 3 Plex ▼

(Cat. No. TGFBMAG-64K-03)

**NON-CONFIGURABLE KIT**

TGF $\beta$ 1	TGF $\beta$ 3
TGF $\beta$ 2	

## Metabolism/ Endocrinology

### Multi-Species Steroid/Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

### Multi-Species Hormone Panel ■ ^

(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4

## Immunology

### Equine Cytokine/Chemokine Panel

● (Cat. No. EQCYTMAG-93K)

Ⓜ (Cat. No. EQCYTMG-93KPX23)

Ⓜ (Cat. No. EQCTMG93KPX23BK)

Eotaxin/CCL11	IL-6
FGF-2/FGF-basic	IL-8/CXCL8
Fractalkine/CX3CL1	IL-10
G-CSF	IL-12 (p70)
GM-CSF	IL-13
GRO	IL-17A/CTLA8
IFN $\gamma$	IL-18
IL-1 $\alpha$	IP-10/CXCL10
IL-1 $\beta$	MCP-1/CCL2
IL-2	RANTES/CCL5
IL-4	TNF $\alpha$
IL-5	

## Multi-Species TGF $\beta$ - Singleplex

(Cat. No. TGFBMAG-64K-01)

(Bulk Cat. No. TGFBMAG-64K-01BK)

TGF $\beta$ 1

## Multi-Species TGF $\beta$ - 3 Plex ▼

(Cat. No. TGFBMAG-64K-03)

**NON-CONFIGURABLE KIT**

TGF $\beta$ 1	TGF $\beta$ 3
TGF $\beta$ 2	

## Metabolism/ Endocrinology

### Multi-species Steroid/Thyroid Hormone ■ ^

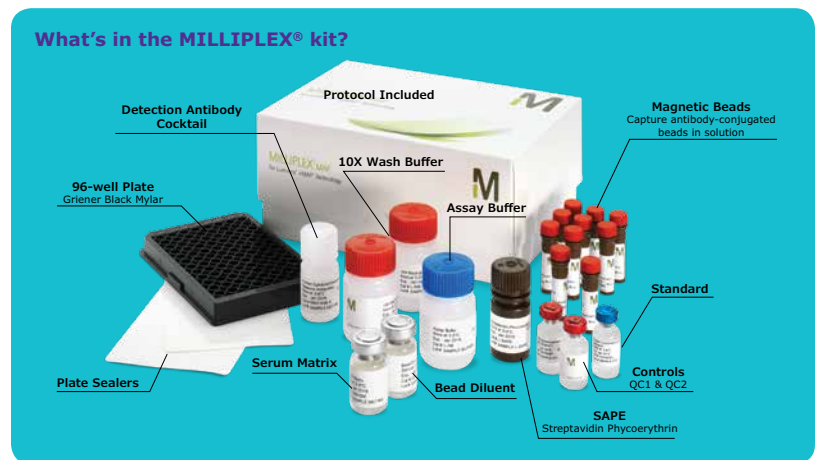
(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

### Multi-Species Hormone Panel ■ ^

(Cat. No. MSHMAG-21K) **NEW**

Cortisol	Testosterone
Estradiol	T3
Progesterone	T4



### Legend key for MILLIPLEX® MAP kits

- † Analytes which cannot be plexed together:
  - Active and total
  - Free and total
- ◆ Available in Cat. No. listed
- ▼ Premix panel only

- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction

- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format
- Ⓜ Available for custom premix

# Uncover How Your Cells Communicate

## Cell signaling MILLIPLEX® MAP assays

### Discovering the pathway

Signaling pathways are often interconnected and involve multifaceted mechanisms. Count on our cell signaling multiplex assays to enable accurate quantitation of both total and phosphorylated forms of signaling proteins, revealing connections and crosstalk within your pathways of interest. Choose from MILLIPLEX® MAP cell signaling multiplex panels and MAPmate™ assays, using the Luminex® xMAP® platform, to better understand cell signaling pathways.

Multiplexing, using the Luminex® xMAP® platform (see instrumentation section), provides faster answers to your cell signaling questions compared to traditional Western blots, mass spectrometry and radioactive phosphorylation assays that require large amounts of sample.

### Cell signaling phosphoprotein + total 2-plex assays

- Directly compare the total vs. phosphoprotein levels in your assay by reading them in the same well
- **All 2-plex assays (exceptions noted) can be combined with each other to study multiple total and phosphorylated proteins in the same well**

### Cell signaling phosphoprotein & total multiplex assays

- Measure multiple total or phosphoproteins simultaneously in a single sample
- Acquire a deeper understanding of intracellular pathways involved in both normal and disease states that include:
  - Immune response
  - Cardiovascular and metabolic health and disease
  - Neurological disorders and cancer

### MAPmate™ phosphoprotein & total singleplex kits

- Plex up to 8 individual MAPmate™ kits to design your own custom assays using our Cell Signaling Buffer and Detection Kit\*
- Plex additional MAPmate™ kits into existing MILLIPLEX® MAP Cell Signaling kits\*
- Use  $\beta$ -tubulin or GAPDH as housekeeping/loading controls by plexing into an existing MILLIPLEX® MAP Cell Signaling Kit\*

\*Refer to the guidelines provided in the protocols.



## Cell Signaling Phosphoprotein + Total 2 Plex Assays

### Akt Phospho/Total – 2 Plex

(Cat. No. 48-618MAG) AB2 ▼ \* ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
Akt/PKB		✓ (Ser473)	H, M, R
Akt/PKB	✓		H, M, R

### Akt1 Phospho/Total – 2 Plex

(Cat. No. 48-631MAG) AB2 ▼ \* ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
Akt1		(Ser473)	H, M, R
Akt1	✓		H, M, R

### Akt2 Phospho/Total – 2 Plex

(Cat. No. 48-632MAG) AB2 ▼ \* ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
Akt2		(Ser474)	H, M, R
Akt2	✓		H, M, R

### Akt3 Phospho/Total – 2 Plex

(Cat. No. 48-633MAG) AB2 ▼ \* ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
Akt3		(Ser472)	H, M, R
Akt3	✓		H, M, R

### CREB Phospho/Total – 2 Plex

(Cat. No. 48-628MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
CREB		✓ (Ser133)	H, M, R
CREB	✓		H, M, R

### Erk/MAPK 1/2 Phospho/Total – 2 Plex

(Cat. No. 48-619MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
Erk/MAPK 1/2		✓ (Thr185/Tyr187)	H, M, R
Erk/MAPK 1/2	✓		H, M, R

### IRS1 Phospho/Total – 2 Plex

(Cat. No. 48-626MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
IRS1		✓ (Ser636)	H, M
IRS1	✓		H, M, R

### JNK Phospho/Total – 2 Plex

(Cat. No. 48-622MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
JNK/SAPK1		✓ (Thr183/Tyr185)	H, M, R
JNK/SAPK1	✓		H, M, R

### mTOR Phospho/Total – 2 Plex

(Cat. No. 48-625MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
mTOR		✓ (Ser2448)	H, M, R
mTOR	✓		H, M

### p38 Phospho/Total – 2 Plex

(Cat. No. 48-624MAG) AB1 or AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
p38/SAPK2A/B		✓ (Thr180/Tyr182)	H, M, R
p38/SAPK2A/B	✓		H, M, R

### STAT3 Phospho/Total – 2 Plex

(Cat. No. 48-623MAG) AB2 ▼ ●● NON-CONFIGURABLE KIT

Analyte	Total	Phosphorylated	
STAT3		✓ (Tyr705)	H, M, R
STAT3	✓		H, M, R

- Can be plexed with other 2 Plexes
- \* Cannot plex with other phospho Akt
- ▼ Premix panel only

AB1: Uses Assay Buffer 1

AB2: Uses Assay Buffer 2

H Human

M Mouse

R Rat

## Cell Signaling

### Akt/mTOR (Phosphoprotein) – 11 Plex

(Cat. No. 48-611MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB	✓ (Ser473)	H, M, R	
GSK3α	✓ (Ser21)	H, M, R	
GSK3β	✓ (Ser9)	H, M, R	
IGF1R	✓ (Tyr1135/1136)	H, M	
IR	✓ (Tyr1162/1163)	H	
IRS1	✓ (Ser636)	H, R	
mTOR	✓ (Ser2448)	H, M	
p70S6 Kinase	✓ (Thr389/412)	H, M, R	
PTEN	✓ (Ser380)	H, M, R	
RPS6	✓ (Ser235/236)	H, M, R	
TSC2	✓ (Ser939)	H, M, R	

### Akt/mTOR (Total) – 11 Plex

(Cat. No. 48-612MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB	✓	H, M, R	
GSK3α	✓	H, M, R	
GSK3β	✓	H, M, R	
IGF1R	✓	H, M, R	
IR	✓	H, R	
IRS1	✓	H, M, R	
mTOR	✓	H, M, R	
p70S6 Kinase	✓	H, M, R	
PTEN	✓	H, M, R	
RPS6	✓	H, M, R	
TSC2	✓	H, M, R	

### Early Apoptosis – 7 Plex

(Cat. No. 48-669MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB	✓ (Ser473)	H, M, R	
BAD	✓ (Ser112)	H	
Bcl-2	✓ (Ser70)	H	
Active Caspase 8	✓	H	
Active Caspase 9	✓	H	
JNK/SAPK1	✓ (Thr183/Tyr185)	H, M, R	
p53	✓ (Ser46)	H	

### Human DNA Damage/Genotoxicity – 7 Plex

(Cat. No. 48-621MAG) AB1 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
ATR	✓	H	
Chk1		✓ (Ser345)	H, M, R
Chk2		✓ (Thr68)	H
H2A.X		✓ (Ser139)	H, M, R
MDM2	✓	H, M, R	
p21	✓	H	
p53		✓ (Ser15)	H

### MAPK/SAPK (Phosphoprotein) – 10 Plex

(Cat. No. 48-660MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
ATF2		✓ (Thr71)	H, M
c-Jun		✓ (Ser73)	H, M, R
Erk/MAPK 1/2		✓ (Thr185/Tyr187)	H, M, R
HSP27		✓ (Ser78)	H
JNK/SAPK1		✓ (Thr183/Tyr185)	H, M, R
MEK1		✓ (Ser222)	H, M, R
MSK1		✓ (Ser212)	H, M
p38/SAPK2A/B		✓ (Thr180/Tyr182)	H, M, R
p53		✓ (Ser15)	H
STAT1		✓ (Tyr701)	H, M

### Human RTK (Phosphoprotein)

(Choose Analytes that Meet your Needs)

(Cat. No. HPRTKMAG-01K) AB1

Analyte	Total	Phosphorylated	
c-Kit		(pan Tyr)	H
c-Met/HGFR		(pan Tyr)	H
ErbB1/EGFR		(pan Tyr)	H
ErbB2/HER2		(pan Tyr)	H
ErbB3/HER3		(pan Tyr)	H
ErbB4/HER4		(pan Tyr)	H
FGFR1		(pan Tyr)	H
Flt3		(pan Tyr)	H
IGF1R		(pan Tyr)	H
IR		(pan Tyr)	H
MSCFR		(pan Tyr)	H
PDGFRα		(pan Tyr)	H, M, R
PDGFRβ		(pan Tyr)	H
TIE1		(pan Tyr)	H
TIE2		(pan Tyr)	H
VEGFR1/Flt-1		(pan Tyr)	H
VEGFR2/KDR/Flk-1		(pan Tyr)	H
VEGFR3/Flt-4		(pan Tyr)	H, M, R

## Cell Signaling (continued)

### Multi-Pathway (Phosphoprotein) – 9 Plex

(Cat. No. 48-680MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB		✓ (Ser473)	H, M, R
CREB		✓ (Ser133)	H, M, R
Erk/MAPK 1/2		✓ (Thr185/Tyr187)	H, M, R
JNK/SAPK1		✓ (Thr183/Tyr185)	H, M, R
NFκB		✓ (Ser536)	H
p38/SAPK2A/B		✓ (Thr180/Tyr182)	H, M, R
p70S6 Kinase		✓ (Thr389/412)	H, M, R
STAT3		✓ (Ser727)	H, M, R
STAT5A/B		✓ (Tyr694/699)	H, M, R

### Multi-Pathway (Total) – 9 Plex

(Cat. No. 48-681MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB	✓		H, M, R
CREB	✓		H, M, R
Erk/MAPK 1/2	✓		H, M, R
JNK/SAPK1	✓		H, M, R
NFκB	✓		H, M, R
p38/SAPK2A/B	✓		H, M, R
p70S6 Kinase	✓		H, M, R
STAT3	✓		H, M, R
STAT5A/B	✓		H, M, R

### NFκB – 6 Plex

(Cat. No. 48-630MAG) AB1 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
c-Myc	✓		H
FADD		✓ (Ser194)	H
IκBα		✓ (Ser32)	H
IKKα/β		✓ (Ser177/181)	H
NFκB		✓ (Ser536)	H, M
TNFR1	✓		H

### Protein Translation – 6 Plex

(Cat. No. 48-655MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
eIF2a		✓ (Ser51)	H, M, R
eIF-4B		✓ (Ser422)	H, M, R
eIF-4E		✓ (Ser209)	H, M, R
eIF-4G		✓ (Ser1108)	H, M, R
4E-BP1	✓	✓ (Thr37/46)	H, M, R

### Src Family Kinase Active Site (Phosphoprotein) – 8 Plex

(Cat. No. 48-650MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Blk		✓ (Tyr389)	H
Fgr		✓ (Tyr412)	H, R
Fyn		✓ (Tyr420)	H, M, R
Hck		✓ (Tyr411)	H, M
Lck		✓ (Tyr394)	H, M, R
Lyn		✓ (Tyr397)	H, R
Src		✓ (Tyr419)	H, M, R
Yes		✓ (Tyr421)	H, M, R

### STAT (Phosphoprotein) – 5 Plex

(Cat. No. 48-610MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
STAT1		✓ (Tyr701)	H, M
STAT2		✓ (Tyr690)	H
STAT3		✓ (Tyr705)	H, M, R
STAT5A/B		✓ (Tyr694/699)	H, M, R
STAT6		✓ (Tyr641)	H

### T-Cell Receptor (Phosphoprotein) – 7 Plex

(Cat. No. 48-690MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
CD3ε		✓ (pan Tyr)	H
CREB		✓ (Ser133)	H, M, R
Erk/MAPK 1/2		✓ (Thr185/Tyr187)	H, M, R
LAT		✓ (pan Tyr)	H
Lck		✓ (pan Tyr)	H, M, R
Syk		✓ (pan Tyr)	H
ZAP-70		✓ (pan Tyr)	H

### TGFβ – 6 Plex

(Cat. No. 48-614MAG) AB2 ▼ **NON-CONFIGURABLE KIT**

Analyte	Total	Phosphorylated	
Akt/PKB		✓ (Ser473)	H
Erk/MAPK 1/2		✓ (Thr185/Tyr187)	H, M, R
SMAD2		✓ (Ser465/467)	H, M, R
SMAD3		✓ (Ser423/425)	H, M, R
SMAD4	✓		H, M, R
TGFβRII	✓		H

## Cell Signaling (continued)

### MAPmate™: Phosphoprotein & Total Singleplex Assays

Plex up to 8 individual MAPmate™ assays together using our Cell Signaling Buffer and Detection Kit, or include them in existing MILLIPLEX® MAP Cell Signaling Panels to enhance the panel or serve as controls within the guidelines provided in the protocols. All of the analytes in the MAPmate™ portfolio are available to build into custom assays. For more information contact your sales specialist or email us at [customassay@emdmillipore.com](mailto:customassay@emdmillipore.com).

#### Important MAPmate™ Guidelines

- Consult the protocol prior to use.
- All MAPmate™ assays require the Cell Signaling Buffer & Detection Kit (**48-602MAG**). This kit contains all necessary reagents except the MAPmate™ assay. Both a filter and flat bottom plate are included for convenience.
- All MAPmate™ assays use Cell Signaling Assay Buffer 2 (AB2).
- The following MAPmate™ assays should not be plexed together:
  - Phospho-specific and total MAPmate™ pairs.
  - GAPDH and  $\beta$ -Tubulin MAPmates™ can be used for normalization with any of the MAPmates™.

MAPmate™ Kits	Species Homology	Cat. No.
$\beta$ -Tubulin (total)	H, M, R	<b>46-713MAG</b>
GAPDH (total)	H	<b>46-667MAG</b>
Akt/PKB (Ser473)	H, M, R	<b>46-677MAG</b>
Akt/PKB (total)	H, M, R	<b>46-675MAG</b>
BAD (Ser112)	H, M	<b>46-694MAG</b>
Caspase 3 (Active)	H, M	<b>46-604MAG</b>
ERK/MAPK 1/2 (Thr185/Tyr187)	H, M, R	<b>46-602MAG</b>
ERK/MAPK 1/2 (total)	H, M, R	<b>46-609MAG</b>
JNK/SAPK1 (Thr183/Tyr185)	H, M	<b>46-613MAG</b>
JNK/SAPK1 (total)	H, M	<b>46-618MAG</b>
mTOR (Ser2448)	H, M, R	<b>46-686MAG</b>
mTOR (total)	H, M, R	<b>46-685MAG</b>
p38/SAPK2A/B (Thr180/Tyr182)	H, M, R	<b>46-610MAG</b>
p38/SAPK2A/B (total)	H, M, R	<b>46-612MAG</b>
Cleaved PARP (total)	H	<b>46-656MAG</b>
STAT1 (Tyr701)	H, M	<b>46-655MAG</b>
STAT1 (total)	H, M	<b>46-654MAG</b>

### Lysates

Lysate Description	Cat. No.
A431: EGF	<b>47-210</b>
A549: Camptothecin	<b>47-218</b>
Daudi: IL-4	<b>47-217</b>
HeLa: IFN $\alpha$	<b>47-226</b>
HeLa: Lambda Phosphatase	<b>47-229</b>
HeLa: TNF $\alpha$ +CalA	<b>47-230</b>
HeLa: Unstim	<b>47-205</b>
HeLa: HS/Ars	<b>47-211</b>
HepG2: DCA	<b>47-232</b>
HepG2: Insulin	<b>47-227</b>

Lysate Description	Cat. No.
HepG2: TGF $\beta$	<b>47-235</b>
HUVEC: Serum	<b>47-238</b>
Jurkat: Anisomycin	<b>47-207</b>
Jurkat: H <sub>2</sub> O <sub>2</sub>	<b>47-208</b>
Jurkat: Paclitaxel	<b>47-220</b>
Jurkat: Unstim	<b>47-206</b>
MCF7: IGF-1	<b>47-216</b>
NIH3T3: Anisomycin	<b>47-219</b>
Ramos: PVD	<b>47-224</b>

# Bring your biomarkers to life with Luminex® systems and MILLIPLEX® Analyst 5.1 software

## Driving Assay Consistency

Enhance your data generation with our Luminex® instrument solutions. Combined with the largest portfolio of multiplex analytes available, we provide you the maximum power of Luminex® xMAP® technology, the most trusted, widely used platform for biomarker screening and protein analysis. As a Luminex® partner, we are a preferred distributor of Luminex® instruments, accessories and software. Our ongoing dedication and industry-leading experience with multiplex technology enable you to gain more information quickly and reliably.

### xMAP® technology offers many advantages compared to other immunoassay methods:

- **Multiplexing:** Data generated simultaneously is less prone to user error, enabling the end-user to construct cleaner data sets to explore multiple parameters.
- **Low sample volume:** With minimal hands-on time, screen more than 40 analytes in a single sample using a maximum of 25 µL per well.
- **Magnetic bead-based format:** Responds rapidly and efficiently to a magnetic field, enabling better and faster washing techniques, including high-throughput washing options.
- **Reproducibility:** High-volume production of xMAP® microspheres allows assay standardization that solid-phased flat arrays cannot provide.
- **Speed/high-throughput:** Simultaneously measure the concentration of a large number of different analytes in a single sample, in 96- or 384-well format, enabling you to do your work faster, gaining the early and comprehensive data so critical to your work.



## Specifications

Instrument	FLEXMAP 3D® System	Luminex® 200™ System	MAGPIX® System
Cat. No.	40-014	40-012	40-072
Description	The fastest, most flexible platform.	Gen 2 of the original widely used Luminex® 100™ System.	The newest most cost-effective model for running protein assays.
Software	xPONENT® 4.2	xPONENT® 4.2	xPONENT® 4.2
Optics	Lasers/APDs/PMTs	Lasers/APDs/PMTs	LED/CCD Camera
Hardware	Flow Cytometry-based	Flow Cytometry-based	Fluorescent Imager
Bead Compatibility	Magnetic and nonmagnetic	Magnetic and nonmagnetic	Magnetic
Multiplex Capacity	500	100 (80 for MagPlex®)	50
Read Time (Microtiter Plate)	~20 min/96-well plate ~75 min/384-well plate	~40 min/96-well plate	~60 min/96-well plate
Applications	Protein/Nucleic Acid	Protein/Nucleic Acid	Protein/Nucleic Acid
Dynamic Range	4.5 logs	3.5 logs	3.5 logs
Dimensions including PC (W x D x H)	110 x 62 x 63 cm	115 x 60 x 50 cm	70 x 60 x 50 cm
Weight (Analyzer)	77.1 kg (170 lbs)	49 kg (113 lbs)	17.5 kg (38.5 lbs)
CFR 21 Part 11	✓	✓	✓
Automation	✓	✓	✓
Security	✓	✓	✓
LIS	✓	✓	✓

All systems run on the Luminex® xPONENT® 4.2 data acquisition platform providing a consistent experience, from data input to results, no matter which instrument a scientist uses for their research. This software adapts to fit the capabilities of each platform.



## Instrument and Kit Service, Training and Consumables

As a preferred partner of Luminex® instruments, we supply full service at point of sale and throughout your research. Multi-level service contracts provide cover from Luminex® engineers tailored to the use of your new instrument. Our staff can help you install the instrument, train you to use your platform, and continue to supply you with the appropriate reagents to run it as required.

### Service Contracts

Luminex® System 1 Year Warranty Plans	Unlimited Remote Support	Unlimited Emergency Repair	1 (PM)	2 (PM)	Cat. No.
FLEXMAP 3D®, Bronze	•		•		SVCLUMBRZFM3D
FLEXMAP 3D®, Silver	•	○	•		SVCLUMSLVFM3D
FLEXMAP 3D®, Gold	•	○	•		SVCLUMGLDFM3D
FLEXMAP 3D®, Gold 360*	•	○	•		SVCLUMGLD360FM3D
FLEXMAP 3D®, Platinum	•	●		•	SVCLUMPLTFM3D
FLEXMAP 3D®, Platinum 360*	•	●		•	SVCLUMPLT360FM3D
Luminex® 200™, Bronze	•		•		SVCLUMBRZ
Luminex® 200™, Silver	•	○	•		SVCLUMSLV
Luminex® 200™, Gold	•	○	•		SVCLUMGLD
Luminex® 200™, Gold 360*	•	○	•		SVCLUMGLD360
Luminex® 200™, Platinum	•	●		•	SVCLUMPLT
Luminex® 200™, Platinum 360*	•	●		•	SVCLUMPLT360
MAGPIX®, Standard	•	○			SVCLUMGLDMAGPIX
MAGPIX®, Gold	•	○	•		SVCMAGPIXGOLDPM
MAGPIX®, Platinum	•	●		•	SVCMAGPIXPLATPM

● Onsite 1-business day response ○ Onsite 2-business days response

1 (PM) = includes 1 preventive maintenance 2 (PM) = includes 2 preventive maintenances

\* 360 service includes on-site support for assays developed by Luminex® only (for MILLIPLEX® MAP assay support see TRONSITE).

### Consumables

Description	Pack Size	Cat. No.
MAGPIX® Drive Fluid	4 pack, 750 mL ea	MPXDF-4PK
Sheath Fluid for Luminex® 100/200™ & FLEXMAP 3D® Systems	20 L	40-50015
Sheath Fluid (20x concentrate)	1 L	40-50018
MAGPIX® Calibration Kit	25 uses	MPX-CAL-K25
MAGPIX® Performance Verification Kit	25 uses	MPX-PVER-K25
Luminex® 200™ Calibration Kit (xPONENT®)	25 uses	LX2-CAL-K25
Luminex® 200™ Performance Verification Kit (xPONENT®)	25 uses	LX2-PVER-K25
FLEXMAP 3D® Calibration Kit	25 uses	F3D-CAL-K25
FLEXMAP 3D® Performance Verification Kit	25 uses	F3D-PVER-K25

### Training

Description	Cat. No.
MAGPIX® System Onsite Installation and Training	TRONSITE-MAGPIX
Luminex® 200™ System Onsite Installation and Training	TRONSITE-LX200
FLEXMAP 3D® System Onsite Installation and Training	TRONSITE-FM3D
MILLIPLEX® Analyst 5.1 Software Onsite Installation and Training	TRONSITE-MA
BioTek® Washer Onsite Installation and Training	TRONSITE-BIOTEK
MILLIPLEX® MAP Kits Training	TRONSITE-MPX

### Luminex® Systems Installation Qualification (IQ) and Operational Qualification (OQ)

IQ/OQ Protocol	Protocol No.
FLEXMAP 3D® for xPONENT® 4.2 platform	VP-FM3D-4.2
Luminex® 200™ xPONENT® 4.2 platform	Coming Soon!
MAGPIX® xPONENT® 4.2 platform	VP-MAGPIX-4.2
Field Service**	92-00040-00-002

\*\* Optional for Luminex® 200™ and required for FLEXMAP 3D®

# MILLIPLEX® Analyst 5.1 Software

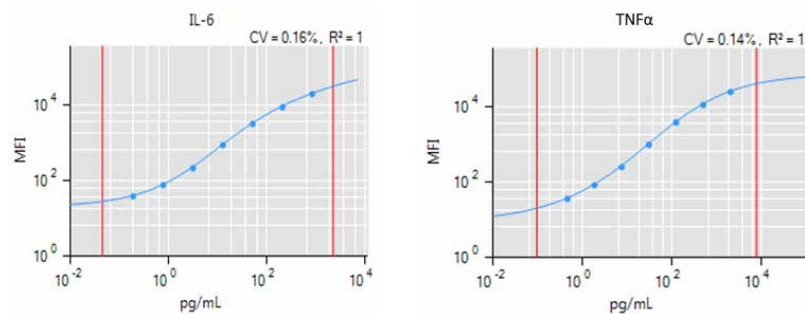
Use our advanced curve-fitting algorithm, developed from our experience in assay manufacturing and validated using real-life data sets

MILLIPLEX® Analyst 5.1 software was designed to focus on data derived from the low and high ends of standard curves. Data in these regions can be important and are commonly missed by existing multiplex data analysis packages.

In developing the curve-fitting algorithms for MILLIPLEX® Analyst 5.1, simulations were run on 600+ data sets using actual experimental standard curves to determine the fit that would give the lowest CVs at the low and high ends of the curves, and that work well even with standard curves of low quality.

## MILLIPLEX® Analyst 5.1 Detailed Reports

Easily export complete multiplex data for use in presentations and record keeping.



Curve statistics: 5-P.log(2.96, 11.89, 0.52, 3.19, 0.31)  
Chi = 1.88%, CV = 0.16%, R² = 0.9999  
DC = (0.047, 2025)

Curve statistics: 5-P.log(2.13, 11.10, 0.41, 3.06, 0.47)  
Chi = 1.66%, CV = 0.14%, R² = 0.9999  
DC = (0.097, 7853)

### Notes:

- DC - The detectable concentration range.
- CV - The Coefficient of Variation of standard curve replicates at each dilution level.
- Chi - The Chi-Squared test statistic of the distance between observed concentrations with expected concentrations.

**Figure 6.** Example data from the MILLIPLEX® Human High Sensitivity T Cell panel (HSTCMAG-28SK, analytes IL-6 and TNFα). Curves generated using 5 parameter logarithmic curve fit using MILLIPLEX® Analyst 5.1.

Standard	Exp pg/mL	MFI	Obs pg/mL	% CV	% Recovery	minDC pg/mL
<b>IL-6</b>						
Blank	0	24	—	11.79	—	0.047
Std 1	0.18	38.5	0.18	5.51	99.99	
Std 2	0.73	75	0.74	11.31	100.69	
Std 3	2.93	211.5	2.86	5.68	97.64	
Std 4	11.72	847	11.99	9.18	102.34	
Std 5	46.88	3052	47.5	4.73	101.33	
Std 6	187.5	8262	181.59	5.02	96.85	
Std 7	750	18348	759.68	1.92	101.29	
<b>TNFα</b>						
Blank	0	22.25	—	11.12	—	0.097
Std 1	0.43	36	0.43	3.93	99.62	
Std 2	1.71	83.5	1.74	2.54	101.83	
Std 3	6.84	246.5	6.66	3.73	97.42	
Std 4	27.34	954.5	27.45	4.96	100.38	
Std 5	109.38	3665	111.88	3.43	102.29	
Std 6	437.5	10648	428.21	0.05	98.11	
Std 7	1750	23262	1758	1.01	100.44	

**Table 1.** Standard curve performance from HSTCMAG-28SK analytes IL-6 and TNFα using MILLIPLEX® Analyst 5.1. minDC = minimum detectable concentration.

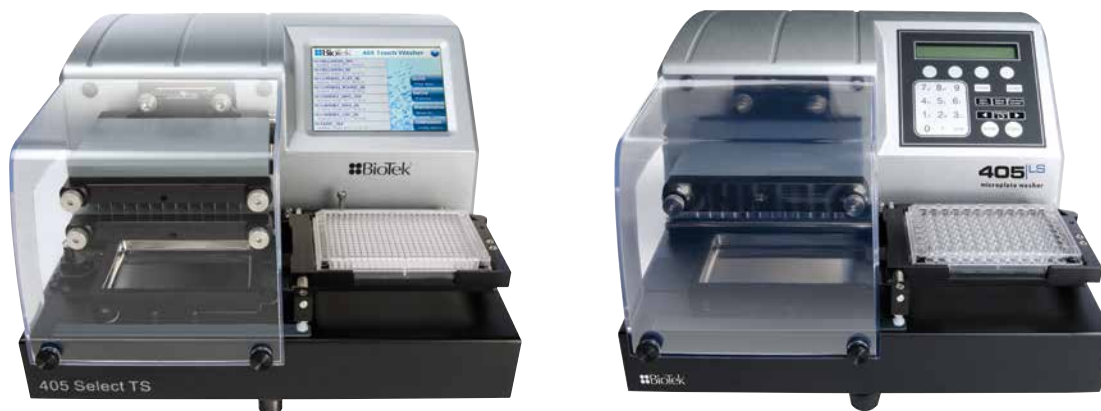
Description	Cat. No.
MILLIPLEX® Analyst 5.1 Software – 1 seat license	40-086
MILLIPLEX® Analyst 5.1 Software – 5 seat license	40-087
MILLIPLEX® Analyst 5.1 Software Database Edition – 1 seat license	40-088
MILLIPLEX® Analyst 5.1 Software Database Edition – 5 seat license	40-089

# Washing solutions for MILLIPLEX<sup>®</sup> MAP and all your plate-based assays

In partnership with BioTek<sup>®</sup>, we offer the latest advancements in 96- and 384-well plate washing: a fully automated system designed to quickly wash an entire plate through biomagnetic separation, washing and vacuum filtration. We offer two systems which allow magnetic and vacuum filtration options—with the 405<sup>™</sup> TS model offering an easy-to-use and glove-touchable screen. These newest BioTek<sup>®</sup> washers come pre-loaded with our validated wash protocols.

## BioTek<sup>®</sup> washer advantages:

- Fast and hands-free full plate washing
- MILLIPLEX<sup>®</sup> MAP and Luminex<sup>®</sup> xMAP<sup>®</sup>-approved
- High-energy neodymium iron boron magnets for rapid separation of multiplex beads with superior retention
- 405<sup>™</sup> TS models have a state-of-the-art, high-resolution LED backlit touch screen user interface for an intuitive and flexible instrument
- 405<sup>™</sup> TS models come with the built-in Ultrasonic Advantage<sup>™</sup> enabling easy cleaning even with the toughest of sample types



**Figure 7.** BioTek<sup>®</sup> plate washer models: the BioTek<sup>®</sup> 405<sup>™</sup> Select TS (touch screen) Washer (left); the BioTek<sup>®</sup> 405<sup>™</sup> LS Washer (right).

Description	Cat. No.
BioTek <sup>®</sup> 405 <sup>™</sup> LS Magnetic 96-well Washer	40-094
BioTek <sup>®</sup> 405 <sup>™</sup> LS Magnetic/Vacuum Filtration 96-well Washer	40-095
BioTek <sup>®</sup> 405 <sup>™</sup> TS Magnetic 96-well Washer Complete with Touch Screen and Ultrasonic Cleaning	40-096
BioTek <sup>®</sup> 405 <sup>™</sup> TS Magnetic/Vacuum Filtration 96-well Washer Complete with Touch Screen and Ultrasonic Cleaning	40-097



## BioTek® MultiFlo™ FX Automated Reagent Dispenser

### The perfect instrument for MILLIPLEX® MAP 384-well Assays

- Fully automated process: load standards, QCs and samples and walk away
- Optimized for both 384- and 96-well plates
- The performance of a larger robot for a fraction of the cost
- Self-contained, programmable washer enables precise fluidic delivery—ensuring complete control while washing 96-well and 384-well assay plates

Description	Cat. No.
BioTek® MultiFlo™ FX Automated Reagent Dispenser	40-099

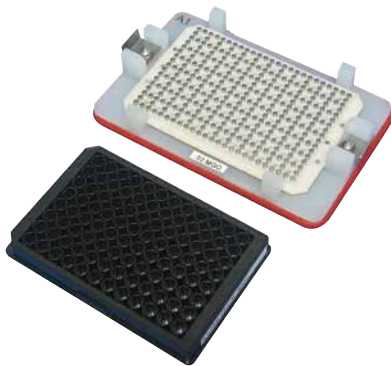


## BioTek® Magnetic 96-well Strip Washer — Hands-free washing with a small footprint

### Better together: ELx50 washer with MILLIPLEX® MAP Magnetic Bead Assays

- Reduced hands-on time for multiplex assays
- Optimized magnet for strip wells and flat-bottom magnetic bead assay plates
- Self-contained, programmable washer enables precise fluidic delivery—ensuring complete control while washing multiplex assay plates

Description	Cat. No.
BioTek® ELx50 Magnetic 96-well Strip Washer	40-062



## Handheld Magnetic Separator Block for 96-well Flat Bottom or Conical Well Plates

We offer a low-cost alternative to automated washing of MILLIPLEX® MAP magnetic immunoassays without loss in assay performance. The handheld magnetic separator allows the liquid contents of the 96-well plate to be removed by simply decanting or “flicking” the contents and blotting off the remainder on a paper towel. Magnetic beads are securely held to the sides by 9 magnets surrounding each well.

- Top magnetic frame is white polycarbonate, with a corrosion-resistant steel plate underneath, all mounted to a polypropylene base
- Adjustable clip system holds a wide variety of microplates to the separator block
- O-Ring on base plate facilitates gripping for all sizes of hands
- Magnetic strength: 52 Mega Gauss Oersteds (MGO)

Description	Cat. No.
Handheld Magnetic Separator Block for 96-well Flat Bottom or Conical Well Plates	40-285

# 22,932 Data Points in 24 Hours Using 3 Plates

The MILLIPLEX® MAP 384-well Human High Sensitivity T Cell Panel is analytically validated to deliver the quality you expect from the MILLIPLEX® MAP brand. Extensive testing for standard curve range, sensitivity, precision, cross-reactivity and recovery shows that the 384-well format produces comparable, if not superior, results to the 96-well format kit.

This kit, plus reagent addition via the BioTek® MultiFlo™ FX, and the 384-well reading capability of the Luminex® FLEXMAP 3D® increases your throughput and decreases your hands-on time compared to equivalent 96-well protocols.

## The Tools



### MILLIPLEX® MAP Kits

MILLIPLEX® MAP 384-well Human High Sensitivity T Cell Panel (Cat. No. HSTCMAG384-PX21)



### BioTek® MultiFlo™ FX

Fully automated reagent dispenser provides superior performance and walkaway option (Cat. No. 40-099)

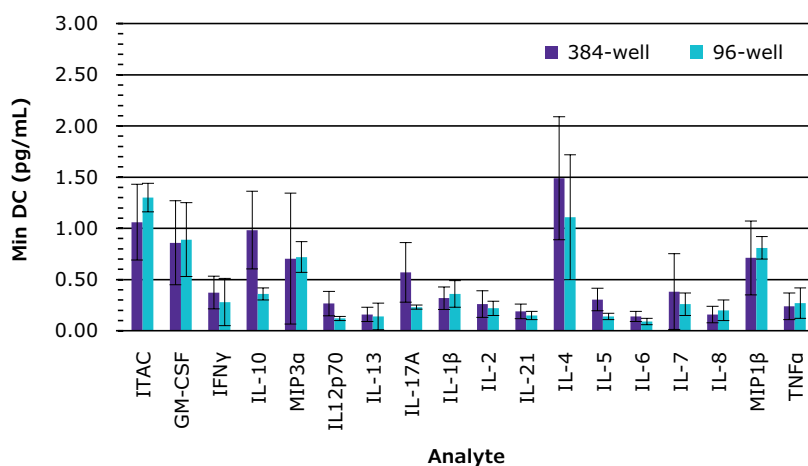


### Luminex® FLEXMAP 3D®

384-well capable system with xPONENT® 4.2 software (Cat. No. 40-014)

## The Data

### Comparative Assay Sensitivity



**Figure 7.** Side-by-side representation of min DCs in the 384-well and the 96-well assay of 18 analytes determined by MILLIPLEX® Analyst Software (384-well, n=12; 96-well, n=3).

With the MILLIPLEX® MAP Human High Sensitivity T Cell 21-plex assay for 384-well plates, BioTek® MultiFlo™ FX and FLEXMAP 3D®, users can increase their throughput to ~22,932 data points in a single day (based on 3 assays per day).

# Single Protein Analysis Solutions

Measuring single protein biomarkers? We offer a range of products to meet your specific needs.

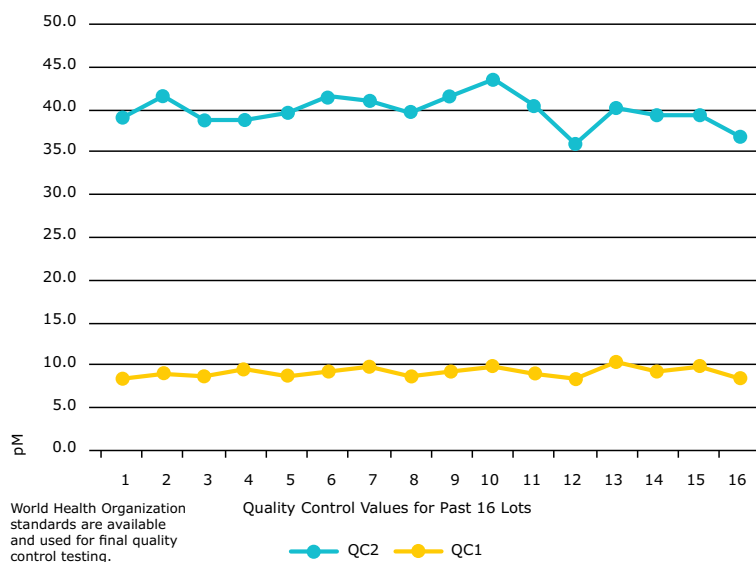
Our SMC™ immunoassay kits and technology allow for high sensitivity measurements when detecting low levels of protein biomarkers is critical. We offer a range of immunoassay kits as well as assay development and optimization kits to build your own SMC™ immunoassays for use with SMCxPRO™ or Erenna® systems.

For other single protein detection needs, including high throughput, our ELISAs, RIAs and GyroMark™ HT assays are unique, providing:

- Standards validated to match reference lots
- Serum matrix for generating standard curves that accurately simulate conditions of native analyte conditions in serum or plasma
- In-assay controls

Choose the platform that meets your single protein detection needs with our:

- SMC™ immunoassay kits
- ELISA/RIA kits
- GyroMark™ HT kits

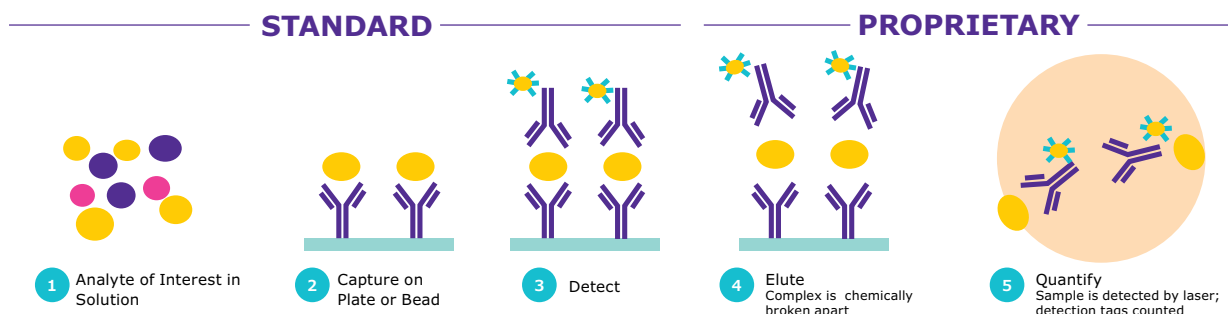


**Figure 8.** Low and high quality control values for the Human Intact Proinsulin ELISA (EZHPi-15K) show consistent values for the past 16 lots ( $\pm 10\%$  of reference lot).

# SMC™ Technology

## Single Molecule Counting (SMC™) Technology: Reduced background + increased signal

SMC™ technology provides maximum immunoassay performance while following a workflow similar to traditional ELISA technology, as shown below. By combining a unique assay elution step and robust digital counting, SMC™ technology achieves improved signal-to-noise ratios over traditional immunoassay technologies. The SMC™ technology thus provides enhanced quantification at both low and high levels of expression on one complete system.



## SMC™ Assay Workflow

During the capture and detection steps, specific antibodies translate each biomarker into a signal. During the modified elution step, fluorescent dye-labeled detection antibodies are dissociated from the immunocomplex. In the Erenna® instrument, eluate is then drawn into the system capillary tube, which contains a small interrogation space that is illuminated by a laser. Single fluorescently labeled molecules are excited by the laser as they pass through the interrogation space as detected events.

The SMCxPRO™ is the second generation instrument supporting SMC™ technology assays. The SMCxPRO™ technology approach collects signal from analyte fluorochromes free-floating in suspension using a rotating laser, CCD camera optics, and individual photons are counted by Avalanche Photodiode (APD).

## Digital counting improves sensitivity and dynamic range

The SMCxPRO™ and Erenna® instruments capture the sum of all digital events counted above a background threshold. This model can have limited dynamic range, so at higher concentrations on the Erenna® instrument, a proprietary algorithm computes the total sum of all photons recorded as an additional standard curve. The SMCxPRO™ instrument digital event algorithm computes digital events across a spectrum of time series for a single standard curve, thus improving assay sensitivity and extending the dynamic measuring range beyond what can be achieved with traditional technologies.



# SMCxPRO™ Immunoassay System Specifications



## Network/PC Requirement

- Microsoft Windows® 7/10 Operating Systems
- A static IP address and an FTP server
- xPRO Operating and Analysis Software included (32- or 64-bit compliant)

## Read Plate Format

- 384-well plate

## Assay Format

- Bead-based assays
- Plate-based assays

## Instrument Specifications

- Instrument dimensions: 406.4 mm H x 355.6 mm W x 444.5 mm D (16"H x 14"W x 17.5"D)
- Weight: 22.7 kg (50 lbs)
- US: 115 VAC, 50-60 Hz (Operating range 90-125 V)
- International: 230 VAC, 50-60 Hz (Operating range 180-250 V)

## Min. Instrument Performance Specifications

Metric	Specification
Slope	>1.2 response/fM <sup>1</sup>
Background	<3 response/fM <sup>1</sup>
Limit of Detection (LoD)	<1 fM
Precision	<10% CV <sup>2</sup>
Dynamic Range	>4 logs

<sup>1</sup> Determined from calibrator set: 0-300 fM of 150 kD antibody labeled with fluorophore

<sup>2</sup> Response measurements from 30fM calibrator, n=20

SMCxPRO™ & Ancillary Product Services	Cat. No.
SMCxPRO™ Complete System	95-0100-00
Standard SMCxPRO™ Installation	96-2011-00
SMCxPRO™ System Training – 1 day	96-2022-00
SMCxPRO™ IQ/OQ Installation	96-2012-00
SMCxPRO™ PQ Service	96-2013-00
BioTek® 405 Touch Microplate Washer with MAG plate	95-0004-05
Tecan Hydroflex Microplate 8-Channel Washer	95-0014-00
Jitterbug Plate Shaker	70-0009-00

## Installation and Training

- Set up of unit on bench and complete calibration of unit
- Run of ASSIST program to verify instrument performance
- Optional IQ/OQ and PQ Services available

## Three Levels of Onsite Service Support for SMCxPRO™ Platform

- **Total Service:** Unlimited visits including labor, travel, expenses and all parts for any service for one year
- **Advanced Service:** Labor, travel and expenses for one preventative maintenance and one floating visit for one year
- **Essential Service:** Labor for one preventative maintenance visit for one year

## Advanced Customer Training

Take advantage of ultrasensitive digital (SMC™) technology while developing your own application-specific immunoassays in either bead- or plate-based assay format. We offer hands-on training at your facility or at one of our global training centers. This training will provide the tools you need to develop your own immunoassays for use on the SMCxPRO™ and Erenna® instruments. Ask your sales specialist for more information.

Description	Cat. No.
SMC™ Assay Development Training - 3 days	96-2024-00
SMC™ Assay Development Training - extra day	96-2025-00

# Erenna<sup>®</sup> Immunoassay System Specifications



Erenna <sup>®</sup> & Ancillary Product Services	Cat. No.
Erenna <sup>®</sup> Immunoassay System & Accessories	95-0017-00
Complete Erenna <sup>®</sup> Installation	96-0015-00
Erenna <sup>®</sup> with Sgx link IQ/OQ Installation	96-0016-00
PQ for Erenna <sup>®</sup> with Sgx Link	96-0032-02
BioTek <sup>®</sup> 405 Touch Microplate washer with MAG plate	95-0004-05
Tecan Hydroflex Microplate 8-Channel Washer	95-0014-00
Jitterbug Plate Shaker	70-0009-00
Heat Sealer	70-0018-00

## Network/PC Requirement

- Microsoft Windows<sup>®</sup> 7 Operating Systems
- A static IP address and an FTP server
- Sgx link Operating and Analysis software included

## Instrument Dimensions and Weight

- Height: 400 mm (15.75 in)
- Width: 540 mm (21.25 in)
- Depth: 575.6 mm (22.7 in)
- Weight: 31.3 kg (69 lbs)

## Power Requirement

- U.S.: 115 VAC, 50-60 Hz (operating range 90-125 V)
- Int.: 230 VAC, 50-60 Hz (operating range 180-250 V)

## Min. Instrument Performance Specifications

Metric	Specification
Slope	>20 DE/fM*
Background	<100 DE
Limit of detection (LoD)	<1 fM*
Precision	<7% CV†
Dynamic Range	>4 logs

\* Determined from calibrator set: 0–300 fM of 150 kD antibody labeled with fluorophore

† DE measurements from 30 fM calibrator, n=20

## Three Levels of Onsite Service Support for the Erenna<sup>®</sup> Instrument

- **Total Service:** Unlimited visits including labor, travel, expenses and all parts for any service for one year
- **Advanced Service:** Labor, travel and expenses for one preventative maintenance and one floating visit for one year
- **Essential Service:** Labor for one preventative maintenance visit for one year

# SMC™ Bead-based Immunoassay Kits

Analyte	LLOQ (pg/mL) <sup>1</sup>	Median Endogenous (pg/mL) <sup>2</sup>	Species <sup>3</sup>	Sample Type <sup>4</sup>	Catalog No.
Akt1 (Ser473)	0.98	NA	H, M, R	L	03-0100-01
Akt1 (total)	7.8	NA	H, M, R	L	03-0099-01
Amyloid beta 1-40	Coming Soon		H, M, R	C, P	03-0145-00
Amyloid beta 1-42	Coming Soon		H, M, R	C, P	03-0146-00
cTnI	0.69	1.75	H, Cy, R, C, GP	P, S	03-0092-00
G-CSF	0.08	17	H	P	03-0047-00
GM-CSF	0.02	0.2	H	P	03-0067-00
GLP-1 (active)	0.4	3.46	H, M, R, C	P	03-0024-03
GLP-1 (total)	0.39	17.8	H, M, R, C	P	03-0025-06
IFN-γ	0.2	0.79	H	P	03-0049-00
IL-1α	0.39	1.06	H	P	03-0072-00
IL-1β	0.2	P: 0.45; S: 1.08	H	P	03-0028-00
IL-2	0.05	0.21	H	P, S	03-0051-00
IL-4	0.04	0.12	H	P	03-0052-00
IL-5	3.91	4.52	H	P	03-0053-00
IL-6	0.08	1.3	H	P, S	03-0089-01
IL-7	0.39	4.91	H	P, S	03-0094-00
IL-8 / CXCL8	0.24	3.6	H	P, S	03-0055-00
IL-10	0.39	1.01	H	P	03-0056-00
IL-12	0.05	0.13	H	P, S	03-0057-00
IL-13 v2	0.04	0.21	H	P, S	03-0109-02
IL-15	0.1	3.38	H	P, S	03-0058-00
IL-17A v2	0.03	0.12	H	P, S	03-0103-00
IL-17F v2	0.2	0.86	H	P, S	03-0102-00
IL-17A/F Heterodimer v2	1.2	2.75	H	P, S	03-0119-00
IL-21	0.2	0.53	H	S	03-0014-07
IL-22	0.2	3.3	H	P	03-0059-01
IL-23	0.1	0.18	H	P, S	03-0112-00
KIM-1 <sup>5</sup>	3.91	P: 65; S: 75; U: 147	H	P, S, U	03-0118-00
TNFA	0.2	2.3	H	P	03-0088-00
TNFA	0.4	38.6	M	S	03-0108-00
VEGF	0.2	66.5	H	P	03-0068-00

<sup>1</sup> LLOQ: Lowest point on standard curve with CV < 20% and accuracy within 20% of expected values.

<sup>2</sup> Median Endogenous: Minimum of 10 samples from individual donors assessed for ability to quantify baseline biomarker values.

<sup>3</sup> Optimized for first species type listed. Other listed species have been tested, but not optimized for peak performance.  
Key: H=Human; M=Mouse; R=Rat; GP=Guinea Pig; Cy=Cynomolgus Monkey; C=Canine

<sup>4</sup> Optimized for use in sample type(s) listed.  
Key: P=Plasma; S=Serum; L=Lysate; U=Urine; C=Cerebrospinal Fluid (CSF)

<sup>5</sup> KIM-1 is a plate-based assay.

# Validation Criteria for Verified Immunoassays

A comprehensive set of criteria evaluating ultimate quantitative performance are used to qualify verified immunoassays

- **Lower limit of quantitation:** Lowest point on standard curve with CV <20% and accuracy within 20% of expected values
- **Inter- and intra-assay precision:** Samples run on multiple plates over multiple days. Spiked and un-spiked samples within 20% across experiments
- **Spike recovery:** Minimum of 10 samples spiked with acceptable recovery between 80–120%
- **Dilutional linearity:** Assays within 20% of expected value
- **Endogenous range:** Minimum of 10 samples from individual donors assessed for ability to quantify biomarker levels

## Mouse Plate-based Discovery Immunoassay Kits

Discovery immunoassays are provided as complete kits to run on your Erenna® platform

- Low-cost
- Reproducible LLOQ
- Simple workflow
- Minimal sample volume

Analyte	LLOQ (pg/mL)	Sample Type	Catalog No.
Mouse IL-4	0.49	Serum	03-0136-00
Mouse IL-5	0.24	Serum	03-0132-00
Mouse IL-10	6.2	Serum	03-0134-00
Mouse IL-13	3.91	Serum	03-0133-00
Mouse IL-17A	0.98	Serum	03-0123-00
Mouse IL-17F	0.49	Serum	03-0125-01
Mouse IL-21	4.9	Serum	03-0126-00
Mouse IL-22	100	Serum	03-0127-00
Mouse TNFa	0.49	Serum	03-0137-00

# Expert Custom Services & Sample Testing for SMC™ Technology

Custom services and sample testing when time and resources require an expert outsource partner to help accelerate programs from discovery into clinical trials.

## Our capabilities include:

### Collaborative Biomarker Discovery & Development

- Fit-for-purpose sample testing (non-GLP)
- Immunoassay development
- Biomarker validation (to sponsor requirements)

### Biomarker Assay Services for Biotherapeutic Discovery

- Pharmacokinetics
- Pharmacodynamics
- Immunogenicity

### Antibody Derivatization/Labeling and Characterization

- Antibody screening and selection
- Antibody labeling
- Assay stability testing

### SMC™ Assay Kit Development

- Proprietary or commercial SMC™ assay kit development
- Assay kit verification and validation
- Assay kit manufacturing
- Method transfer to CRO

### Sample Testing

- R&D and prototype assay kits
- Commercial assay kits
- Potential biological relevance in real samples
- Biological anomalies that may occur due to drug interference, matrix effects, etc.



# ELISA and RIA Kits

## Metabolic/Endocrine ELISAs

Our broad range of metabolic/endocrine ELISAs can help elucidate therapeutic mechanisms of action, aid in early diagnosis of disease states, predict toxicities, investigate metabolic diseases and more.

Description	Species	Standard Curve Range	Sensitivity	Sample Volume	Cat. No.	Bulk Packaging Cat. No.*
Adiponectin	Human	1.56–200 ng/mL	0.2 ng/mL	10 µL	<b>EZHADP-61K</b>	<b>EZHADP-61BK</b>
Adiponectin (High Molecular Weight)	Human	1.5–200 ng/mL	0.5 ng/mL	10 µL	<b>EZHMWAN-65K</b>	
Adiponectin	Mouse	1–50 ng/mL	0.2 ng/mL	10 µL	<b>EZMADP-60K</b>	<b>EZMADP-60BK</b>
Adiponectin	Rat	3.125–200 ng/mL	0.4 ng/mL	10 µL	<b>EZRADP-62K</b>	
Amylin (active)	Human	1–100 pM	0.7 pM	50 µL	<b>EZHA-52K</b>	<b>EZHA-52BK</b>
C-Peptide	Human	0.2–20 ng/mL	0.05 ng/mL	10 µL	<b>EZHCP-20K</b>	<b>EZHCP-20BK</b>
C-Peptide	Canine	0.2–10 ng/mL	0.24 ng/mL	25 µL	<b>EZCCP-47K</b>	<b>EZCCP-47BK</b>
C-Peptide 2	Mouse, Rat	25–1600 pM	15.0 pM	20 µL	<b>EZRMCP2-21K</b>	
FGF-21	Human	31.25–2000 pg/mL	10.0 pg/mL	50 µL	<b>EZHFGF21-19K</b>	
FGF-21	Mouse, Rat	49.4–12,000 pg/mL	10.0 pg/mL	10 µL	<b>EZRMFGF21-26K</b>	
FGF-23	Human	9.9–2400 pg/mL	3.5 pg/mL	50 µL	<b>EZHFGF23-32K</b>	<b>EZHFGF23-32BK</b>
Ghrelin (active)	Human	25–2000 pg/mL	15.0 pg/mL	20 µL	<b>EZGRA-88K</b>	<b>EZGRA-88BK</b>
Ghrelin (active)	Mouse, Rat	25–2000 pg/mL	8.0 pg/mL	20 µL	<b>EZRGRA-90K</b>	
Ghrelin (total)	Human	100–5000 pg/mL	50.0 pg/mL	20 µL	<b>EZGRT-89K</b>	<b>EZGRT-89BK</b>
Ghrelin (total)	Mouse, Rat	0.1–10 ng/mL	0.04 ng/mL	20 µL	<b>EZRGRT-91K</b>	
GIP (total)	Human	8.2–2000 pg/mL	4.2 pg/mL	20 µL	<b>EZHGIP-54K</b>	<b>EZHGIP-54BK</b>
GIP (total)	Mouse, Rat	8.2–2000 pg/mL	4.2 pg/mL	10 µL	<b>EZRMGIP-55K</b>	<b>EZRMGIP-55BK</b>
GLP-1 (active)	Multi-Species	2–100 pM	1.0 pM	100 µL	<b>EGLP-35K</b>	<b>EGLP-35BK</b>
GLP-1 High Sensitivity (active) $\Delta$ ••	Multi-Species	See data sheet	0.14 pM	50 µL	<b>EZGLPHS-35K</b>	<b>EZGLPHS-35BK</b>
GLP-1 (total)	Multi-Species	4.1–1000 pM	1.0 pM	20–50 µL	<b>EZGLP1T-36K</b>	<b>EZGLP1T-36BK</b>
GLP-2	Multi-Species	1–64 ng/mL	0.3 ng/mL	50 µL	<b>EZGLP2-37K</b>	
Glucagon $\Delta$ <a href="#">WHO</a>	Human, Mouse, Rat	0.02–2 ng/mL	0.003 ng/mL	150–300 µL	<b>EZGLU-30K</b>	<b>EZGLU-30BK</b>
Growth Hormone (GH)	Mouse, Rat	0.7–50 ng/mL	0.07 ng/mL	10 µL	<b>EZRMGH-45K</b>	<b>EZRMGH-45BK</b>
Insulin <a href="#">WHO</a>	Human	2–200 µU/mL	1.0 µU/mL	20 µL	<b>EZHI-14K</b>	<b>EZHI-14BK</b>
Insulin	Mouse, Rat	0.2–10 ng/mL	0.1 ng/mL	10 µL	<b>EZRMI-13K</b>	<b>EZRMI-13BK</b>
Insulin (Animal serum free)	Human	2–200 µU/mL	0.85 µU/mL	20 µL	<b>EZHIASF-14K</b>	
Leptin	Canine	0.78–50 ng/mL	0.21 ng/mL	20 µL	<b>EZCL-31K</b>	
Leptin	Mouse	0.2–30 ng/mL	0.05 ng/mL	10 µL	<b>EZML-82K</b>	<b>EZML-82BK</b>
Leptin	Rat	0.2–30 ng/mL	0.08 ng/mL	10 µL	<b>EZRL-83K</b>	<b>EZRL-83BK</b>
Leptin “Dual Range” <a href="#">WHO</a>	Human	0.5–100 ng/mL	0.2 ng/mL	25 µL	<b>EZHL-80SK</b>	<b>EZHL-80BK</b>
Pancreatic Polypeptide	Human	12.6–3000 pg/mL	12.3 pg/mL	50 µL	<b>EZHPP-40K</b>	<b>EZHPP-40BK</b>
Procollagen Type IIA N-Propeptide (PIIANP)	Human	lot dependent	30.0 ng/mL	5 µL	<b>EZPIIANP-53K</b>	
Proinsulin (total) <a href="#">WHO</a>	Human	2–200 pM	0.5 pM	20 µL	<b>EZHPI-15K</b>	<b>EZHPI-15BK</b>
PYY (total)	Human	10–2000 pg/mL	6.5 pg/mL	20 µL	<b>EZHPYYT66K</b>	
Resistin	Human	0.16–5 ng/mL	0.02 ng/mL	20 µL	<b>EZHR-95K</b>	<b>EZHR-95BK</b>
SAA-3	Mouse	0.078–5 µg/mL	0.078 µg/mL	10 µL	<b>EZMSAA3-12K</b>	

\* Bulk packaging available on select kits — more environmentally friendly and saves space (10 kit equivalent)

•• Preferred assay for measuring GLP-1 (active)

$\Delta$  Chemiluminescent assay

## Neuroscience: Neuropeptide & Neurodegenerative ELISAs

Get a complete picture of the complexities associated with normal and disease states of the nervous system with reliable quantification of biomarkers. Trust our neuropeptide and neurodegenerative ELISAs to precisely quantify soluble biomarkers in sera and lysates.

Description	Species	Standard Curve Range	Sensitivity	Sample Volume	Cat. No.
$\alpha$ -Synuclein	Human, Mouse, Rat	3–60 ng/mL	3 ng/mL	100 $\mu$ L	NS400
Amyloid beta 1-40	Human	16–500 pg/mL	4 pg/mL	50 $\mu$ L	EZHS40
Amyloid beta 1-42	Human	16–500 pg/mL	5 pg/mL	50 $\mu$ L	EZHS42
Amyloid beta, Set	Human	Contains 1 each of EZHS40 and EZHS42			EZHS-SET
Amyloid beta (Brain) 1-40	Human	16–500 pg/mL	4 pg/mL	50 $\mu$ L	EZBRAIN40
Amyloid beta (Brain) 1-42	Human	16–500 pg/mL	5 pg/mL	50 $\mu$ L	EZBRAIN42
Amyloid beta (Brain), Set	Human	Contains 1 each of EZBRAIN40 and EZBRAIN42			EZBRAIN-SET
BDNF (Brain-Derived Neurotrophic Factor)	Human, Rat	7.8–500 pg/mL	7.8 pg/mL	50 $\mu$ L	CYT306
GFAP (Glial Fibrillary Acidic Protein)	Human, Mouse, Rat	1.5–100 ng/mL	1.5 ng/mL	100 $\mu$ L	NS830
NGF (Nerve Growth Factor)	Mouse, Rat	10–1000 pg/mL	10–15 pg/mL	50 $\mu$ L	CYT304
NPY (Neuropeptide Y)	Human	5–1000 pg/mL	2 pg/mL	50 $\mu$ L	EZHNPY-25K
NPY (Neuropeptide Y)	Mouse, Rat	0.01–2 ng/mL	0.004 ng/mL	20 $\mu$ L	EZRMNPY-27K
PEDF (Pigment Epithelium-Derived Factor)	Human	0.9–62.5 ng/mL	0.9 ng/mL	50 $\mu$ L	CYT420
Phosphorylated Neurofilament, (pNF-H) Sandwich	Multi-Species	0.0293–15 ng/mL	0.0585 ng/mL	1–10 $\mu$ L	NS170
S100B	Human	2.7–2000 pg/mL	1.3 pg/mL	50 $\mu$ L	EZHS100B-33K





## Radioimmunoassays (RIAs)

RIAs have long been considered a valuable, economical and accurate way to measure protein concentration. However, as many researchers move away from using radioactive material, we would like to recommend that you consider using our ELISAs or MILLIPLEX® MAP kits for your research needs.

Description	Species	Standard Curve Range	Sensitivity	Sample Volume	Cat. No.
Adiponectin	Human	lot dependent	1 ng/mL	5 µL	<b>HADP-61HK</b>
C-Peptide	Canine	0.156–20 ng/mL	0.15 ng/mL	50 µL	<b>CCP-24HK</b>
C-Peptide	Human	0.1–5 ng/mL	0.1 ng/mL	50 µL	<b>HCP-20K</b>
Ghrelin (active)	Human	lot dependent	7.8 pg/mL	50 µL	<b>GHRA-88HK</b>
Ghrelin (total)	Human	lot dependent	93 pg/mL	50 µL	<b>GHRT-89HK</b>
GLP-1 (active)	Multi-Species	10–500 pM	3 pM	300 µL	<b>GLP1A-35HK</b>
GLP-1 (total)	Multi-Species	10–1000 pM	3 pM	300 µL	<b>GLP1T-36HK</b>
Glucagon	Multi-Species	20–400 pg/mL	20 pg/mL	50 µL	<b>GL-32K</b>
Insulin	Porcine	2–200 µU/mL	2 µU/mL	50 µL	<b>PI-12K</b>
Insulin	Rat	0.1–10 ng/mL	0.1 ng/mL	50 µL	<b>RI-13K</b>
Insulin LisPro	Multi-Species	2.5–250 µU/mL	2.5 µU/mL	100 µL	<b>LPI-16K</b>
Insulin (sensitive)	Rat	0.02–1 ng/mL	0.02 ng/mL	50 µL	<b>SRI-13K</b>
Insulin Specific	Human	2–200 µU/mL	2 µU/mL	50 µL	<b>HI-14K</b>
Leptin	Human	0.5–100 ng/mL	0.5 ng/mL	50–100 µL	<b>HL-81K</b>
Leptin	Multi-Species	1–50 ng/mL	1 ng/mL	50 µL	<b>XL-85K</b>
Leptin (sensitive)	Human	0.05–10 ng/mL	0.05 ng/mL	50 µL	<b>SHL-81K</b>
Proinsulin	Human	2–100 pM	2 pM	100–200 µL	<b>HPI-15K</b>
PYY	Mouse, Rat	lot dependent	15.6 pg/mL (78.1 pg/mL)	100 µL (20 µL)	<b>RMPYY-68HK</b>
PYY (3-36)	Human	lot dependent	20 pg/mL	<100 µL	<b>PYY-67HK</b>
PYY (total)	Human	lot dependent	10 pg/mL	<100 µL	<b>PYYT-66HK</b>

# GyroMark™ HT Assays

## Fully qualified kits for the Gyrolab® platform!



As a Gyrolab® user, you know how reliable and fast the technology can be. However, developing your own kits can be time-consuming and costly, especially when you need to support a long-term biomarker study through every phase.

We have partnered with Gyros to be the first company to provide high quality, robust and reproducible assays to save you time and money!

**Interested in developing your own assay on the Gyrolab® platform?**

To get started, contact a specialist at [customassay@emdmillipore.com](mailto:customassay@emdmillipore.com).

Description	Species	Status*
Adalimumab ADA and Drug Quant	Human	MTO
β-2-Microglobulin	Rat	MTO
Clusterin	Rat	MTO
Cystatin C	Rat	MTO
GLP-1 (active)	Multi-Species	MTO
GLP-1 (total)	Multi-Species	MTO
Glucagon	Multi-Species	MTO
Human Pancreatic Polypeptide (HPP)	Human	MTO
IL-33	Human	MTO
IL-6	Human	MTO
IL-6	Mouse	MTO
Infliximab ADA	Human	MTO
Insulin	Human	MTO
Insulin	Rat/Mouse	MTO
KIM-1	Rat	MTO
NGAL/Lipocalin-2	Rat	MTO

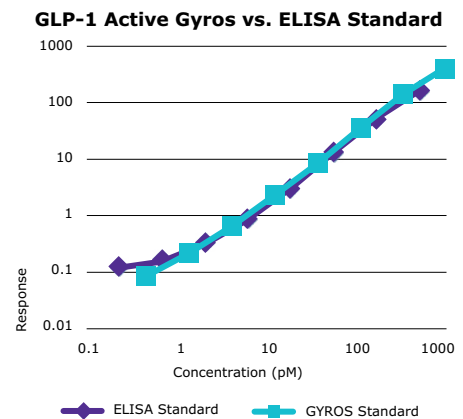
\*MTO is Made to Order

## More data with less sample volume: Automated platform for biomarker detection.

Gyros technology delivers high quality immunoassay data over a broad dynamic range, and helps you save time, sample and reagents. This is achieved through precise, automated control of centrifugal and capillary forces to steer liquid flow in proprietary nanoliter-scale microfluidic structures.

- High-quality data from pg to µg. Minimize dilutions and repeats.
- Minimize matrix effects. Maximize simplicity and flexibility.
- Nanoliter precision. Reduced consumption.
- Move your assay from conventional ELISA to the Gyros platform with confidence.
- Open platform. Full flexibility.

Considering owning your own Gyrolab® workstation? Visit: [gyros.com](http://gyros.com).



**Figure 9.** High correlation to ELISA data. Excellent overlap of GLP-1 Active standards between the GyroMark™ HT Multi-Species GLP-1 Active Assay for the Gyrolab® xP Workstation and our Multi-Species GLP-1 Active ELISA (Cat. No. EGLP-35K). Sample volume was 1,000 nL and samples were diluted 1:2.

# Fit-for-Purpose Custom Immunoassay Development

We offer four types of assays to meet your assay verification and validation requirements. Projects can include new analyte development or use of existing analytes in a new format (including transferring assays to a new platform or verifying assays for a new sample type). Our consultative technical specialists will help determine the right solution for you.

## STEP 1

Pick a platform based on the number of proteins you would like to measure in your sample. Consider sensitivity requirements, sample volume and/or throughput constraints.

### Luminex® Platform

**Multiplex Detection:** MAGPIX®, Luminex® 200™, FLEXMAP 3D® systems



### Single Molecule Counting (SMC™)

**Ultrasensitive Single Protein Detection:** SMCxPRO™ or Erenna® systems\*



\*Please refer to the SMC™ technology section for complete details on how to meet your custom assay and sample testing needs.

### ELISA

**Single Protein Detection:** Plate reader compatibility



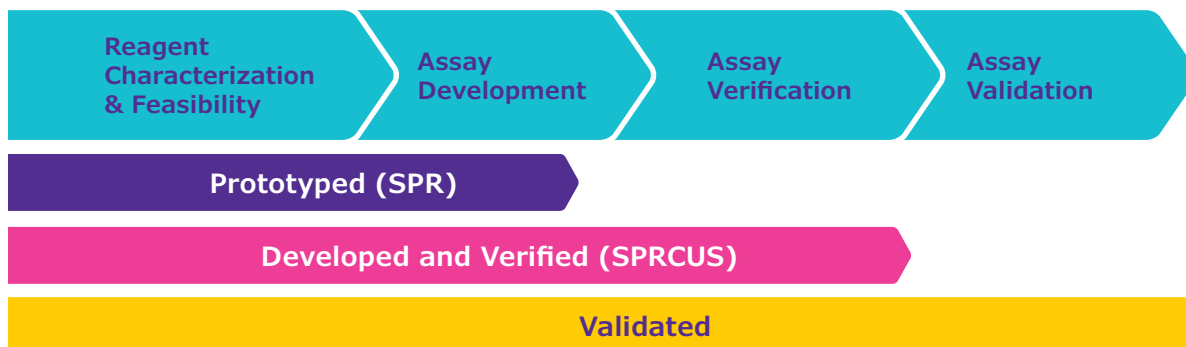
### GyroMark™ HT

**Automated Single Protein Detection:** Gyrolab® xP and Gyrolab® xPlore™



## STEP 2

Choose your assay type based on your required level of verification and validation (Prototyped, Developed and Verified or Validated).



### STEP 3

**Determine the appropriate level of verification and validation testing needed in your custom assay.**

Minimum levels of assay verification are suggested and included for each platform. Additional verification and validation services are also available.

Download our Custom Immunoassay Menu of Services companion piece for a complete list of assay formats, verification, and validation testing available for each platform:

[MerckMillipore.com/customassay](http://MerckMillipore.com/customassay)



### STEP 4

**Determine the kitted format for your custom assay.**

Final kit formats can be customized to meet your needs. All custom assays will include a customized protocol and standard kit materials. In addition, special bulk packaging requirements, 384-well assay formats (custom SMC™ and multiplex) and/or premixed beads (custom multiplex assays only) can be selected. Download our Custom Immunoassay Menu of Services companion piece for a complete list of formats available by platform.

**Get started today.**

Contact [customassay@emdmillipore.com](mailto:customassay@emdmillipore.com) for a complimentary feasibility assessment.

#### ***DID YOU KNOW?***

One advantage of supporting four different platforms is the ability to test the same antibody pair(s) in different immunoassay formats. Antibody pair information in commercial immunoassays is usually proprietary. We can test antibodies used in any of our assays on any platform. For example, we can test the same antibody pairs used in a multiplex assay screen in a custom SMC™ assay to achieve greater sensitivity. Use of the same reagents ensures consistency in epitope detection across platforms, and enables us to support you as your research evolves.



# Custom Analytes

## Human

Analyte	Platform	Sample
Adalimumab ADA	GyroMark™ HT	Serum/Plasma
Adalimumab Drug Quantitation	GyroMark™ HT	Serum/Plasma
B-cell Maturation Antigen (BCMA)	MILLIPLEX® MAP	Serum/Plasma
Calprotectin	MILLIPLEX® MAP	Serum/Plasma
CD13 Aminopeptidase N	MILLIPLEX® MAP	Serum/Plasma
Collagen 1	MILLIPLEX® MAP	Multiple
CSTB (Cystatin B)	MILLIPLEX® MAP	Serum/Plasma
Elafin	MILLIPLEX® MAP	Serum/Plasma
Galectin-1	MILLIPLEX® MAP	Serum/Plasma
Glucagon	GyroMark™ HT	Serum/Plasma
GRP78	MILLIPLEX® MAP	Serum/Plasma
HPP (Human Pancreatic Polypeptide)	GyroMark™ HT	Serum/Plasma
IL-33	GyroMark™ HT	Serum/Plasma
IL-6	GyroMark™ HT	Serum/Plasma
Infliximab ADA	GyroMark™ HT	Serum/Plasma
Lecithin-cholesterol Acyltransferase (LCAT)	MILLIPLEX® MAP	Serum/Plasma
Moesin	MILLIPLEX® MAP	Serum/Plasma
Semaphorin 3A	MILLIPLEX® MAP	Cell and Tissue Culture Supernatants
ST2 (Suppressor of Tumorigenicity 2)	MILLIPLEX® MAP	Serum/Plasma
sTM (Soluble Thrombomodulin)	MILLIPLEX® MAP	Serum/Plasma

## Mouse and/or Rat

Analyte	Platform	Sample
BMP-9	MILLIPLEX® MAP	Serum/Plasma
DKK1	MILLIPLEX® MAP	Serum/Plasma
Galectin-1	MILLIPLEX® MAP	Serum/Plasma
Galectin-3	MILLIPLEX® MAP	Serum/Plasma
HGFR/cMET	MILLIPLEX® MAP	Serum/Plasma
IGF-1	MILLIPLEX® MAP	Serum/Plasma
Osteonectin	MILLIPLEX® MAP	Serum/Plasma
Periostin	MILLIPLEX® MAP	Serum/Plasma
sAXL	MILLIPLEX® MAP	Serum/Plasma
Tenascin C	MILLIPLEX® MAP	Serum/Plasma
TRAIL	MILLIPLEX® MAP	Serum/Plasma
Vasopressin	MILLIPLEX® MAP	Plasma
Vitronectin	MILLIPLEX® MAP	Serum/Plasma

Contact your local specialist or email [customassay@emdmillipore.com](mailto:customassay@emdmillipore.com) if interested in the analytes listed above.

# Soluble Analyte Appendix

## How to use the appendix

Soluble analytes appear in alphabetic order. The alphabetic letter in the chart represents the platform:

E = ELISA

G = GyroMark™ HT assay

M = MILLIPLEX® MAP assay

R = RIA

S = SMC™ (Single Molecule Counting) assay

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
5'-NT/CD73	M		M						
6CKine/CCL21/Exodus-2	M								
ACTH	M	M	M	M			M		
ADAMTS13	M								
ADAM15	M								
Adiponectin	M E R	M E	M E						
Adiponectin, High Molecular Weight	E								
Adipsin/Factor D	M	M							
Agouti-Related Protein (AgRP)	M						M		
Albumin (urine)	M		M	M					
ALDH1A1	M								
sALK-1		M							
α-1-Acid Glycoprotein (AGP)	M	M	M						
α-1-Microglobulin	M								
α-1-Antitrypsin (A1AT)	M								
α-2-Macroglobulin (A2M)	M	M	M						
α-Fetoprotein (AFP)	M								
α-MSH	M	M	M						
α-Synuclein	M E	E	E						
Amphiregulin		M							
Amylin (active)	M E	M	M		M		M		
Amylin (total)	M			M					
Amyloid beta 1-40	M E S	M S	S						
Amyloid beta 1-42	M E S	M S	S						
Angiopoietin-2	M	M							
Angiostatin/Kringle	M								
Angiotensinogen (AGT)	M								
ANGPTL3	M								
ANGPTL4	M								
ANGPTL6	M								
Antithrombin III	M								
Apelin	M								
Apo AI	M								

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Apo AII	M								
Apo B	M								
Apo CII	M								
Apo CIII	M								
Apo E	M								
APRIL/TNFSF13	M								
ARG1	M		M						
sAXL	M								
BAFF/Blys	M								
BCA-1/CXCL13	M								
BDNF	M E	M	M E	M					
Betacellulin		M							
β-Endorphin	M	M	M						
β-2-Microglobulin	M	M	M G	M					
BMP-9	M								
BNP	M								
BRAX/CXCL14	M								
C1q	M								
C2	M								
C3	M								
C3b/iC3b	M								
C4	M								
C4b	M								
C5	M								
C5a	M								
C9	M								
CA125	M								
CA15-3	M								
CA19-9	M								
Cadherin 13 (CDH13)	M								
Calbindin	M		M						
Carbonic Anhydrase 9 (CA9)	M								
Cathepsin D	M								
Caveolin-1			M						
CCL28	M								
sCD14	M								
sCD30	M	M							
SCD137/4-1BB/TNFRSF9	M	M					M		
sCD163	M								
sCD31/sPECAM-1	M	M							
sCD40L	M	M					M		
CD44	M								
CEA	M								

E = ELISA G = GyroMark™ HT assay M = MILLIPLEX® MAP assay R = RIA S = SMC™ assay



Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Chromogranin-A (CHGA/CGA)	M								
sc-Kit/sSCFR	M								
CK-MB	M								
Clusterin	M	M	M G	M					
CNTF	M						M		
Collagen IV	M								
Complement Factor C3	M								
Complement Factor H (CFH)	M								
Connective Tissue Growth Factor (CTGF)			M						
Contactin-1	M								
Corticosterone			M						
Cortisol	M	M	M	M	M	M	M	M	M
C-Peptide	M E R			E R			M		
C-Peptide 2		M E	M E						
Creatine Kinase Muscle (CKM)			M						
CRP	M E	M	E						
CTACK/CCL27	M								
CXCL16	M	M							
CYFRA21-1	M								
Cystatin C	M	M	M G	M					
D-dimer	M								
DKK1	M	M	M						
dPAPP-A	M								
DPP4	M								
EGF	M	M	M						
ENA-78/CXCL5	M								
Endocan-1 (ESM-1)	M	M							
Endoglin	M	M							
Endostatin	M								
Endothelin-1	M	M							
Eotaxin/CCL11	M	M	M				M	M	
Eotaxin-2/CCL24/MPIF-2	M								
Eotaxin-3/CCL26	M								
EpCAM	M								
Erythropoietin (EPO)	M	M	M						
sE-Selectin	M E	M	M						
Estradiol	M	M	M	M	M	M	M	M	M
Exodus-2/CCL21/6CKine		M							
Extracellular Matrix Protein 1 (ECM1)	M								
FABP1	M								
FABP3	M		M						
FABP4	M								

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Factor B	M								
Factor H	M								
Factor I	M								
sFAS/TNFRSF6	M	M			M				
sFasL	M	M					M		
Ferritin	M								
Fetuin A	M								
FGF-1/FGF-acidic	M								
FGF-2/FGF-basic	M	M					M	M	
FGF-19	M								
FGF-21	M E	M E	M E						
FGF-23	M E	M	M						
Fibrinogen	M		M						
Fibroblast Activation Protein (FAP)	M								
Fibronectin	M E								
Flt3 Ligand	M				M				
Follistatin (FST)	M	M							
Follistatin-like Protein 1 (FSTL1)	M	M	M						
Fractalkine/CX3CL1	M	M	M				M	M	
FSH	M	M	M	M			M		
Galectin 3	M								
G-CSF	M S	M	M				M	M	
GDF-15	M								
GDNF	M								
GH	M	M E	M E	M			M		
Ghrelin (active)	M E R	M E	M E	M	M		M		
Ghrelin (total)	E R	E	E						
GIP (total)	M E	M E	M E	M	M		M		
Glial Fibrillary Acidic Protein (GFAP)	M E	E	E						
GLP-1 (active)	M S	M S	M S	M S	M		M		E R G
GLP-1 High Sensitivity (active)									E
GLP-1 (total)	M S	S	S	S					E R G
GLP-2									E
Glucagon	M E	M E	M E	M	M		M		R G
GM-CSF	M S	M	M	M	M	M	M	M	
GOT1			M						
sGP130	M	M							
Granzyme A	M						M		
Granzyme B	M	M					M		
GRO	M							M	
GRO $\alpha$ /KC/CINC-1/CXCL1		M	M		M				
GST $\alpha$	M		M						

E = ELISA    G = GyroMark™ HT assay    M = MILLIPLEX® MAP assay    R = RIA    S = SMC™ assay

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Haptoglobin	M	M	M						
HB-EGF	M								
HCC-1/CCL14	M								
HCC-4/CCL16	M								
HCG $\beta$	M								
HE4	M								
Hepsin	M								
sHER1/sEGFR/sErbB1	M								
sHER2/sEGFR2/sErbB2	M								
sHER3/sEGFR3/sErbB3	M								
HGF	M	M							
sHGFR/sc-Met	M								
HMGB1	M								
HSP60	M								
HSP70	M								
Human Serum Albumin (HSA)	M								
I-309/CCL1	M								
sICAM-1	M E	M	M						
IFN $\alpha$ 2	M								
IFN $\beta$	M								
IFN $\beta$ 1		M							
IFN $\gamma$	M S	M	M	M	M	M	M	M	
IgA	M	M							
IgE	M	M							
IGF-1	M								
IGF1R	M								
IGF-2	M								
IGFBP1	M								
IGFBP2	M								
IGFBP3	M								
IGFBP4	M								
IGFBP5	M								
IGFBP6	M								
IGFBP7	M								
IgG1	M	M							
IgG2	M								
IgG2a		M							
IgG2b		M							
IgG3	M	M							
IgG4	M								
IgM	M	M							
IL-1 $\alpha$	M S	M	M			M	M	M	
IL-1 $\beta$	M S	M	M		M	M	M	M	
IL-1Ra	M					M	M		

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
sIL-1RI	M	M							
sIL-1RII	M	M							
IL-2	M S	M	M	M	M	M	M	M	
sIL-2Ra	M	M							
IL-3	M	M							
IL-4	M S	M S	M		M	M	M	M	
sIL-4R	M	M							
IL-5	M S	M S	M				M	M	
IL-6	M S G	M G	M	M	M	M	M	M	
sIL-6R	M	M							
sIL-6Ra	M								
IL-7	M S	M		M					
IL-8/CXCL8	M S			M	M	M	M	M	
IL-9	M	M							
IL-10	M S	M S	M	M		M	M	M	
IL-11	M	M							
IL-12	S					M			
IL-12 (p40)	M	M			M				
IL-12/23 (p40)							M		
IL-12 (p70)	M E	M	M					M	
IL-13	M S	M S	M		M		M	M	
IL-14/ $\alpha$ -Taxilin	M								
IL-15	M S	M	M	M			M		
IL-16	M	M					M		
IL-17A/CTLA8	M S	M S	M				M	M	
IL-17A/F	S	M							
IL-17E/IL-25	M	M					M		
IL-17F	M S	M S							
IL-18			M	M	M	M	M	M	
IL-19	M								
IL-20	M	M							
IL-21	M S	M S					M		
IL-22	M S	M S					M		
IL-23	M S	M					M		
IL-24	M								
IL-27	M	M							
IL-28A/IFN $\lambda$ 2	M						M		
IL-28B/IFN $\lambda$ 3	M	M							
IL-29/IFN $\lambda$ 1	M								
IL-31	M	M					M		
IL-32 $\alpha$	M								
IL-33/NF-HEV (mature)	M G	M					M		
IL-34	M	M S							
IL-35	M								

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Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
IL-36β/IL-1F8	M								
IL-37/IL-1F7	M								
IL-38/IL-1F10	M								
Insulin	M E G	M E G	M E R G	M	M	R	M		
Insulin (Animal Serum Free)	E								
Insulin Lispro									R
Insulin Specific	R								
Involucrin	M								
IP-10/CXCL10	M	M	M	M			M	M	
Irisin	M	M	M						
I-TAC/CXCL11	M								
Kallekrein-6	M								
KC-like Protein				M					
Keratin-1, 10	M								
Keratin-6	M								
KIM-1	M S	M	M G	M					
Lactotransferrin (LTF)	M								
Laminin	E								
LDLR	M								
Leptin	M E R	M E	M E	M E	M		M		R
Leptin Receptor (LEPR)/ OB-R	M								
LH	M	M	M				M		
LIF	M	M	M						
LIGHT	M	M							
LIX/CXCL6/GCP-2	M	M	M						
Leucine-rich alpha-2- glycoprotein 1 (LRG1)	M								
sL-Selectin	M								
Lymphotactin/XCL1	M								
Mannose-binding lectin (MBL)	M								
MCAM/MUC18/sCD146	M								
MCP-1/CCL2	M	M	M	M	M		M	M	
MCP-2/CCL8	M								
MCP-3/CCL7	M								
MCP-4/CCL13	M								
MCP-5/CCL12		M							
M-CSF	M	M							
MDC/CCL22	M	M							
MDHI	M								
Melanoma Inhibitory Activity Protein (MIA)	M								
Melatonin	M		M						
Mesothelin	M								

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Midkine	M								
MIF	M								
MIG/CXCL9	M	M							
MIP-1 $\alpha$ /CCL3	M	M	M				M		
MIP-1 $\beta$ /CCL4	M	M					M		
MIP-1 $\delta$ /MIP-5/CCL15	M								
MIP-2/CXCL2		M	M						
MIP-3 $\alpha$ /CCL20	M	M					M		
MIP-3 $\beta$ /CCL19	M	M							
MIP-4/PARC/CCL18	M								
MMP-1	M								
MMP-2	M	M							
MMP-3	M	M							
MMP-7	M								
MMP-8	M	M							
MMP-9	M	M							
MMP-10	M								
MMP-12	M	M							
MMP-13	M								
MPIF/CCL23	M								
MR-ProADM	M								
Myeloperoxidase (MPO)	M								
Myoglobin	M								
Myostatin/GDF8	M	M	M						
Myostatin Light Chain 3 (MYL3)			M						
NAP-2/CXCL7	M								
sNCAM	M								
NCAM1/L1CAM/CD171	M								
Neuropeptide Y (NPY)	E	E	E						
sNeuropilin-1 (sNRP-1)	M								
Neurotensin	M	M	M						
Neuron-specific Enolase (NSE)	M								
Neutrophil Elastase-2 (ELA2)	M								
NGAL/Lipocalin-2	M	M	M G	M					
NGF	M	E	E						
Notch1	M								
NT proBNP	M								
Oncostatin-M (OSM)	M	M							
Orexin A	M	M	M						
Osteoactivin	M								
Osteocalcin (OC)	M								
Osteocrin (OSTN)/Musclin	M	M	M						

E = ELISA G = GyroMark™ HT assay M = MILLIPLEX® MAP assay R = RIA S = SMC™ assay

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Osteonectin/SPARC	M	M	M						
Osteopontin (OPN)	M	M	M	M					
Osteoprotegerin (OPG)	M	M	M						
Oxytocin	M	M	M						
PAI-1 (total)	M	M	M						
Pancreatic Polypeptide (PP)	M E G	M	M	M	M		M		
PARK5/UCHL1	M								
PARK7/DJ1	M								
PDGF-AA	M								
PDGF-AB/BB	M								
PDGF-BB					M				
PEDF	M E								
Pentraxin-3 (PTX3)	M								
Perforin	M						M		
Periostin	M								
Phosphorylated Neurofilament (pNF-H)									E
PLA2G7	M								
Placental Growth Factor (PLGF)	M								
Placental Growth Factor 2 (PLGF-2)		M							
Platelet Factor 4 (PF4)/CXCL4	M								
PIIANP	E								
Progesterone	M	M	M	M	M	M	M	M	M
Progranulin (pGRN)	M								
Proinsulin	E R								
Prolactin	M	M	M						
ProMMP-9		M							
Properdin/Factor D	M								
PSA (free)	M								
PSA (total)	M								
sP-Selectin	M	M							
PTGDS	M								
PTH	M		M						
PYY (3-36) Specific	R								
PYY		R	R						
PYY (total)	M E R	M	M	M	M		M		
sRAGE	M	M							
RANKL	M								
RANTES/CCL5	M	M	M		M		M	M	
RBP4	M			M					
Renin	M	M							
Resistin	M E	M							
S100B	M E								



Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
SAA-3		E							
SCF	M				M				
Sclerostin (SOST)	M	M	M						
SDF-1/CXCL12	M	M			M				
SDH	M		M						
Serum Amyloid A	M								
Serum Amyloid P (SAP)	M	M							
Sex Hormone Binding Globulin (SHBG)	M								
sST2/IL1RL1	M								
Substance P	M	M	M						
Soluble Superoxide Dismutase 1 (sSOD1)	M								
Soluble Superoxide Dismutase 2 (sSOD2)	M								
Syndecan 4 (SYND4)	M								
T3	M	M	M	M	M	M	M	M	M
T4	M	M	M	M	M	M	M	M	M
TARC/CCL17	M	M							
pTau (Thr181)	M								
Tau (total)	M								
Tenascin-C (TN-C)	M								
Testosterone	M	M	M	M	M	M	M	M	M
TFF-3	M			M					
TGF $\alpha$	M						M		
TGF $\beta$ 1	M	M	M	M		M	M	M	M
TGF $\beta$ 2	M	M	M	M		M	M	M	M
TGF $\beta$ 3	M	M	M	M		M	M	M	M
Thrombomodulin	M	M							
Thrombospondin-1 (TSP-1)	M								
Thrombospondin-2 (TSP-2)	M								
sTIE-2	M								
TIMP-1	M	M	M						
TIMP-2	M								
TIMP-3	M								
TIMP-4	M								
Tissue Factor (TF)	M								
TNF $\alpha$	M S	M S	M	M	M	M	M	M	
TNF $\beta$ /Lymphotoxin- $\alpha$ (LTA)	M	M					M		
sTNF RI	M	M							
sTNF RII	M	M							
TPO	M								
TRAIL/TNFSF10	M								
Transglutaminase 2 (TGM2)	M								
TRAP5	M								

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Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Troponin I (TnI)	M	M							
Troponin T (TnT)	M	M							
Cardiac Troponin I (cTnI)	S		M S	S			S		
Cardiac Troponin T (cTnt)			M						
TSH	M	M	M	M			M		
TSLP	M								
TWEAK	M								
suPAR	M								
Uromodulin	M								
ucMGP	M								
sVCAM-1	M E								
VEGF	S		M						
VEGF-A	M	M					M		
VEGF-C	M	M							
VEGF-D	M	M							
sVEGFR1/sFit-1	M	M							
sVEGFR2/sKDR/sFlk-1	M	M							
sVEGFR3/sFit-4	M	M							
Vitamin D Binding Protein	M								
YKL40/CHI3L1	M								
von Willebrand Factor (vWF)	M		M						

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# Cell Signaling Analyte Appendix

## How to use the appendix

Cell Signaling analytes appear in alphabetic order. The alphabetic letter in the chart represents the type of kit:

MK = MILLIPLEX® MAP Kit

M2 = MILLIPLEX® MAP Phospho/Total 2 Plex Kit

MM = MILLIPLEX® MAP MAPmate™ assay

S = SMC™ (Single Molecule Counting) assay

Analyte	Human	Mouse	Rat
4E-BP1 (Thr37/46)	MK	MK	MK
4E-BP1 (total)	MK	MK	MK
Akt/PKB (Ser473)	MK M2 MM	MK M2 MM	MK M2 MM
Akt/PKB (total)	MK M2 MM	MK M2 MM	MK M2 MM
Akt1 (Ser473)	M2 S	M2 S	M2 S
Akt1 (total)	M2 S	M2 S	M2 S
Akt2 (Ser474)	M2	M2	M2
Akt2 (total)	M2	M2	M2
Akt3 (Ser472)	M2	M2	M2
Akt3 (total)	M2	M2	M2
ATF2 (Thr71)	MK	MK	
ATR (total)	MK		
BAD (Ser112)	MK MM	MM	
Bcl-2 (Ser70)	MK		
β-Tubulin (total)	MM	MM	MM
Blk (Tyr389)	MK		
Caspase 3 (Active)	MM	MM	
Caspase 8, Active (total)	MK		
Caspase 9, Active (total)	MK		
CD3ε (pan Tyr)	MK		
Chk1 (Ser345)	MK	MK	MK
Chk2 (Thr68)	MK		
c-Jun (Ser73)	MK	MK	MK
c-Kit (pan Tyr)	MK		
c-Met/HGFR (pan Tyr)	MK		
c-Myc (total)	MK		
CREB (Ser133)	MK M2	MK M2	MK M2
CREB (total)	MK M2	MK M2	MK M2
eIF2a (Ser51)	MK	MK	MK
eIF-4B (Ser422)	MK	MK	MK
eIF-4E (Ser209)	MK	MK	MK
eIF-4G (Ser1108)	MK	MK	MK
ErbB1/EGFR (pan Tyr)	MK		
ErbB2/HER2 (pan Tyr)	MK		
ErbB3/HER3 (pan Tyr)	MK		
ErbB4/HER4 (pan Tyr)	MK		
Erk/MAPK 1/2 (Thr185/Tyr187)	MK M2 MM	MK M2 MM	MK M2 MM
Erk/MAPK 1/2 (total)	MK M2 MM	MK M2 MM	MK M2 MM

MK = MILLIPLEX® MAP Kit    M2 = MILLIPLEX® MAP Phospho/Total 2 Plex Kit    MM = MILLIPLEX® MAP MAPmate™ assay    S = SMC™ assay

Analyte	Human	Mouse	Rat
FADD (Ser194)	MK		
FGFR1 (pan Tyr)	MK		
Fgr (Tyr412)	MK		MK
Flt3 (pan Tyr)	MK		
Fyn (Tyr420)	MK	MK	MK
GAPDH (total)	MM		
GSK3a (Ser21)	MK	MK	MK
GSK3a (total)	MK	MK	MK
GSK3β (Ser9)	MK	MK	MK
GSK3β (total)	MK	MK	MK
H2A.X (Ser139)	MK	MK	MK
Hck (Tyr411)	MK	MK	
HSP27 (Ser78)	MK		
IGF1R (pan Tyr)	MK		
IGF1R (Tyr1135/1136)	MK	MK	
IGF1R (total)	MK	MK	MK
IR (pan Tyr)	MK		
IR (Tyr1162/1163)	MK		
IR (total)	MK		MK
IRS1 (Ser636)	MK M2	M2	MK
IRS1 (total)	MK M2	MK M2	MK M2
IκBa (Ser32)	MK		
Iκκα/β (Ser177/181)	MK		
JNK/SAPK1 (Thr183/Tyr185)	MK M2 MM	MK M2 MM	MK M2
JNK/SAPK1 (total)	MK M2 MM	MK M2 MM	MK M2
LAT (pan Tyr)	MK		
Lck (pan Tyr)	MK	MK	MK
Lck (Tyr394)	MK	MK	MK
Lyn (Tyr397)	MK		MK
MDM2 (total)	MK	MK	MK
MEK1 (Ser222)	MK	MK	MK
MSCFR (pan Tyr)	MK		
MSK1 (Ser212)	MK	MK	
mTOR (Ser2448)	MK M2 MM	MK M2 MM	M2 MM
mTOR (total)	MK M2 MM	MK M2 MM	MK MM
NFκB (Ser536)	MK	MK	
NFκB (total)	MK	MK	MK
p21 (total)	MK		
p38/SAPK2A/B (Thr180/Tyr182)	MK M2 MM	MK M2 MM	MK M2 MM
p38/SAPK2A/B (total)	MK M2 MM	MK M2 MM	MK M2 MM
p53 (Ser15)	MK		
p53 (Ser46)	MK		
p70S6 Kinase (Th389/412)	MK	MK	MK
p70S6 Kinase (total)	MK	MK	MK
PARP, Cleaved (total)	MM		
PDGFRα (pan Tyr)	MK	MK	MK
PDGFRβ (pan Tyr)	MK		
PTEN (Ser380)	MK	MK	MK

Analyte	Human	Mouse	Rat
PTEN (total)	MK	MK	MK
RPS6 (Ser235/236)	MK	MK	MK
RPS6 (total)	MK	MK	MK
SMAD2 (Ser465/467)	MK	MK	MK
SMAD3 (Ser423/425)	MK	MK	MK
SMAD4 (total)	MK	MK	MK
Src (Tyr419)	MK	MK	MK
STAT1 (Tyr701)	MK MM	MK MM	
STAT1 (total)	MM	MM	
STAT2 (Tyr690)	MK		
STAT3 (Tyr705)	MK M2	MK M2	MK M2
STAT3 (Ser727)	MK	MK	MK
STAT3 (total)	MK M2	MK M2	MK M2
STAT5A/B (Tyr694/699)	MK	MK	MK
STAT5A/B (total)	MK	MK	MK
STAT6 (Tyr641)	MK		
Syk (pan Tyr)	MK		
TGFβRII (total)	MK		
TIE1 (pan Tyr)	MK		
TIE2 (pan Tyr)	MK		
TNFR1 (total)	MK		
TSC2 (Ser939)	MK	MK	MK
TSC2 (total)	MK	MK	MK
VEGFR1/Flt-1 (pan Tyr)	MK		
VEGFR2/KDR/Flk-1 (pan Tyr)	MK		
VEGFR3/Flt-4 (pan Tyr)	MK	MK	MK
Yes (Tyr421)	MK	MK	MK
ZAP-70 (pan Tyr)	MK		

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