

Bring Your Biomarkers to Life

Your comprehensive guide to multiplex and single protein detection.

Analyte Quarterly, Vol. 1 2017

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











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



MERCK

Better than “Fit for 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
Luminex® platform							
	Multiplex detection Flexible platform	Yes	pg/mL	~25 µL	•••		Yes
Erenna® system							
	Ultrasensitivity High performance	Yes	fg/mL	5–100 µL	•••		Yes
ELISA							
	Plate reader compatibility Most widely cited	Yes	pg/mL	50–100 µL	•		Yes
Gyrolab® workstation							
	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 offers the broadest selection of analytes across a wide range of research areas and species.**

SMC™ Assays for use with the Erenna® Platform: 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

Our manufacturing of highly validated, preconfigured ELISAs and RIAs are the gold standard, giving you the same accuracy and precision in every lot, backed by the same, unwavering technical support.

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.
MILLIPLEX® MAP Panels		
384-well High Sensitivity T Cell, Premix & Bulk Premix	Human	HSTC384-28K HSTCMAG384-PX21 HSTCMAG384PX21BK
Cardiovascular Disease Panel 5	Human	HCVD5MAG-67K
High Sensitivity T Cell, Premix & Bulk Premix	Mouse	MHSTCMAG-70K MHSTCMAG-70KPMX MHSTCMAG-70KPBK
Myokine	Mouse	MMYOMAG-74K
Protein Translation	Human	48-655MAG
SMC™ Assays		
Cardiac Troponin I	Human, Cynomolgus Monkey, Rat, Canine, and Guinea Pig	03-0147-00
IL-1β	Human	03-0150-00
IL-17F	Human	03-0149-00
IL-17A	Human	03-0152-00
IL-6	Human	03-0148-00
TNFα	Human	03-0151-00
ELISAs		
High Molecular Weight Adiponectin	Human	EZHMWAN-65K

Coming Soon

Description	Species	Catalog No.
MILLIPLEX® MAP Panels		
Amyloid β 1-40 and Amyloid β 1-42, 2-plex	Human, Mouse, Rat	Coming Soon!
Autoimmune Autoantibody	Human	Coming Soon!
Cardiovascular Disease Panel 6	Human	Coming Soon!
Checkpoint Protein	Human	Coming Soon!
Hormone	Human	Coming Soon!
Myokine	Rat	Coming Soon!
SMC™ Assays		
Amyloid β 1-40	Human, Rat, Mouse	Coming Soon!
Amyloid β 1-42	Human, Rat, Mouse	Coming Soon!

NEW! Custom Premix Option for MILLIPLEX® MAP Panels

Are you tired of mixing together multiple beads to run multiplex kits? For your convenience we are adding the option to have the analytes in your select cytokine and isotyping MILLIPLEX® MAP kits premixed for you.

- Premix option available for many cytokine and isotyping panels
- Any number of kits
- Any number of analytes within a customizable panel
- Each vial is tested to ensure inclusion of the appropriate bead regions
- Delivery time: allow an additional 10 business days

A service fee will be added to the price of each custom premix kit.

MILLIPLEX[®] MAP Assays

New Product Spotlight

MILLIPLEX[®] MAP 384-well Human High Sensitivity T Cell Panel

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

Introducing our newest kit format for your FLEXMAP 3D[®] instrument: get more with 384.

Now you can perform your human cytokine assays faster and more economically with the new MILLIPLEX[®] MAP Human High Sensitivity T Cell 21-plex assay for 384-well plates.

We know that assay sensitivity is important, and because of this, we've built our 384-well kit to match, and in some cases, exceed the analyte sensitivities of the 96-well kit (see **Figure 1**).

Based on the minimum detectable concentrations (minDCs) (determined by MILLIPLEX[®] Analyst Software), assay sensitivity for most assays was less than 1 pg/mL. The standard curves show a broad linear range of detection for all of the analytes in the panel (data not shown). **Figure 1** shows minDCs for the 384-well and the 96-well assays side by side. The 384-well format offers higher throughput with the same sensitivity and sample detection, in comparison to the 96-well format.

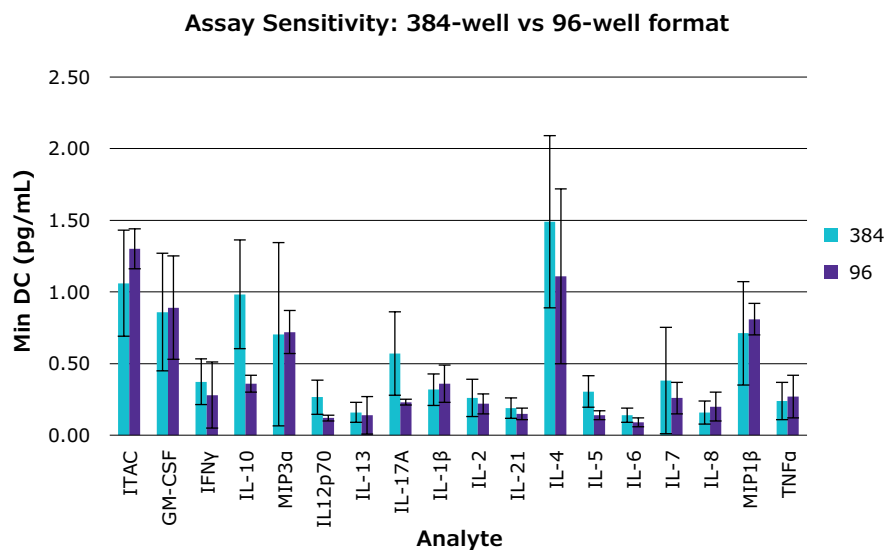


Figure 1. Comparison of minimum detectable concentrations in the 384-well and the 96-well assay. For serum samples, blood was allowed to clot for 30 minutes before centrifugation for 10 minutes at 1000 x g. The serum was removed and assayed immediately, or stored at -20 °C. Plasma samples, with EDTA anticoagulant, were centrifuged at 1000 x g within 30 minutes of blood collection. Plasma was removed and assayed immediately, or stored at -20 °C. Frozen samples were thawed, vortexed, and centrifuged prior to use. Neat samples were added directly into the assay plate. Samples were obtained from BIORECLAMATION LLC, Westbury, NY.

MILLIPLEX® MAP Mouse High Sensitivity T Cell Panel

(Cat. No. MHSTCMAG-70K)
(Cat. No. MHSTCMAG-70KPMX)
(Bulk Cat. No. MHSTCMAG-70KPXBK)

Maximize your mouse with our new high sensitivity mouse cytokine kit!

Low levels of inflammation are involved in many clinical and sub-clinical disease states, such as autoimmune disease, cardiovascular disease, diabetes, neurological disorders and cancer. Measuring picogram levels of cytokines, therefore, is critical for understanding the pathogenesis and drug treatment response in these diseases, particularly in model organisms like mice.

We examined plasma samples from an LPS-challenge *in vivo* mouse time course, and found some interesting spikes in analyte concentrations over the course of the study (selected analytes shown in **Figure 2**).

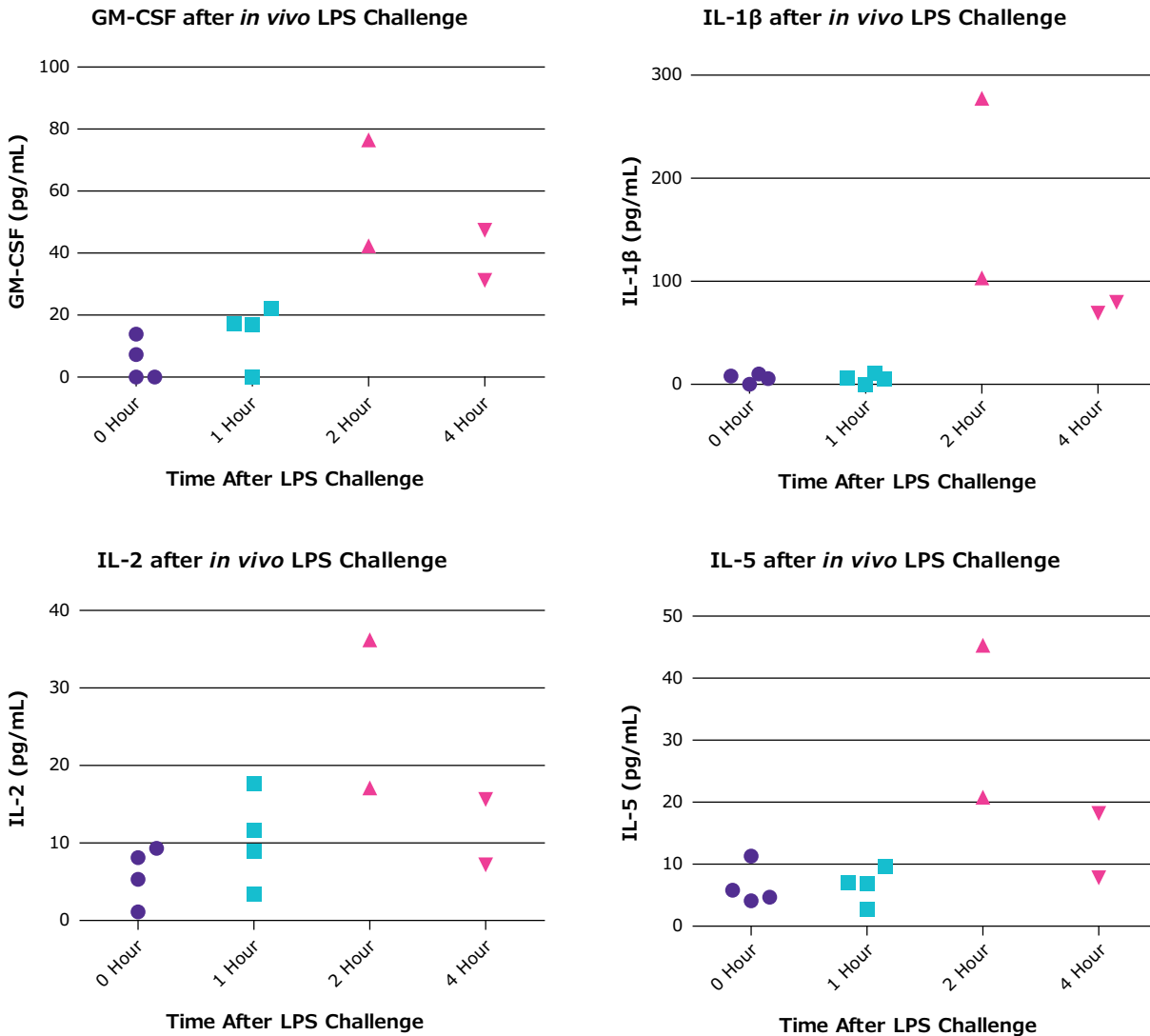


Figure 2. Analyte concentrations in mouse plasma over the *in vivo* LPS challenge time course for GM-CSF, IL-1 β , IL-2, and IL-5.

MILLIPLEX® MAP Human Cardiovascular Disease Panel 5

(Cat. No. HCVD5MAG-67K)

Introducing our newest MILLIPLEX® MAP panel for measuring the latest biomarkers of cardiovascular disease in human serum, plasma or cell culture samples.

This 14-plex panel allows the simultaneous quantification of any or all of the following analytes:

- Disintegrin and metalloproteinase domain-containing protein 15 (ADAM15)
- Mid-region of proADM protein (MR-ProADM)
- Soluble scavenger receptor cysteine-rich type 1 protein M130 (sCD163)
- Cadherin-13 (CDH13)
- Chromogranin-A (CHGA)
- Heat shock protein 60 (HSP60)
- Insulin-like growth factor 1 receptor (IGF1R)
- Low-density lipoprotein receptor (LDLR)
- Leptin receptor (LEPR)
- Neurogenic locus notch homolog protein 1 (Notch1)
- Platelet-activating factor acetylhydrolase (PLA2G7)
- Prostaglandin-H2 D-isomerase (PTGDS)
- Soluble interleukin-1 receptor-like 1 (sST2)
- Syndecan 4 (SYND4)

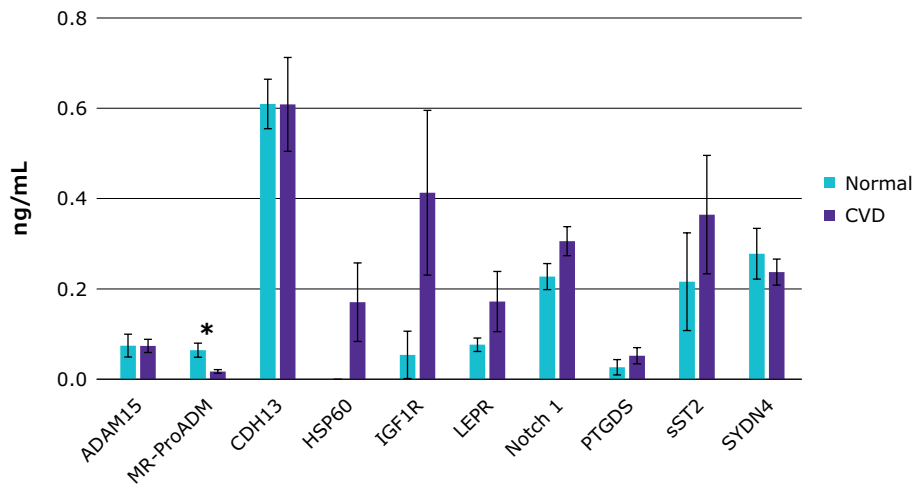


Figure 3. Human normal and cardiovascular disease positive (CVD) serum/plasma samples (n=18 each) were purchased from BIORECLAMATION LLC, Westbury, NY, and assayed in the Human Cardiovascular Disease Panel 5 using a Luminex® 200™ instrument. Data for each analyte are expressed as average ng/mL +/- SEM. The 10 analytes shown here were found to be at the lowest ng/mL concentration in serum/plasma for both normal and CVD samples. Only MR-ProADM shows a statistically significant difference (p = 0.02) between normal and CVD.

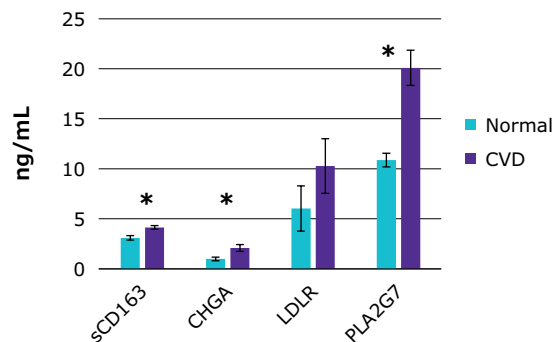


Figure 4. From the same assay as described in Figure 3, the 4 analytes shown here yield higher ng/mL concentrations. Statistically significant differences between normal and CVD groups were found for sCD163 (p=0.004), CHGA (p=0.01), and PLA2G7 (p=0.0002).

MILLIPLEX® MAP Protein Translation 6 Plex Kit

(Cat. No. 48-655MAG)

Our newest cell signaling kit allows you to assess the processes involved in protein synthesis in cancer cells.

Functionally correct processes involved in the translation of protein from mRNA are critical to cellular survival. Normal cells grow in a controlled manner in response to environmental and developmental cues, while cancer cells can reprogram cellular metabolism, leading to uncontrolled growth and survival.

The MILLIPLEX® MAP Protein Translation 6-plex kit is used to detect changes in phosphorylated eIF2a (Ser51), eIF-4B (Ser422), eIF-4E (Ser209), eIF-4G (Ser1108) and 4E-BP1 (Thr37/46), as well as total protein levels of 4E-BP1 in cell lysates.

We used this kit to analyze the levels of these proteins in breast (Figure 5A) and colon (Figure 5B) tumor extracts (and patient matched normal samples). Hyper-phosphorylation was observed for several of the analytes, with hyperphosphorylated eIF-4E showing the highest frequency. In addition, increased expression levels of total 4E-BP1 were observed in all tumors tested. Interestingly, the phospho-4E-BP1 levels, when normalized to total 4E-BP1 levels, decreased by nearly 2-fold in all tumor samples tested, even though total 4E-BP1 levels increased.

Figure 5A.

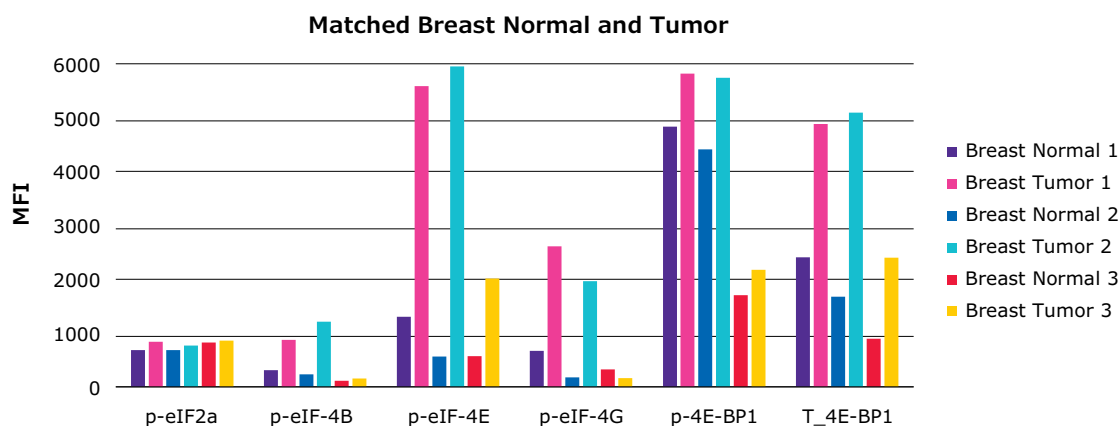


Figure 5B.

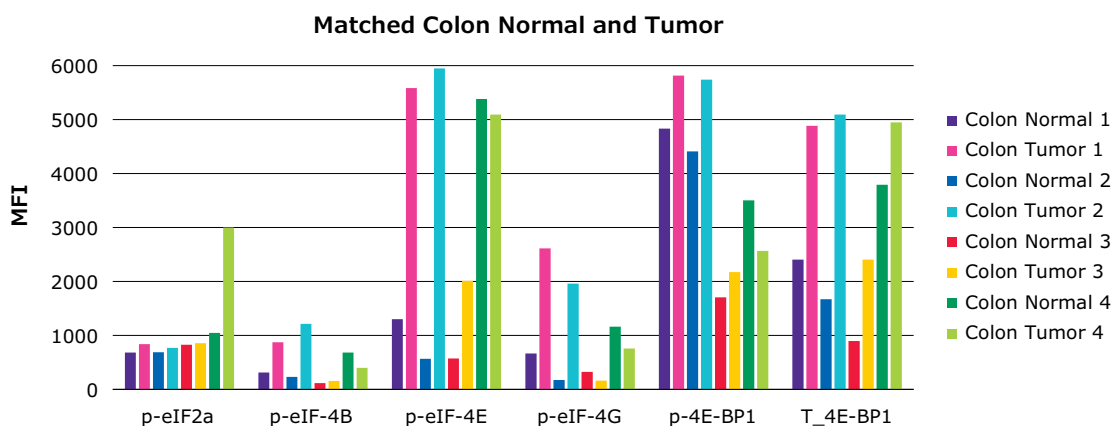


Figure 5. Multiplex analysis of matched normal and tumor tissues. 10 µg of tissue lysates from matched normal and tumor tissues from breast (5A) and colon (5B) were assayed according to the protocol. The Median Fluorescence Intensity (MFI) was measured with the Luminex® system. The bars represent the average MFI of duplicate wells. 5A. 2-fold or greater increase in MFIs from normal versus tumor tissue in breast was seen for p-eIF-4B in set 1 and 2, p-eIF-4E in all three sets, and p-eIF-4G in sets 1 and 2. 5B. 2-fold or greater increase in MFIs from normal versus tumor tissue in colon was seen for p-eIF2a in set 4, p-eIF-4E in sets 1 and 2, and p-eIF-4G in sets 1 and 3.

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 ♦
IFNα2 ♦	MCP-3/CCL7
IFNγ ♦	MDC/CCL22
IL-1α ♦	MIP-1α/CCL3 ♦
IL-1β ♦	MIP-1β/CCL4 ♦
IL-1Ra ♦	PDGF-AA ▲
IL-2 ♦	PDGF-AB/BB ▲
IL-3 ♦	RANTES/CCL5 ♦▲
IL-4 ♦	TGFα
IL-5 ♦	TNFα ♦
IL-6 ♦	TNFβ/Lymphotoxin-A (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/IFNλ2
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-1δ/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/IFNλ1	MIP-3α/CCL20
I-TAC/CXCL11	MIP-3β/CCL19
LIX/CXCL6/GCP-2	NAP-2/CXCL7 ▲
Lymphotoxin/XCL1	

Human Cytokine/Chemokine Panel IV

- 21 (Cat. No. HCP4MAG-64K-PX21)
 21 (Bulk Cat. No. HCP4MAG64KPX21BK)

APRIL/TNFSF13	IL-28B/IFNλ3
BAFF/Blys	IL-32α
BRAK/CXCL14	IL-34
CCL28	IL-35
CXCL16	IL-36β/IL-1F8
HCC-4/CCL16	IL-37/IL-1F7
HMGB1 ●	IL-38/IL-1F10
IFNβ	MIP-4/PARC/CCL18
IL-14/α-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. HSTCMAG28SPMX13BK) ♦
 21 (Cat. No. HSTCMAG28SPMX21)
 21 (Bulk Cat. No. HSTCMAG28SPMX21BK)

Fractalkine/CX3CL1	IL-12 (p70) ♦
GM-CSF ♦	IL-13 ♦
IFNγ ♦	IL-17A/CTLA8
IL-1β ♦	IL-21
IL-2 ♦	IL-23
IL-4 ♦	I-TAC/CXCL11
IL-5 ♦	MIP-1α/CCL3
IL-6 ♦	MIP-1β/CCL4
IL-7 ♦	MIP-3α/CCL20
IL-8/CXCL8 ♦	TNFα ♦
IL-10 ♦	

384-well Human High Sensitivity T Cell **NEW**

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

Fractalkine/CX3CL1	IL-12 (p70)
GM-CSF	IL-13
IFNγ	IL-17A/CTLA8
IL-1β	IL-21
IL-2	IL-23
IL-4	I-TAC/CXCL11
IL-5	MIP-1α/CCL3
IL-6	MIP-1β/CCL4
IL-7	MIP-3α/CCL20
IL-8/CXCL8	TNFα
IL-10	

Human Soluble Cytokine Receptor

- 14 (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

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

GM-CSF	IL-17E/IL-25
IFNγ	IL-17F
IL-1β	IL-21
IL-2	IL-22
IL-4	IL-23
IL-5	IL-27
IL-6	IL-28A/IFNλ2
IL-9	IL-31
IL-10	IL-33/NF-HEV (mature)
IL-12 (p70)	MIP-3α/CCL20
IL-13	MIP-3α/CCL20
IL-15	TNFα
IL-17A/CTLA8	TNFβ/Lymphotoxin (LTA)

Human CD8+ T Cell

- 17 (Cat. No. HCD8MAG-15K)
 17 (Cat. No. HCD8MAG15K17PMX)
 17 (Bulk Cat. No. HCD8MAG15K17BK)

sCD137/4-1BB/TNFRSF9	IL-4
sFAS/TNFRSF6	IL-5
sFasL	IL-6
GM-CSF	IL-10
Granzyme A	IL-13
Granzyme B	MIP-1α/CCL3
IFNγ	MIP-1β/CCL4
IL-2	Perforin
	TNFα

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

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 ▼

5 (Cat. No. HDIAB-34K-PMX5)

5 (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. HLPMMAG-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
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▼ Premix panel only

- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction
- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format

- ☑ Available for custom premix
- Can be plexed with other 2 Plexes
- H Human
- M Mouse
- R Rat

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	

Cardiovascular**Human CVD Panel 1**

(Cat. No. HCVD1MAG-67K)

BNP	LIX/CXCL6/GCP-2
CK-MB	NT proBNP
CXCL16	Oncostatin (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)

α1-Acid Glycoprotein (AGP)	Haptoglobin
α-2-Macroglobulin	sL-Selectin
Adipsin/Factor D	Platelet Factor 4 (PF4/CXCL4)
CRP	Serum Amyloid P
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) **NEW**

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 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	TNFA
Leptin	

Human RANKL – Singleplex

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

RANKL

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	PSA (total)†
sFasL/TNFRSF6	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)
GDF15	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/sFlt1
	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/UCLH1
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. HNP MAG-35K)

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

Human Circadian Stress ■ ^

(Cat. No. HNC SMAG-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
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▼ Premix panel only

- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction
- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format

- Ⓞ Available for custom premix
- Can be plexed with other 2 Plexes
- H Human
- M Mouse
- R Rat

PRIMATE

Immunology

Non-Human Primate Cytokine/Chemokine Panel 1

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

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

Non-Human Primate Cytokine/Chemokine Panel 2

- (Cat. No. PRCYT2MAG40K)
- (Cat. No. PRCYT2MAG40K-PX24)
- (Bulk Cat. No. PRCY2MG40PMX24BK)
- (Cat. No. PRCYT2MAG40K-PX25)
- (Bulk Cat. No. PRCY2MG40PMX25BK)

sCD137/4-1BB/ TNFRSF9	IL-17E/IL-25
Eotaxin/CCL11	IL-21
sFasL/TNFRSF6	IL-22
FGF-2/FGF-basic	IL-23
Fractalkine/CX3CL1	IL-28A/IFN λ 2
Granzyme A	IL-31
Granzyme B	IL-33/NF-HEV (mature)
IL-1 α	IP-10/CXCL10
IL-2	MIP-3 α /CCL20
IL-4	Perforin
IL-6	RANTES/CCL5 ▲
IL-16	TNF β /Lymphotoxina (LTA)
IL-17A/CTLA8	

Multi-Species TGF β – Singleplex

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

TGF β 1

Multi-Species TGF β – 3 Plex ▼

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

NON-CONFIGURABLE KIT

TGF β 1	TGF β 3
TGF β 2	

Metabolism

Non-Human Primate Metabolic Hormone

- (Cat. No. NHPMHMAG-45K)

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

- (Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

MOUSE

Immunology

Mouse Cytokine/Chemokine Panel I

- (Cat. No. MCYTOMAG-70K)
- (Cat. No. MCYTOMAG-70K-PMX) ◆
- (Bulk Cat. No. MCYTOMAG70PMX25BK) ◆
- (Cat. No. MCYTOMAG-70K-PX32)
- (Bulk Cat. No. MCYTOMAG70PMX32BK)

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

Mouse Cytokine/Chemokine Panel 2

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

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

Mouse High Sensitivity T Cell

NEW

- (Cat. No. MHSTCMAG-70K)

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

GM-CSF	IL-10
IFN γ	IL-12 (p70)
IL-1 α	IL-13
IL-1 β	IL17A/CTLA8
IL-2	KC/GRO α /CXCL1
IL-4	LIX
IL-5	MCP-1/CCL2
IL-6	MIP-2/CXCL2
IL-7	TNF α

Mouse Soluble Cytokine Receptor

- (Cat. No. MSCRMAG-42K)

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

Mouse Th17

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

sCD40L	IL-17E/IL-25
GM-CSF	IL-17F
IFN γ	IL-21
IL-1 β	IL-22
IL-2	IL-23
IL-4	IL-27
IL-5	IL-28B/IFN λ 3
IL-6	IL-31
IL-10	IL-33/NF-HEV (mature)
IL-12 (p70)	MIP-3 α /CCL20
IL-13	TNF α
IL-15	TNF β /Lymphotoxina (LTA)
IL-17A/CTLA8	

Mouse CD8+ T Cell

- (Cat. No. MCD8MAG-48K)
 (Cat. No. MCD8MAG48K-PX15)
 (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 γ	MIP-1 β /CCL4
IL-2	RANTES/CCL5
	TNF α

Multi-Species TGF β – Singleplex

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

TGF β 1

Multi-Species TGF β – 3 Plex ▼

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

NON-CONFIGURABLE KIT

TGF β 1	TGF β 3
TGF β 2	

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 α
MCP-1/CCL2	

Mouse Adipocyte (Cell culture samples)

- (Cat. No. MADCYMAG-72K)

Adiponectin	PAI-1 (total)
IL-6	Resistin
Leptin	TNF α
MCP-1/CCL2	

Mouse Adiponectin – Singleplex

- (Serum/Plasma samples)

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

Adiponectin

Mouse Gut Hormone

- (Cat. No. MGMTMAG-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 α
IL-6	
Insulin	

Mouse Myokine

- (Cat. No. MMYOMAG-74K) **NEW**

BDNF	Irisin
Erythropoietin (EPO) ★	LIF
FGF-21	Myostatin/GDF8
Fractalkine/CX3CL1	Oncostatin-M (OSM)
Follistatin-like Protein 1 (FSTL-1)	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	

Cardiovascular**Mouse CVD1**

- (Cat. No. MCVD1MAG-77K)

sCD31/sPECAM-1	PAI-1 (total)
sE-Selectin	sP-Selectin
sICAM-1	Thrombomodulin
proMMP-9	

Mouse CVD2

- (Cat. No. MCVD2MAG-77K)

sCD40L	Oncostatin M
CXCL16	PLGF-2
Endocan-1	Troponin I
Follistatin	Troponin T
LIGHT	

Mouse Acute Phase Panel 2

- (Cat. No. MAP2MAG-76K)

Adipsin/Factor D	CRP
α -1-Acid Glycoprotein (AGP)	Haptoglobin
α -2-Macroglobulin	Serum Amyloid P

Legend key for MILLIPLEX® MAP kits

- † Analytes which cannot be plexed together:
 - Active and total
 - Free and total
- ◆ Available in Cat. No. listed
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▼ Premix panel only

- ‡ Requires a protease inhibitor during sample collection
- Requires sample extraction
- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format

- Ⓞ Available for custom premix
- Can be plexed with other 2 Plexes
- H Human
- M Mouse
- R Rat

Bone Metabolism

Mouse Bone

(Cat. No. MBNMAG-41K)

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

Mouse Osteocalcin – Singleplex

(SPR Cat. No. SPRMBNMAG-41KOC)

Osteocalcin (OC)

Mouse RANKL – Singleplex

(Cat. No. MRNKLMAG-41K-01)

RANKL

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/TNFRSF6	SDF-1/CXCL12
FGF-2/FGF-basic	TNFα
Follistatin (FST)	VEGF-A
G-CSF	VEGF-C
HGF	VEGF-D
IL-1β	

Neuroscience

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-A

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

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 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	

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^	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^	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)
- 15 (Cat. No. CCYTMG-90K-PX13)
- 15 (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	

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

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

NON-CONFIGURABLE KIT

sFas	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
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▼ Premix panel only

- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction
- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format

- ☐ Available for custom premix
- Can be plexed with other 2 Plexes
- H Human
- M Mouse
- R Rat

Metabolism/ Endocrinology

Feline Metabolic Hormone

(Cat. No. FMHMAG-29K)

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

Multi-Species Steroid/Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

Immunology

Porcine Cytokine/Chemokine

☐ (Cat. No. PCYTMAG-23K)

Ⓛ (Cat. No. PCYTMG-23K-13PX)

Ⓛ (Bulk Cat. No. PCYTMAG23PMX13BK)

GM-CSF	IL-6
IFN γ	IL-8/CXCL8
IL-1 α	IL-10
IL-1 β	IL-12
IL-1Ra	IL-18
IL-2	TNF α
IL-4	

Multi-Species TGF β - Singleplex

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

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

TGF β 1

Multi-Species TGF β - 3 Plex ▼

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

NON-CONFIGURABLE KIT

TGF β 1	TGF β 3
TGF β 2	

Metabolism/ Endocrinology

Multi-Species Steroid/Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

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 γ	IL-18
IL-1 α	IP-10/CXCL10
IL-1 β	MCP-1/CCL22
IL-2	RANTES/CCL5
IL-4	TNF α
IL-5	

Multi-Species TGF β - Singleplex

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

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

TGF β 1

Multi-Species TGF β - 3 Plex ▼

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

NON-CONFIGURABLE KIT

TGF β 1	TGF β 3
TGF β 2	

Metabolism/ Endocrinology

Multi-species Steroid/Thyroid Hormone ■ ^

(Cat. No. STTHMAG-21K)

Cortisol	T3
Estradiol	T4
Progesterone	

Legend key for MILLIPLEX® MAP kits

- † Analytes which cannot be plexed together:
 - Active and total
 - Free and total
- ◆ Available in Cat. No. listed
- ▲ These analytes cannot be plexed with other analytes in this panel in serum/plasma
- ▼ Premix panel only

- ▶ Requires a protease inhibitor during sample collection
- Requires sample extraction
- Serum/Plasma only
- ★ Tissue Culture samples only
- ^ Competitive assay format

- ☐ Available for custom premix
- Can be plexed with other 2 Plexes
- H Human
- M Mouse
- R Rat

Uncover How Your Cells Communicate

Cell signaling MILLIPLEX® MAP assays

Discovering the path

Signaling pathways are often interconnected and involve multifaceted mechanisms. Count on our cell signaling multiplex assays that 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 β -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. Buffer compatibility information is available in this publication.



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. 48-633 MAG) 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
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** **NEW**

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 Protein Specialist or email us at 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.
- The following MAPmate™ assays should not be plexed together:
 - Phospho-specific and total MAPmate™ pairs, e.g., total GSK3β and phospho-GSK3β (Ser9).
 - STAT3 (Ser727) and STAT3 (Tyr705) cannot be plexed together.
 - GAPDH and β-Tubulin MAPmates™ can be used for normalization with any of the MAPmates™.

MAPmate™ kits	Species Homology	Cat. No.
β-Tubulin (total)	H, M, R	46-713MAG
GAPDH (total)	H	46-667MAG
Akt/PKB (Ser473)	H, M, R	46-677MAG
Akt/PKB (total)	H, M, R	46-675MAG
BAD (Ser112)	H, M	46-694MAG
Caspase 3 (Active)	H, M	46-604MAG
c-Jun (Ser73)	H, M, R	46-622MAG
c-Met/HGFR (total)	H	46-650MAG
CREB (Ser133)	H, M, R	46-631MAG
CREB (total)	H, M, R	46-632MAG
EGFR (total)	H	46-606MAG
ERK/MAPK 1/2 (Thr185/Tyr187)	H, M, R	46-602MAG
ERK/MAPK 1/2 (total)	H, M, R	46-609MAG
GSK3β (Ser9)	H, M, R	46-690MAG
GSK3β (total)	H, M, R	46-689MAG
H2A.X (Ser139)	H, M	46-692MAG
HSP27 (Ser78)	H	46-607MAG
IκBa (Ser32)	H	46-643MAG
IκBa (total)	H	46-644MAG
JNK/SAPK1 (Thr183/Tyr185)	H, M	46-613MAG
JNK/SAPK1 (total)	H, M	46-618MAG
MEK1 (Ser222)	H, M, R	46-670MAG

MAPmate™ kits	Species Homology	Cat. No.
mTOR (Ser2448)	H, M, R	46-686MAG
mTOR (total)	H, M, R	46-685MAG
NFκB (Ser536)	H	46-702MAG
NFκB (total)	H	46-701MAG
p21 (total)	H	46-621MAG
p38/SAPK2A/B (Thr180/Tyr182)	H, M, R	46-610MAG
p38/SAPK2A/B (total)	H, M, R	46-612MAG
p53 (Ser15)	H	46-663MAG
p53 (total)	H	46-662MAG
p70S6K (Thr389/412)	H, M, R	46-629MAG
p70S6K (total)	H, M, R	46-630MAG
Cleaved PARP (total)	H	46-656MAG
PTEN (total)	H, M, R	46-678MAG
RPS6 (Ser235/Ser236)	H, M, R	46-714MAG
RPS6 (total)	H, M, R	46-715MAG
Src (Tyr419)	H, M, R	46-710MAG
STAT1 (Tyr701)	H, M	46-655MAG
STAT1 (total)	H, M	46-654MAG
STAT3 (Ser727)	H, M, R	46-624MAG
STAT3 (Tyr705)	H, M, R	46-623MAG
STAT3 (total)	H, M, R	46-625MAG
STAT5A/B (Tyr694/Tyr699)	H, M, R	46-641MAG

Lysates

Lysate Description	Cat. No.
A431: EGF	47-210
A549: Camptothecin	47-218
Daudi: IL-4	47-217
HeLa: IFNα	47-226
HeLa: Lambda Phosphatase	47-229
HeLa: TNFα+CaIA	47-230
HeLa: Unstim	47-205
HeLa: HS/Ars	47-211
HepG2: DCA	47-232
HepG2: Insulin	47-227

Lysate Description	Cat. No.
HepG2: TGFβ	47-235
HUVEC: Serum	47-238
Jurkat: Anisomycin	47-207
Jurkat: H ₂ O ₂	47-208
Jurkat: Paclitaxel	47-220
Jurkat: Unstim	47-206
MCF7: IGF-1	47-216
NIH3T3: Anisomycin	47-219
Ramos: PVD	47-224

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

Driving Assay Consistency

Balance your assay variability 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:

- **Accuracy:** xMAP® technology generates real-time analysis and accurate quantification of antibody-antigen interactions
- **Low sample volume:** With minimal hands-on time, screen more than 40 analytes in a single sample using as little as 25 µL
- **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, enabling you to do your work faster, gaining the early and comprehensive data so critical to your work



Luminex® Instruments for xMAP® Technology

Complete instrument solutions combined with the largest portfolio of multiplex analytes, MILLIPLEX® Analyst 5.1 software and technical support give you the maximum power of Luminex® xMAP® technology for biomarker screening and protein analysis. As a Luminex® partner, we are a preferred distributor of Luminex® instruments, accessories and software.



MAGPIX® System

(Cat. No. 40-072)

- **Low-cost** – Small footprint, low energy system to measure up to 50 analytes in as little as 25 µL neat or appropriately diluted sample
- **Powerful** – More than 150 (and growing) MILLIPLEX® MAP magnetic bead kits – the largest offering of customizable magnetic bead assay panels for the MAGPIX® instrument
- **Easy-to-use** – Magnetic bead detection using CCD imaging
- **Small and portable** – Saves room on your bench, requiring only 2 ft (64.8 cm) of linear bench space and minimal setup



Luminex® 200™ System

(Cat No. 40-012)

- **Flexible** – Runs both magnetic and non-magnetic bead assays
- **Multiplex** – Up to 100 analytes per well of a 96-well plate in as little as 25 µL of neat or appropriately diluted sample
- **Easy-to-use** – User-friendly programming
- **Scalable** – Bar code reader included



FLEXMAP 3D® System

(Cat. No. 40-014)

- **Highest multiplexing** – Each bead contains different concentrations of a combination of dyes. Monitoring the three signals enables discrimination of up to 500 different bead regions
- **Ultra-fast** – Quantify 48,000 analytes in under one hour. Dual sample fluidics paths and increased syringe injection speed facilitate faster sample injection
- **96- and 384-well capability** – Greater sample volume flexibility and increased throughput
- **Automation/LIS compatibility** – New xPONENT® 4.0 Software controls the system and offers interfacing options for Laboratory Information Systems (LIS) and automation

Choose the Multiplex Instrument that's right for you!

Specifications

Instrument	FLEXMAP 3D® System	Luminex® 200™ System	MAGPIX® System
Software	xPONENT® 4.2	xPONENT® 3.1***	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 (80 for MagPlex®)	100 (80 for MagPlex®)	50
Read Time	~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
Microtiter Plate	96-well & 384-well	96-well	96-well
Footprint including PC (linear bench space)	64.8 cm (24")	80.0 cm (32")	64.8 cm (24")
Weight (Analyzer)	77.1 kg (170 lbs)	49 kg (113 lbs)	17.5 kg (38.5 lbs)

Luminex® System 1 Year Warranty Plans	Unlimited Remote Support	Unlimited Emergency Repair	1 (PM)	2 (PM)	Cat. No.
FLEXMAP 3D®, Silver	•	○	•		SVCLUMSLVFM3D
FLEXMAP 3D®, Bronze	•		•		SVCLUMBRZFM3D
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

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® 3.1 platform	VP-LX200-3.1
MAGPIX® xPONENT® 4.2 platform	VP-MAGPIX-4.2
Field Service**	92-00040-00-001

- Onsite 1-business day response
- Onsite 2-business day 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).

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

Key Maintenance Kits for Luminex® Systems

All Luminex® instruments using the xMAP® technology, operating on xPONENT® software, require regular calibration and performance verification testing to ensure that the system is operating correctly and maintaining data accuracy.

Additionally, the MAGPIX® instrument requires Drive Fluid and the Luminex® 100/200™ and FLEXMAP 3D® systems require Sheath Fluid. Sheath Fluid serves as the delivery medium to the instrument's optics.

Description	Pack Size	Cat. No.
MAGPIX® Drive Fluid	4 pack, 750 mL ea	40-50014
Sheath Fluid for Luminex® 100/200™ & FLEXMAP 3D® Systems	20 L	40-50015
Sheath Fluid (concentrate)	1 pack	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	LX2R-CAL-K25
Luminex® 200™ Performance Verification Kit (xPONENT®)	25 uses	LX200-CON-K25
FLEXMAP 3D® Calibration Kit	25 uses	F3DIVD-CAL-K25
FLEXMAP 3D® Performance Verification Kit	25 uses	F3DIVD-PVER-K25



Luminex® 200™ Performance Verification Kit (xPONENT®)
(Cat. No. LX200-CON-K25)



MAGPIX® Calibration Kit
(Cat. No. MPX-CAL-K25)



MAGPIX® Drive Fluid
(Cat. No. 40-50014)

MILLIPLEX® Analyst 5.1 and Luminex® xPONENT® Software

Get the most advanced curve-fitting algorithm, based on self-learning improvements using real-life data sets

Analyzing data from multiplexed biomarker assays can be difficult when working with diverse sample and analyte types. This diversity can lead to a wide range of possible analyte levels and assay signal intensity with respect to those analyte levels, neither of which are always easy to predict or determine accurately. MILLIPLEX® Analyst 5.1 software was designed to generate the most meaningful quantitative analyte data, with a 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 new curve-fitting algorithms for MILLIPLEX® Analyst 5.1, simulations were run on 600+ data sets using actual experimental standard curves to determine the curve fit that would give the lowest CVs at the low and high ends of the curves, and that works well even with standard curves of low quality.

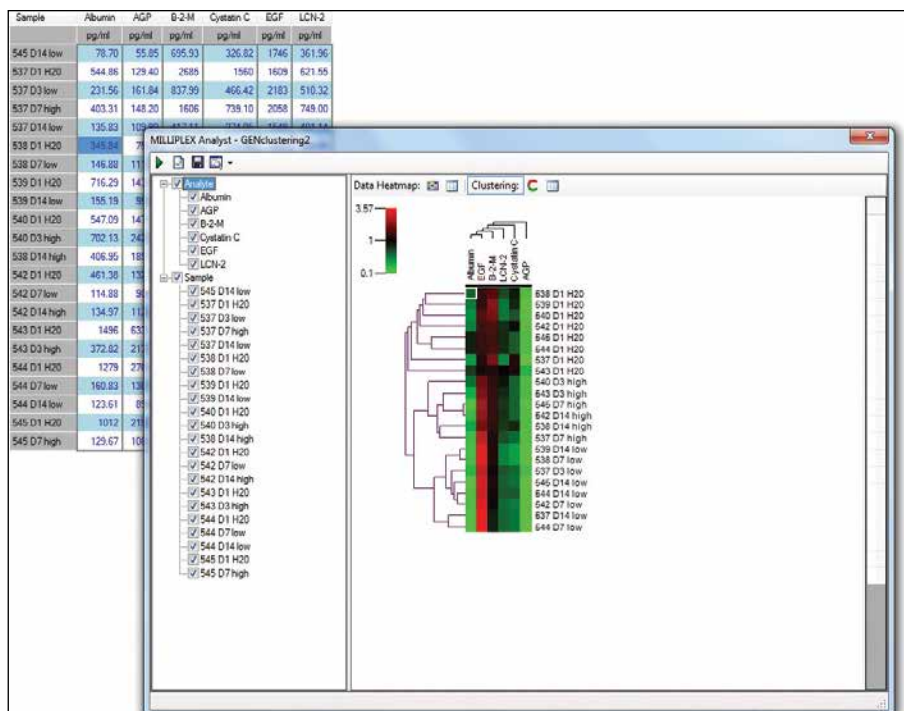


Figure 6. Hierarchical cluster (based on Pearson correlation coefficients) generated by MILLIPLEX® Analyst 5.1 software.

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

MILLIPLEX® Analyst 5.1 Detailed Reports

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

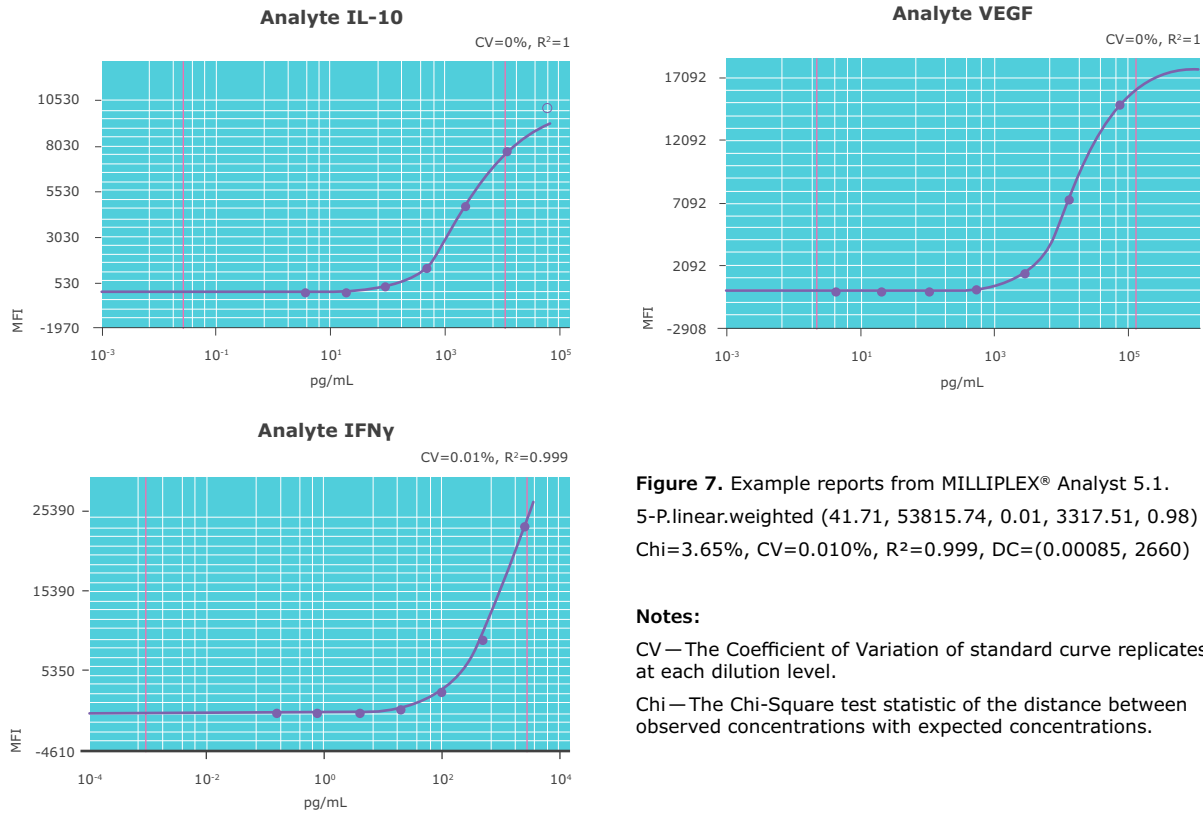


Figure 7. Example reports from MILLIPLEX® Analyst 5.1.
 5-P.linear.weighted (41.71, 53815.74, 0.01, 3317.51, 0.98)
 Chi=3.65%, CV=0.010%, R²=0.999, DC=(0.00085, 2660)

Notes:

CV – The Coefficient of Variation of standard curve replicates at each dilution level.

Chi – The Chi-Square test statistic of the distance between observed concentrations with expected concentrations.

Location	Expected pg/mL(i)	MFI(i)	pg/mL(i)	MFI	pg/mL	CV	Recovery
1C1	0.13	45	0.09	46.5	0.13	4.56%	100.37%
1D1	—	48	0.17	—	—	—	—
1E1	0.64	66	0.68	64.5	0.63	3.29%	99.08%
1F1	—	63	0.59	—	—	—	—
1G1	3.2	164	3.48	153.25	3.17	9.92%	99.12%
1H1	—	142.5	2.86	—	—	—	—
1A2	16	592	16.17	610.75	16.74	4.34%	104.6%
1B2	—	629.5	17.3	—	—	—	—
1C2	80	2456	76.33	2578	80.51	6.67%	100.64%
1D2	—	2699	84.73	—	—	—	—
1E2	400	9938	411.35	9154	367.15	12.11%	91.79%
1F2	—	8370	325.53	—	—	—	—
1G2	2000	23685	2131	23298	2031	2.35%	101.53%
1H2	—	22912	1936	—	—	—	—

Samples

Location	Sample	MFI(i)	pg/mL(i)	MFI	pg/mL	CV
1A3	QC1	1630	48.75	1599	47.72	2.81%
1B3	—	1567	46.69	—	—	—
1C3	QC2	8054	309.44	8581	336.49	8.69%
1D3	—	9108	364.64	—	—	—

Table 1. Detailed reports generated by MILLIPLEX® Analyst 5.1 software.

Washing solutions for MILLIPLEX® MAP and all your plate based assays

In partnership with BioTek®, we now offer the latest advancements in multiplex 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™ TS model now offering an easy-to-use and glove-touchable screen. These newest BioTek® Washers come pre-loaded with our validated wash protocols.

BioTek® Washer advantages:

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

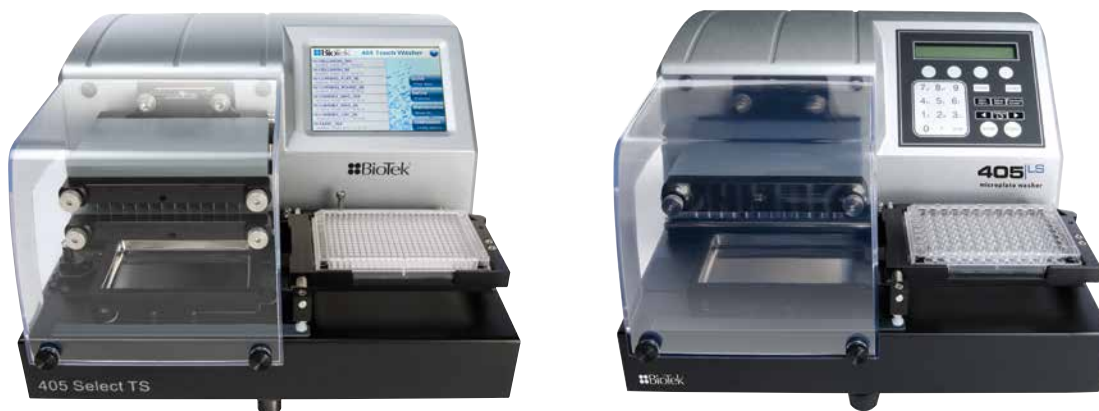
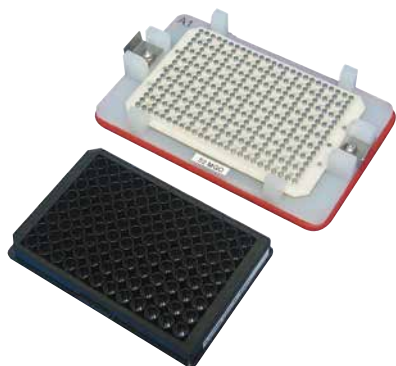


Figure 8. BioTek® plate washer models: the BioTek® 405™ Select TS (touch screen) Washer (left); the BioTek® 405™ LS Washer (right).

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



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 into a sink 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



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



BioTek® Multiflow™ FX Automated Washer

The perfect instrument for MILLIPLEX® MAP 384-well Assays

- Fully automated process: load standards, QCs and incubated 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® Multiflow™ FX Automated Washer NEW	40-099

Onsite Training

As your partners in research, our highly qualified specialists will ensure you have all the tools you need to run your MILLIPLEX® assays successfully. Our onsite training is now available for your team when you purchase a Luminex® instrument, MILLIPLEX® MAP kits, MILLIPLEX® Analyst 5.1 data analysis software and BioTek® microplate washer. Receive certification of training in the following categories:

Installation & Training: Instruments

- Installation and setup of instrument and software on bench, ready for use
- Instruction on correct care and maintenance of instrument (daily, weekly, monthly and yearly)
- Setup of protocols, batches, multi-batches and analysis thereof
- Assistance with pre-site evaluation form (FLEXMAP 3D® system)

Description	Cat. No.
FLEXMAP 3D® System Onsite Installation/Training	TRONSITE-FM3D
Luminex® 200™ System Onsite Installation/Training	TRONSITE-LX200
MAGPIX® System Onsite Installation/Training	TRONSITEMAGPIX

Installation & Training: MILLIPLEX® MAP Kits

- Assistance in selecting appropriate kit for training or initial studies (prior to onsite training)
- Training on how to run a MILLIPLEX® MAP kit with pre-determined kit and samples
- Optimization of protocol techniques and data analysis
- Running kits using Luminex® instrument with xPONENT® software
- Analysis of raw data file using installed MILLIPLEX® Analyst 5.1 software (if purchased)
- Tips and tricks for optimizing sample collection and using a MILLIPLEX® MAP kit

Description	Cat. No.
MILLIPLEX® MAP Kits Onsite Installation/Training	TRONSITE-MPX

Installation & Training: MILLIPLEX® Analyst 5.1 Software

- Installation of software, licensing and correct use of single seat and multi-seat licenses
- Import of raw data files, analysis through protocol, plate-map and analysis parameters
- Report creation—Word®, PDF and Excel® formats
- Demonstration of Standard Curve fitting, heat-map and multi-curve comparison features

Description	Cat. No.
MILLIPLEX® Analyst 5.1 Software Onsite Installation/Training	TRONSITE-MA

Installation & Training: BioTek® Washer

- Setup of unit on lab bench—can include magnetic plate and/or vacuum attachments
- Programming of unit for use with MILLIPLEX® MAP kits
- Testing of units for functionality and bead retention

Description	Cat. No.
BioTek® Washer Onsite Installation/Training	TRONSITE-BIOTEK

Advanced Customer Training (ACT)

Hands-on training available onsite, or at one of our global training centers

Whether the training is at your site or at one of our world-renowned global training facilities, we will provide you with the training you need to become an assay expert. Training typically lasts 1.5 days.** In addition we offer the full line of Luminex® systems for your training (FLEXMAP 3D®, Luminex® 200™ and MAGPIX® systems) and our complete line of BioTek® Plate Washers.

Customized training agenda includes:

- Technology and protocol discussions
- MILLIPLEX® assay setup
- Equipment
- Precautions
- Data analysis and review
- Maintenance
- Troubleshooting

Web-based Training

Our one-day web-based training is built around your needs.

Available options:

- Basic MILLIPLEX® Analyst 5.1 software training
- Advanced MILLIPLEX® Analyst 5.1 software training (for the user with modified/alternate assay needs or complex requirements, e.g., clustering, potency, Watch-Dog functionality)
- Different levels of xPONENT® training



Choose from hands-on or web-based training

Description	Cat. No.
Training at our site*	40-091
Training at customer site	40-092
Training, web-based	40-090

* Our site hands-on training available only in North America, China and India (Coming soon in Europe—speak with your local protein specialist).

** Based on your specific needs, a training session can be extended; not to exceed 5 working days.

Balance your assay variability with our single protein analysis solutions

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

If detecting protein biomarkers present in small quantities, or detecting low expressing proteins is critical, our SMC™ immunoassay kits and technology allow for high sensitivity measurement in the femtogram/mL range. We offer a range of immunoassay kits as well as assay development and optimization kits to build your own SMC™ immunoassays for use with the Erenna® system.

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

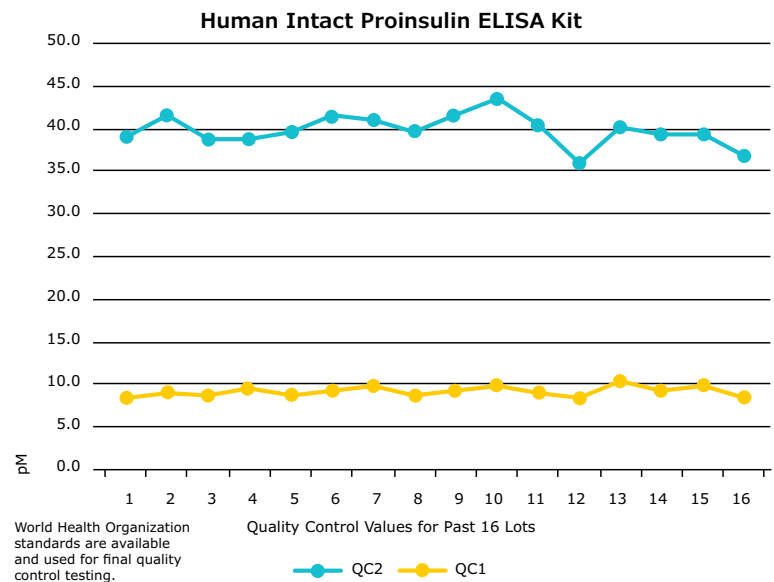
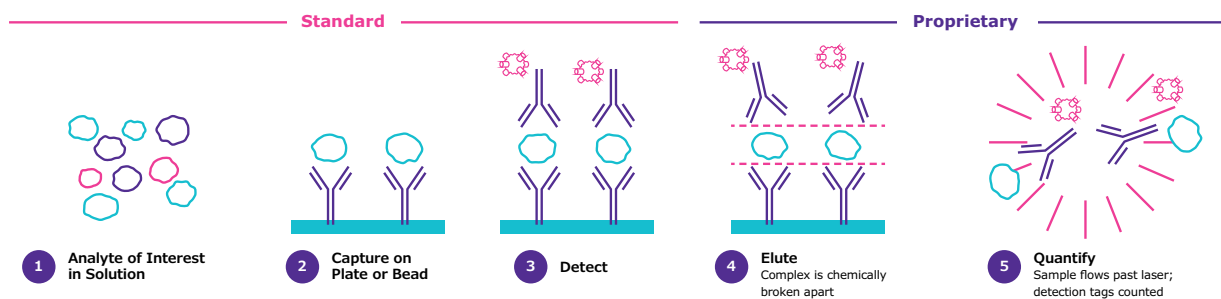


Figure 8. Low and high quality control values show consistent values for the past 16 lots ($\pm 10\%$ of reference lot).

SMC™ Technology Powered by the Erenna® Immunoassay System

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

SMC™ technology provides maximum immunoassay performance while following a workflow very 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 released from the immune complexes. The eluate is then drawn into the Erenna® system capillary tube, which contains a very small interrogation space that is illuminated by a laser. Single fluorescently labeled molecules are detected as they generate intense flashes of light when passing through the interrogation space. Detected signals with peak intensity above the threshold of background fluorescence are counted as digital events.

Digital counting improves sensitivity and dynamic range

The Erenna® instrument captures the sum of all digital events counted. At high concentrations, a proprietary algorithm computes the total sum of all photons recorded. Thus, SMC™ technology improves assay sensitivity and extends dynamic measuring range far beyond what could be achieved with traditional technologies.

Erenna® Immunoassay System Specifications



Minimum 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

Network/PC Requirement

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

Read Plate Format

- 384-well plate

Assay Format

- Plate-Based Assays
- Bead-Based Assays







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)

Verified Immunoassay Kits

Analyte	Assay Format*	LLOQ (pg/mL)	Median Endogenous (pg/mL)	Species**	Sample Type†	Catalog No.
Akt1 (Ser473)	BBA	0.98	NA	H, M, R	L	03-0100-01
Akt1 (total)	BBA	7.8	NA	H, M, R	L	03-0099-01
Amyloid beta 1-40	BBA	Coming Soon		H, M, R	C, P	03-0145-00
Amyloid beta 1-42	BBA	Coming Soon		H, M, R	C, P	03-0146-00
cTnI	BBA	0.35	1.75	H, Cy, R, C, GP	P, S	03-0092-00
cTnI 	BBA	0.69	1.75	H, Cy, R, C, GP	P, S	03-0147-00
G-CSF	BBA	0.08	17	H	P	03-0047-00
GM-CSF	BBA	0.02	0.2	H	P	03-0067-00
GLP-1 (active)	BBA	0.4	3.46	H, M, R, C	P	03-0024-03
GLP-1 (total)	BBA	0.39	17.8	H, M, R, C	P	03-0025-06
IFN-γ	BBA	0.2	0.79	H	P	03-0049-00
IL-1α	BBA	0.78	1.06	H	P	03-0072-00
IL-1β 	BBA	0.1	0.08	H	P, S	03-0150-00
IL-1β	BBA	0.2	0.08	H	P	03-0028-00
IL-2	BBA	0.05	0.21	H	P, S	03-0051-00
IL-4	BBA	0.04	0.02	H	P	03-0052-00
IL-5	BBA	3.91	4.52	H	P	03-0053-00
IL-6	BBA	0.08	0.01	H	P, S	03-0089-01
IL-6 	BBA	0.08	1.3	H	P	03-0148-00
IL-7	BBA	0.39	4.91	H	P, S	03-0094-00
IL-8/CXCL8	BBA	0.24	3.6	H	P, S	03-0055-00
IL-10	BBA	0.39	1.01	H	P	03-0056-00
IL-12	BBA	0.05	0.13	H	P, S	03-0057-00
IL-13	BBA	0.04	0.21	H	P, S	03-0109-02
IL-15	BBA	0.1	3.38	H	P, S	03-0058-00
IL-17A	BBA	0.03	0.12	H	P, S	03-0103-00
IL-17A 	BBA	0.02	0.12	H	P, S	03-0152-00
IL-17F	BBA	0.2	0.86	H	P, S	03-0102-00
IL-17F 	BBA	0.15	0.86	H	P, S	03-0149-00
IL-17A/F Heterodimer (V2)	BBA	1.2	2.75	H	P, S	03-0119-00
IL-21	BBA	0.2	0.53	H	S	03-0014-07
IL-22	BBA	0.2	3.3	H	P	03-0059-01
IL-23	BBA	0.1	0.18	H	P, S	03-0112-00
KIM-1	PBA	3.91	P: 65; S: 75; U: 147	H	P, S, U	03-0118-00
TNF-α	BBA	0.2	2.3	H	P	03-0088-00
TNF-α 	BBA	0.04	2.3	H	P, S	03-0151-00
TNF-α	BBA	0.4	38.6	M	S	03-0108-00
VEGF	BBA	0.2	66.5	H	P	03-0068-00


* BBA = Bead-Based Assay; PBA = Plate-Based Assay

** Optimized for the 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

† Optimized for use in sample type(s) listed.

KEY: P = EDTA Plasma; S = Serum; L = Lysate; U = Urine; C = Cerebrospinal Fluid (CSF)

 = New streamlined protocol

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 target a quantifiable range of 3–4 logs
- **Endogenous range:** Minimum of 10 samples from individual donors assessed for ability to quantify baseline biomarker levels

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 TNFα	0.49	Serum	03-0137-00

SMC™ immunoassay development, training and kits

Take advantage of ultrasensitive digital Single Molecule Counting (SMC™) technology while developing your own application-specific immunoassays in either plate or bead format. The Assay Development and Optimization Kits provide everything you need to build your own high performing SMC™ assays for use with the Erenna® system. Our offering includes a full range of buffers, controls and consumables.

Expert Custom Services & Sample Testing for SMC™ Technology

Custom Services and Sample Testing are available when time and resources require an expert outsource partner helping to 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

Neuroscience: Neuropeptide & Neurodegenerative ELISAs

Get a complete picture of the complexities associated with normal and diseases 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.

Neuroscience

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

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.

ELISAs for Circulating Metabolism and Endocrine Biomarkers

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	EZHADP-61K	EZHADP-61BK
Adiponectin (High Molecular Weight)	Human	1.5–200 ng/mL	0.5 ng/mL	10 µL	EZHMWAN-65K NEW	
Adiponectin	Mouse	1–50 ng/mL	0.2 ng/mL	10 µL	EZMADP-60K	EZMADP-60BK
Adiponectin	Rat	3.125–200 ng/mL	0.4 ng/mL	10 µL	EZRADP-62K	
Amylin (active)	Human	1–100 pM	0.7 pM	50 µL	EZHA-52K	EZHA-52BK
C-Peptide	Human	0.2–20 ng/mL	0.05 ng/mL	10 µL	EZHCP-20K	EZHCP-20BK
C-Peptide	Canine	0.2–10 ng/mL	0.24 ng/mL	25 µL	EZCCP-47K	EZCCP-47BK
C-Peptide 2	Mouse, Rat	25–1600 pM	15.0 pM	20 µL	EZRMCP2-21K	
FGF-21	Human	31.25–2000 pg/mL	10.0 pg/mL	50 µL	EZHFGF21-19K	
FGF-21	Mouse, Rat	49.4–12,000 pg/mL	10.0 pg/mL	10 µL	EZRMFGF21-26K	
FGF-23	Human	9.9–2400 pg/mL	3.5 pg/mL	50 µL	EZHFGF23-32K	EZHFGF23-32BK
Ghrelin (active)	Human	25–2000 pg/mL	15.0 pg/mL	20 µL	EZGRA-88K	EZGRA-88BK
Ghrelin (active)	Mouse, Rat	25–2000 pg/mL	8.0 pg/mL	20 µL	EZRGRA-90K	
Ghrelin (total)	Human	100–5000 pg/mL	50.0 pg/mL	20 µL	EZGRT-89K	EZGRT-89BK
Ghrelin (total)	Mouse, Rat	0.1–10 ng/mL	0.04 ng/mL	20 µL	EZRGRT-91K	
GIP (total)	Human	8.2–2000 pg/mL	4.2 pg/mL	20 µL	EZHGIP-54K	EZHGIP-54BK
GIP (total)	Mouse, Rat	8.2–2000 pg/mL	4.2 pg/mL	10 µL	EZRMGIP-55K	EZRMGIP-55BK
GLP-1 (active)	Multi-Species	2–100 pM	1.0 pM	100 µL	EGLP-35K	EGLP-35BK
GLP-1 High Sensitivity (active) Δ ••	Multi-Species	See data sheet	0.14 pM	50 µL	EZGLPHS-35K	EZGLPHS-35BK
GLP-1 (total)	Multi-Species	4.1–1000 pM	1.0 pM	20–50 µL	EZGLP1T-36K	EZGLP1T-36BK
GLP-2	Multi-Species	1–64 ng/mL	0.3 ng/mL	50 µL	EZGLP2-37K	
Glucagon Δ WHO	Human, Mouse, Rat	0.02–2 ng/mL	0.003 ng/mL	150–300 µL	EZGLU-30K	EZGLU-30BK
Growth Hormone (GH)	Mouse, Rat	0.7–50 ng/mL	0.07 ng/mL	10 µL	EZRMGH-45K	EZRMGH-45BK
Insulin WHO	Human	2–200 µU/mL	1.0 µU/mL	20 µL	EZHI-14K	EZHI-14BK
Insulin	Rat, Mouse	0.2–10 ng/mL	0.1 ng/mL	10 µL	EZRMI-13K	EZRMI-13BK
Insulin (Animal serum free)	Human	2–200 µU/mL	0.85 µU/m	20 µL	EZHIASF-14K	
Leptin	Canine	0.78–50 ng/mL	0.21 ng/mL	20 µL	EZCL-31K	
Leptin	Mouse	0.2–30 ng/mL	0.05 ng/mL	10 µL	EZML-82K	EZML-82BK
Leptin	Rat	0.2–30 ng/mL	0.08 ng/mL	10 µL	EZRL-83K	EZRL-83BK
Leptin “Dual Range” WHO	Human	0.5–100 ng/mL	0.2 ng/mL	25 µL	EZHL-80SK	EZHL-80BK
Pancreatic Polypeptide	Human	12.6–3000 pg/mL	12.3 pg/mL	50 µL	EZHPP-40K	EZHPP-40BK
Procollagen Type IIA N-Propeptide (PIIANP)	Human	lot dependent	30.0 ng/mL	5 µL	EZPIIANP-53K	
Proinsulin (total) WHO	Human	2–200 pM	0.5 pM	20 µL	EZHPI-15K	EZHPI-15BK
PYY (total)	Human	10–2000 pg/mL	6.5 pg/mL	20 µL	EZHPLYT66K	
Resistin	Human	0.16–5 ng/mL	0.02 ng/mL	20 µL	EZHR-95K	EZHR-95BK
SAA-3	Mouse	0.078–5 µg/mL	0.078 µg/mL	10 µL	EZMSAA3-12K	

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

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

Δ Chemiluminescent assay

Cytokine/Chemokine ELISAs

Cytokines are soluble proteins and peptides that modulate activities of cells and tissues under both normal and pathological conditions. Our high-quality, cost-effective cytokine/chemokine ELISAs provide consistent and reliable measurements for your studies of inflammation, immune response, metabolism, neurological disorders and more.

ELISAs for Circulating Cytokines

Description	Species	Cat. No.
CRP	Human	CYT298
CRP	Rat	CYT294
IFN γ	Human	RAB0222-1KT*
IFN γ	Mouse	RAB0224-1KT*
IL-1 β	Human	RAB0273-1KT*
IL-2	Human	RAB0286-1KT*
IL-2	Mouse	RAB0287-1KT*
IL-4	Human	RAB0298-1KT*
IL-4	Mouse	RAB0299-1KT*
IL-6	Human	RAB0306-1KT*
IL-6	Mouse	RAB0308-1KT*
IL-6	Rat	RAB0311-1KT*
IL-8/CLCX8	Human	RAB0319-1KT*
IL-10	Human	RAB0244-1KT*
IL-10	Mouse	RAB0245-1KT*
IL-12(p70)	Human	RAB0252-1KT*
IL-13	Human	RAB0256-1KT*
IL-15	Human	RAB0259-1KT*
TNF- α	Human	RAB0476-1KT*
TNF- α	Mouse	RAB0477-1KT*
TNF- α	Rat	RAB0479-1KT*

* Order through sigma-aldrich.com

Cell Signaling ELISAs

STAR (Signal Transduction Assay Reaction) ELISAs are a fast, sensitive method for measuring relative levels of total and phosphorylated signaling proteins with phospho-specific antibodies. Easily quantitate the phosphorylation states of key signaling proteins, second messengers transmitting intracellular signals and apoptosis pathway proteins using these kits in less than five hours with minimal hands-on time.

STAR ELISAs

Description	Species	Cat. No.
Phospho-I κ B (Ser32)	Human	17-486

Extracellular Matrix (ECM)

Gain deeper insights into cell adhesion, migration, differentiation, invasion and survival by quantitating circulating ECM proteins using our sensitive, specific and reliable ECM ELISAs.

ECMs

Description	Species	Cat. No.
Quantimatrix™ Fibronectin	Human	ECM300
Quantimatrix™ Laminin	Human	ECM310
sE-Selectin	Human	ECM330
sICAM-1	Human	ECM335
sVCAM-1	Human	ECM340
sCD26	Human	ECM345
MMP-2	Human	ECM492
MMP-9	Human	ECM494
TIMP-1	Human	ECM496
TIMP-2	Human	ECM498

For additional ELISAs, please visit
sigma-aldrich.com

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.

RIAs

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

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 kits to save you time and money!

Our off-the-shelf kits contain all the components you need to efficiently complete your project in days instead of weeks.

We also have the expertise and staff to develop custom assays, using your antibodies or ours.

Kit	Species	Catalog No.
β-2 Microglobulin	Rat	GYRB2M-49K
Cystatin C	Rat	GYRCYSC-48K
Insulin	Human	GYHINS-14K
NGAL/Lipocalin-2	Rat	GYRNGAL-50K

Description	Species	Status
GLP-1 Active	Multi-species	MTO*
GLP-1 Total	Multi-species	MTO
KIM-1	Rat	MTO
Insulin	Rat/Mouse	MTO
Clusterin	Rat	MTO
IL-6	Human	MTO
IL-6	Mouse	MTO
Glucagon	Multi-species	MTO
IL-33	Human	MTO
Human Pancreatic Polypeptide (HPP)	Human	MTO
Infliximab ADA	Human	MTO
Adalimumab ADA and Drug Quant	Human	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.

Interested in developing your own assay on the Gyrolab® platform? Contact a specialist at customassay@emdmillipore.com to get started.

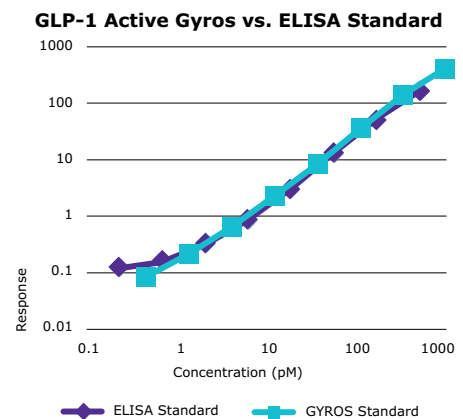


Figure 9. High correlation to ELISA data. Excellent overlap of GLP-1 Active standards between the GyroMark™ HT Multi-Species GLP-1 Active Assay for the Gyrolab® xP Workstation and our Multi-Species GLP-1 Active ELISA (Cat. No. EGLP-35K). Sample volume was 1,000 nL and samples were diluted 1:2.

Fit-for-Purpose Immunoassay Solutions: Menu of Services

Discuss your needs with one of our consultative technical specialists to determine the right solution for you. We can assist with virtually any type of immunoassay-based project.

New Biomarker Analyte Development Projects

We utilize a milestone-based workplan for all development projects, and pride ourselves on being communicative and transparent at every stage of the assay development process.

STEP 1

Choose your preferred assay method (multiplex or single protein detection) and select a platform:

- MILLIPLEX® MAP assays for Luminex® systems
- ELISA
- SMC™ assays for the Erenna® system (assay format and validation may vary slightly from other platforms)
- GyroMark™ HT assays for Gyrolab® workstations

STEP 2

New analyte development feasibility and testing

If there are new analytes to be measured in your assay, we will first develop a singleplex assay from scratch. The following are included:

- Procurement of all reagents, reagent preparation, screening and selection (capture and detection antibodies, standards)
- Biotinylation and bead-conjugation (as required)
- Background signal testing

STEP 3

Multiplexing (if applicable) and assay validation

Our custom MILLIPLEX® MAP multiplex assays share hallmark features that ensure consistent lot-to-lot performance, including:

- A custom detection cocktail for your specific analytes of interest, provided in hydrated format
- Anchored standards and an optimized standard curve appropriate for the biological range of your samples
- Quality controls (QCs) with ranges (determined from independent runs)
- An optimized serum matrix solution for dilution of standards (serum and plasma samples)
- A customized protocol for your specific sample(s) and analyte(s) of interest

Regardless of the chosen assay platform, you can select the appropriate level of validation for your assay. All assays include cross-reactivity testing of analytes and limited sample testing. Highly validated assays will include a report with intra- and inter-assay precision, assay sensitivity, linearity of dilution, and spike-recovery in samples.

Additional validation is also available. Note that in many cases, assay performance can be matched to off-the-shelf assays. Remember to discuss this requirement with your specialist.

STEP 4

Assay component and/or kit manufacturing

Choose the preferred format of your kit:

- 96-well or 384-well (when applicable)
- Premixed beads (multiplex assays), including background testing for each bead region
- Special packaging requirements, including bulk reagents and packaging or alternative assay formats

Want to combine existing analytes from our portfolio? No problem.

We offer two unique solutions for combining existing analytes in MILLIPLEX® MAP panels to meet your budget, sample volume and assay validation constraints.

Special Product Release (SPR)

Combine existing analytes from ≤ 3 MILLIPLEX® MAP panels. We will combine pre-validated components into a unique custom assay and include a common sample dilution factor, optimized standard(s) (hydrated, mixed and combined by customer), custom detection cocktail(s) in hydrated format, customized serum matrix solution for dilution of standards in serum/plasma samples and a complete customized protocol. All reagents have been previously validated individually, but not tested in combination. Some reagents may require customer mixing.

You may also select inclusion of QCs and premixing of beads. All other standard MILLIPLEX® MAP assay components are supplied. Contact Technical Support or your local specialist to assess SPR feasibility. Key points to consider are required amounts of sample dilution for each analyte of interest, potential treatment of samples before assay (e.g., acid treatment) and analyte cross-reactivity.

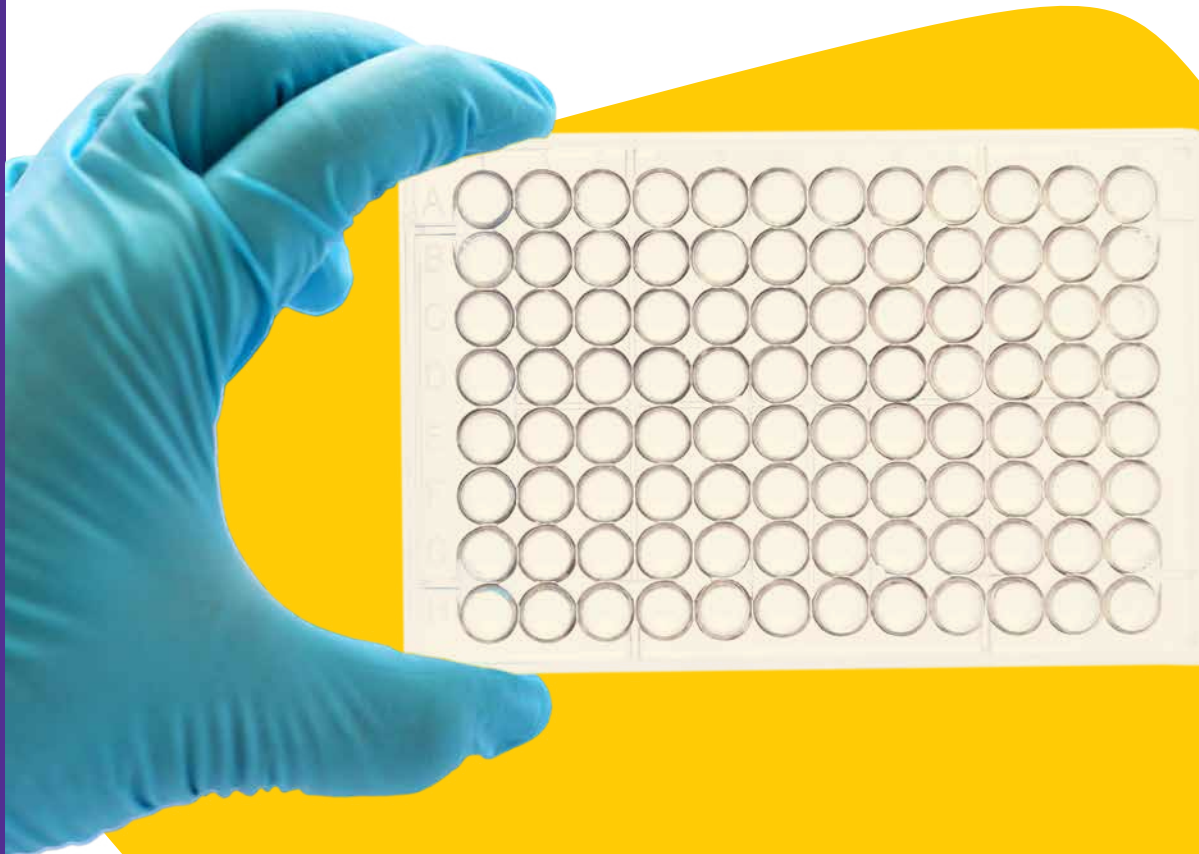
Special Product Release + Testing (SPRCUS)

Combine existing analytes from various panels in the same manner as an SPR, and test in combination. All assays include a minimum level of validation consisting of cross-reactivity testing, dilution factor and standard curve optimization. Additional validation is available.

Other Options

- Antibody development
- Antibody pair screening capabilities
- Sample testing (Erenna® system with SMC™ assays)

Whatever your project may be, get started today with a complimentary feasibility assessment. Contact your local specialist at customassay@merckmillipore.com.



Analytes Available for Custom-formatted Assays

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
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
Vasopressin	MILLIPLEX® MAP	Plasma
Vitronectin	MILLIPLEX® MAP	Serum/Plasma

Contact your local specialist or email customassay@merckmillipore.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	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								
Amyloid beta 1-42	M E								
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								
sCD26	E								
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	M					
CNTF	M						M		
Collagen IV	M								
Complement Factor H (CFH)	M								
Complement Factor C3	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								
EGF	M	M	M						
ENA-78/CXCL5	M								
Endocan-1 (ESM-1)	M	M							
Endoglin	M	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							
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								
Factor B	M								
Factor H	M								

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
Factor I	M								
sFas	M	M			M				
sFasL/TNFRSF6	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	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
GLP-1 High Sensitivity (active)									E
GLP-1 (total)	M S	S	S	S					E R
GLP-2									E
Glucagon	M E	M E	M E	M	M		M		R
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 α /KC/CINC-1/CXCL1		M	M		M				
GST α	M		M						
Haptoglobin	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
HB-EGF	M								
HCC-1/CCL14	M								
HCC-4/CCL16	M								
HCG β	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 α 2	M								
IFN β	M								
IFN β 1		M							
IFN γ	M E S	M E	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							
IgG2c									
IgG3	M	M							
IgG4	M								
IgM	M	M							
IL-1 α	M S	M	M			M	M	M	
IL-1 β	M E 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 E S	M E	M	M	M	M	M	M	
sIL-2Ra	M	M							
IL-3	M	M							
IL-4	M E S	M E S	M		M	M	M	M	
sIL-4R	M	M							
IL-5	M S	M S	M				M	M	
IL-6	M E S	M E	M E	M	M	M	M	M	
sIL-6R	M	M							
sIL-6Ra	M								
IL-7	M S	M		M					
IL-8/CXCL8	M E S			M	M	M	M	M	
IL-9	M	M							
IL-10	M E S	M E 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 E S	M S	M		M		M	M	
IL-14/ α -Taxilin	M								
IL-15	M E S	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 λ 2	M						M		
IL-28B/IFN λ 3	M	M							
IL-29/IFN λ 1	M								
IL-31	M	M					M		
IL-32 α	M								
IL-33/NF-HEV (mature)	M	M					M		
IL-34	M								
IL-35	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
IL-36β/IL-1F8	M								
IL-37/IL-1F7	M								
IL-38/IL-1F10	M								
Insulin	M E G	M E	M E R	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							
I-TAC/CXCL11	M								
Kallekrein-6	M								
KC-Like Protein				M					
Keratin-1, 10	M								
Keratin-6	M								
KIM-1	M S	M	M	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							
LIGHT	M	M							
LIX/CXCL6/GCP-2	M	M	M						
sL-Selectin	M								
Lymphotactin/XCL1	M								
Mannose-binding lectin (MBL)	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								
Midkine	M								
MIF	M								
MIG/CXCL9	M	M							

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
MIP-1 α /CCL3	M	M	M				M		
MIP-1 β /CCL4	M	M					M		
MIP-1 δ /MIP-5/CCL15	M								
MIP-2/CXCL2		M	M						
MIP-3 α /CCL20	M	M					M		
MIP-3 β /CCL19	M	M							
MIP-4/PARC/CCL18	M								
MMP-1	M								
MMP-2	M E	M							
MMP-3	M	M							
MMP-7	M								
MMP-8	M	M							
MMP-9	M E								
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							
Myostatin Light Chain 3 (MYL3)			M						
NAP-2/CXCL7	M								
sNCAM	M								
NCAML1/L1CAM/CD171	M								
Neuropeptide Y (NPY)	E	E	E						
sNeuropilin-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	M							
Osteocrin/Musclin	M	M							
Osteonectin/SPARC	M	M							
Osteopontin (OPN)	M	M	M	M					
Osteoprotegerin (OPG)	M	M	M						
Oxytocin	M	M	M						

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Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
PAI-1 (total)	M	M	M						
Pancreatic Polypeptide (PP)	M E	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 (PLGF-2)		M							
Platelet Factor 4 (PF4)	M								
PIIANP	E								
Progesterone	M	M	M	M	M	M	M	M	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	M							
RANTES/CCL5	M	M	M		M		M	M	
RBP4	M			M					
Renin	M	M							
Resistin	M E	M							
S100B	M E								
SAA-3		E							
SCF	M				M				
Sclerostin (SOST)	M	M	M						
SDF-1/CXCL12	M	M			M				
SDH	M		M						

Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
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							
Tau (Thr181)	M								
Tau (total)	M								
Tenascin-C	M								
TFF-3	M			M					
TGF α	M						M		
TGF β 1	M	M	M	M		M	M	M	M
TGF β 2	M	M	M	M		M	M	M	M
TGF β 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 E	M	M						
TIMP-2	M E								
TIMP-3	M								
TIMP-4	M								
Tissue Factor (TF)	M								
TNF α	M E S	M E S	M E	M	M	M	M	M	
TNF β /Lymphotoxina (LTA)	M	M					M		
sTNF RI	M	M							
sTNF RII	M	M							
TPO	M								
TRAIL/TNFSF10	M								
Transglutaminase 2 (TGM2)	M								
TRAP5	M								
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								

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Analyte	Human	Mouse	Rat	Canine	Feline	Porcine	Primate	Equine	Multi-Species
TWEAK	M								
suPAR	M								
Uromodulin	M								
sVCAM-1	M E								
VEGF	S		M						
VEGF-A	M	M					M		
VEGF-C	M	M							
VEGF-D	M	M							
sVEGFR1/sFlt-1	M	M							
sVEGFR2/sKDR/sFlk-1	M	M							
sVEGFR3/sFlt-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

E = ELISA

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		
Beta-Tubulin (total)	MM	MM	MM
Blk (Tyr389)	MK	MK	MK
Caspase 3 (Active)	MM	MM	
Caspase 8, Active (total)	MK		
Caspase 9, Active (total)	MK		
CD3E (pan Tyr)	MK		
Chk1 (Ser345)	MK	MK	MK
Chk2 (Thr68)	MK		
c-Jun (Ser73)	MK MM	MK MM	MK MM
c-Kit (pan Tyr)	MK		
c-Met/HGFR (pan Tyr)	MK		
c-Met/HGFR (total)	MM		
c-Myc (total)	MK		
CREB (Ser133)	MK M2 MM	MK M2 MM	MK M2 MM
CREB (total)	MK M2 MM	MK M2 MM	MK M2 MM
EGFR (pan Tyr)	MK		
EGFR (total)	MM		
eIF2a (Ser51)	MK	MK	MK
eIF-4B (Ser422)	MK	MK	MK
eIF-4E (Ser209)	MK	MK	MK
eIF-4G (Ser1108)	MK	MK	MK
ErbB2/HER2 (pan Tyr)	MK		
ErbB3/HER3 (pan Tyr)	MK		
ErbB4/HER4 (pan Tyr)	MK		

MK = MILLIPLEX® MAP Kit
E = ELISA

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S = SMC™ assay

MM = MILLIPLEX® MAP MAPmate™ assay

Analyte	Human	Mouse	Rat
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
FADD (Ser194)	MK		
FGFR1 (pan Tyr)	MK		
Fgr (Tyr412)	MK	MK	MK
Flt3 (pan Tyr)	MK		
Fyn (Tyr420)	MK	MK	MK
GAPDH (total)	MM		
GSK3 α (Ser21)	MK	MK	MK
GSK3 α (total)	MK	MK	MK
GSK3 β (Ser9)	MK MM	MK MM	MK MM
GSK3 β (total)	MK MM	MK MM	MK MM
H2A.X (Ser139)	MK MM	MK MM	MK
Hck (Tyr411)	MK	MK	MK
HSP27 (Ser78)	MK MM		
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
I κ B α (Ser32)	MK MM E		
I κ B α (total)	MM		
I κ ka/ 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
Lyn (Tyr397)	MK		MK
MDM2 (total)	MK	MK	MK
MEK1 (Ser222)	MK MM	MK MM	MK MM
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
NF κ B (Ser536)	MK MM	MK	
NF κ B (total)	MK MM	MK	MK
p21 (total)	MK MM		
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 MM		
p53 (Ser46)	MK		
p53 (total)	MM		
p70S6 Kinase (Th389/412)	MK MM	MK MM	MK MM
p70S6 Kinase (total)	MK MM	MK MM	MK MM

Analyte	Human	Mouse	Rat
PARP, Cleaved (total)	MM		
PDGFR α (pan Tyr)	MK	MK	MK
PDGFR β (pan Tyr)	MK		
PTEN (Ser380)	MK	MK	MK
PTEN (total)	MK MM	MK MM	MK MM
RPS6 (Ser235/236)	MK MM	MK MM	MK MM
RPS6 (total)	MK MM	MK MM	MK MM
SMAD2 (Ser465/467)	MK	MK	MK
SMAD3 (Ser423/425)	MK	MK	MK
SMAD4 (total)	MK	MK	MK
Src (Tyr419)	MK MM	MM	MM
STAT1 (Tyr701)	MK MM	MK MM	
STAT1 (total)	MM	MM	
STAT2 (Tyr690)	MK		
STAT3 (Tyr705)	MK M2 MM	MK M2 MM	MK M2 MM
STAT3 (Ser727)	MK MM	MK MM	MK MM
STAT3 (total)	MK M2 MM	MK M2 MM	MK M2 MM
STAT5A/B (Tyr694/699)	MK MM	MK MM	MK MM
STAT5A/B (total)	MK	MK	MK
STAT6 (Tyr641)	MK		
Syk (pan Tyr)	MK		
TGF β RII (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	
ZAP-70 (pan Tyr)	MK		

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