



LUMINEX-BASED MULTIPLEX IMMUNOASSAYS

**Accurate and precise quantitation of ~ 80 genes or proteins
per sample in 96 and 384 well formats**

ABOUT LUMINEX ASSAY

Luminex assay are high-throughput, multiplex bead-based assays. We simultaneously examine multiple analytes in a single sample (as little as 10 μ L per sample from human, mouse, etc.), such as ~ **200** mouse cytokines/chemokines, ~ **400** human cytokines/chemokines, and many proteins (expression or phosphorylation level) involved in signaling pathways of cancer, apoptosis, acute phase response, inflammation, immunity, diabetes, kidney toxicity, etc. We also simultaneously interrogate multiple histone H3 PTMs, transcription factors-specific DNA binding activity, expression level of up to 80 genes and DNA copy number variation, etc.

OUR ASSAYS ARE WIDELY USED IN BIOLOGY OF DISEASES

- ✓ Acute phase response
- ✓ Allergy / allergen testing
- ✓ Angiogenesis
- ✓ Antibody isotyping
- ✓ Apoptosis
- ✓ Autoimmunity and rheumatology
- ✓ Cancer growth and proliferation
- ✓ Cancer metastasis
- ✓ Cardiovascular disease (CVD biomarkers)
- ✓ Cell survival
- ✓ Cellular signaling
- ✓ Circulating cancer biomarkers
- ✓ COVID-19 research

- ✓ Cytokine storm
- ✓ Diabetes and obesity
- ✓ Endocrine (Pituitary, Thyroid, & IGFs)
- ✓ Gene expression profiling
- ✓ Histone H3 PTMs,
- ✓ Immune checkpoint blockade
- ✓ Immunity
- ✓ Inflammation
- ✓ Kidney toxicity
- ✓ Liver injury
- ✓ Metabolism
- ✓ MicroRNA profiling
- ✓ Neurodegenerative diseases
- ✓ Protein phosphorylation
- ✓ Stem cell differentiation & characterization
- ✓ Transcription factors-specific DNA binding

OUR ASSAY FEATURES

- ❖ **Variety of Samples:** serum, plasma, cell/ tissue lysates, culture supernatants, milk, saliva, nasal lavage, exhaled breath condensate, urine, tear, etc.
- ❖ **Variety of Targets:** cytokines/transcription factors /phosphoproteins/ histone acetylation/mRNA, miRNA, etc.
- ❖ **High throughput:** 96-and 384-well format, duplicate or triplicate
- ❖ **Robust and highly reproducible** (CV<10%)
- ❖ **Well-validated reagents**
- ❖ **State-of-art platforms:** BioPlex 200; FlexMAP 3D (96 and 384-well format)
- ❖ **Simultaneous measurement of**



proteins and genes in a single minuscule sample

- ❖ **Quick Turnaround Time:** 1-3 weeks or sooner, upon receiving test samples
- ❖ **Decades of experience:** Expert data analysis and interpretation, scientific and technical support

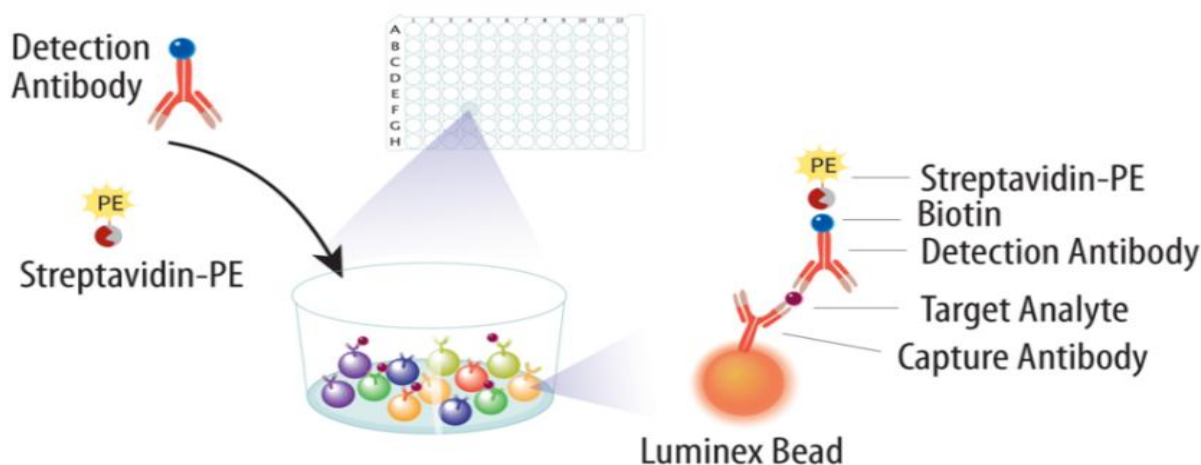
SAMPLE REQUIREMENTS

- Test samples should be Bio-Safety Level II

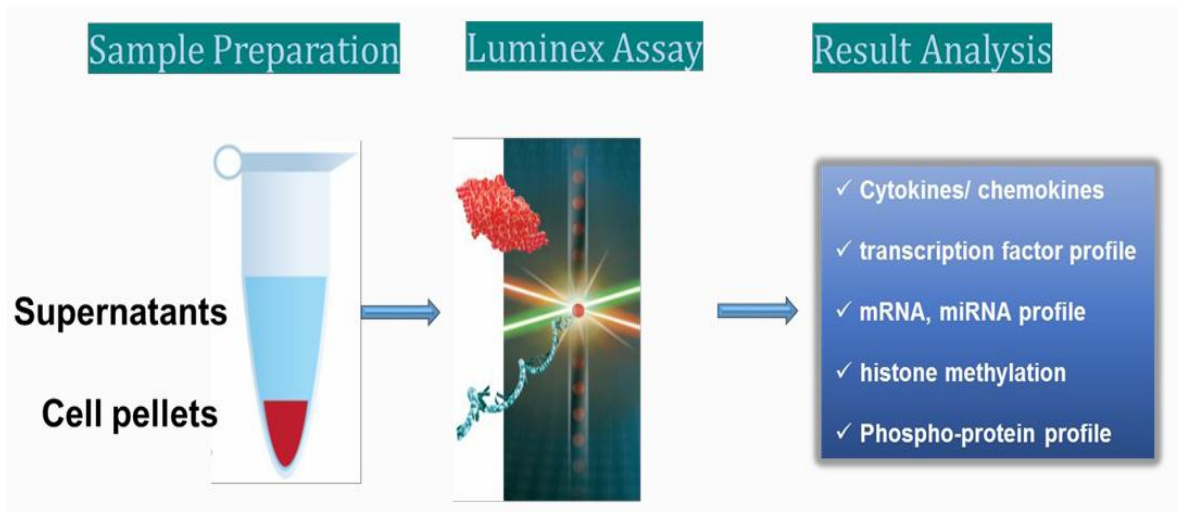
or below.

- Any extraction or preparation procedures can be arranged in advance.
- Samples should be submitted in a minimum-binding 96/384-well plate accompanied by a template that outlines the sample order.
- Sufficient volume 10-200 μ L depending on duplicate or triplicate.
- Ship samples in dry ice if possible

HOW DOES OUR ASSAY WORK?



VARIOUS PANELS READY FOR PROTEIN AND GENE PROFILING



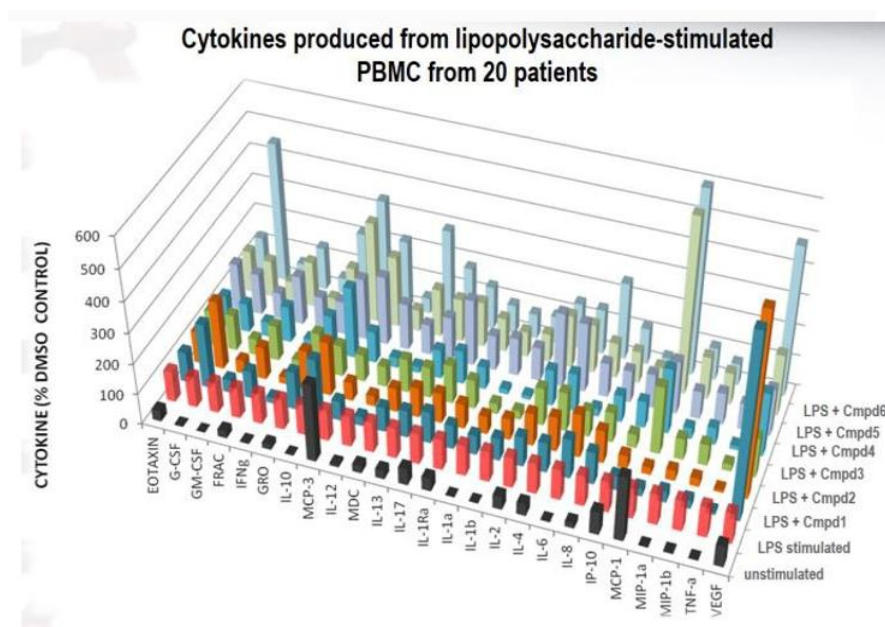


CYTOKINES FROM VARIOUS SPECIES CAN BE QUANTITATED

Human	Rhesus Monkey	Canine (dog)	Feline (cat)	Dolphin
Mouse	Rabbit	Equine (horse)	Gallus (chicken)	Bovine (cow)
Rat	Chicken	Porcine (pig)	Ovine (sheep)	

EXAMPLE DATA

In vitro effects of test compounds on expression of 25 cytokines from LPS- stimulated PBMC from patients (n=20)



GROWING LIST OF HUMAN CYTOKINES IN OUR ASSAYS

6Ckine/CCL21/	Cystatin C	IL-17A/CTLA8	PDGF-CC
ADAMTS13	DcR3	IL-17C	PDGF-DD
Adiponectin/Acrp30	D-dimer	IL-17E/IL-25	Pentraxin 3/TSG-14
Aggrecan	Dkk-1	IL-17F	Perforin
AgRP/ART	DPPIV/CD26	IL-18	Periostin/OSF-2
alpha-Fetoprotein	DR3/TNFRSF25	IL-18 BPα	PLA2G7/PAF-AH/Lp-PLA2
Amphiregulin	EGF	IL-19	PlGF
Angiogenin	EMMPRIN	IL-1Ra	Procalcitonin
Angiopoietin-1	ENA-78/CXCL5	IL-2	Progranulin
Angiopoietin-2	Endoglin	IL-2 R α/CD25	Prolactin
Angiopoietin-like 3	Endostatin	IL-20	Proprotein Convertase 9/ PCSK9
Angiopoietin-like 4	Endothelin-1	IL-21	Proteinase 3/PRTN3



APP	Enolase 2/Neuron-specific Enolase	IL-22	P-Selectin
APRIL/TNFSF13	ENPP-2/ Autotaxin	IL-23	RAGE
B7-H1/PD-L1	EN-RAGE/S100A12	IL-24	RBP4
BAFF/Blys	EpCAM/TROP1	IL-27	Reg3A
BCA-1/CXCL13	EphA2	IL-28A/IFN-lambda 2	Relaxin-2
BCMA	Epo	IL-28B/IFN-lambda 3	Renin
BDNF	ErbB2/Her2	IL-29/IFNλ1	Resistin
beta 2-Microglobulin	ErbB3/Her3	IL-2Rα	ROBO4
BMP-2	ESAM	IL-3	S100A8
BMP-4	E-Selectin	IL-31	S100B
BMP-9	Exodus-2	IL-32α	sCD137/4-1BB/TNFRSF9
BRAK/CXCL14	FABP1/L-FABP	IL-33	sCD40L
C5/C5a	FABP3/H-FABP	IL-34	SCF
C9	FABP4/A-FABP	IL-35	SCGF/CLEC11a
CA125/MUC16	Factor D/Adipsin	IL-36/IL-1F8	SCGF-β
CA15-3	Factor XIV/ Protein C	IL-37/IL-1F7	Serpin A7/TBG
Calbindin D	Fas	IL-38/IL-1F10	Serpin C1/ Antithrombin-III
Carbonic Anhydrase IX/CA9	Fas Ligand	IL-4	Serpin E1/PAI-1
Cardiac Myoglobin	Fetuin A/AHSG	IL-5	Serum Amyloid A1
Cardiac Troponin I/ cTNI	FGF acidic	IL-6	sFAS/TNFRSF6
CCL1/I-309	FGF-2/FGF-basic	IL-6 R alpha	sFasL
CCL11/Eotaxin	FGF-21	IL-7	SHBG
CCL13/MCP-4	FGF-23	IL-9	SLPI
CCL14/HCC-1/ HCC-3	Fibronectin	Insulin	SOST
CCL15/MIP-18/MIP-5	FLRG	Insulin C-Peptide	SPARC
CCL17/TARC	Flt3 Ligand	ITIH4	SP-D
CCL18/PARC/MIP-4	Follistatin	Kallikrein 3/PSA	ST2/IL-1 R4
CCL19/MIP-3 beta	Follistatin-like 1	Kallikrein 5	Syndecan-1/CD138
CCL2/MCP-1	Galectin-1	Kallikrein 6/ Neurosin	Syndecan-4
CCL20/MIP-3 alpha	Galectin-3	Lactoferrin	Synuclein-alpha
CCL21/6Ckine	Galectin-3BP/MAC-2BP	LBP	TACI
CCL22/MDC	Galectin-9	Leptin	Tau
CCL23/MPIF	Gas6	LIF	Tenascin C
CCL24/Eotaxin-2/MPIF-2	G-CSF	Lipocalin-2/NGAL	TFF3
CCL25/TECK	GDF-15	LIX/CXCL6/GCP-2	TFPI
CCL26/Eotaxin-3	GDNF	LRG1	TfR
CCL27/CTACK	GFAP	L-Selectin	TGF-alpha
CCL28	GITR	LT-alpha/TNF-beta	Thrombospondin-2
CCL3/MIP-1 alpha	Glucagon	Lumican	Tie-1
CCL4/MIP-1 beta	GM-CSF	Lymphotactin/XCL1	Tie-2
CCL5/RANTES	gp130	MBL	TIM-1/KIM-1/HAVCR
CCL7/MCP-3	Granzyme A	MCAM/CD146	TIMP-1
CCL8/MCP-2	Granzyme B	M-CSF	TNF RI
CD14	Growth Hormone	Mesothelin	TNF RII
CD163	HB-EGF	MFG-E8	TNFα
CD23/Fc epsilon RII	HCC-1/CCL14	MIA	TNFβ / Lymphotoxina
CD27	HCC-4/CCL16	MICB	Total Cathepsin S
CD30	HE4/WFDC-2	Midkine	Total Inhibin



CD31/PECAM-1	HGF	MIF	TPO
CD40	HGF R/c-MET	MMP-1	TRAIL R2/DR5
CD40 Ligand	HMGB1	MMP-12	TRAIL R3
CD44	HTRA2/Omi	MMP-13	TRAIL/TNFSF10
CEA/CEACAM-5	ICAM-1	MMP-2	TRANCE/RANK L
CEACAM-1/CD66a	IFN-gamma	MMP-3	TREM-1
Chemerin	IFN-gamma R1	MMP-7	TSLP
Chitinase 3-like 1/YKL-40	IFN α 2	MMP-8	TWEAK
Collagen IV alpha 1	IFN β	MMP-9	ULBP-1
Contactin-1	IFN γ	MPIF-2	ULBP-2/5/6
Cripto-1	IGFBP-1	MPO	ULBP-3
CRP	IGFBP-3	MSP-MST1	ULBP-4/RAET1E
CX3CL1/ Fracktalkine	IGFBP-4	NAGLU	uPA/Urokinase
CXCL1/Gro alpha	IGFBP-rp1/IGFBP-7	N-Cadherin	uPAR
CXCL10/IP-10	IL-1 alpha	NCAM-1	Uromodulin
CXCL11/I-TAC	IL-1 beta	Nectin-4	Uteroglobin
CXCL12/SDF-1 alpha	IL-1 ra	Nephrin	VAP-1
CXCL13/BLC/BCA-1	IL-1 RI	NRG1- β 1/HRG1- β 1	VCAM-1
CXCL14/BRAK	IL-1 RII	NT-4	VEGF R1
CXCL16/SCYB16	IL-10	NT-Pro-ANP	VEGF R2/KDR
CXCL2/Gro beta	IL-11	Oncostatin M	VEGF R3
CXCL4/PF4	IL-12 (p70)	Osteopontin	VEGF-A
CXCL5/ENA-78	IL-12/23 p40	Osteoprotegerin	VEGF-C
CXCL6/GCP-2	IL-13	Park7/DJ-1	VEGF-D
CXCL7/NAP-2	IL-14/ α -Taxilin	PBEF/Visfatin	Vitamin D Binding Protein
CXCL8/IL-8	IL-15	PDGF-AA	vWF-A2
CXCL9/MIG	IL-16	PDGF-BB	β -NGF