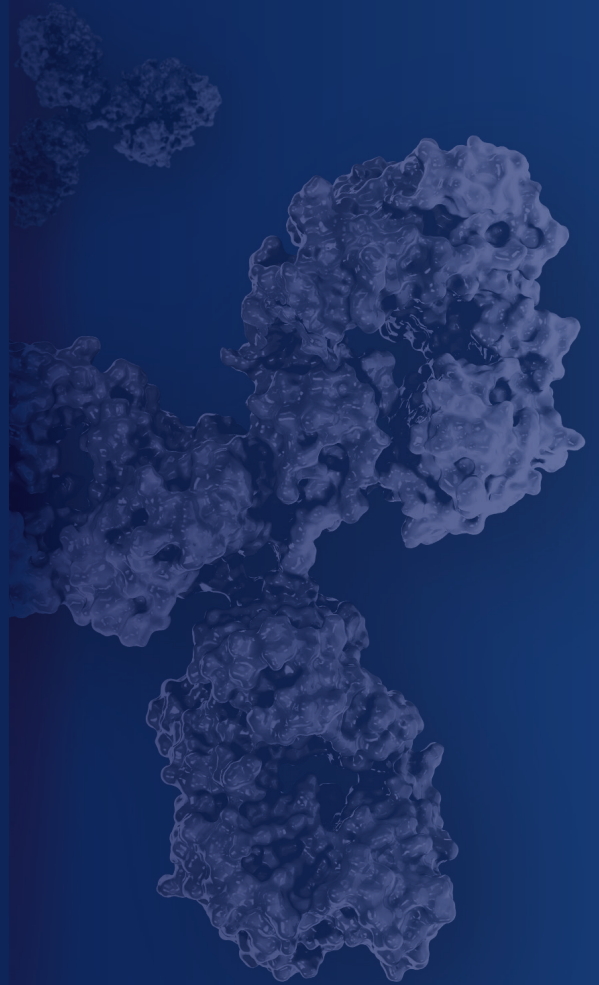


RANDOX
BIOSCIENCES



IMMUNOLOGY



Research
Clinical Labs
BioReagents
BioPharma

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Overview

Randox Biosciences is part of Randox Laboratories; a global In vitro Diagnostics (IVD) company dedicated to improving laboratory based testing with over 35 years' experience in biomarker assay development.

Randox Biosciences provides an extensive range of molecular and immunoassay testing solutions. Our long history in IVD development has resulted in the production of assays to the highest quality standards. In addition to an extensive off-the-shelf menu, we provide tailored assay solutions to meet the individual needs of our research and clinical customers.

We offer a comprehensive range of testing technologies and assay solutions to make immunology focused research more efficient, cost effective and accurate.

Central to our biomarker testing solutions, Randox's award winning Biochip Array Technology (BAT) is a first-in-class multiplex platform with applications for protein and nucleic acid target detection. In addition, our wide range of 'RX Series' clinical chemistry analysers, coupled with the broadest chemistry reagent portfolio in the market, position Randox Biosciences to exceed your immunoassay, biochemistry and molecular assay needs.

Randox manufacture the majority of assay raw materials in-house and can therefore offer a bespoke assay design approach, by adapting assays to the detection needs of your research project. Therefore, whether your studies focus on early biomarker identification, late stage clinical trial testing and anything in between, Randox Biosciences can provide you with a full range of biochip arrays, biomarker assays and analysers that will best fit your individual requirements.

Randox Biosciences is your trusted partner for supply and support of market leading assay solutions to the research, clinical, life science, pharmaceutical and biopharma industries.

BIOCHIP ARRAY TECHNOLOGY

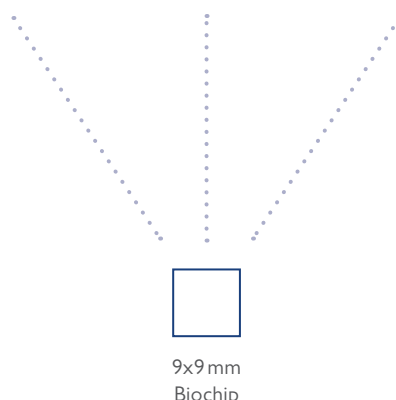
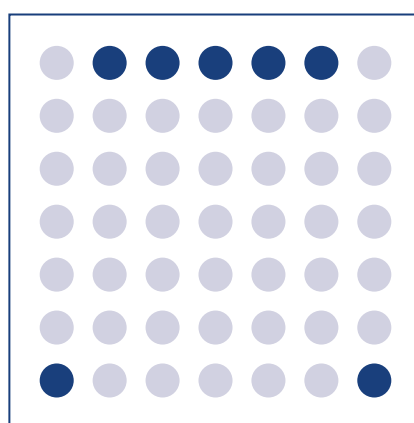
One Biochip,
Multiple Results

Biochip Array Technology is a multi-analyte testing platform allowing the simultaneous detection of a wide-range of analytes from a single sample. It provides a unique platform for assessment of biological samples in a rapid, accurate and easy to use format.

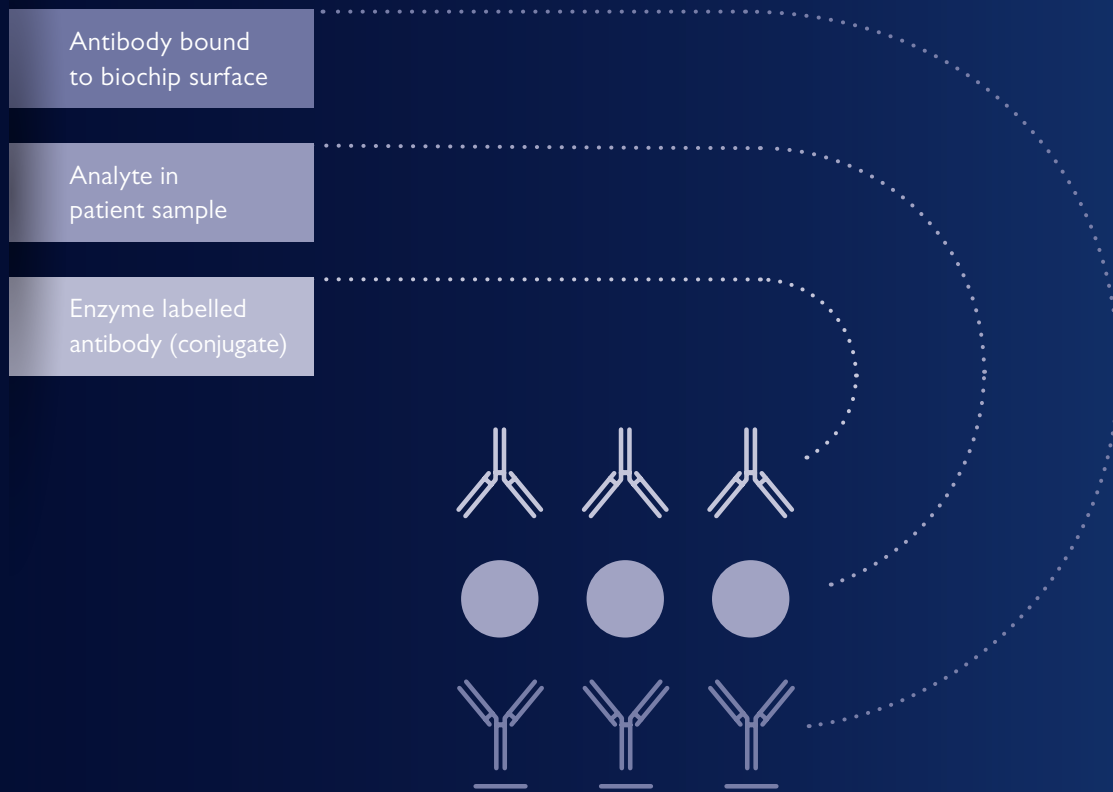
A chemically functionalised 9x9mm ceramic biochip acts as the solid phase reaction surface, replacing multiple traditional ELISA plate wells.

Biochips are pre-fabricated with an array of Discrete Test Regions (DTRs); a different antibody/oligonucleotide is immobilised at each spatially distinct DTR.

Up to 49 individual DTRs can be arrayed onto a single biochip. One single biochip is used per sample to produce multiple results simultaneously.



Sandwich Immunoassay



Sandwich immunoassay

In a sandwich assay (illustrated above), the more analyte present in a sample, the more conjugate will bind to form a 'sandwich' complex. Therefore biomarker concentration in the sample is directly proportional to the chemiluminescent light signal generated. More light = higher concentration of that biomarker in the sample.

Competitive immunoassay

In a competitive assay, the more analyte present in a sample, the less labelled conjugate that will bind to the immunoreaction site. Therefore, sample concentration is indirectly proportional to the concentration of each particular analyte in that sample.

Detection

The biochip detection is based on a chemiluminescent signal. This is the emission of light, without heat, as a result of a chemical reaction. An enzyme is used to catalyse the chemical reaction on the biochip which generates the chemiluminescent signal. The light emitted from the chemiluminescent reaction that takes place in each DTR is simultaneously detected and quantified using a CCD camera.

This CCD camera simultaneously records the light emission from all the discrete test sites on each biochip on the biochip carrier.

KEY BENEFITS



Quality Results

Intra-assay and Inter-assay CV's typically less than 10%

Assays standardised to reference material where appropriate

Excellent sensitivity, sub-pg/mL in many instances

Assays validated to a clinical diagnostic standard

Minimal batch variation, ideal for longitudinal research studies



No Hidden Costs

Full analyser package includes biochip imaging module, PC and imaging software, thermoshaker, biochip carrier handling tray and barcode scanner

Protein arrays: all inclusive kits containing reagents, biochips, buffer and multi-analyte calibrators



Reduced Sample Volume

Analyse a complete profile of biomarkers from as little as 25µl of sample

Ideal when conservation of sample is critical



Consolidation

Consolidation of immunoassay and molecular diagnostics onto a single platform

The Evidence Investigator Running Procedure



EVIDENCE INVESTIGATOR

Versatile, efficient & comprehensive testing

The Evidence Investigator Package

The benchtop, semi-automated Evidence Investigator offers complete patient profiling whilst boasting the most comprehensive test menu on the market. The Evidence Investigator consolidates immunoassay and molecular diagnostics on a single platform with protein and DNA biochips. A full reagent package is available with no hidden costs or extra consumables needed.



Thermoshaker



Computer



Barcode Scanner



Handling Tray

Dimensions	75 (H) x 48 (D) x 42 (W) cm
Weight	24kg, 52.9lbs
Throughput	Up to 2376 test per hour

EVIDENCE INVESTIGATOR

Reagents Package

Each Evidence Investigator reagent kit comes complete with all materials required to perform the analysis. To enhance the quality of your research, complementary tri-level controls are available for all protein arrays.

For further information contact: info@randoxbiosciences.com



6 Biochip Carriers
(54 Biochips in Total)



9 Level Multi-analyte
Calibrators



Pre-configured & Labelled
Secondary Conjugate Solution



Assay
Diluent



Chemiluminescent
Signal Reagent



Concentrated
Wash Buffer



MULTIPLEX PROTEIN ARRAYS

Adhesion Molecule

	Inv	Evo
E-Selectin	●	●
Intercellular Adhesion Molecule-1	●	●
L-Selectin	●	●
P-Selectin	●	●
Vascular Cell Adhesion Molecule-1	●	●

Alzheimer's

	Inv	Evo
Apolipoprotein E4	●	●
Pan Apolipoprotein E	●	●

Cardiac

	Inv	Evo
Cardiac Troponin-I	●	●
Creatine Kinase MB	●	●
Heart-Type Fatty Acid Binding Protein	●	●
Myoglobin	●	●

Cerebral Array I

	Inv	Evo
Brain-Derived Neurotrophic Factor	●	
Glial Fibrillary Acidic Protein	●	
Heart-Type Fatty Acid Binding Protein	●	
Interleukin-6	●	

Cerebral Array II

	Inv	Evo
C-Reactive Protein	●	
D - Dimer	●	
Neuron Specific Enolase	●	
Soluble Tumour Necrosis Factor Receptor-1	●	
Neutrophil Gelatinase Associated Lipocalin	●	

Chronic Kidney Disease I

	Inv	Evo
Fatty Acid Binding Protein-1	●	●
Soluble Tumour Necrosis Factor Receptor-1	●	●

Chronic Kidney Disease I (cont.)

	Inv	Evo
Soluble Tumour Necrosis Factor Receptor 2	●	●
Macrophage Inflammatory Protein-1	●	●
Interleukin-8	●	●
Epidermal Growth Factor	●	●
D-Dimer	●	●

Chronic Kidney Disease II

	Inv	Evo
Adiponectin		●
Complement C3a des Arginine	●	●
C-Reactive Protein	●	●
Neutrophil Gelatinase Associated Lipocalin	●	●
Cystatin C	●	●

Cytokine Array I

	Inv	Evo
Interleukin-1 α	●	●
Interleukin-1 β	●	●
Interleukin-2	●	●
Interleukin-4	●	●
Interleukin-6	●	●
Interleukin-8	●	●
Interleukin-10	●	●
Vascular Endothelial Growth Factor	●	●
Epidermal Growth Factor	●	●
Tumour Necrosis Factor-α	●	●
Interferon-γ	●	●
Monocyte Chemotactic Protein-1	●	●

Cytokine Array III

	Inv	Evo
Interleukin-5	●	
Interleukin-15	●	
Granulocyte Macrophage Colony Stimulating Factor	●	
Macrophage Inflammatory Protein-1α	●	

Cytokine Array IV

	Inv	Evo
Matrix Metalloproteinase 9	●	
Soluble IL-2 Receptor α	●	
Soluble IL-6 Receptor	●	
Soluble Tumour Necrosis Factor Receptor-1	●	
Soluble Tumour Necrosis Factor Receptor-2	●	

Cytokine Array V

	Inv	Evo
Interleukin-3	●	
Interleukin-7	●	
Interleukin-13	●	
Interleukin-12p70	●	
Interleukin-23	●	

Gastro

	Inv	Evo
Gastrin-17	●	●
Pepsinogen-I	●	●
Pepsinogen-II	●	●

Helicobacter Pylori

	Inv	Evo
Helicobacter pylori	●	●

Metabolic Syndrome I

	Inv	Evo
Adiponectin	●	●
Ferritin	●	●
Insulin	●	●
Leptin	●	●
Plasminogen Activator Inhibitor-I	●	●
Resistin	●	●
Interleukin-6	●	
Tumour Necrosis Factor-α	●	

Metabolic Syndrome II

	Inv	Evo
Adiponectin	●	
C-Reactive Protein - CRP	●	
Cystatin C	●	

Stroke

	Inv	Evo
D Dimer		●
Glial Fibrillary Acidic Protein		●
Glutathione S – Transferase Pi		●
Heart-Type Fatty Acidic Binding Protein		●
Interleukin-6		●
Nucleoside Diphosphate Kinase		●
Parkinson Protein 7		●
Soluble Tumour Necrosis Factor Receptor I		●

Thyroid Auto Antibody

	Inv	Evo
Anti-Thyroid Peroxidase		●
Anti-Thyroglobulin		●

Thyroid Free

	Inv	Evo
Free Thyroxine	●	●
Free Tri-iodothyronine	●	●
Thyroid Stimulating Hormone	●	●

Thyroid TGB

	Inv	Evo
Thyroxine Binding Globulin		●

Thyroid Total

	Inv	Evo
Thyroid Stimulating Hormone		●
Total Tri-iodothyronine		●
Total Thyroxine		●

Key

● Evidence Investigator (Inv)

● Evidence Evolution (Evo)

CUSTOM ARRAYS

How the process works

With over 150 Immunology markers available, Radox provides an extensive and diverse test menu. Should your needs exceed those provided by one of our standard off-the-shelf arrays, or you are researching a particular set of analytes, we would encourage you to approach a Radox representative with your specific requirements. Radox's expertise, state-of-the-art manufacturing facilities and highly specialised scientists enable us to provide a product and service tailored to a specific R&D or clinical trial requirement.

Customised Biochip Array Planning

Radox will endeavour to work with you to ensure your needs are constantly met and provide a smooth process from the time of your first order until final delivery. A summary of the custom biochip ordering process is presented below.

For further information contact: info@radoxbiosciences.com



Submission of custom array requirements
(completion of Biochip Questionnaire Form)



R&D carry out feasibility assessment



If feasible, a quote will be forwarded to customer



Confirmation of order and biochip capabilities

BIOMARKERS FOR IMMUNOLOGY RESEARCH

Analyte

70 kilodalton heat shock proteins	HSP70
A Proliferation-Inducing Ligand	APRIL
Amphiregulin	
Apolipoprotein A1	APOA1
Basal Cell Adhesion Molecule	BCAM
B-cell Activating Factor	BAFF
Caspase 1	CASP 1
Caspase 6	CASP 6
Caspase 9	CASP 9
Chemokine (C-C motif) Ligand 1	CCL1
Chemokine (C-C motif) Ligand 13	CCL13
Chemokine (C-C motif) Ligand 14	CCL14
Chemokine (C-C motif) Ligand 15	CCL15
Chemokine (C-C motif) Ligand 17	CCL17
Chemokine (C-C motif) Ligand 18	CCL18
Chemokine (C-C motif) Ligand 19	CCL19
Chemokine (C-C motif) Ligand 20	CCL20
Chemokine (C-C motif) Ligand 21	CCL21
Chemokine (C-C motif) Ligand 22	CCL22
Chemokine (C-C motif) Ligand 26	CCL26
Chemokine (C-C motif) Ligand 27	CCL27
Chemokine (C-C motif) Ligand 28	CCL28
Chemokine (C-X-C motif) Ligand 1	CXCL1
Chemokine (C-X-C motif) Ligand 4	CXCL4
Chemokine (C-X-C motif) Ligand 5	CXCL5
Chemokine (C-X-C motif) Ligand 7	CXCL7
Chemokine (C-X-C motif) Ligand 9	CXCL9
Chemokine (C-X-C motif) Ligand 11	CXCL11
Chemokine (C-X-C motif) Ligand 12	CXCL12
Chemokine (C-X-C motif) Ligand 13	CXCL13
Chemokine (C-X-C motif) Ligand 16	CXCL16
Chemokine (C-X-C motif) Ligand 17	CXCL17

Analyte

Chemokine 3 Ligand 1	CX3CL1
Cluster of Differentiation 4	CD4
Cluster of Differentiation 14	CD14
Cluster of Differentiation 28	CD28
Cluster of Differentiation 30	CD30
Cluster of Differentiation 36 (soluble)	sCD36
Cluster of Differentiation 56	CD56
Cluster of Differentiation 66e	CD66e
Cluster of Differentiation 127	CD127
Cluster of Differentiation 163	CD163
Complement 3	C3
Connective Tissue Growth Factor	CTGF
Defensin	NPI
Elafin	SKALP
Eotaxin	CCL11
Epidermal Growth Factor	EGF
Epidermal Growth Factor Receptor	EGFR
Epigen	EPGN
E-selectin	ESEL
Fibrinogen	Fib
Fibroblast Growth Factor (basic)	FGF-β
Fibroblast Growth Factor 4	FGF-4
Fibroblast Growth Factor 7	FGF-7
Fibroblast Growth Factor 19	FGF-19
Fibroblast Growth Factor 21	FGF-21
Fibroblast Growth Factor 23	FGF-23
Fibronectin	FN
FMS-Related Tyrosine Kinase 1	FLT-1
FMS-Related Tyrosine Kinase 3	FLT-3 Ligand
Granulocyte Colony Stimulating Factor	G-CSF
Granulocyte-macrophage colony-stimulating factor	GM-CSF
Granzyme B	GZMB

BIOMARKERS FOR IMMUNOLOGY RESEARCH

Analyte

Growth Differentiation Factor 8/Myostatin	GDF-8
Growth Differentiation Factor 11	GDF-11
Growth Differentiation Factor 15	GDF-15
Haptoglobin	HP
Heat Shock Protein 70	HSP-70
Heme Oxygenase-1	HO-1
Heparin-binding epidermal growth factor	HB-EGF
Hepatocyte Growth Factor	HGF
Human beta Defensin 2	BD-2
Hypoxia-inducible factor 1, alpha subunit	HIF-1 α
Immunoglobulin E	IgE
Insulin Growth Factor	IGF1
Insulin Growth Factor 2	IGF2
Insulin like Growth Factor 1 Receptor	IGF1R
Insulin like Growth Factor 2 Receptor	IGF2R
Insulin like Growth Factor Binding Protein 2	IGFBP2
Insulin like Growth Factor Binding Protein 3	IGFBP3
Insulin-like growth factor 1	IGF-1
Intercellular Adhesion Molecule 1	ICAM-1
Interferon alpha	IFN α
Interferon gamma	IFN γ
Interferon gamma-induced protein 10	IP-10
Interleukin 1 alpha	IL-1 α
Interleukin 1 beta	IL-1 β
Interleukin 1 Receptor 4	IL-1R4
Interleukin 1 Receptor antagonist	IL-1Ra
Interleukin 2	IL-2
Interleukin 3	IL-3
Interleukin 4	IL-4
Interleukin 5	IL-5
Interleukin 6	IL-6
Interleukin 7	IL-7

Analyte

Interleukin 8	IL-8
Interleukin 9	IL-9
Interleukin 10	IL-10
Interleukin 11	IL-11
Interleukin 12	IL-12
Interleukin 12p40	IL-12p40
Interleukin 12p70	IL-12p70
Interleukin 13	IL-13
Interleukin 15	IL-15
Interleukin 16	IL-16
Interleukin 17A	IL-17A
Interleukin 17F	IL-17F
Interleukin 18	IL-18
Interleukin 21	IL-21
Interleukin 22	IL-22
Interleukin 23	IL-23
Interleukin 26	IL-26
Interleukin 33	IL-33
Leukotriene B4	LTB4
LIGHT	TNFSF14
L-selectin	LSEL
Lymphotoxin	XCL1
Macrophage Colony Stimulating Factor	M-CSF
Macrophage Inflammatory Protein 1 alpha	MIP-1 α
Macrophage Inflammatory Protein 1 beta	MIP-1 β
Macrophage migration inhibitory factor	MIF
MHC Class I chain Related Protein A	MICA
Midkine	MK
Monocyte Chemotactic Protein 1	MCP-1
Monocyte Chemotactic Protein 2	MCP-2
Monocyte Chemotactic Protein 3	MCP-3
Neutrophil Elastase	ELA2

Analyte

Nitrotyrosine	NT
Oligoadenylate Synthetase I	OASI
Placental Growth Factor	PGF
Platelet Derived Growth Factor	PDGF
Platelet Derived Growth Factor - AA	PDGF-AA
Platelet Derived Growth Factor Receptor β	PDGFR β
Platelet-derived Endothelial Cell Growth Factor	PD-ECGF
Platelet-derived growth factor BB	PDGF-BB
P-selectin	PSEL
RANKL	TNFSFII
Receptor Activator of Nuclear Factor Kappa-B Ligand	sRANKL
Regenerating Islet-derived Protein 3 α	REG3 α
Regulated and Normal T Cell Expressed and Secreted	RANTES
S100 Calcium Binding Protein A8	S100A8
S100A12	EN-RAGE
S100A8/A9	
Secretory IgA	IgA
Serum Amyloid A	SAA
Soluble CD40 Ligand	sCD40L
Soluble gp130	sgp130
Soluble Interleukin 2 Receptor alpha	sIL-2R α
Soluble Interleukin 6 Receptor alpha	sIL-6R α
Soluble Interleukin 15 Receptor alpha	sIL-15R α
Soluble Tumor necrosis factor receptor 1	sTNFR1
Soluble Tumor necrosis factor receptor 2	sTNFR2
Stem Cell Factor	SCF
Stem Cell Factor Receptor	SCFR
Stromal cell-derived factor-1	SDF-1
Surfactant Protein A	SP-A
Surfactant Protein D	SP-D

Analyte

Surfactant Pulmonary Associated Protein D	SPAD
Thrombopoietin	THPO
Tissue Inhibitor of Metalloproteinase 1	TIMP-1
Tissue Inhibitor of Metalloproteinase 2	TIMP-2
Tissue Inhibitor of Metalloproteinase 3	TIMP-3
Tissue Inhibitor of Metalloproteinase 4	TIMP-4
Transferrin	TF
Transforming Growth Factor alpha	TGF- α
Transforming Growth Factor beta 1	TGF- β 1
Transforming Growth Factor beta 2	TGF- β 2
Transforming Growth Factor beta 3	TGF- β 3
Trefoil Factor 3	TFF3
Tumor necrosis factor ligand superfamily member 12	TWEAK
Tumour Necrosis Factor alpha	TNF- α
Tumour Necrosis Factor beta	TNF- β
Tumour Necrosis Factor Receptor II	TNFR2
Tyrosine kinase with immunoglobulin-like and EGF-like domains 1	Tie-1
Tyrosine kinase with immunoglobulin-like and EGF-like domains 2	Tie-2
Uteroglobin	CC16
Vascular cell adhesion protein 1	VCAM-1
Vascular Endothelial Growth Factor	VEGF
Vascular Endothelial Growth Factor A	VEGFa
Vascular Endothelial Growth Factor B	VEGFb
Vascular Endothelial Growth Factor C	VEGFc
Vascular Endothelial Growth Factor D	VEGFd
Vascular Endothelial Growth Factor Receptor 1	VEGFR1
Vascular Endothelial Growth Factor Receptor 2	VEGFR2
Vascular Endothelial Growth Factor Receptor 3	VEGFR3
X-linked inhibitor of apoptosis protein	XIAP

Immunology

Immunology is the study of the immune system, which protects us from infection through various lines of defence. If the immune system is not functioning as it should, it can result in disease, such as autoimmunity, allergy or cancer.

It is also now becoming clear that immune responses contribute to the development of many common disorders not traditionally viewed as immunologic, including metabolic, cardiovascular, and neurodegenerative conditions such as Alzheimer's.

Randox Biosciences offers a comprehensive range of multi-analyte tests directed towards immunology research; consisting of multiplex cytokine arrays, an adhesion molecules array, two cerebral arrays, two metabolic syndrome and cardiovascular arrays, as well as a range of clinical chemistry reagents.

Randox Biosciences is the best choice to help accelerate your project to completion due to our advanced arrays coupled with our wide variety of technologies and solutions available to academic institutions globally. Whether it is biomarker identification studies right through to clinical trials, we can provide you with a full range of arrays, biomarkers and analysers that will best suit your individual project requirements.



SUP-
ERIOR

MULTI-
PLEXING

CYTOKINE

And inflammatory research

Cytokines are small innate regulatory proteins involved in immune response and are produced by various cell types including B-cells, T-cells, macrophages, neutrophils, basophils, eosinophils and endothelial cells. Cytokines function as intercellular chemical messengers. They act as external controlling elements in hematopoiesis and also mediate and control immune and inflammatory responses. They have been implicated in pathological conditions such as cancer, cardiovascular disease, allergic response and play a significant role in surgery recovery, including transplantation.

Cytokine Biochip Arrays

To determine multiple cytokines in a single sample at a single time point, Randox offer a comprehensive menu of 26 cytokines, cytokine receptors and growth factors over four multi-analyte arrays. Each cytokine assay is performed on a 9 x 9mm activated biochip with spatially discrete test regions containing antibodies specific to each of the analytes.

The combination of highly specific antibodies and advanced chemistries enables cytokines, cytokine receptors and growth factors to be detected simultaneously in a single sample, providing valuable information relating to each cytokine under test and possible associations between cytokines in each sample.

Hyper Sensitive Response

In some cases, the immune response over-reacts, turning cytokines against the body they are designed to protect. When the cytokine cascades fail to shut down, they can drive the host into a state of acute or chronically activated cells, which dominate an otherwise dormant immune system. Examples of the most obvious manifestations of this hypersensitivity are an unnecessary inflammatory response and fever; both of which can be life threatening if left untreated.

Cytokine Facts

- Similar functions can be stimulated by different cytokines
- They can act synergistically or antagonistically therefore measuring a single cytokine may miss an important facet of response progression
- Have duplicity of function when dealing with infection
- Can affect their host cell (autocrine), nearby cells (paracrine) or distant cells (endocrine)
- Different cytokines commonly elicit the same cellular activation cascades, therefore measuring multiple cytokines simultaneously can shed important light on the active proteins during host response

¹[https://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045\(12\)70582-X.pdf](https://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045(12)70582-X.pdf)

- Cytokines exert their influence through receptors in the cell membrane or within the cell

¹[https://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045\(12\)70582-X.pdf](https://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045(12)70582-X.pdf)

CYTOKINE ARRAY I

12 biomarkers - 1 sample

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
EGF	4.6	5.8	7.6	7.4	4.0	7.2
IFN γ	12.7	6.2	3.8	13.4	9.8	9.1
IL-1 α	9.7	7.7	6.8	10.7	5.9	7.3
IL-1 β	8.2	6.3	6.7	13.1	7.3	7.0
IL-2	9.6	5.0	6.3	10.0	7.2	7.6
IL-4	10.7	9.4	4.6	10.0	6.4	7.8
IL-6	12.9	6.1	8.7	15.4	10.4	8.7
IL-8	10.1	7.5	7.9	10.1	8.7	9.9
IL-10	6.3	5.5	6.7	9.4	6.3	6.1
MCP-1	6.8	5.1	4.7	14.7	6.0	5.6
TNF α	10.2	6.0	7.8	13.0	8.1	11.6
VEGF	7.3	4.6	4.3	13.4	7.6	6.0

Analyte	Calibration Range pg/ml	Sensitivity pg/ml
EGF	0 - 900	2.9
IFN γ	0 - 1500	3.5
IL-1 α	0 - 500	0.8
IL-1 β	0 - 250	1.6
IL-2	0 - 3000	4.8
IL-4	0 - 900	6.6
IL-6	0 - 900	1.2
IL-8	0 - 3000	4.9
IL-10	0 - 1000	1.8
MCP-1	0 - 1500	13.2
TNF α	0 - 1500	4.4
VEGF	0 - 3000	14.6

Intra-assay precision was determined by assaying 20 replicates of each of three levels of sample.

Inter-assay precision was determined by assaying 2 replicates of each of three levels of sample in 10 separate assays.

Assay range may vary with batch of calibrators.

CYTOKINE

High sensitivity array

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
EGF	9.2	9.5	9.6	11.7	8.5	9.6
IFN γ	10.1	7.4	7.7	11.4	6.4	7.6
IL-1 α	10.9	9.7	11.4	15.5	8.9	13.1
IL-1 β	9.3	8.7	7.4	9.9	11.8	8.7
IL-2	7.8	5.8	6.9	7.9	6.5	8.2
IL-4	8.1	9.5	8.4	11.8	8.6	8.8
IL-6	11.9	9.8	7.8	8.4	7.4	8.4
IL-8	9.4	9.4	7.0	11.1	9.9	9.2
IL-10	6.8	5.6	6.1	6.7	6.5	7.5
MCP-1	12.2	8.9	5.8	12.8	10.4	7.2
TNF α	7.1	7.2	12.7	8.6	6.7	7.0
VEGF	10.4	10.8	7.3	12.0	7.2	10.7

Analyte	Calibration Range pg/ml	Sensitivity pg/ml
EGF	0 - 450	1.04
IFN γ	0 - 600	0.44
IL-1 α	0 - 225	0.19
IL-1 β	0 - 112.5	0.26
IL-2	0 - 1,200	2.97
IL-4	0 - 450	2.12
IL-6	0 - 400	0.12
IL-8	0 - 1,450	0.36
IL-10	0 - 450	0.37
MCP-1	0 - 500	3.53
TNF α	0 - 600	0.59
VEGF	0 - 1,000	3.24

Intra-assay precision was determined by assaying 20 replicates of each of three levels of sample.

Inter-assay precision was determined by assaying 2 replicates of each of three levels of sample in 10 separate assays.

Assay range may vary with batch of calibrators.

CYTOKINE ARRAY IV

5 biomarkers - 1 sample

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
MMP-9	10.1	8.7	5.3	8.9	10.2	7.9
sIL-2Rα	7.2	6.6	7.8	6.2	8.7	10.1
sIL-6R	6.7	5.0	7.4	6.1	7.1	8.4
sTNFR I	8.4	8.3	13.9	9.5	12.2	13.1
sTNFR II	9.3	9.2	10.2	9.4	10.3	9.3

Analyte	Calibration Range ng/ml	Sensitivity ng/ml
MMP-9	0 - 1000	3.03
sIL-2Rα	0 - 40	0.12
sIL-6R	0 - 400	0.62
sTNFR I	0 - 25	0.09
sTNFR II	0 - 75	0.20

Intra-assay precision was determined by assaying 20 replicates of each of three levels of sample.

Inter-assay precision was determined by assaying 2 replicates of each of three levels of sample in 10 separate assays.

Assay range may vary with batch of calibrators.

CYTOKINE ARRAY III

4 biomarkers - 1 sample

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
GM-CSF	6.8	6.4	5.2	9.8	9.7	9.7
IL-5	5.1	8.8	6.5	10.3	9.3	8.1
IL-15	6.3	8.2	6.2	8.4	6.5	8.6
MIP-1α	9.5	7.8	9.9	9.4	8.5	9.6

Analyte	Calibration Range pg/ml	Sensitivity pg/ml
GM-CSF	0 - 500	1.46
IL-5	0 - 1000	0.98
IL-15	0 - 500	0.74
MIP-1α	0 - 1500	4.98

CYTOKINE ARRAY V

5 biomarkers - 1 sample

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
IL-3	6.8	6.8	7.8	7.3	10.2	10.7
IL-7	6.3	7.5	8.0	8.7	10.0	9.0
IL-13	5.5	6.0	8.3	5.9	8.0	10.6
IL-12p70	8.2	6.8	10.0	4.9	7.5	8.2
IL-23	7.3	7.2	5.1	6.6	7.3	4.6

Analyte	Calibration Range pg/ml	Sensitivity pg/ml
IL-3	0 - 2000	8.78
IL-7	0 - 200	1.11
IL-13	0 - 2000	5.23
IL-12p70	0 - 1000	2.16
IL-23	0 - 10000	13

Intra-assay precision was determined by assaying 20 replicates of each of three levels of sample.

Inter-assay precision was determined by assaying 2 replicates of each of three levels of sample in 10 separate assays.

Assay range may vary with batch of calibrators.

CYTOKINE

Array product details

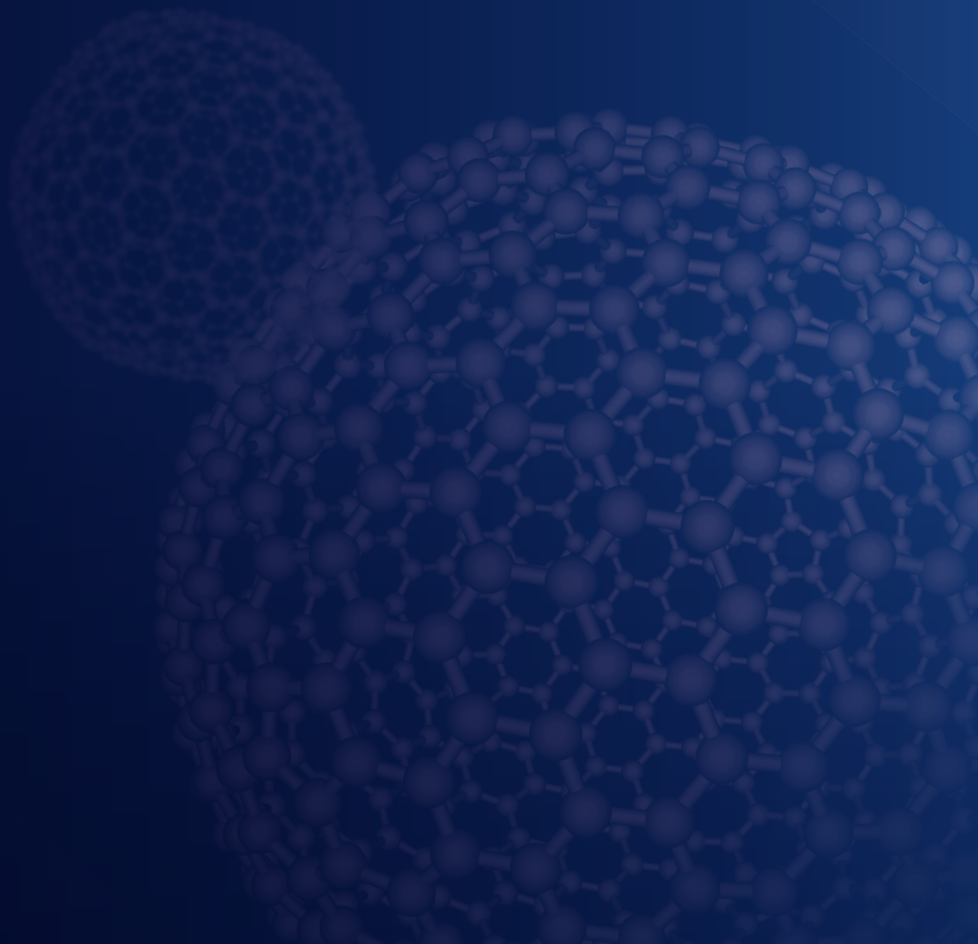
Analyte	Cat No.
Cytokine Array I & Cytokine High Sensitivity Array	
Epidermal Growth Factor (EGF)	EV3513 - Evidence Investigator (54 biochips)
Interleukin-1 α (IL-1 α)	EV3561 - Cytokine Array Calibrator Series
Interleukin-1 β (IL-1 β)	CY5006 - Cytokine Control (Series I)
Interleukin-2 (IL-2)	
Interleukin-4 (IL-4)	High Sensitivity
Interleukin-6 (IL-6)	EV3623 - Evidence Investigator (54 biochips)
Interleukin-8 (IL-8)	CY5005 - High Sensitivity Tri-Level Cytokine Control
Interleukin-10 (IL-10)	
Monocyte Chemotactic Protein-1 (MCP-1)	
Tumour Necrosis Factor- α (TNF α)	
Vascular Endothelial Growth Factor (VEGF)	
Cytokine Array III	
Interleukin-5 (IL-5)	EV3678 - Evidence Investigator (54 biochips)
Interleukin-15 (IL-15)	CY5012 - Cytokine Control (Series III)
Granulocyte Macrophage Colony Stimulating Factor (GM-CSF)	
Macrophage Inflammatory Protein-1 α (MIP-1 α)	
Cytokine Array IV	
Matrix Metalloproteinase-9 (MMP-9)	EV3661 - Evidence Investigator (54 biochips)
Soluble IL-2 Receptor α (sIL-2R α)	CY5011 - Cytokine Control (Series IV)
Soluble IL-6 Receptor (sIL-6R)	
Soluble Tumour Necrosis Factor Receptor I (sTNFR I)	
Soluble Tumour Necrosis Factor Receptor II (sTNFR II)	
Cytokine Array V	
Interleukin-3 (IL-3)	EV3666 - Evidence Investigator (54 biochips)
Interleukin-7 (IL-7)	CY5010 - Cytokine Control (Series V)
Interleukin-12p70 (IL-12p70)	
Interleukin-13 (IL-13)	
Interleukin-23 (IL-23)	

ADHESION MOLECULES ARRAY

For immunology research

Adhesion Molecules Facts

- Altered levels of adhesion molecules are involved in conditions and diseases such as cardiovascular disease, stroke, cancer, diabetes and more
- Increased knowledge of the changes in these levels would help progress the understanding of their physiological role and pathological significance
- Suitable for human serum and plasma samples
- Small sample volume required, just 2.5µl of neat sample
- 5-plex biochip array



E-Selectin

E-Selectin is a member of the selectin family. E-Selectin is only expressed on endothelial cells and only after activation by inflammatory cytokines or endotoxins. Its expression is transitory and plateaus between two to six hours after cell activation. It is then shed into the circulation where it may activate neutrophils and act as a pro-inflammatory agent.

L-Selectin

Unlike the other members of the selectin family, L-Selectin is not expressed on endothelial cells but has only been found on leukocytes. A number of different ligands for L-Selectin on endothelial cells have been identified.

P-Selectin

P-Selectin is a member of the selectin family. P-Selectin is associated with the 2-granules in resting platelets and is also found in a preformed state in the Weibel-Palade bodies of endothelial cells. Upon activation or stimulation it is rapidly moved to the cell surface.

ICAM-I

ICAM-I is a member of the Immunoglobulin (Ig) like superfamily of adhesion molecules. It is expressed in endothelial cells as well as other cell types such as lymphocytes and monocytes. ICAM-I plays an important role in inflammatory processes and in the T-cell mediated host defence system.

VCAM-I

VCAM-I is also a member of the Immunoglobulin (Ig) like superfamily of adhesion molecules. As well as being expressed on endothelial cells, VCAM-I is expressed on smooth muscle cells, fibroblasts, dendritic cells and macrophages.

a. Calibration range may vary slightly with batch of calibrators

b. Sensitivity defined as the concentration two standard deviations from zero (multiplied by 10 to account for sample dilution)

Analyte	Intra-Assay Precision (n=20)			Inter-Assay Precision (n=20)		
	Level 1 %CV	Level 2 %CV	Level 3 %CV	Level 1 %CV	Level 2 %CV	Level 3 %CV
E-Selectin	7.0	7.4	5.2	7.5	8.0	8.6
L-Selectin	6.2	6.1	9.1	8.7	7.7	13.4
P-Selectin	6.5	6.1	9.6	5.7	4.8	7.2
ICAM-I	6.4	8.4	9.4	3.5	7.9	8.3
VCAM-I	7.7	8.1	9.2	5.9	9.6	7.5

Analyte	Calibration Range ^(a) ng/ml	Sensitivity ^(b) ng/ml
E-Selectin	0-25	0.1
L-Selectin	0-350	3.2
P-Selectin	0-120	1.9
ICAM-I	0-100	1.7
VCAM-I	0-330	4.1

Intra-assay precision was determined by assaying 20 replicates of each of three levels of sample.

Inter-assay precision was determined by assaying 2 replicates of each of three levels of sample in 10 separate assays.

Assay range may vary with batch of calibrators.

TESTIMONIALS

Using biochip array technology

“Viapath have been using custom cytokine arrays on the Randox Evidence Investigator for a number of years due to the many requests we receive for bespoke biomarker panels. By creating a custom biochip array of commonly requested biomarkers, we are able to offer a cost effective solution to our clients over the traditional single-plex ELISA methods and we are able to maximise scientist time in the laboratory. A recent internal validation of our custom cytokine array kit showed excellent sensitivity, specificity and reproducibility, delivering consistently high quality assurance.”

Tracey Mare, Clinical Research and Development Manager, Contract R&D Department, Viapath

“Using the Randox Evidence Investigator with the METS arrays allowed me to analyse up to 10 different markers related to Cardiometabolic health in a very quick time period. With 60 samples to be analysed in duplicate, being able to test for multiple markers at once allowed data to be generated much quicker than with standard ELISA assays. The training provided by Randox was very thorough which made the process of using the equipment very straightforward.”

Deaglan McCullough, PhD student, Faculty of Education, Health and Community, School of Sport Studies, Leisure and Nutrition, Liverpool John Moores University

“The Diabetes Exercise group at De Montfort University have several PhD projects looking at the effects of a combined resistance and cardio exercise program for volunteers who have type 1, type 2 diabetes as well as those at risk of diabetes. We have utilised the Evidence Investigator extensively for all of these projects using the metabolic arrays (MET 1 and 2) available. We have found this to be an invaluable tool in analysing blood samples to measure both acute and chronic changes in biomarkers such as IL6, insulin, TNF-alpha, adiponectin as well as several others. The technique is simple, cost effective and most importantly not time consuming especially when compared to conventional ELISA's and would recommend this product for similar research work.”

Dr Tarsem Sahota, Post Doctoral Fellow, Faculty of Health and Life Sciences, Leicester School of Pharmacy, De Montfort University



Advancing scientific discovery,
drug development and diagnostics globally

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