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Introduction

Randox Laboratories is an international clinical diagnostic solutions company with over 35 years' experience in the industry, providing revolutionary products for laboratories worldwide and is dedicated to improving health.

Randox Biosciences is part of Randox Laboratories and is dedicated to advancing scientific discovery, drug development and diagnostics.

Spanning four key divisions; Life Sciences, Pharma Sciences, Research and Molecular; Randox Biosciences offers complete tailored solutions for clinical and research use.

From the initial generation of raw materials for assay development, through to providing companion diagnostics, custom and molecular based assays across a range of therapeutic areas; Randox Biosciences is a trusted partner supplying quality diagnostic solutions to the clinical, life science, pharmaceutical, research and biopharma industries.

Therapeutic Areas

Randox Biosciences extensive product range covers over 400 separate biomarker assays for routine and esoteric testing across a broad range of therapeutic areas including:

- Cardiovascular & Cerebrovascular
- Metabolic & Nutrition
- Immunology
- Oncology
- Endocrinology
- Rheumatology
- Nephrology
- Neuroscience
- Pulmonary & Respiratory
- Infection
- Ophthalmology



Biochip Array Technology

Exquisite precision in multiplex testing

Many years of development and the expertise of highly qualified scientists has been invested to create the Biochip Array Technology (BAT) - a multi-analyte testing platform facilitating the simultaneous quantitative or qualitative detection of a wide range of analytes from a single sample. Biochip Array Technology provides a unique platform for assessment of biological samples in a rapid, accurate and easy to use format and users can have the utmost confidence in this proven technology.

A chemically activated 9x9mm ceramic biochip acts as a solid phase reaction vessel. Biochips are pre-fabricated with discrete test regions (DTR's); a different antibody/oligonucleotide is immobilised at each spatially distinct DTR. Up to 49 individual DTR's can be arrayed on to a single biochip with one biochip per sample used to generate multiple results simultaneously. This eliminates the need to run costly, time consuming and sample intensive single analyte assays.

The biochip detection is based on a chemiluminescent signal emitting light, without heat, as a result of a chemical reaction. The light emitted is simultaneously detected and quantified using a CCD camera.

Applications:

- Clinical Laboratories
- Academic Research
- Drug Development (CRO's and Pharma)
- Molecular Research and Diagnostics
- Forensic and Clinical Toxicology
- Environmental Laboratories

Key Features & Benefits

Highly accurate testing

- Fully validated arrays offering reproducible testing with CV's < 10%
- Multiplex analysis minimises analytical variation between tests

Consolidated testing

- One platform/system for immunoassays and nucleic acid multiplex testing
- Custom biochip arrays eliminate requirement for multiple single analyte ELISA's

Cost consolidation

 Multiplex testing reduces the amount of time spent on individual tests and associated lab costs

Reduced sample volume

 Multiple biomarker results from as little as 7µl conserves valuable sample

Wide test menu

 Expanding menu of routine and novel biomarkers plus custom array development

Multiple sample matrices

 Multiple matrices can be used with BAT including serum, plasma, whole blood, urine, oral fluid, extracted DNA and alternative matrices

Extensive quality control features

- Internal controls on each biochip ensure optimum assay performance
- Multi-analyte QC sera standardised to WHO/NIBSC reference material where available

Result traceability

 Bar-coded biochips and scanner for patient samples ensures complete traceability of results

Retrospective Reporting

 Retrieve previously unreported results without additional testing, saving time





Evidence Evolution

The Evidence Evolution is the world's first fully automated random access biochip testing platform. It sets new standards in diagnostic quality and efficiency to deliver precise results quickly and economically. With the capability to process up to 2,640 tests per hour, the Evidence Evolution offers complete system integration, as well as the most comprehensive multiplex test menu on the market.



 $\label{eq:Dimensions} \mbox{I320 (H)} \times \mbox{I200 (D)} \times \mbox{I675 (W)} \mbox{ mm}$



Any Test, Any time

Evidence Evolution is a highly versatile analyser which can process any required workflow including batch analysis, STAT samples, and true random access.



Fast Turnaround Time

Capability to achieve 2640 test results per hour.

Cost consolidation



Multiplex technology allows numerous tests to be performed from a single patient sample, reducing the amount of time and labour spent on individual tests, while also providing a complete patient profile.

Superior Intelligence



Features such as automatic start-up and shut down, reflex testing capabilities and traceability of biochips and reagents, ensures the Evidence Evolution can be tailored to your laboratory needs.



Enhanced User Experience

Highly intuitive software, customisable user settings and easy to follow result screens ensures usability, allowing laboratories to achieve fast and accurate operations with uncompromised quality.



Workflow Optimisation

With continuous sample and reagent loading, alongside automated on-board sample dilution and sample information entry; the Evidence Evolution, with a walk away time of 2 hours, is a convenient solution for busy laboratories.

Evidence

The Evidence analyser is the world's first protein Biochip Array Technology system and has truly transformed laboratory diagnostics worldwide. As the first of its kind, the Evidence has introduced higher standards of quality efficiency and reliability to numerous sectors including hospital and clinical laboratories, forensic and clinical toxicology, pharmaceutical/CRO applications, as well as veterinary laboratories.



 $\label{eq:Dimensions} \mbox{I750 (H)} \times \mbox{I000 (D)} \times \mbox{2000 (W)} \mbox{ mm}$



Cost consolidation

Multiplex technology allows numerous tests to be performed from a single sample, providing a complete patient result profile.



Fast Turnaround Time

Capability to achieve 3690 tests per hour.

Enhanced User Experience



Highly intuitive software, customisable user settings and an easy to follow result screen ensures usability, allowing laboratories to achieve fast and accurate operations with uncompromised quality.



Workflow Optimisation

Fully automated system, maximising walk-away time suitable for a busy laboratory.

Evidence Investigator

The Evidence Investigator is the #1 choice for research, clinical, forensic, molecular and veterinary testing. The semi-automated multiplex analyser has the unique ability to consolidate immunoassay and molecular diagnostics on a single platform with protein and DNA biochips. The Evidence Investigator can process 2376 tests per hour using protein arrays.



Dimensions

750 (H) × 480 (D) × 420 (W) mm



Fast Turnaround Time

Capability to achieve 2376 tests per hour with 44 analytes screened per biochip.



Diverse Test Menu

More tests available than any other sole supplier.



Workflow Optimisation

Multiplex testing facilitates laboratory efficiency



Cost consolidation

Multiplex technology allows numerous tests to be performed from a single patient sample, while also providing a complete patient profile.

Evidence Series Test Menu

Array	Evolution	Evidence	Investigato
Adhesion Molecules			
E-Selectin	•	•	•
Intercellular Adhesion			
Molecule-I – ICAM-I	•	•	•
L-Selectin	•	•	
P-Selectin	•	•	•
Vascular Cell Adhesion	•	•	•
Molecule-I – VCAM-I			
Acute Kidney Injury			
Kidney Injury Molecule – KIM-I			•
Neutrophil Gelatinase-Associated			•
Lipocalin – NGAL			_
Cystatin C			•
Clusterin			
Osteopontin			•
Alzheimer's			
Apolipoprotein E4 – ApoE4	•		•
Pan Apolipoprotein E – Apo E	•		•
Anaemia			
Folate	•		
Vitamin B12	•		
Cardiac			
Cardiac Troponin I – cTnI	•		•
Creatine Kinase MB – CKMB	•		
Heart Type Fatty Acid Binding	•		•
Protein – H-FABP			
Myoglobin	•		•
Cerebral I			
Brain-Derived Neurotrophic Factor			
- BDNF			
Glial Fibrillary Acidic Protein			
- GFAP			
Heart-Type Fatty Acid-Binding			
Protein – H-FABP Interleukin-6 – IL-6			•
Cerebral II			
C-Reactive Protein – CRP D-Dimer			•
			•
Neuron Specific Enolase – NSE			•
Soluble Tumour Necrosis Factor Receptor I – sTNFR I			
Neutrophil Gelatinase-Associated			
Lipocalin – NGAL			•
Chronic Kidney Disease I			
Fatty Acid Binding Protein-I			
– FABPI			
Soluble Tumour Necrosis Factor			
Receptor I – sTNFRI	•		•
Soluble Tumour Necrosis Factor			
Receptor II - sTNFR II	•		•
Macrophage Inflammatory Protein	•		•
$I\alpha - MIP-I\alpha$			
Interleukin-8 – IL-8	•		
Epidermal Growth Factor – EGF	•		
D-Dimer	•		

Array	Evolution	Evidence	Investigator
Chronic Kidney Disease 11			
Adiponectin			
Complement C3a des Arginine –	•		•
C3a des Arg			
C-Reactive Protein – CRP	•		•
Neutrophil Gelatinase-Associated			•
Lipocalin – NGAL			
Cystatin C	•		•
Cytokine I			
Interleukin-I alpha — IL-I α	•	•	•
Interleukin-1 beta – IL-1β			•
Interleukin-2 – IL-2	•	•	•
Interleukin-4 – IL-4			•
Interleukin-6 – IL-6	•	•	•
Interleukin-8 – IL-8		•	•
Interleukin-10 - IL-10			•
Vascular Endothelial Growth Factor — VEGF	•	•	•
Epidermal Growth Factor – EGF	•	•	•
Tumour Necrosis Factor-α –			
TNF-a			•
Interferon-γ – IFN-γ	•	•	•
Monocyte Chemotactic Protein-I			
- MCP-I	•	•	•
Cytokine III			
Interleukin-5 – IL-5			•
Interleukin-15 – IL-15			•
Granulocyte Macrophage Colony			•
Stimulating Factor – GM-CSF			
Macrophage Inflammatory Protein-I α			•
- MIP-Ia			
Cytokine IV Matrix Metalloproteinase-9			
- MMP-9			•
Soluble IL 2 Receptor Alpha			
- sIL-2Ra			•
Soluble IL 6 Receptor – sIL-6R			•
Soluble Tumour Necrosis Factor			
Receptor I – sTNFRI			•
Soluble Tumour Necrosis Factor			
Receptor II – sTNFR II			•
Cytokine V			
Interleukin-3 – IL-3			•
Interleukin-7 - IL-7			•
Interleukin-13 — IL-13			•
Interleukin-12p70 — IL-12p70			•
Interleukin-23 - IL-23			•
Endocrine			
Cortisol	•		
Dehydroepiandrosterone-Sulphate – DHEA-S	•		







Array	Evolution	Evidence	Investigator
Fertility			
Estradiol	•		
Follicle Stimulating Hormone	•		
- FSH			
Luteinizing Hormone – LH	•		
Progesterone	•		
Prolactin	•		
Sex Hormone Binding Globulin - SHBG	•		
Gastro			
Gastrin 17 – GI7	•		0
Pepsinogen I – PGI			•
	•		
Pepsinogen II – PGII	•		•
Helicobacter Pylori			
Helicobacter pylori – H. pylori	•		•
Metabolic Syndrome 1			
Ferritin	•	•	•
Insulin	•	•	•
Leptin	•	•	•
Plasminogen Activator Inhibitor – PAI-I	•	•	•
Resistin	•	•	
Interleukin-6 – IL-6		•	•
Tumour Necrosis Factor-α			
– TNF- a		•	•
Metabolic Syndrome 11			
Adiponectin		•	•
C-Reactive Protein – CRP			
Cystatin C		•	
Stroke			
D-Dimer	•		
Glial Fibrillary Acidic Protein — GFAP	•		
Glutathione S – Transferase Pi			
- GSTPi	•		
Heart-Type Fatty Acid-Binding			
Protein – H-FABP			
Interleukin-6 – IL-6	•		
Nucleoside Diphosphate Kinase	•		
– NDKA			
Parkinson Protein 7 – PARK-7	•		
Soluble Tumour Necrosis Factor	•		
Receptor I – sTNFRI	<u></u> _		<u></u>
Testosterone			
Testosterone	•		
Thyroid Auto Antibody			
Anti-Thyroid Peroxidase	•		
- Anti-TPO			

Anti-Thyroglobulin – Anti-Tg

Array	Evolution	Evidence	Investigator
Thyroid Free			
Free Thyroxine – FT4	•	•	
Free Tri-iodothyronine – FT3		•	
Thyroid Stimulating Hormone - TSH	•	•	•
Thyroid TBG			
Thyroxine Binding Globulin – TBG	•		
Thyroid Total			
Thyroid Stimulating Hormone - TSH	•		
Total Tri-iodothyronine – TT3			
Total Thyroxine – TT4	•		
Tumour PSA			
Total Prostate Specific Antigen – TPSA	•		
Free Prostate Specific Antigen – FPSA	•		
Vitamin D			
Vitamin D	•		

Specialised Customer Services

Local Engineers. Global Coverage.

Randox Laboratories provide customers with an unrivalled support service. Our international team of fully qualified engineering and technical support specialists deliver on-site Evidence Series immunoanalyser installation, training and validation. We also offer a range of bespoke service and extended warranty packages that can be tailored to your budget.

We place extreme importance on customer service and so it is our top priority to provide the best quality support. Our global network of local specialists are here to help you and respond rapidly to any query.

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Randox offices distributed across the globe

At Randox we are always ready to provide any support needed to ensure you enjoy the advantages of our unique Biochip Array Technology fully. We understand the importance of consistent analyser run time and how that affects outcomes for the laboratory and the patient.

Through working alongside you, our customers, we can ensure your laboratory is working to an optimal level - helping achieve our mission of improving health worldwide.





Inventing Quality Solutions

PHARMA SERVICES

Our Pharma Sciences division hosts unrivalled technical expertise in diagnostic and CDx assay development built on over 30 years' experience in IVD. We can provide a customized service from our in-house antibody development, reagents and QC to meet biopharmaceutical and CRO project requirements and our Central Laboratory service, (RCLS) hosts the latest technology to facilitate any clinical testing requirements in rapid timeframes.



Randox Life Sciences have been developing and manufacturing antibodies, proteins and conjugates for over 30 years for use in diagnostic kits. We have a wide range of polyclonal and monoclonal antibodies, antibody fragments, recombinant proteins and conjugates. A custom development service is also available for all raw materials.

MOLECULAR DIAGNOSTICS

Randox Molecular offers diagnostic, prognostic and predictive solutions across a variety of disease areas including sexually transmitted infection, cardiovascular disease, familial hypercholesterolemia, colorectal cancer and respiratory infection. Utilizing our innovative Biochip Array Technology with multiplex PCR technology our molecular arrays produce rapid, precise results from one single sample for complete patient profiling and risk prediction.

RESEARCH

Randox Research offers a comprehensive range of technologies and solutions to universities 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 fit your individual project requirements.









Discover More

info@randoxbiosciences.com

Q Randox Biosicences



Custom Assay Development

Custom multiplex solutions that advance your clinical research

Custom Assay Development

For over 35 years, Randox Biosciences has been providing custom assay design, development and manufacturing services to the diagnostic, pharmaceutical, contract research and biotech industries. This also includes fully customised human and animal quality control sera and calibrators.

Randox Biosciences expertise, highly specialised scientists and world-class ISO accredited manufacturing facilities enables us to provide a service and product tailored to a specific research and development or clinical trial requirement.

Custom Build Process

Clients can select either individual or multiple analytes from the current A-Z Menu. We offer an impressive menu of over 380 clinical and research biomarkers.

Randox Biosciences' dedicated custom unit can then design a novel singleplex or multiplex biochip tailored to each customer's requirements taking into account sample types, available sample volumes and expected ranges and sensitivity for various analytes of interest.

Should your needs exceed those provided by one of our standard arrays, or if you are researching a particular set of analytes, we would encourage you to approach a Randox Biosciences representative with your specific requirements or email info@randoxbiosciences.com.

Randox Biosciences assay development specialists will endeavour to work with you to ensure your needs are constantly met and provide a smooth process from the time of your first enquiry through to final delivery, following the steps outlined below:

STEP 1

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

STEP 2

Randox custom R&D unit carry out feasibility assessment

STEP 3

If feasible, a quote will be forwarded to the customer

STEP 4

Confirmation of order and biochip manufacturing commences

A-Z Custom Biochip Test Menu

Analyte	Abbrev.	AKA
17-Hydroxyprogesterone ***	PROG	
70 Kilodalton Heat Shock Proteins	HSP70	
A Disintegrin and Metalloproteinase Domain 12	ADAM12	
A Disintegrin And Metalloproteinase with Thrombospondin Motifs 1	ADAMTS-1	
A Proliferation-Inducing Ligand	APRIL	
Activin A		
Adiponectin ***	GBP-28	
Adrenocorticotropic Hormone	ACTH	
Adrenomedullin	ADM	
Agouti	AgRP	
Albumin	ALB	
Alpha Synuclein	SNCA	
Alpha-1 Antitrypsin	a-1-AT	
Alpha-1 Microglobulin	a-1M	
Alpha-2 Macroglobulin	a-2M	
Amphiregulin	644	
Amyloid A	SAA	
Angiopoietin I	ANG1	
Angiopoietin II	ANG2	
Angiotensin II	A A A	AME AME AME
Anti-Müllerian hormone	AMH	MIF, MIS, MIH
Apelin	40041	
Apolipoprotein A1	APOA1	
Apolipoprotein C1	Apo C1	
Artemin	ARTN	
Asymmetrical Dimmethylarginine	ADMA	
Atrial Natriuretic Peptide	ANP	
Basal Cell Adhesion Molecule	BCAM	DL C /TN IFCE 1 OD
B-cell Activating Factor	BAFF	BLyS/TNFSF13B
B-cell Attracting chemokine 1	BCA-1	CXCL13/BLC
B-cell Lymphoma Extra Large	BCL-XL	
Bcl-2 Associated X Protein	Bax	CAD1
Beta Defensin 2	BD-2	SAP1
Bone Morphogenetic Protein 6	BMP-6	
Bone Morphogenetic Protein 7	BMP-7	
Brachyury Brain Natriuratia Bantida	BNP	
Brain Natriuretic Peptide Brain-Derived Neurotrophic Factor	BDNF	
Cadherin K	KCAD	
Calcitonin	CT	
Carbonic anhydrase III	Calll	
Cardiac Troponin I ***	cTnl	
Cartilage Oligomeric Matrix Protein	COMP	
Caspase 1	CASP 1	
Caspase 6	CASP 6	
Caspase 9	CASP 9	
Cathepsin C	CTSC	
Chemerin	RARRES2	
Chemokine (C-C motif) Ligand 1	CCL1	I-309
Chemokine (C-C motif) Ligand 13	CCL13	MCP4
Chemokine (C-C motif) Ligand 14	CCL14	HCC-1
Chemokine (C-C motif) Ligand 15	CCL15	MIP-5
Chemokine (C-C motif) Ligand 17	CCL17	TARC
1	CCL17	PARC
Chemokine (C-C motif) Ligand 18		
Chemokine (C-C motif) Ligand 18 Chemokine (C-C motif) Ligand 19		MIP-3b
Chemokine (C-C motif) Ligand 18 Chemokine (C-C motif) Ligand 19 Chemokine (C-C motif) Ligand 20	CCL19 CCL20	MIP-3b MIP-3a

Analyte	Abbrev.	AKA
Chemokine (C-C motif) Ligand 22	CCL22	MDC
Chemokine (C-C motif) Ligand 24	CCL24	MPIF-2/Eotaxin2
Chemokine (C-C motif) Ligand 26	CCL26	Eotaxin-3
Chemokine (C-C motif) Ligand 27	CCL27	CTACK
Chemokine (C-C motif) Ligand 28	CCL28	MEC
Chemokine (C-X-C motif) Ligand 1	CXCL1	GRO1
Chemokine (C-X-C motif) Ligand 4	CXCL4	PF-4
Chemokine (C-X-C motif) Ligand 5	CXCL5	ENA-78
Chemokine (C-X-C motif) Ligand 7	CXCL7	NAP-2
Chemokine (C-X-C motif) Ligand 9	CXCL9	MIG
Chemokine (C-X-C motif) Ligand 11	CXCL1 1	I-TAC
Chemokine (C-X-C motif) Ligand 12	CXCL12	SDF-1
Chemokine (C-X-C motif) Ligand 13	CXCL13	BCA-1
Chemokine (C-X-C motif) Ligand 16	CXCL16	SRPSOX
Chemokine (C-X-C motif) Ligand 17	CXCL17	VCC-1
Chemokine 3 Ligand 1	CX3CL1	Fractalkine
Chymase Chymase R L	CMA 1 CleavedPARP	
Cleaved Poly ADP Ribose Polymerase Cluster of Differentiation 4	CD4	
Cluster of Differentiation 14	CD4	
Cluster of Differentiation 28	CD14	
Cluster of Differentiation 30	CD30	
Cluster of Differentiation 36 (soluble)	sCD36	
Cluster of Differentiation 56	CD56	
Cluster of Differentiation 66e	CD66e	CEACAM5
Cluster of Differentiation 127	CD127	
Cluster of Differentiation 163	CD163	
Clusterin	CLUS	
Collagen 1	Coll	
Collagen Type 2	CIIM	
Collagen Type 3	C3M	COL3A1
Collagen Type 4	C4	COL4
Complement 3	C3	
Complement 3a	СЗа	
Connective Tissue Growth Factor	CTGF	
Cortisol ***	CORT	Hydrocortisone
C-Peptide * * *	CPEP	
C-Reactive Protein ***	CRP	
Creatine Kinase ***	CKMB	
CRPM	CRPM	SH3BP2
Cyfra 21-1	Cyfra 21-1	
Cystatin C ***	CST3	
Cytokeratin 18 M-65	CK18	
D-Dimer	DD	
Defensin	NP1	
Dehydroepiandrosterone ***	DHEAS	
Dickkopf Related Protein 1	DKK-1	
Elafin	SKALP	
Endothelin-1	EDN1	
Eotaxin Enidermal Growth Easter	CCL11 EGF	
Epidermal Growth Factor	EGF	
Epidermal Growth Factor Receptor	EPGN	
Epigen Epiroaulin	LFGIN	
Epiregulin E-selectin	ESEL	
Estradiol ***	ESEL E2	
Factor VII	F7	
Fatty Acid Binding Protein 1	FABP1	
Fatty Acid Binding Protein-Liver	L-FABP	
rany Acia binang Floientuver	LTADE	

A-Z Custom Biochip Test Menu

Analyte	Abbrev.	AKA
Fatty-Acid Binding Protein	FABP	
Ferritin ***	FTN	
Ferritin Light Chain	FTL	
Fibrinogen	Fib	
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	
Fibroblast Specific Proein-1	FSP-1	
Fibronectin	FN	
FMS-Related Tyrosine Kinase 1	FLT-1	VEGFR1
FMS-Related Tyrosine Kinase 3	FLT-3 Ligand	CD135
Folate Receptor Alpha	FOLR 1	
Follicle-Stimulating Hormone ***	FSH	
Follistatin	FST	
Galectin 3	G3	
Glial Fibrillary Acidic Protein	GFAP	
Glutathione S-Transferase A1	GSTA1	
Glycogen Phosphorylase Isoenzyme BB	GPBB	
Glycosylated haemoglobin	HbA1c	
Granulocyte Colony Stimulating Factor	G-CSF	CSF3
Granulocyte-Macrophage Colony-Stimulating Factor	GMCSF	
Granzyme B	GZMB	
Growth Differentiation Factor 11	GDF-11	
Growth Differentiation Factor 15	GDF-15	
Heme Oxygenase-1	HO-1	
Hemopexin	HPX	
Heparin-Binding Epidermal Growth Factor	HB-EGF	
Heparin-Binding Protein	HBP	Azurocidin/CAP37
Hepatocyte Growth Factor	HGF	
Hepcidin	HEPCIDIN	
Heregulin	NRG-1 HMGB1	
High-mobility group protein B1		
Histone Deacetylase 6 Human epididymis protein 4	HDAC 6 HE4	
Human Growth Hormone	HGH	
Hypoxia-Inducible factor 1, alpha subunit	HIF-1a	
Immunoglobulin E	IgE	
Insulin	INS	
Insulin-Like Growth Factor 1	IGF1	
Insulin-Like 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	
Intercellular Adhesion Molecule 1	ICAM-1	
Interferon alpha	IFNa	
Interferon alpha 2	IFN-a2	
Interferon beta	IFN-b	
	IFNg	
Interferon gamma		
Interferon gamma-induced protein 10	IP-10	
ŭ .	IP-10 IL-1a	
Interferon gamma-induced protein 10		
Interferon gamma-induced protein 10 Interleukin 1 alpha	IL-1a	ST2
Interferon gamma-induced protein 10 Interleukin 1 alpha Interleukin 1 beta	IL-1a IL-1b	ST2

Analyte			
Interleukin 3	Analyte	Abbrev.	AKA
Interleukin 4	·	11-3	
Interleukin 6	Interleukin 4		
Interleukin 7	Interleukin 5	IL-5	
Interleukin 8	Interleukin 6	IL-6	
Interleukin 9	Interleukin 7	IL-7	
Interfeukin 10	Interleukin 8	IL-8	
Interleukin 12	Interleukin 9	IL-9	
Interleukin 12			
Interleukin 12p40			
Interleukin 12p70			
Interleukin 13			
Interleukin 15 Interleukin 16 Interleukin 17A Interleukin 17F Interleukin 17F Interleukin 17F Interleukin 18 II-18 Interleukin 19 II-19 Interleukin 19 II-19 Interleukin 20 II-20 Interleukin 21 II-23 Interleukin 23 II-23 Interleukin 26 II-26 Interleukin 28a II-28A Interleukin 33 II-33 Interleukin 36g II-36g Kidney Injury Molecule 1 KIM-1 Kirsten Rat Sarcoma Viral Oncogene Lectin-like Oxidized Low Density Lipoprotein IIDI] Receptor 1 Leptin Leptin Leptin LEPT Leukemia Inhibitory Factor Life Liukatriene B4 LIGHT TNFSF14 CD258 Lipopolysaccharide Binding Protein LIP Lipoprotein-associated Phospholipase A2 Lip-PIA2 Liver Fatly Acid Binding Protein LSEL Luteinizing Hormone LH Lymphotactin XCL1 Lysl Oxidase Homolog 2 Lysl Oxidase Homolog 3 Lysl Oxidase Homolog 4 Macrophage Colony Stimulating Factor Macrophage Inflammatory Protein 1 beta Macrophage Inflammatory Protein 1 beta Macrophage Rigation Inhibitory Factor Macrix Metalloproteinase 2 Marix Metalloproteinase 3 MMP-9 Matrix Metalloproteinase 1 MMP-1 Matrix Metalloproteinase 3 MMP-3 Matrix Metalloproteinase 1 MMP-1 Matrix Metalloproteinase 13 MMP-13 MHC Class 1 Chain Related Protein A MiCA Midkine	·		
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MHC Class 1 Chain Related Protein A MICA Midkine MK			
Midkine MK			
/VIIK FOI CALODUIE FOAF FOCTOR & PROTEIN /VIFCA-FX LOCIDADEIN	Milk Fat Globule EGF Factor 8 Protein	MFG-E8	Lactadherin

A-Z Custom Biochip Test Menu

Analyte	Abbrev.	AKA
Monocyte Chemotactic Protein 1	MCP-1	CCL2
Monocyte Chemotactic Protein 2	MCP-2	
Monocyte Chemotactic Protein 3	MCP-3	CCL7
Monokine induced by gamma interferon	MIG	
Mucin-1	MUC-1	
Myeloperoxidase	MPO	
Myoglobin	MYO	
Myosin Light-Chain Kinase	MLCK	
Nerve Growth Factor beta	NGF b	
Neuregulin 1	NRG-1	
Neuron-Specific Enolase	NSE	
Neutrophil Elastase	ELA2	
Neutrophil Gelatinase-Associated Lipocalin	NGAL	
Nitrotyrosine	NT	
N-Terminal pro B-type Natriuretic Peptide	NT-proBNP	
Nuclear Factor 2	NRF2	
Oligoadenylate Synthetase 1	OAS1	
Orexin A	OA	
Osteoactivin		
Osteocalcin	PGLAP	SPP1
Osteopontin	OPN	
Osteoprotegerin	TNFSF11B	
Oxidised Low-Density-Lipoproteins	ox-LDL	TSG-14
Pentraxin-Related Protein	PTX 3	
Pepsinogin 1	PG1	
Periostin	POSTN	
Persephin		
Phosphatidylinositol-Glycan Biosynthesis class F	PIGF	
pi Glutathione S-Transferase	pi-GST	
Placental Growth Factor	PGF	PIGF
Plasminogen Activator Inhibitor-1	PAI-1	Serpin E1
Platelet Derived Growth Factor	PDGF	
Platelet Derived Growth Factor - AA	PDGF-AA	
Platelet Derived Growth Factor Receptor beta	PDGFRB	
Platelet-Derived Endothelial Cell Growth Factor	PD-ECGF	
Platelet-Derived growth factor BB	PDGF-BB	
Procalcitonin	PCT	
Procollagen Type III N-Terminal Propeptide	PIIINP	
Pro Insulin	INS	
Prolactin	PRL	
Proprotein Convertase Subtilisin/Kexin type 9	PCSK9	
PSA	PSA	
P-selectin	PSEL	
Regulated and Normal T cell Expressed and Secreted	rantes	CCL5
Renin	REN	
Resistin	ADSF	
Retinol Binding Protein 4	RBP-4	
S100 Calcium Binding Protein A8 S100A8/A9	S100A8	
S100A12	en-rage	
Sclerostin	SOST	
Secretory IgA	lgA	
Serotonin	5-HT	
Serum Amyloid A	SAA	
Sex Hormone-Binding Globulin	sHBG	

Analyte	Abbrev.	AKA
Soluble CD40 Ligand	sCD40L	
Soluble gp130	sgp130	
Soluble Interleukin 2 Receptor alpha	sIL-2Ra	
Soluble Interleukin 6 Receptor alpha	sIL-6Ra	
Soluble Interleukin 15 Receptor alpha	sIL-15Ra	
Soluble Tumor Necrosis Factor Receptor 1	sTNFRI	
Soluble Tumor Necrosis Factor Receptor 2	stnfrii	
Stabilin-1	STAB-1	
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	SFTPD
Transglutaminase 2	TG2	
Tenascin C	TN-C	
Testosterone	TEST	
Thrombomodulin	TM	
Thrombopoietin	THPO	
Thrombospondin-1	TSP-1	
Thymic stromal lymphopoietin	TSLP	
Thyroid-Stimulating Hormone	TSH	
Thyroxine	T4	
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	
TNF-related apoptosis-inducing ligand	TRAIL	
Transferrin	TF	
Transforming Growth Factor Alpha	TGF-a	
Trefoil Factor 3	TFF3	
Triiodothyronine	T3	
Tumor Necrosis Factor Ligand Superfamily Member 12	TWEAK	TNFSF12
Tumour Necrosis Factor alpha	TNF-a	
Tumour Necrosis Factor Receptor II	TNFR2	
Type IV Collagen	COL4	
Tyrosine Kinase with Immunoglobulin-Like and EGF-like Domains 1	Tie-1	
Tyrosine Kinase with Immunoglobulin-Like and EGF-like Domains 2	Tie-2	
Ubiquitin Carboxy-Terminal Hydrolase L1	UCH-L1	
u-Plasminogen Activator	uPA	
Urokinase Receptor	uPAR	TUD
Uromodulin	UMOD	THP
Uteroglobin	CC16	
VAP-1	VAP-1	
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	VEGFA	
Vascular Endothelial Growth Factor Receptor	VEGFR1	
Vascular Endothelial Growth Factor Receptor 2	VEGFR2	
Vascular Endothelial Growth Factor Receptor 3	VEGFR3	
Visfatin	PBEF 1	
X-linked Inhibitor of Apoptosis Protein	XIAP	
YKL-40/Cartilage Glycoprotein 39	YKL-40	

Multiplex Molecular Arrays

Precise diagnostics for targeted therapy



Randox Biosciences molecular arrays offer diagnostic, prognostic and predictive solutions across a variety of disease areas including sexually transmitted infection, respiratory tract infection, colorectal cancer, familial hypercholesterolemia (FH) and cardiovascular disease (CVD).

A wide range of assay formats are offered including SNP genotyping, pathogen detection and mutation detection. These assays are optimised for use with the Randox Evidence Investigator semi-automated bench top biochip analyser, offering consolidation, speed and ease-of-use.

Pathogen Detection - STI Multiplex Array and Respiratory Multiplex Array

Pathogen detection, through nucleic acid (DNA/RNA) analysis offers rapid, sensitive, multiplex detection of viral, bacteria and protozoan pathogens. Following nucleic acid extraction from a broad range of sample types (sputum, urine, swabs etc.), target DNA/cDNA is amplified in a single reaction and subsequently hybridised to a biochip array containing multiple pathogen-specific probes. This rapid, highly sensitive and specific process enables identification of primary and co-infections simultaneously, often in asymptomatic patients.

Mutation Detection - KRAS BRAF PIK3CA* Array and Familial Hypercholesterolemia (FH) Arrays I & II

The assays are based upon a combination of multiplex PCR and biochip array hybridisation. Innovative PCR priming technology permits high discrimination between multiple targets in a number of genes. A unique primer set is designed for each target which will hybridise to a complementary oligonucleotide probe spotted on a biochip discrete test region (DTR). This combination of priming and spatially organised biochip array technology enables enhanced specificity of the assay.

SNP Genotyping - Cardiovascular Risk Prediction Array

Rapid multiplex SNP genotyping is based on innovative primer design that can discriminate DNA sequences differing only by one base. Products amplified will correspond to target portions of DNA from tissue, buccal swabs or blood. Amplified regions are then hybridised to a biochip array with spatially tethered probes complementary to target amplicons. Each position on the biochip array corresponds to a specific SNP genotype and is capable of both multiplexing and determining the zygosity of the sample.

*PIK3CA Array for research use only

Multiplex Molecular Arrays

Assay protocol & test menu

- Ready-to-use nine biochip carrier
- Randox Biochips can support multiple assays per biochip
- Minimum batch of three biochips to facilitate a patient sample and positive and negative controls



Molecular testing with the Evidence Investigator can be summarised as follows:



EXTRACT DNA/RNA

Extract nucleic acid



HYBRIDISATION

Biotin-labelled amplified PCR product binds to corresponding unique biochip molecular probe



CONJUGATION

Addition of streptavidin labelled-horse radish peroxidase to produce a biotin-streptavidin-enzyme complex



SIGNAL REAGENT

Addition of equal volumes of luminol and peroxide to produce chemiluminescent biochip spot signal



RESULT REPORT

Easy to interpret positive/negative report generated automatically by the dedicated Evidence Investigator software



Single tube amplification using Randox multi-target primer sets



WASH STEP

Rinse away any unbound product



WASH STEP

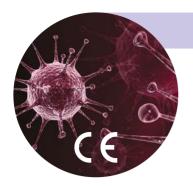
Rinse away any unbound conjugate



SIGNAL DETECTION

Biochip carrier is inserted into the Evidence investigator imaging platform. The system's CCD camera analyses the spots on each each biochip. Process takes 5 minutes per carrier





Sexually Transmitted Infection (STI) Array

The Sexually Transmitted Infection Multiplex Array is the broadest IVD STI microarray panel on the market, simultaneously detecting 10 bacterial, viral and protozoan infections including primary, secondary and asymptomatic co-infections.

Chlamydia trachomatis (CT) Haemophilus ducreyi (HD) Mycoplasma genitalium (MG) Mycoplasma hominis (MH) Neisseria gonorrhoea (NG) Treponema pallidum (TP) Trichomonas vaginalis (TV) Ureaplasma urealyticum (UU) Herpes simplex Virus 1 (HSV-1) Herpes simplex Virus 2 (HSV-2)

CAT NO. EV3950A&B: 108 Biochip Kit

CAT NO. EV3947A&B: 108 Biochip Kit



Respiratory Multiplex Array

The Respiratory Mutliplex Array is the most comprehensive microarray test for infections of both the upper and lower respiratory tracts, simultaneously detecting 22 viral and bacterial pathogens from a single sputum, lavage or nasopharyngeal sample.

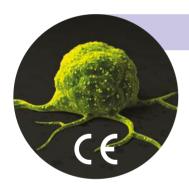
Viral:
Adenovirus A/B/C/D/E
Coronavirus 229E/NL63
Coronavirus OC43/HKU1
Enterovirus A/B/C
Human Bocavirus 1/2/3
Human Metappeumovirus (hMPV)

Influenza A B
Parainfluenza Virus 1/2/3/4
Respiratory Syncytial Virus a (RSVa)
Respiratory Syncytial Virus b (RSVb)
Rhinovirus A/B

Bacterial:
Bordetella pertussis
Chlamydophila pneumoniae
Mycoplasma pneumoniae

Legionella pneumophila

Moraxella catarrhalis Streptococcus pneumoniae Haemophilus influenzae



KRAS, BRAF, PIK3CA* Array

The KRAS, BRAF, PIK3CA Array simultaneously detects 20 point mutations within the KRAS, BRAF and PIK3CA genes. Whilst designed for colorectal cancer, the array has implications for mutation screening in other cancer types.

KRAS (codon 12, 13, 61, 146)

BRAF (codon 600)

PIK3CA* (codon 542, 545, 1047)

CAT NO. EV3799A&B: 54 Biochip Kit

CAT NO. EV3836A&B: 72 Biochip Kit

*PIK3CA targets for research use only



Familial Hypercholesterolemia (FH) Arrays CAT NO. EV3917A&B, EV3825A&B: 54 Biochip Kits

The Familial Hypercholesterolemia (FH) Arrays I & II are rapid, simple and accurate diagnostic tests which enable simultaneous detection of 40 FH-causing mutations (20 mutations per array) within the LDLR, ApoB and PCSK9 genes.

LDLR - 38 mutations

APOB - 1 mutation

PCSK9 - 1 mutation



Cardiac Risk Prediction Array

The Cardiac Risk Prediction Array provides simultaneous genotyping of 20 SNPs identified from a GWAS study, for enhanced CHD risk assessment.

The array incorporates a test to identify patients predisposed to statin-induced myopathy.



Companion Diagnostics

Randox Biosciences your Ideal Companion for CDx Development

Personalised medicine is the result of our increased understanding of disease complexity and variability. It is now accepted that the future of the Pharmaceutical Industry is dependent on the development of therapeutic agents that are more closely tailored to targeted patient groups or sub-groups resulting in safer drugs with enhanced therapeutic efficacy with related healthcare savings.

A key element to realising the potential for personalised medicine is in companion diagnostic (CDx) development.

Randox Biosciences are committed to revolutionising healthcare by providing class-leading diagnostic, prognostic, and predictive assays.

Building on these unrivalled capabilities, Randox is engaged in companion diagnostic programs with a number of global Biopharma companies.

Randox Companion Diagnostic Development Plan

Feasibility

- Customer requirements
- Design specifications
- Regulatory strategy

Develop Prototype

- Randox Life Sciences custom Antibodies, Proteins, ScFv development
- Immunoassay development & optimisation single analyte & multiplex
- Clinical Chemistry assays
- Multiplex nucleic acid arrays

Analytical Validation

- Verify assay performance
- Perform internal validations
- Manufacture three GMP lots

Pharmaceutical Development Phases

Pre-Clinical
Phase I
Phase II

CDx services

- Off-the-shelf and fully customised clinical diagnostic and biomarker reagents
- Assay development for new biomarkers
- Full Life Sciences/Biotechnology service including monoclonal, polyclonal, antibody fragments and recombinant protein manufacture
- Quality controls and calibrators to support bespoke CDx assay requirements
- Full regulatory support at Randox for FDA 510k, FDA PMA, CE, cFDA and Health Canada regulatory submissions
- Global distribution and operations in over 145 countries ensuring no block to commercial adoption of the CDx

CDx Assay formats

With over 220 FDA cleared assays Randox offers the full package of Diagnostic and CDx assay development and optimisation which includes:

- Clinical chemistry assays and analysers
- Immunoassay assays and analysers
- Immunohistochemistry antibody development
- Multiplex protein and nucleic acid arrays and analysers

These include not only single analyte clinical chemistry based assays but multiplex pathogen detection, mutation, SNP and gene expression based arrays with applications across therapeutic areas such as oncology, immunoinflammation, CNS, infection and cardiovascular disease.

If you are interested in discussing a potential collaboration with Randox Biosciences, please contact one of the team on:

T +44 (0) 28 9442 2413

E info@randoxbiosciences.com

W randoxbiosciences.com

Clinical Validation

- Supply of kits
- Conduct clinical trials
- Perform external validations

Regulatory Submission

- Prepare submission
- Regulatory co-filing
- Full regulatory support including PMA/CE
- Global registrations
- Reimbursement

Post Launch Support

- Production lots in inventory
- Training & education
- Distribution

Regulatory Submission

Post Launch Support



Antibodies & Human Recombinant Proteins

Advancing discovery, revolutionising diagnostics

Randox Biosciences is a world-leading primary manufacturer of high quality monoclonal and polyclonal antibodies, antibody fragments and human recombinant proteins. Our team of scientists possess unrivalled expertise which enables us to provide you with a comprehensive suite of products and services dedicated to advancing biopharmaceutical research and diagnostics.

Product Portfolio

Randox Biosciences offers an extensive portfolio of **over 900 products** for a multitude of R&D applications including more than **500 monoclonal and polyclonal antibodies** and over **140 human recombinant proteins** as well as **antibody fragments**, buffers & diluents and plasma.

Monoclonal Antibodies

- Biochemical markers: Biochemical messengers, fatty acid binding proteins and products with applications in the following therapeutic areas; Immunology, Oncology, Cardiovascular/Cerebrovascular and Metabolic/Nutrition
- **Drugs of abuse:** Alcohol, Anti-depressants, Barbiturates, Hallucinogens, Opiates, Stimulants
- Drug Residues: Antimicrobial Drugs, Growth Promoters, Mycotoxins

Recombinant Antibody Fragments

- Single chain variable fragment (scFvs)
- Single domain antibodies (sdAbs)

Human Recombinant Proteins (E.Coli & Mammalian)

- Adhesion Molecules
- Chemokines
- Cytokines
- Protegses
- Tumour markers

Polyclonal Antibodies

- Biochemical markers: Biochemical messengers, fatty acid binding proteins and products with applications in the following therapeutic areas; Immunology, Oncology, Cardiovascular/Cerebrovascular and Metabolic/Nutrition
- Drugs of abuse: Alcohol, Analgesics, Anti-depressants, Barbituates, Benzodiazepines, Hallucinogens, Opiates, Sedatives, Stimulants, Synthetic Drugs, Therapeutic drugs
- Drug Residues: Anti-inflammatory Drugs, Antimicrobial Drugs, Anti-Parasitic Drugs, Growth Promoters, Mycotoxins

Frozen Human Plasma

- Available in three formats (Male, Female and Mixed Gender)
- Highly screened for; HIV, Hepatitis B+C, HTLV I + II, Syphilis, CMV and Procleix WNV

Buffers & Diluents

• Complementary range available

Key Features & Benefits

- All products manufactured at our ISO 13485 accredited UK manufacturing plant
- Extensive product range of over 900 products
- Over 30 years experience in raw material manufacture and assay development
- Many unique and novel products including designer drugs, Mycotoxins and oncology markers
- As our host animals are sheep, our antibodies have higher sensitivity and specificity
- Excellent reproducibility between lot numbers
- Products reflect the components used in-house in the production of Randox diagnostic products and research programs
- Highly experienced in developing difficult targets (i.e. small molecules and novel biomarkers)
- Full customisation service available
- A range of pack sizes available including bulk quantites for commercial development
- Products can be used in a multitude of diagnostic and research applications

Custom Development Services

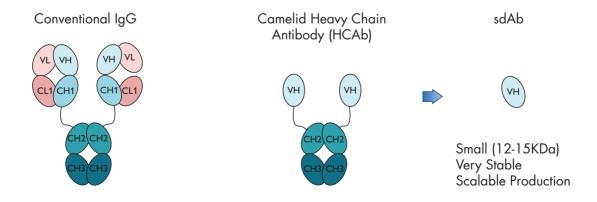
To meet your precise requirements, Randox Biosciences offer customised antibody generation services to the pharmaceutical and biotechnology industry. Our custom development service, which encompasses antibodies and human recombinant proteins has achieved tremendous success within the biopharmaceutical and diagnostic industries. Key components of our custom service are our range of monoclonal antibodies as well as our recombinant antibody fragments (sdAbs, scFvs, fAbs).

Our customisation service has proven incredibly successful in the research and development industries allowing access our expertise to obtain the antibody and protein most relevant to your line of work. With over 300 highly trained research scientists and over 30 years' experience in commercial assay development, Randox Biosciences can also provide a tailor made assay development service to meet your specifications in both a timely and cost-effective manner.

Single Domain Antibody Fragments (sdAb)

Our scientists highly recommend the use of Single Domain Antibody Fragments (sdAb) as they are more stable, adaptable and easily humanised, making them ideal for therapeutic products. We have a specialised offering of sdAbs for research and therapeutic applications. SdAbs provide a new mechanism for the generation of antibody therapeutics and offer numerous advantages such as better tissue penetration, ease of expression, stability and uniformity of product. SdAbs also have benefits in traditional diagnostic settings, due to their small size, a much higher coating concentration can be achieved for assay development.

Although we have been using our single domain antibodies in the diagnostics industry, they have been used increasingly as immunotherapies and Antibody Drug Conjugates. They have certain attributes that make them ideal for targeted therapies, for example, their small size allows better tissue penetration and their extended CDR3 loops mean they are particularly adept at accessing concave epitopes.



Ordering online





Providing Tailored Testing Solutions

and quality results for the requirements of research and clinical projects globally

Randox Clinical Laboratory Services (RCLS) are dedicated to providing a central laboratory service designed to meet the time sensitive, bespoke requirements of research and clinical projects globally.

Specialising in biomarker and multiplex testing in addition to standard safety and clinical testing, RCLS provides a full laboratory service to accelerate your project to completion. Our new state of the art Science Park facility hosts a variety of the latest technology and platforms including our high performing RX and Evidence series analysers to generate precise and accurate data results, delivered quickly and securely through our 21- CFR part 11 compliant in-house IT system.

Our experienced project management teams are available to provide support and guidance from initial biomarker selection through to the design of a comprehensive results data package to deliver against your project aims and timelines.

RCLS's flexibility through our custom in-house development service and extensive range of off the shelf products enables our clients to meet challenging projects with tailored, cost effective and rapid solutions. Our patented and globally recognised Biochip Array Technology (BAT), provides testing solutions in an accurate and precise format, fully customised to your requirements supported by our vast expertise in in-house antibody development.



Rapid Turnaround



- Randox in-house production of materials facilitates RCLS to offer rapid turnaround times, enabling time sensitive projects to be met.
- Project managers ensure progress is constant to meet deadlines.
- Our Biochip Array Technology and range of high throughput analysers enable us to achieve attractive timeframes for data production.

Cost Effective



- Through our ability to develop products in-house, optimising batches and sample use, we provide a high quality service with a minimum cost and wastage.
- Our Biochip Array Technology offers a cost effective solution for multiplex testing.
- Utilising the in-house logistics team, we minimise outsourcing sample shipment costs for our customers.

Flexibility



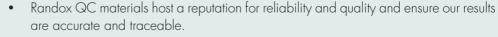
- Our project management team are fully flexible around time frames, testing methods and platforms to ensure the unique requirements of each project are met.
- We tailor data in a format suitable for each individual customer project to ensure the format is effective and aligned to the project objectives.
- Our custom assay development service enables us to design testing solutions specific to a particular project.

Experienced



- Randox hold a globally renowned reputation for producing quality IVD products for over 35 years and our tests and materials are currently being used by the Pharma and Biomedical industry.
- Our laboratory team are highly experienced in conducting successful testing projects for pharma and CRO customers globally.
- Our sales team are experienced in advising on biomarker selection, antibody development and CDx projects, supporting customers through each step of the process.

High Quality





- Our extensive range of testing platforms available, including our Evidence and RX series, ensure data quality is robust through high levels of precision and accuracy and minimal run-fails.
- RCLS, based at our new dedicated Science Park, is an accredited lab with a schedule of future audits in place.
- We understand the quality of our results are key to our customers and with this in mind our service is designed around our robust IT system ensuring data can be transferred quickly and securely across the globe.



Clinical Chemistry

Enrich your research with the highest quality range of routine and novel reagents

Reagents

Extensive test menu

We supply one of the largest reagent test menus offered by any clinical diagnostics company encompassing routine and esoteric clinical chemistry, immunoassay and safety testing.

Our impressive product portfolio covers over 100 disease markers. In addition to a wide range of routine chemistries, we provide reagents for specific proteins, lipids, therapeutic drugs, drugs of abuse, antioxidants, coagulation, diabetes, food & wine and veterinary parameters.

This portfolio is continually expanding to offer you an increased choice of high-quality cost-effective reagents.

Unique tests

We are a primary manufacturer of a comprehensive range of high performance and unique tests which can benefit you at every stage of your equally unique pre-clinical research and clinical development projects.

Dedicated and non-dedicated reagents

We provide dedicated reagents for the Randox RX Series, DimensionTM, HitachiTM, AUTM, Architect CTM and AerosetTM range of chemistry analysers providing you with freedom of choice from an independent manufacturer. We also provide over 13,000 instrument specific applications enabling the use of Randox reagents on over 195 clinical chemistry analyser platforms.

Highest quality

Our reagents are of the highest quality producing accurate and precise results. This is recognised through official accreditation to both national and international standards including UKAS, ISO 13485:2003, and SFDA.



RX series of clinical chemistry analysers

The RX series provides performance like no other. Robust hardware combined with intuitive software ensures unrivalled precision and accuracy for results you can trust. Delivering high quality routine and specialised testing through the most comprehensive dedicated test menu on the market, the RX series of clinical chemistry analysers guarantees flexibility, cost savings and consolidation. The RX series is capable of catering for a variety of laboratory settings, from low to mid-volume testing through to 1 million tests per year.





The RX misano has been developed with the user in mind by incorporating a responsive touch-screen display. The sleek ergonomic design boasts intuitive user-friendly software allowing test menu personalisation for ease of use. The RX misano provides exciting opportunities for consolidation of routine & specialised testing and is perfectly suited to a variety of laboratory types as a primary or a backup analyser.





Capable of carrying out 170 tests per hour, the RX monaco guarantees unrivalled performance, providing cost-effective, high quality testing for small to mid-volume laboratories. This fully automated analyser can be easily integrated into any laboratory setting with the option of a floor standing unit if benchtop space is limited.





The RX daytona+ is a fully automated, random access, bench top clinical chemistry analyser capable of performing routine and specialised testing as well as emergency STAT sampling. With a throughput of 450 tests per hour including ISE, the RX daytona+ offers a high performance, fully automated solution to midvolume clinical chemistry testing. With intuitive icon-based software, the RX daytona+ is the only analyser in its class with a sample clot detection sensor ensuring efficiency, precision and accuracy.





The RX imola combines superior quality, intuitive software and minimal maintenance for increased productivity and reduced downtime for rapid comprehensive testing. This compact, fully automated benchtop analyser is capable of handling the workload of a medium to high throughput laboratory, with a throughput of 560 tests per hour including ISE.





Capable of running up to 1,200 tests per hour, with unique HbA1c testing abilities, the RX modena consolidates all your assay requirements onto one intuitive platform. This high throughput analyser has a continuous loading hatch allowing emergency samples to be analysed quickly and easily mid-run. The RX modena boasts icon based, interactive touch-screen technology adding a modern flair to your laboratory.

RX Test Menu

CLINICAL

Autoimmune

Complement Component 3 Complement Component 4

CRP Full Range (0.3-160mg/l) CRP High Sensitivity

lgE

lgG lgΜ

Rheumatoid Factor

Basic Metabolic Profile

Calcium CO_a Total

Chloride (Direct & Non-direct) Creatinine (Enzymatic)

Creatinine (Jaffe)

Glucose (GOD - PAP) Glucose (Hexokinase)

Potassium Sodium Urea

Bone Profile

Alkaline phosphatase (ALP) Alkaline phosphatase (DEA) Calcium

Phosphorus (inorganic) Total Protein

Cardiac

Cholesterol CK-MB

CK-NAC

CRP Full Range (0.3-160mg/l) CRP High Sensitivity

Digoxin

Direct HDL Cholesterol Direct LDL Cholesterol

H-FABP

Homocysteine

Lipoprotein (a) Myoglobin

sLDL

Triglycerides

TxB Cardio

Comprehensive Metabolic Profile

Albumin

Alkaline phosphatase (AMP) Alkaline phosphatase (DEA)

AST (GOT)

Direct Bilirubin

Calcium

Chloride (Direct & Non-direct)

CO₂ Total

Creatinine (Enzymatic)

Creatinine (Jaffe)

Glucose (GOD - PAP)

Glucose (Hexokinase)

Potassium (Direct & Non-direct) Sodium (Direct & Non-direct)

Total Bilirubin

Total Protein

Urea

Diabetes

Adiponectin

Cholesterol

Creatinine (Enzymatic)

Creatinine (Jaffe)

Cystatin C

D-3 Hydroxybutyrate (Ranbut)

Direct HDL Cholesterol

Direct LDL Cholesterol

Fructosamine

Glucose (GOD - PAP)

Glucose (Hexokinase)

Glycerol

HbA1c/Hb

Microalbumin

NEFA (Non-Esterified Fatty

Acids)

Total Protein

Triglycerides

Urinary Protein

Electrolytes

Calcium

Chloride (Non-direct)

CO₂ Total

Lithium

Magnesium

Potassium (Non-direct)

Sodium (Non-direct)

Haemolytic Anaemia

G-6-P-DH Haptoglobin

Hepatic Function

Albumin Aldolase Alkaline phosphatase (AMP) Alkaline phosphatase (DEA)

Alpha-1 Antitrypsin

ALT (GPT)

Ammonia

AST (GOT)

Bile Acids

Cholinesterase (Butyryl)

Complement Component 3 Complement Component 4

Direct Bilirubin

Gamma GT

GIDH

Glycerol

Haptoglobin

lgΑ

lgG

lgΜ

Iron (UIBC)

IDH

Leucine Arylamidase (LAP)

Total Bilirubin

Total Protein

Transferrin

Transthyretin (Prealbumin)

Inflammation and Infection

Alpha-1 Acid Glycoprotein

ASO CRP

Lactate

Rheumatoid Factor

Lipids

Apolipoprotein A-l

Apolipoprotein A-II

Apolipoprotein B

Apolipoprotein C-II

Apolipoprotein C-III

Apolipoprotein E

Cholesterol

Direct HDL Cholesterol

Direct LDL Cholesterol Lipoprotein (a)

sLDL

Triglycerides

Neonatal Screening

Alpha-1 Antitrypsin

CRP Full Range (0.3-160mg/l) CRP High Sensitivity

Transthyretin (Prealbumin)

Neurological Disorders (CSF)

lgΑ lgG lgΜ

Nutritional Status

Albumin

Copper

Ferritin

Iron Iron (UIBC)

Lipase

Magnesium

Potassium (Direct & Non-direct)

Transferrin

Transthyretin (Prealbumin)

Zinc

Pancreatic Function

Amylase

Glucose (GOD - PAP)

Glucose (Hexokinase) LDH

Lipase

Pancreatic Amylase

Renal Function

Albumin

Ammonia Beta-2 Microglobulin

Chloride (Direct & Non-direct)

Creatinine (Enzymatic)

Creatinine (Jaffe)

Cystatin C

Glucose (GOD - PAP)

Glucose (Hexokinase)

HbA1c/Hb

lgG LDH

Magnesium

Microalbumin Potassium

Phosphorus (Inorganic)

Sodium (Direct & Non-direct) Urinary Protein

Urea

Uric Acid

RX Test Menu

PROTEINS

Specific Proteins

Alpha-1 Antitrypsin Alpha-1 Acid Glycoprotein Apolipoprotein A-l Apolipoprotein A-II Apolipoprotein B Apolipoprotein C-II Apolipoprotein C-III Apolipoprotein E

ASO Beta-2 Microglobulin Ceruloplasmin

Complement Component 3 Complement Component 4 CRP Full Range (0.3-160mg/l) CRP High Sensitivity

Cystatin C Ferritin

Fructosamine

Haptoglobin HbA1c/Hb

lgΑ ΙgΕ

lgG

I_aM

Lipoprotein (a) Microalbumin

Myoglobin

Rheumatoid Factor

Transthyretin (Prealbumin) Transferrin

RESEARCH

Antioxidants

Albumin Bilirubin Ferritin

Glutathione Reductase Ransel (Glutathione

Peroxidase)

Ransod (Superoxide

Dismutase)

TIBC

Total Antioxidant Status Transferrin

Uric Acid

Biotechnology

Glutamate Glutamine

Food and Wine Testing

Acetic Acid Ammonia Copper Ethanol Free Sulphite (FSO₂) Glucose/Fructose

Lactic Acid Malic Acid

Potassium

Primary Amino Nitrogen Total Antioxidant Status Total Sulphite (Total SO₂)

Speciality

Acid Phosphatase

TOXICOLOGY

Therapeutic Drugs

Acetaminophen Carbamazepine

Digoxin Gentamicin

Lithium

Phenobarbitol

Phenytoin Salicylate

Theoatylline Valproic Acid

Drugs of Abuse

Amphetamines

Barbiturates Benzodiazepines

Cannabinoids

Cocaine metabolite

Ecstasy EDDP

Ethanol Methadone

Opiates

VETERINARY

Albumin

Alkaline phosphatase (AMP)

Alkaline phosphatase (DEA)

ALT (GPT)

Aldolase

Ammonia Amylase

AST (GOT)

Bile acids

Bilirubin (Total & Direct)

Calcium

Chloride (Direct & Non-direct)

Cholesterol

Cholinesterase (Butyryl)

CK-NAC

CO_o Total

Copper

Creatinine (Enzymatic)

Creatinine (Jaffe)

CRP (Canine)

D-3 Hydroxybutyrate (Ranbut) Fructosamine

Gamma-GT

GLDH

Glucose (GOD - PAP)

Glucose (Hexokinase)

Glycerol

HĎL

Iron (UIBC)

Lactate

Lactate dehydrogenase

LDL

Lipase

Magnesium

NEFA (Non-esterified fatty

Phosphorus (Inorganic)

Potassium

Ransel (Glutathione

peroxidase)

Ransod (Superoxide

dismutase)

Sodium

Total Protein

Triglycerides

Urea

Uric Acid

Urinary protein

Zinc



Quality Management Solutions

Validate your clinical research with Randox Quality Control Solutions

ACUSERA @ Internal Quality Controls

Randox Biosciences is one of the largest manufacturers of Quality Controls in the world. This includes our own brand Acusera portfolio of controls and calibrators, and customised material for laboratories, research organisations, EQA/Proficiency Testing (PT) schemes and other diagnostic manufacturers.

With over 390 parameters in our Acusera range, choice and flexibility is guaranteed. Principle control products include:

- Clinical Chemistry
- Immunoassay
- Immunology
- Proteins
- Lipids
- Cardiac
- CSF

- Toxicology
- Urine Chemistry
- Urinalysis
- Coagulation
- Haematology
- Blood Gas
- Tumour Markers

- Maternal Screening
- Antioxidants
- Diabetes
- Therapeutic Drug Monitoring

Speciality/Research

Single analyte and multiplex custom quality controls are available, tailored to your research or clinical trial project requirements.

Analytes include cytokines, chemokines, growth factors and trace elements.

ACUSERA 24-7

An Effective Tool for Evaluating Laboratory Performance

Acusera 24•7 is an interlaboratory data management package, primarily designed to complement the Acusera range of true third party controls. An effective IQC and peer group reporting program like Acusera 24•7 will help to improve your laboratory's analytical performance, meet regulatory requirements and most importantly, ensure accurate results.

The software has two complementary functions; the internal function of the software is designed to help laboratories manage and interpret their daily QC data while the peer group function of the software allows comparison to worldwide peer group statistics, enabling rapid and effective troubleshooting.

Customised Quality Control Sera





Randox Biosciences is the leading provider of customised quality control materials. We supply bespoke QC solutions to leading CRO's, pharma companies, reference laboratories and EQA/PT schemes all over the world.

Customising control materials can involve selecting analytes, analyte concentration, vial size or kit format ensuring a precise QC solution tailored to your clinical requirement.

Global harmonisation

Randox can manufacture custom QC lots and ship globally ensuring identical QC sera is run across your global laboratory operations (ideal for laboratory networks supporting clinical trials)

Consolidation

Randox will significantly consolidate your existing controls. An average laboratory may rationalise from 7 sera to a single control product

Tailor made

Specify the analytes and levels you require. We can provide the levels tailored to your cut off values

Stability

Randox sera are stable for up to 4 years, enabling use of the same lot over an extended period

Options

Customised controls in different matrices, e.g. serum, urine, aqueous

Choice

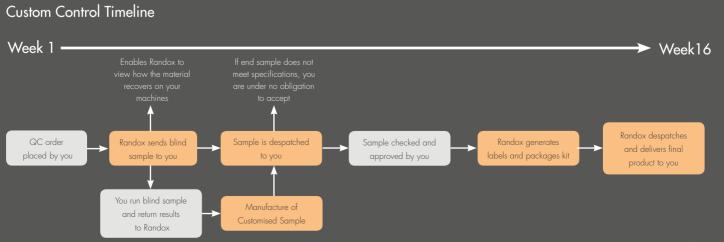
3 different formats – lyophilised, liquid, liquid frozen

Flexibility

Batch sizes manufactured between 50-250,000 vials. Randox can provide a wide range of vial sizes from 1ml to 10ml

Quality

High quality specification, fully compliant with ISO 13485



Available Analytes for Customised QC

Antioxidant

Glutathione Peroxidase Glutathione Reductase Superoxide Dismutase Total Antioxidant Status

Blood Gas

Bicarbonates Calcium Chloride Glucose Lactate pCO₂ рН pO,

Sodium Cardiac

Potassium

Carbonic Anhydrase III (CAIII)

CK-MB (Activity) CK-MB Mass) D-Dimer

Heart-type Fatty Acid-Binding Protein (H-FABP) Glycogen Phosphorylase BB (GPBB)

High Sensitivity Troponin T

Homocysteine Myoglobin NT-ProBNP Troponin I Troponin T

Cellular Adhesion Molecules

E-Selectin ICAM-1 L-Selectin P-Selectin VCAM-1

Cerebral

BDNF **GFAP** 11-6 NSE NGAL sTNFRI

Coagulation

Thrombomodulin

Activated Partial Thromboplastin Time (aPTT) Anti-Thrombin III

Factor II Factor V Factor VII Factor VIII Factor IX Factor X

Factor XI Factor XII Fibrinogen Plasminogen

Protein C Protein S

Prothrombin Time (PT) Thrombin Time (TT)

Cerebrospinal Fluid (CFS)

Albumin a-1-Globulin a-2-Globulin **B**-Globulin Chloride v-Globulin Glucose lgG Lactate Protein

Sodium

Cytokine & Growth Factors

Epidermal Growth Factor (EGF) Granulocyte Macrophage Colony-Stimulating Factor (GMCSF) Intercellular Adhesion Molecule 1 (ICAM-1) Interferon-gamma (IFN-γ) Interleukin-1 alpha (IL-1 a) Interleukin-1 beta (IL-1B) Interleukin-2 (IL-2) Soluble Interleukin-2 Receptor Alpha (SIL-2Ra) Interleukin-3 (IL-3)

Interleukin-5 (IL-5) Soluble Interleukin-6 Soluble Receptor

(SIL-6SR)

Interleukin-4 (IL-4) Interleukin-6 (IL-6) Interleukin-7 (IL-7) Interleukin-7D (IL-7D) Interleukin-8 (IL-8)

Interleukin-10 (IL-10) Interleukin-12p (IL-12p) Interleukin-13 (IL-13)

Interleukin-15 (IL-15) Interleukin-23 (IL-23)

Macrophage Inflammatory Protein-1 Alpha

Matrix Metalloproteinase 9 (MMP-9) Monocyte Chemotactic Protein-1 (MCP-1) Soluble Tumour Necrosis Factor Receptor-1

Soluble Tumour Necrosis Factor Receptor-2 (sTNFR2)

Tumour Necrosis Factor - alpha (TNF - α) Tumour Necrosis Factor - beta (TNF - β) Vascular Endothelial Growth Factor (VEGF)

Drugs (Therapeutic)

Acetaminophen (Paracetamol)

Amikacin Caffeine Carbamazepine Cyclosporine Digoxin

Ethosuximide

Gentamicin

Lithium Methotrexate Phenobarbital Phenytoin Primidone Salicylate

Theophylline Tobramycin Valproic Acid Vancomycin

Drugs of Abuse

7-aminoflunitrazepam **Amphetamine** Bath Salts 1+2 Benzylpiperazines Barbiturates Benzodiazepine Benzoylecgonine Buprenorphine Cannabinoids

Chloral Hydrate Metabolite Cocaine Metabolite

Dextromethorphan Ecstasy

EDDP

Ethyl Glucuronide

Ethanol Escitalopram Fentanyl Fluoxetine Generic Opiods Haloperidol Ibuprofen Ketamine ISD

Mescaline Meprobamate Meperidine Methadone Methamphetamine

Methaqualone Methylphenidate

Morphine MDMA **Opiates** . Oxazepam Oxycodone I

Oxycodone II Phencyclidine

Phenobarbital Phenylpiperazines Propoxyphene Salicylate

Salicyluric Acid Salvinorin Secobarbital Setraline

Synthetic Cannabinoids Tetra Hydro Cannabinol (THC) Tricyclic Antidepressants

Tramadol Trazodone

Zaleplon Zolpidem Zopiclone

Endocrine

Andiponectin Cortisol GLP-1 Insulin Leptin

Haematology

CBC & Differential Non standard parameters: • Immature Granulocytes (IG)

• Immature Platelet Fraction (IPF)

Nucleated Red Blood Cells (NRBC)

Haemoglobin fractions:

- Hb total, HbA2, HbF
- Variants

Immunoassay

17-OH - Progesterone

ACTH AFP Aldosterone Amikacin

Androstendione

B-2-Microglobulin . CEA CA 125 CA 15-3 CA 19-9 CA 72-4 Calcitonin Carbamazepine C-Peptides Cyfra 21-1 Cortisol

DHEA-Sulphate Digoxin Estriol

C-Peptide

Estriol (unconjugated)

Ethosuximide Ferritin Folate FSH Gastrin Gentamicin Growth Hormone

hCG Free β hCG lgΕ IGF-1 Inhibin A Insulin

Neuron Specific Enolase

LΗ Osteocalcin Oestradiol Paracetamol PAPP- A Phenobarbital Phenytoin Primidone Procalcitonin Progesterone Prolactin PSA (Free) PSA (Total) PTH Renin Salicylate SHBĠ TBG T Uptake T₃ (Free) T₃ (Total) T₄ (Free) T₄ (Total)

Testosterone

Theophylline

Thyroglobulin

Anti-TG

Anti-TPO

TSH

Tobramycin

Vanomycin

Vitamin B₁₂

Valproic Acid

Testosterone (Free)

1-25-(OH)₂-Vitamin D 25-OH-Vitamin D

Apolipoprotein A-l Apolipoprotein A-II Apolipoprotein B Apolipoprotein C-II Apolipoprotein C-III Apolipoprotein E Cholesterol (Total) Cholesterol (HDL) Cholesterol (LDL) Lipoprotein (a) Triglycerides sLDL

Metabolic Syndrome & Diabetes

Adiponectin C-Peptide

Dehydrogenase (G-6-PDH)

Ferritin Fructosamine GLP-1 HbA1c Iron Insulin Leptin

Plasminogen Activator Inhibitor-1

Resistin Transferrin

Proteins

AFP Albumin

a-1-Acid Glycoprotein (AAG)

a-1-Antitrypsin (AAT) a-2-Macroglobulin Antistreptolysin O Anti-thrombin III B-2-Microglobulin Ceruloplasmin Complement C. Complement C CRP

Cystatin C Ferritin Haptoglobin lgΑ IgE lgG lgΜ

Kappa Light Chain Kappa Light Chain (Free) Lambda Light Chain Lambda Light Chain (Free)

Prealbumin Protein (Total)

RBP (Retinol Binding Protein)

Rheumatoid Factor Transferrin

Routine Chemistry

Albumin a-1-globulin a-2-globulin β-1-globulin

Acid Phosphatase (Prostatic) Acid Phosphatase (Total)

Albumin ALP ALT (GPT) Amylase Amylase (Pancreatic) AST (GOT) Bicarbonate Bile Acids Bilirubin (Direct) Bilirubin (Total) Cholinesterase Calcium Calcium (Ionised) Chloride Copper Creatinine CRP Cystatin C γGT

y-Globulin Glucose GLDH a-HBDH D-3-Hydroxybutyrate

Iron IAP LD (LDH) Lipase Lactate Magnesium Osmolality Phosphate (Inorganic) Potassium

Sodium TIBC Urea

Uric Acid (Urate)

Zinc

Urinalysis

Albumin Bilirubin Blood Glucose Ketones Leukocytes Microalbumin Nitrite Urobilinogen

Urine

Amylase Calcium Chloride Copper Cortisol Creatinine Dopamine Epinephrine Glucose 5-H1AA hCG Magnesium Metanephrine Microalbumin Norepinephrine Normetanephrine Osmolality Oxalate рΗ Phosphorous Potassium Total Protein Sodium Specific Gravity Urea

Uric Acid

VMA (Vanillylmandelic Acid)

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External Quality Assessment

RIQAS - The largest international EQA/PT scheme in the world

Randox International Quality Assessment Scheme (RIQAS) is used by more than **31,000** laboratory participants in **115** countries worldwide and offers **24** comprehensive programmes with a wide range of options and parameters.

RIQAS provides an independent means of assessing the analytical performance of a laboratory compared to other laboratories using the same methods and instruments.

Developing inter-laboratory comparability maintains and improves analytical quality so raising the standard of clinical testing.

RIQAS features and benefits

- Custom manufactured from human samples to mirror performance of patient samples
- Programmes accepted by national and international accreditation bodies worldwide
- High level of participants increases statistical validity
- Wide range of parameters covers a broad spectrum of testing
- Regular reports with rapid turnaround
- Time saving user-friendly, easy to read reports
- Reduced parameter options for selected programmes offers flexibility
- Certificates provide proof of participation in a reputable EQA/PT scheme
- Multi-instrument reports permit assessment of all laboratory systems
- Reference method values provided in the Clinical Chemistry programme

RIQAS Accreditation

RIQAS provides Certificates as proof of EQA participation and performance for laboratory accreditation purposes.

RIQAS is a UKAS accredited Proficiency Testing Provider, No. 0010, and is accredited to ISO/IEC 17043:2010, 'Conformity Assessment- General Requirements for Proficiency Testing'.

Accreditation to ISO/IEC 17043:2010 highlights the superior quality and excellence of RIQAS.

Available Programmes

AMMONIA/ETHANOL PROGRAMME+

Cat no: RQ9164 2 Parameters

BLOOD GAS PROGRAMME*

Cat no: RQ9134 Cat no: RQ9134/A

First registered instrument Subsequent instruments

10 Parameters 10 Parameters

BNP PROGRAMME+

1 Parameter (BNP alone) Order with RQ9136/a when

BNP and Liquid Cardiac parameters are required

CARDIAC PROGRAMME*

Cat no: RQ9127/a Cat no: RQ9127/b
2 Parameters only (choose from 7) Full 7 Parameters

COAGULATION PROGRAMME*

Cat no: RQ9135/a Cat no: RQ9135/b
5 Selected Parameters only Full 17 Parameters
(aPTT, PT, TT, Fibrinogen,

Antithrombin III)

ESR PROGRAMME+

Cat no: RQ9163 1 Parameter

GENERAL CLINICAL CHEMISTRY PROGRAMMES*

Cat no: RQ9112 Cat no: RQ9113
10 Parameters only Full 50 Parameters

Cat no: RQ9112/S 17 Parameters only

GLYCATED HAEMOGLOBIN PROGRAMME (HbA1c)*

Cat no: RQ9129 2 Parameters

HAEMATOLOGY PROGRAMME*

Cat no: RQ9118

HUMAN URINE PROGRAMME*

Cat no: RQ9115 25 Parameters

IMMUNOASSAY PROGRAMMES*

Cat no: RQ9125/a Cat no: RQ9125/c 4 Parameters only (choose from 55) Full 55 Parameters

Cat no: RQ9125/b Cat no: RQ9130 13 Parameters only (choose from 55) Full 55 Parameters IMMUNOASSAY SPECIALITY 1 PROGRAMME+

Cat no: RQ9141 10 Parameters

IMMUNOASSAY SPECIALITY 2 PROGRAMME+

Cat no: RQ9142 5 Parameters

LIPID PROGRAMME*

Cat no: RQ9126/a Cat no: RQ9126/b
3 Parameters only (choose from 7) Full 7 Parameters

LIQUID CARDIAC PROGRAMME*

Cat no: RQ9136 Cat no: RQ9136/a

9 Parameters only Order with RQ9165/a when
BNP and Liquid Cardiac
parameters are required

MATERNAL SCREENING PROGRAMME*

Cat no: RQ9137 6 Parameters

SEROLOGY (EBV) PROGRAMME+

Cat no: RQ9153 3 Parameters

SEROLOGY (HIV-HEPATITIS) PROGRAMME+

Cat no: RQ9151 10 Parameters

SEROLOGY (SYPHILIS) PROGRAMME+

Cat no: RQ9154 1 Parameter

SEROLOGY (TORCH) PROGRAMME+

Cat no: RQ9152 12 Parameters

SPECIFIC PROTEINS PROGRAMME*

Cat no: RQ9114 (3ml) Cat no: RQ9160 (2ml) Cat no: RQ9161 (1ml)

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THERAPEUTIC DRUGS PROGRAMME*

Cat no: RQ9111 18 Parameters

URINALYSIS PROGRAMME+

Cat no: RQ9138 14 Parameters

URINE TOXICOLOGY PROGRAMME+

Cat no: RQ9139 20 Parameters

^{* =} with target scoring + = awaiting accreditation to ISO/IEC 17043

