


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <b>9862</b> Accredited to <b>ISO 15189:2012</b>	<b>Leeds Teaching Hospitals NHS Trust</b>	
	Issue No: 013    Issue date: 08 November 2024	
	<b>Leeds General Infirmary</b> <b>Old Medical School</b> <b>Great George Street</b> <b>LS1 3EX</b>	<b>Contact: Helen Pritchett</b> <b>Tel: +44 (0)113 39 25697</b> <b>E-Mail: h.pritchett@nhs.net</b> <b>Website: <a href="https://www.leedsth.nhs.uk/a-z-of-services">https://www.leedsth.nhs.uk/a-z-of-services</a></b>
<b>Testing performed by the Organisation at the locations specified below</b>		

### Locations covered by the organisation and their relevant activities

#### Local Contact information:

Contact information	Department
Helen Pritchett E-Mail: h.pritchett@nhs.net Tel: +44 (0)113 39 25697	Blood Sciences
Hannah Armitage E-Mail: hannah.armitage1@nhs.net Tel: +44 (0)113 392 8796	Microbiology
Dr Carys Lippiatt Chloe Chadwick E-Mail: carys.lippiatt@nhs.net Tel: +44 (0)1132 064852	Specialist Laboratory Medicine
James Steer E-Mail: leedsth-tr.dna@nhs.net Tel: +44 (0)1132 065205	Genetics



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**Laboratory locations:**

Location details	Department	Activity	Location code
Address Leeds General Infirmary Old Medical School Great George Street LS1 3EX	Blood Sciences  Microbiology  Specialist Laboratory Medicine	Biochemistry and Haematology laboratory service  Bacteriology (including molecular), Mycology, Molecular Virology, Serology  Clinical Immunology	LGI
Chancellor Wing St James's University Hospital Beckett Street LS9 7TF	Blood Sciences	Biochemistry and Haematology laboratory service	SJUH
Block 46 St James' University Hospital Beckett Street Leeds LS9 7TF	Microbiology  Specialist Laboratory Medicine	Antifungal drug assays  Routine and specialist coagulation, Haemoglobinopathy testing, Antenatal & Newborn Screening, Biochemical Genetics, Metabolics, Toxicology, Trace elements, Immunosuppressant Drug Monitoring, Endocrinology	B46
Ward L43 Neonatal Special Care Clarendon Wing Leeds General Infirmary Great George Street LS1 3EX	Microbiology	Blood culture incubation & detection of microbial growth	L43
Bexley Wing St James' University Hospital Beckett Street Leeds LS9 7TF	Genetics	FISH testing, DNA extraction and quantification, NGS library preparation	BEX



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Location details	Department	Activity	Location code
Level 9 Gledhow Wing St James's University Hospital Beckett Street Leeds LS9 7TF	Specialist Laboratory Medicine	Cellular Immunology Transplant Immunology	SJUH GW
Clinical Sciences Building St James's University Hospital Becket Street Leeds LS9 7TF	Specialist Laboratory Medicine	NGS library preparation and sequencing, Fragment analysis and sanger sequencing	CSB
Yorkshire and North East Genomic Laboratory Hub Central Lab Ashley Wing St James's University Hospital Leeds LS9 7TF United Kingdom	Genetics	Molecular and Cytogenetics testing	ASH



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
HUMAN BODY FLUIDS	<b><u>Blood Sciences:</u></b>  <u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u>	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated		Siemens Chemistry XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSCH-SOP-1 (XPT) and BSCH-SOP-2 (Atellica). General Biochemistry:	
Serum, Plasma	Adjusted/corrected Calcium	By calculation	LGI SJUH
Serum, CSF	Angiotensin Converting Enzyme	Enzymatic kinetic assay	LGI
Serum, Plasma	Albumin	Colourimetric bromocresol purple (BCP) dye-binding	LGI SJUH
Serum, Plasma	Alanine amino-transferase ALT	Modified IFCC enzymatic assay	LGI SJUH
Serum, Plasma	Alkaline phosphatase ALP	IFCC standardised enzymatic assay	LGI SJUH
Plasma	Ammonia	GLDH Catalysis	LGI SJUH
Serum, Plasma	Amylase	Ethylidene Blocked-pNPG7	LGI SJUH
Serum, Plasma	Aspartate amino-transferase AST	Modified IFCC enzymatic assay	LGI SJUH
Serum, Plasma	Bicarbonate	Enzymatic kinetic assay	LGI SJUH
Serum	Bile Acid	Colourimetric enzymatic assay	LGI
Serum, Plasma	Bilirubin	Vanadate Oxidation	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Chemistry XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSCH-SOP-1 (XPT) and BSCH-SOP-2 (Atellica). General Biochemistry: (cont'd)	
Serum, Plasma, Urine	Calcium	Arsenazo III colourimetric	LGI SJUH
Serum, Plasma, Urine	Chloride	Ion selective electrode - diluted	LGI SJUH
Serum, Plasma	Cholesterol (total)	Enzymatic, Trinder endpoint	LGI SJUH
Serum, Plasma	Conjugated Bilirubin	Vanadate oxidation	LGI SJUH
Serum, Plasma	C-reactive Protein	Latex-enhanced immunoturbidimetric	LGI SJUH
Serum, Plasma	Creatine Kinase	NAC Activated, IFCC	LGI SJUH
Serum, Plasma, Urine	Creatinine	enzymatic	LGI SJUH
Serum, Plasma	eGFR	CKD-EPI Equation	LGI SJUH
Plasma	Ethanol	Enzyme Multiplied Immunoassay Technique (EMIT)	LGI SJUH
Serum, Plasma	Gamma GT	Modified IFCC enzymatic assay	LGI SJUH
Plasma	Glucose	Glucose Oxidase Trinder	LGI SJUH
Serum, Plasma	HDL-Cholesterol	Elimination/ catalase	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Chemistry XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSCH-SOP-1 (XPT) and BSCH-SOP-2 (Atellica). General Biochemistry: (cont'd)	
Serum	Iron	Colourimetric	LGI SJUH
Plasma	Lactate	Lactate Oxidase, colourimetric	LGI SJUH
Serum, Plasma	Lactate Dehydrogenase LDH	Pyruvate/ Reduced NADH	LGI SJUH
Serum, Plasma	LDL	Friedwald Calculation	LGI SJUH
Serum, Plasma, Urine	Magnesium	Colourimetric, Xylidyl Blue	LGI SJUH
Serum, Plasma, Urine	Phosphate	Phosphomolybdate/UV	LGI SJUH
Serum, Plasma, Urine	Potassium	Ion selective electrode - diluted	LGI SJUH
Serum, Plasma	Protein (Total)	Biuret	LGI SJUH
Serum, Plasma	Salicylate	Enzymatic	LGI SJUH
Serum, Plasma, Urine	Sodium	Ion selective electrode - diluted	LGI SJUH
Serum	Total Iron Binding Capacity	Sequential release and uptake of iron, spectrophotometric	LGI SJUH
Serum, Plasma	Triglycerides	GPO-Trinder	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Chemistry XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSCH-SOP-1 (XPT) and BSCH-SOP-2 (Atellica). General Biochemistry: (cont'd)	
Serum, Plasma, Urine	Urate	Enzymatic uricase/peroxidase	LGI SJUH
Serum, Plasma, Urine	Urea	Enzymatic urease with glutamate dehydrogenase (GLDH)	LGI SJUH
Urine	Microalbumin	Polyethyleneglycol (PEG)-enhanced	LGI SJUH
Urine	Protein	Immunoturbidimetric assay	LGI SJUH
Serum	Alpha 1 Antitrypsin	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI
Serum	C3	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI
Serum	C4	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI
Serum	Rheumatoid Factor	Latex-enhanced immunoturbidimetric	LGI
Serum	IgA	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI
Serum	IgG	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI
Serum	IgM	Polyethylene glycol-enhanced (PEG) immunoturbidimetric	LGI



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Chemistry XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSCH-SOP-1 (XPT) and BSCH-SOP-2 (Atellica). Therapeutic Drug Monitoring:	
Serum, Plasma	Carbamazepine	Enzyme Multiplied Immunoassay Technique (EMIT)	LGI
Serum	Digoxin	Latex-enhanced immunoturbidimetric	LGI SJUH
Serum, Plasma	Lithium	Colourimetric, endpoint	LGI SJUH
Serum, Plasma	Methotrexate	Enzyme immunoassay	LGI SJUH
Serum, Plasma	Paracetamol	Enzymatic	LGI SJUH
Serum, Plasma	Phenobarbitone	EMIT	LGI
Serum, Plasma	Phenytoin	EMIT	LGI
Serum	Theophylline	EMIT	LGI SJUH
Serum, Plasma	Valproate	EMIT	LGI
Serum, Plasma	Gentamicin	EMIT	LGI SJUH
Serum, Plasma	Tobramycin	EMIT	LGI SJUH
Serum, Plasma	Vancomycin	EMIT	LGI SJUH





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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Immulite XPi using suppliers' methods unless otherwise stated and SOP: BSHC-SOP-14 Immunoassay	
EDTA Plasma	ACTH	Solid phase two-site sequential chemiluminescent immunometric assay	LGI
Serum	Growth Hormone	Solid phase two-site sequential chemiluminescent immunometric assay	LGI
Serum	IGF-1	Solid phase enzyme labelled chemiluminescent immunometric assay	LGI
		Centaur XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP-13 (Centaur XPT), BSHC-SOP-2 (Atellica). Immunoassay:	
Plasma	NT-Pro BNP	Solid phase two-site sequential chemiluminescent immunometric assay	LGI SJUH
Serum	AFP	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	CA15-3	Chemiluminescent two-step sandwich immunoassay	LGI SJUH
Serum	CA19-9	Chemiluminescent two-step sandwich immunoassay	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Immulite XPi (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP-14 (Immulite), BSHC-SOP-2 (Atellica). Immunoassay	
Serum	CA125	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	CEA	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	25OH Vitamin D	Centaur XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP-13 (Centaur XPT); BSHC-SOP-2 (Atellica). Immunoassay:	LGI SJUH
Serum	Cortisol	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	ELF Score (enhanced liver fibrosis score)	By calculation	LGI SJUH
Serum	Ferritin	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Folate	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Free T4	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	FSH	Chemiluminescent two-site sandwich immunoassay	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Siemens Immulite XPI (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP13 (Immulite), BSHC-SOP-2 (Atellica). Immunoassay	
Serum	HCG (total) for the purposes of pregnancy marker only	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Hyaluronic Acid (HA)	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	LH	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Oestradiol	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Parathyroid Hormone	Centaur XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs BSHC-SOP-13 (Centaur XPT); BSHC-SOP-2 (Atellica). Immunoassay:	LGI SJUH
Serum	Procalcitonin	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Pro collagen type III	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Progesterone	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Prolactin	Chemiluminescent two-site sandwich immunoassay	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Serum unless otherwise stated (cont'd)		Centaur XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP-13 (Centaur XPT); BSHC-SOP-2 (Atellica). Immunoassay:	
Serum	Prostate Specific Antigen (PSA)	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	SHBG	Chemiluminescent two-site sandwich immunoassay	LGI
Serum	Testosterone	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Tissue inhibitor of matrix metalloproteinase (TIMP-1)	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Thyroid Peroxidase Ab (TPO)	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Total T3	Chemiluminescent competitive immunoassay	LGI SJUH
Serum	Troponin I	High-sensitivity Chemiluminescent three-site sandwich immunoassay	LGI SJUH
Serum	TSH	Chemiluminescent two-site sandwich immunoassay	LGI SJUH
Serum	Vitamin B12	Chemiluminescent competitive immunoassay	LGI SJUH
Serum, Plasma, Urine	Osmolality	Advanced Instruments Osmometer 2020, freezing point depression using suppliers' methods unless otherwise stated and SOP BSHC-SOP-15	LGI SJUH



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<p>HUMAN BODY FLUIDS (cont'd)</p> <p>Serum unless otherwise stated (cont'd)</p> <p>EDTA Whole Blood</p>	<p><u>Clinical Biochemistry examination activities for the purpose of clinical diagnosis</u> (cont'd)</p> <p>Haemoglobin HbA1c</p>	<p>In house documented methods incorporating manufacturers' instructions where relevant</p> <p>Centaur XPT (LGI) and Atellica Analyser (SJUH) using suppliers' methods unless otherwise stated and SOPs: BSHC-SOP-13 (Centaur XPT); BSHC-SOP-2 (Atellica). Immunoassay:</p> <p>TOSOH G11 HPLC using suppliers' methods unless otherwise stated and SOP BSHC-SOP-102</p>	<p>LGI</p>



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HUMAN BODY FLUIDS (cont'd)	<u>Haematology examination activities for the purpose of clinical diagnosis</u>	In house documented methods incorporating manufacturers' instructions where relevant	
EDTA Whole Blood	Full Blood Count (Red Blood Cells, White Blood Cells, Haemoglobin, MCV, MPV, Neutrophils, Lymphocytes, Monocytes, Eosinophils, Basophils, Monocytes, Platelets, Reticulocytes)	Siemens Advia 2120i Cytochemical flow cell technology using suppliers' methods unless otherwise stated and SOP BSHC-SOP-4	LGI SJUH
EDTA Whole Blood	Detection of normal and abnormal morphologies with WBC differential count where indicated	Blood film assessment (peripheral) with microscopic analysis Advia Autoslide Siemens Hematek ProLab Poly Staining Unit  for: <ul style="list-style-type: none"> <li>• Preparation and staining of adult samples</li> <li>• Staining only of paediatric/low volume adult samples that have been prepared manually</li> </ul> Manual film preparation and staining - requesting, prep and staining [SOP BSHC-SOP-8]  How to Report a Blood Film [SOP BSHC-SOP-10]  Blood Film Selection criteria and referral guidance [SOP BSHC-SOP-6]	LGI LGI & SJUH
EDTA Whole Blood	Infectious Mononucleosis screen (detection of infectious mononucleosis heterophile antibodies)	Accusay Mono IM kit [SOP BSHC-SOP-5]	LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Haematology examination activities for the purpose of clinical diagnosis (cont'd)</u>	In house documented methods incorporating manufacturers' instructions where relevant	
EDTA Whole Blood	Detection of malarial parasites: Parasite detected/not detected. Speciated from morphology: P. falciparum, P. vivax, P. ovale, P. malariae, P. knowlesi	Manual thick (field stain A and B) and thin (Giemsa stain) blood film examination using light I microscopy [SOP BSHC-SOP-9]	LGI SJUH
EDTA Whole Blood	Detection of Plasmodium spp. DNA	Alethia Malaria molecular assay using the Alethia Incubator/reader. Amplification and detection of a specific region of the plasmodium genome via loop-mediated amplification (LAMP) technology, BSHC-SOP-11]	LGI SJUH
EDTA Whole Blood	Sickle cell solubility	Sickle Check Kit (detection of haemoglobin S) BSHC-SOP-54  Werfen TOP (750 -LGI) (550 – SJUH) BSHC-SOP-3 Turbidimetric endpoint detection	LGI SJUH
Citrated Plasma	APTT		LGI SJUH
Citrated Plasma	Clauss Fibrinogen		LGI SJUH
Citrated Plasma	DDimer level		LGI SJUH
Citrated Plasma	Derived Fibrinogen		LGI SJUH
Citrated Plasma	INR		LGI SJUH
Citrated Plasma	LMW Heparin (Anti Xa)		LGI SJUH



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HUMAN BODY FLUIDS (cont'd)	<u>Haematology examination activities for the purpose of clinical diagnosis (cont'd)</u>	In house documented methods incorporating manufacturers' instructions where relevant	
Citrated Plasma	Prothrombin Time		LGI SJUH
Citrated Plasma	Thrombin Time		LGI SJUH
Citrated Plasma	Reptilase		LGI
EDTA Plasma	Plasma Viscosity	Benson Viscometer (distance travelled using constant pressure / time) using suppliers' methods unless otherwise stated and BSHC-SOP-57	LGI SJUH
EDTA Plasma	Erythrocyte Sedimentation Rate	Starrsed auto compact infrared absorption readings of red cell sedimentation using suppliers' methods unless otherwise stated and SOP BSHC-SOP-7	LGI
Blood (Red Cell Lysate)	Glucose-6-Phosphate Dehydrogenase (G6PD)	Siemens Atellica Analyser Using Photometric Detection – Kinetic  SOP: BSHC-SOP-12	SJUH





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HUMAN TISSUES AND FLUIDS	<b><u>Microbiology:</u></b>  <u>Microbiological examination activities for the purpose of clinical diagnosis</u>	In-house documented procedures following current UK Health Security Agency (UKHSA) Standards for Microbiological Investigations (SMIs) and incorporating manufacturer's instructions where relevant	
Routine samples: Swabs, fluids and tissues	Isolation of microorganisms of clinical significance	Manual or automated (WASP) inoculation and manual or automated incubation SOPs: MIC-BAC-EP-1 MIC-BAC-EP-2 MIC-BAC-EP-4 MIC-BAC-EP-5 MIC-BAC-EP-7 MIC-BAC-EP-9 MIC-BAC-EP-10 MIC-BAC-EP-12 MIC-BAC-EP-14 MIC-BAC-EP-15 MIC-BAC-EP-16 MIC-BAC-EP-17 MIC-BAC-EP-26 MIC-BAC-EP-27 Gram staining and Microscopic examination of sterile fluids and tissues for bacteria and white cells	LGI
Cerebrospinal fluid	Quantification and differentiation of white and red cells Isolation of microorganisms of clinical significance	Manual cell count using modified Fuchs-Rosenthal chamber Manual inoculation and incubation MIC-BAC-EP-18 MIC-BAC-EP-15	LGI
Cellular and fluid material contained on swabs	Screening for Methicillin-Resistant <i>Staphylococcus aureus</i> (MRSA)	Automated processing, incubation and digital plate imaging using Brilliance culture media and WASP or manual culture methods using Brilliance culture media SOP: MIC-BAC-EP-20	LGI



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**United Kingdom Accreditation Service**  
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**Leeds Teaching Hospitals NHS Trust**  
**Issue No: 013 Issue date: 08 November 2024**

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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
HUMAN TISSUES AND FLUIDS (cont'd)	<u>Microbiological examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Blood	Detection of microbial growth	Liquid media culture using Using Bactec FX and Bactec FX40	LGI L43
	Isolation & characterisation of microorganisms of clinical significance	Subsequent manual culture and Gram staining SOP: MIC-BAC-EP-23	LGI
Respiratory samples: Sputum, Broncho-alveolar lavage, Bronchial Washings, Naso-pharyngeal Aspirate Naso-pharyngeal swabs, Sinus/Antral Washout	Isolation of microorganisms of clinical significance	Manual inoculation and media culture SOPs: MIC-BAC-EP-3 MIC-BAC-EP-13 MIC-BAC-EP-6	LGI
Urine	Detection, identification and quantification of: White blood cells Red blood cells Squamous epithelial cells Bacterial cells	iQSprints: flow cytometry SOP: MIC-BAC-EP-25	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Microbiological examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Faeces	Isolation, identification and antimicrobial susceptibility of bacterial pathogens: <i>Campylobacter</i> spp. <i>Escherichia coli</i> O157 <i>Salmonella</i> sp. <i>Shigella</i> spp. <i>Vibrio</i> spp. <i>Yersinia</i> spp. <i>Pleisiomonas</i> spp. <i>C.perfringens</i> <i>B.cereus</i> <i>B.subtilis</i> <i>B.lichenformans</i> <i>S.aureus</i>	Manual inoculation and media culture SOP: MIC-BAC-EP-21	LGI
Female genital tract liquid swabs	General isolation and characterisation of micro-organisms of clinical significance	Automated processing, incubation and digital plate imaging (WASP) QASPLab WebAPP SOP: MIC-BAC-EP-19	LGI
Cultures isolated in-house from all samples listed above	Identification of microorganisms of clinical significance	Using manual biochemical methods SOPs: MIC-BAC-TP-5 MIC-BAC-TP-11 MIC-BAC-IP-16 And Automated BD Maldi-Tof Matrix-assisted laser desorption/ionisation SOP: MIC-BAC-TP-2	LGI
Bacterial cultures isolated in-house from all samples listed above	Antimicrobial susceptibility testing of clinically significant bacteria	Manual antimicrobial susceptibility testing using EUCAST methodology and manual Reading SOP: MIC-BAC-EP-28	LGI
Faeces CSF, Bile, Pus, Duodenal/Jejunal Aspirate, Sputum, Tissue (where appropriate)	Detection of clinically significant ova, cysts and parasites (OCP)	Faecal concentration using Mini system Total-Fix kit and direct Microscopic examination SOP: MIC-BAC-EP-22	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Microbiological examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Clear adhesive tape' slide/perianal swab	Detection of <i>Enterobius vermicularis</i> larvae and ova	Direct Microscopic examination SOP: MIC-BAC-EP-22	LGI
Urine	Detection of <i>Schistosoma haematobium</i> ova	Sedimentation of Urine and Microscopic Identification SOP: MIC-BAC-EP-22	LGI
Sputum, broncho-alveolar lavage/washings. Gastric Aspirates/Washings Sterile body fluids Pus and pus swabs Skin or tissue including lymph nodes Bone Faeces Urine BAL Blood	Isolation and presumptive identification of Acid-alcohol fast bacilli (inc. Mycobacterium spp.)	Liquid culture, auramine phenol staining and incident-light fluorescence microscopy Using BD BacTec MGIT 960 (fluorescence)	LGI
Faeces	<i>Clostridium difficile</i> glutamate dehydrogenase GDH	BD BacTec FX40 SOP: MIC-BAC-EP-24	
	<i>C. difficile</i> toxins A & B	GDH EIA using Dynex DS2	LGI
	<i>C. difficile</i> toxin B and binary toxin genes	In house tissue culture method SOPs: MIC-BAC-EP-8 MIC-BAC-TP-8	
	<i>C. difficile</i> toxin B and binary toxin genes	Cepheid Gene Xpert Real-time PCR SOP: MIC-BAC-OP-6 MIC-BAC-BG-174	
Faeces	<i>Giardia lamblia</i> & <i>Cryptosporidium</i> antigens	Dynex DS2 – ELISA SOP: MIC-BAC-TP-9	LGI
	Rotavirus / <i>Helicobacter pylori</i> antigens	SOPs: MIC-BAC-TP-3 MIC-BAC-TP-4	



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Microbiological examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Faeces Rectal Swabs	Detection of Carbapenemase Genes (KPC,VDM,OXA-48,IMP1 & VIM)	Cepheid Gene Xpert Real-time PCR SOP: MIC-BAC-OP-6 MIC-BAC-IP-10	LGI
Blood/serum, bronchoalveolar lavage BAL)	Aspergillus antigen	Manual ELISA Platelia Antigen Kit SOP: MIC-MYC-YP-8 MIC-MYC-EP-5	LGI
Blood/serum	Qualitative detection of Beta D glucan	ACC Fungitell (kinetic) Assay and ELX 808 Ultra Microplate Reader SOP: MIC-MYC-TP-12	LGI
Blood/serum, CSF	Cryptococcal antigen	Latex agglutination (IMMY lateral flow kit) SOP: MIC-MYC-TP-9	LGI
Hair Nail Skin	Isolation and identification of clinically significant dermatophyte fungi	Manual inoculation, media culture, and macroscopic & microscopic examination (stained (lactophenol cotton blue, KOH/Calcoflour white & unstained) SOP: MIC-MYC-EP-1 MIC-MYC-TP-2	LGI
Mould isolates Fluid from normally sterile sites, bile, pus and swabs, antral washout Skin, tissue biopsies Corneal Scrapes	Isolation and identification of clinically significant moulds	Culture. Macroscopic and microscopic identification using lactophenol cotton blue for staining SOPs: MIC-MYC-TP-2 MIC-MYC-EP-2 MIC-MYC-EP-3 MIC-MYC-EP-4	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Microbiological examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Yeast isolates Fluid from normally sterile sites, bile, pus and swabs, antral washout, oral rinse, urine Skin, tissue biopsies Corneal Scrapes Swabs from genito-urinary tract	Isolation, identification and susceptibility testing of clinically significant yeasts	Culture on chromogenic agar SOPs: MIC-MYC-EP-2, MIC-MYC-EP-4 Identification using the Automated BD Maldi-Tof Matrix-assisted laser desorption/ionisation SOP: MIC-MYC-TP-6 Disc diffusion susceptibility testing (CLSI) SOP: MIC-MYC-TP-4 MIC susceptibility testing (Sensititre). SOP: MIC-MYC-TP-1 Examination of fungal isolates MIC-MYC-EP-3	LGI
Blood, serum	Antifungal drug levels; Itraconazole, Posaconazole, Voriconazole	LC-MS/MS SOP: MIC-MYC-TP-11	B46
	<u>Serology examination activities for the purpose of clinical diagnosis</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
		Documented -in-house methods to meet the requirements of the IDPS screening programme(s): laboratory QA evidence requirements' (relevant tests marked with *)	
Blood; serum/plasma	Hepatitis (Anti-HAV IgM, Anti HAV Total, HBsAg*, Anti HBs, Anti HBc IgM*, HBeAg*, Anti HBe*, Anti HCV, HBcT*) Antigen/Antibody detection, HIV-1 & HIV-2 Antibodies and HIV-1 p24 Antigen* detection, Syphilis* Antibody detection, Rubella Antibody detection and Toxoplasma antibody detection	Siemens Centaur; enzyme immunoassay SOP: MBSEREP003 MBSEROP014	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Serology examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Blood; serum/plasma	CMV (IgG & IgM), EBV (IgG & IgM), HSV (IgG), VZV (IgG), HTLV (IgG), Measles (IgG & IgM), Mumps (IgG), Parvovirus (IgG & IgM), Mycoplasma pneumonia (IgM) antibody detection. Hepatitis B core antibody Hepatitis D total antibodies CMV Avidity  Confirmatory second line testing for: HIV-1 & HIV-2 Antibodies and HIV-1 p24 Antigen Hepatitis C antibody Hepatitis B surface antigen Hepatitis E antibodies (IgG & IgM)	DiaSorin XL Liaison; enzyme immunoassay SOPs: MIC-SER-OP-2 MIC-SER-EP-7 MIC-SER-EP-2 MIC-SER-BG-23	LGI
Blood	Quantiferon TB (Interferon $\gamma$ Release)	DiaSorin XL Liaison; QuantiFERON <sup>®</sup> -TB Gold Plus  MIC-SER-EP-6MBSEREP066 MIC-SER-OP-2MBSEROP011	LGI
Urine	<i>Legionella pneumophila</i> serotype 1 antigen	Trinity Biotech Bartels ELISA Legionella Urinary Antigen detection kit on Dynex Ds2 SOPs: MIC-SER-OP-3 MIC-SER-EP-3  BINAX immunochromatographic membrane assay SOP: MIC-SER-EP-4	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Serology examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Urine Swabs – urethral, cervical, vaginal, vulvovaginal	Detection of ribosomal RNA from: <i>Chlamydia trachomatis</i> <i>Neisseria gonorrhoeae</i> <i>Trichomonas vaginalis</i> <i>Mycoplasma genitalium</i>	Nucleic acid amplification technique (NAAT) Hologic Gen-Probe Panther system SOP: MIC-SER-OP-5MBOPPAN01 MIC-SER-BG-65MBSEREP069	LGI
Blood; serum/plasma	HIV confirmation and differentiation of HIV-1 and HIV-2 antibodies	Biorad Geenius Confirmation Assay. Manual single use Immunochromatographic assay SOP: MIC-SER-BG-22	LGI
	<u>Molecular examination activities for the purpose of clinical diagnosis</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Yeast/mould isolates	Identification of clinically significant yeast & mould	Manual Nucleic Acid extraction; in-house manual chloroform extraction SOP ref: MIC-MYC-TP-5  Polymerase chain reaction (PCR) and sequence analysis. ABI 7500 fast ABI 3500xl SOPs: MIC-MYC-TP-5 MIC-MOL-TP-5	LGI





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HUMAN TISSUES AND FLUIDS (cont'd)  Tissue, fluids, CSF, heart valves	<u>Molecular examination activities for the purpose of clinical diagnosis (cont'd)</u>  Detection of 16S RNA and identification of bacteria of clinical significance	In-house documented procedures incorporating manufacturers instructions where relevant  Nucleic Acid extraction; MagDEA DX SV kit, SS magLEAD 12gc robot SOP: MIC-MOL-TP-3 MIC-MOL-EP-3 Amplification real time PCR Stratagene MX3000 MIC-MOL-TP-5  PCR Sequence analysis; ABI 3500xl SOP: MIC-MOL-TP-9	LGI
EDTA blood, urine, CSF, tissue, BAL, Amniotic Fluid and placenta	CMV, EBV, adenovirus Quantitative	Nucleic Acid extraction; Qiagen MDX Biorobot, QIA amp all kit SOP: MIC-MOL-OP-2 Real Time Multiplex PCR; Stratagene MX3000 Qiagen QiAgility robot SOP: MIC-MOL-TP-2	LGI
EDTA blood, CSF, swabs (skin, mouth, eye)	HSV, adenovirus, VZV Qualitative	Nucleic Acid extraction; Qiagen MDX BioRobot, QIA amp all kit SOP: MIC-MOL-OP-2 Real Time Multiplex PCR; ABI 7500 fast Qiagen QiAgility robot SOP: MIC-MOL-TP-13	LGI
CSF, EDTA blood, swabs (skin, eye) faeces	Enterovirus and parechovirus Qualitative	Nucleic Acid extraction; Qiagen MDX BioRobot, QIA amp all kit SOP: MIC-MOL-OP-2 Real Time Multiplex PCR; ABI 7500 fast Qiagen QiAgility robot SOP: MIC-MOL-BG-17	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Molecular examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Nasopharyngeal & oropharyngeal swabs	Influenza A and B virus, Respiratory Syncytial A & B virus, Rhino virus, Parainfluenza 1-4, Human metapneumovirus, Adenovirus, Mycoplasma pneumonia Qualitative	Real-time PCR using Hologic Panther Fusion SOP: MIC-SER-EP-10 MIC-SER-OP-5	LGI
EDTA blood,	Quantitative HIV, HBV, HCV (Viral loads)	Nucleic Acid extraction and Real Time PCR; Abbott Alinity M SOP: MIC-MOL-OP-4	
EDTA blood, urine	BK polyoma virus Quantitative	Nucleic Acid extraction; Qiagen MDX BioRobot, QIA amp all kit SOP: MBNOP056 Real Time Multiplex PCR; Stratagene MX3000 Qiagen QiAgility robot SOP: MIC-MOL-EP-4	LGI
EDTA blood, CSF, tissue	Qualitative detection of JC virus	Nucleic Acid extraction; Qiagen MDX BioRobot, QIA amp all kit SOP: MIC-MOL-OP-2 RealStar Real Time PCR commercial assay; Stratagene MX3000 SOP: MIC-MOL-TP-17	LGI
Faeces, vomit	Gastroenteritis Virology: Norovirus G1 and G2, rotavirus, astrovirus, sapovirus, adenovirus genus and adenovirus group F Qualitative	Nucleic Acid extraction; Qiagen QIASymphony, DSP Virus/Pathogen MiniKit SOP: MIC-MOL-OP-3 Real Time Multiplex PCR ABI 7500 fast Roche LC480 384 well head Qiagen QiAgility robot SOP: MIC-MOL-TP-22	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Molecular examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Whole blood, EDTA, serum/plasma and foetal samples (swabs, fluids or tissue). Also, for Measles: oral fluids/swab, urine, throat swabs, and nasopharyngeal aspirates. Also, for HHV6 - CSF, bone marrow aspirates and BAL	Parvovirus B19, HHV6 and Measles Qualitative	Nucleic Acid extraction; Qiagen MDX BioRobot QIA amp all kit SOP: MIC-MOL-OP-2 Real Time Multiplex PCR; ABI 7500 fast Qiagen QiAgility robot SOP: MIC-MOL-TP-15	LGI
Genital swab	Detection of Herpes simplex type 1, Herpes simplex type 2 and <i>Treponema pallidum</i>	Real-time Genital LDT PCR assay; NeuMoDx MIC-MOL-EP-11	LGI
EDTA blood	HCV genotyping: Genotypic identification	Nucleic Acid extraction; Qiagen QIASymphony DSP Virus/Pathogen MiniKit SOP: MIC-MOL-OP-3 Qiagen MDX Biorobot QIA amp all kit SOP: MIC-MOL-OP-2 PCR Sequence analysis; Veriti ABI 9700 LiPA Scan HCV assay using Siemens Autoblot 3000H Confirmation via ABI 35000xl sequencing for NS5b region  SOP: MIC-MOL-TP-20	LGI
EDTA blood, CSF	Bacterial Meningitis; detection of <i>Neisseria meningitidis</i> and <i>Streptococcus pneumoniae</i> Qualitative	Nucleic Acid extraction; Qiagen MDX Biorobot QIA amp all kit SOP: MIC-MOL-OP-2  Real time PCR Sequence analysis; ABI 7500 fast SOP: MIC-MOP-EP-1	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Molecular examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
BAL, sputum	<i>Pneumocystis jirovecii</i> (PcP) Qualitative	Nucleic Acid extraction; Qiagen MDX Biorobot QIA amp all kit SOP: MIC-MOP-OP-2 Real Time Multiplex PCR; ABI 7500 fast Qiagen QIASymphony Qiagen QiAgility robot SOP: MIC-MOL-TP-14	LGI
EDTA blood, tissue (fresh and FFPE), CSF	Detection of <i>Trophymera whipplei</i>	Nucleic Acid extraction; MagDEA DX SV Kit, SS magLEAD 12gc robot SOP: MIC-MOL-TP-3 Real Time Multiplex PCR; Stratagene MX3000 SOP: MIC-MOL-EP5	LGI
CSF, tissue, sputum, BA, fluid, gastric aspirate	Detection of Mycobacterium tuberculosis complex DNA and detection of rifampicin resistance associated mutations	Real-time PCR using Cepheid GeneXpert MTB/RIF Ultra assay MIC-BAC-BG-198 MIC-BAC-EP-24	
Mycobacterium sp isolates	Detection of drug resistance marker genes TB	Manual Nucleic Acid Extraction; QIAamp DNA mini kit SOP: MIC-MOL-TP-3 Real Time PCR; TB drug resistance genotyping; GenoType MTBDRplus/ GenoType MTBDRsl commercial kits Automated on Verity thermocycler SOP: MIC-MOL-TP-8	LGI



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HUMAN TISSUES AND FLUIDS (cont'd)	<u>Molecular examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers instructions where relevant	
Oropharyngeal and Nasopharyngeal swabs in liquid amies media and universal transport media	Detection of SARS-CoV-2 virus RNA(COVID-19) specific gene target ORF1	Nucleic acid amplification technique (NAAT) Hologic Gen-Probe Panther system SOP: MIC-SER-EP-11	LGI
Nasopharyngeal swabs and Nasal aspirate in liquid amies media and universal transport media	Detection of SARS-CoV-2 virus RNA(COVID-19) specific gene target E, N	Cepheid Gene Xpert Real-time PCR SOP: MIC-MOL-EP-7	LGI
Oropharyngeal swabs and lower respiratory samples in liquid amies media and universal transport media			
Oropharyngeal and Nasopharyngeal swabs	Detection of SARS CoV-2 virus RNA (COVID-19) specific gene targets RdRp and N	Nucleic Acid extraction and Real Time PCR; Abbott Alinity M MIC-MOL-EP-6 MIC-MOL-BG-79	LGI



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Blood	<p><u>Coagulation/Haematology</u></p> <p>Routine coagulation: PT &amp; INR, APTT, APTT Ratio Thrombin Time, Reptilase time, D-dimer. Derived Fibrinogen, Clauss Fibrinogen. Automated 50:50 Mix Reptilase time</p>	<p>ACL TOP 750 CTS - turbidimetric, chromogenic and latex enhanced immunoassay.</p> <p>ACL TOP 750 CTS routine operation SLM-SC-SOP-1 Investigation of prolonged thrombin time using reptilase SLM-SC-SOP-2 All tests using Hemosil Reagents except Reptilase time - PEFAKIT (Pentapharma)</p>	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood	<u>Coagulation/Haematology</u> (cont'd)  Thrombophilia and Lupus anticoagulant: Protein C, Antithrombin, Free Protein S, Dilute Russel Viper Venom Test (DRVVT) Screen and Confirm, APTT-SP/ Actin FS	Thrombophilia and Antiphospholipid Antibody screening SLM-SC-SOP-3 All tests use Hemosil Reagents except Actin FS - Siemens Dade Reagent	B46
Blood	Factor Assays Extrinsic: FII, FV, FVII, FX Intrinsic: FVIII, FVIII ReFacto, FIX, FXI, FXII, Chromogenic factor VIII	Factor Assays on the ACL TOP 750 CTS Specialist Coagulation SLM-SC-SOP-3 All deficient / calibration plasma are Hemosil Reagents except Pfizer Refacto AF Lab Standard used for calibration of Refacto factor VIII. Chromogenic factor VIII - Chromogenix	B46
Blood	Von Willibrand Screen: Von Willibrand factor antigen, Von Willibrand ristocetin co factor (Automated),	Factor Assays on the ACL TOP 750 CTS Specialist Coagulation SLM-SC-SOP-4 Hemosil Reagents	B46
Blood	Anti Xa assays: Low molecular weight heparin (anti XA) Fondaparinux Rivaxaban Danapariod Unfractionated Heparin Apixaban anti-Xa Edoxaban anti-Xa	Anti Xa assay to monitor Low Molecular Weight Heparin SLF Monitoring of Anti-Xa and Anti-Thrombin agents SLM-SC-SOP-6 All test using Hemosil reagents except Fondaparinux and Edoxaban anti-Xa – Stago reagents, and Danapariod - Hyphen Biomed reagents. Fondaparinux, Danapariod, Edoxaban – In-House methods	B46



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Blood	<u>Coagulation/Haematology</u> (cont'd)  Direct Thrombin Inhibitors Agatroban, Dabigatran	Monitoring of Anti-Xa and Anti-Thrombin agents SLM-SC-SOP-6.  Direct Thrombin Inhibitors and Dabigatran - Hemosil reagents. Agatroban - Hyphen Biomed, Agatroban - In House	B46
Blood	Alpha 2 antiplasmin, Plasminogen	Factor Assays on the ACL TOP 750 CTS Specialist Coagulation SLM-CP-SOP-4.  ACL TOP 750 CTS Routine Operation Hemosil Reagents:	B46
Blood	Quantification of inhibitors to coagulation factors V, VII, VIII, IX	Bethesda Assay-using 37° C incubator/water bath and detection by ACL TOPs by Turbidimetric clot detection method. Reported in BU/ml SLM-SC-SOP-5	B46
Citrated Plasma	Emicizumab assay Quantification of inhibitors to porcine factor VIII  Quantification of inhibitors to factor VIII in patients taking Emicizumab	Bethesda Porcine (Obizur) FVIII Inhibitor assay  Bethesda Chromogenic FVIII (bovine) (emicizumab) Inhibitor assay  Manual / ACL TOP 750. Coagulometric. SOP SLM-SC-SOP-5	B46





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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood	<u>Coagulation/Haematology</u> (cont'd)  Factor XIII, H.I.T screen	Spectrophotometer- Bio Tek UVICON XL Factor XIII Assay examination procedure SLM-SC-SOP-7 HIT-Ab PF4-H-SLM-SC-SOP-8 - ACL TOP 750 CTS Factor XIII- Siemens Berichrom H.I.T screen- Hemosil  PCR: Cepheid Genexpert Dx, dual channel analyser:	B46
Blood/DNA extract	Factor 5 Leiden, Factor 2 gene mutation	GeneXpert Hemosil FII & FV cartridges performing real time PCR. Use of the GenExpert SLM-SC-SOP-9	B46
Blood	Platelet investigations: Ristocetin Cofactor Assay	Helena AggRAM Ristocetin Cofactor Assay SLM-SC-SOP-10  Helena Biosciences reagents	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood (Adult and Antenatal samples)	Haemoglobinopathy screening:	Documented -in-house methods to meet the requirements of the Sickle cell and Thalassaemia (SCT) screening programme screening programme(s) laboratory QA evidence requirements'	
Dried blood spots (Newborn)	Identification and quantification of Hb variants HbF, HbA, HbS, HbC, HbDPunjab, HbE, HbOArab plus HPFH, Delta/Beta Thalassaemia and compound heterozygotes of the above.	Menarini Hb9210 Resolution - High performance liquid chromatography (HPLC) - Haemoglobin peak analysis and quantitation.	B46
Dried blood spots (newborn) and adult confirmation	Identification and quantification of Hb variants - HbF, HbA, HbS, HbC, HbDPunjab, HbE, HbOArab plus HPFH, Delta/Beta Thalassaemia and compound heterozygotes of the above.	Operation of the Menarini Hb9210 Resolution HPLC System SLM-HBO-SOP-15	
		TMS identification of Hb variants (S, C, D punjab, E and O arab) by electron spray mass spectrometry - using the SpotOn HbS TMS kit Spot-On Haemaglobinopathy screening kit for MSMS SLM-HBO-SOP-1	B46
		ABSciex API 4000 TMS SLM-HBO-SOP-14	
Blood and dried blood spots	Abnormal Haemoglobin variants	Iso Electric Focussing Multiphor electrophoresis tanks IEF resolve systemHb kit SLM-HBO-SOP-6	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Antenatal &amp; Newborn Screening</u>	Documented -in-house methods to meet the requirements of the Fetal Anomaly Screening Programme laboratory QA evidence requirements'	
Blood	Antenatal screening for Downs, Edwards and Patau: Alpha Feto Protein (AFP), free $\beta$ -Human Chorionic Gonadotrophin ( $\beta$ -HCG), plasma free Oestriol (UE3) and pregnancy associated plasma protein A (PAPP-A), Inhibin A and Total HCG (Second Trimester Downs Screening)	Autodelfia 1235 AutoDELFLIA UE3 - solid phase competitive fluoroimmuno assay, AutoDELFLIA PAPP-A, AFP, free beta HCG & Inhibin A - solid phase, two site fluoroimmunometric assays direct sandwich technique Downs screening SLF2BGN009 AutoDELFLIA, Use of SLM-SBG-SOP-72	B46
Bloodspot	Newborn screening for Cystic Fibrosis: Immunoreactive trypsinogen (IRT)	Autodelfia 1235 Delfia neonatal IRT (Immuno Reactive Trypsin) kit fluoroimmunometric assay.  AutoDELFLIA, Use of SLM-SBG-SOP-72 Screening for Cystic Fibrosis SLM-SBG-SOP-2	B46
Bloodspot	Newborn Screening for Hypothyroidism and Hypothyroidism in Downs patients: Thyroid stimulating hormone (hTSH)	Autodelfia 1235 AutoDELFLIA neonatal hTSH (human Thyroid Stimulating Hormone) kit fluoroimmunometric assay. AutoDELFLIA, Use of SLM-SBG-SOP-72 Screening for Hypothyroidism Neonatal TSH SLM-SBG-SOP-3	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Antenatal &amp; Newborn Screening</u> (cont'd)	Documented -in-house methods to meet the requirements of the Newborn Blood Spot Screening Programme: laboratory QA evidence requirements'	
Bloodspot	Newborn screening for Glutaric Aciduria Type 1 (GA1), Homocystinuria (pyridoxine non-responsive) (HCU), Isovaleric Acidaemia (IVA), Maple Syrup Urine Disease (MSUD), Medium Chain Acyl-CoA Dehydrogenase Deficiency (MCADD), Phenylketonuria (PKU) & Tyrosinaemia Type 1. Analytes tested: Phenylalanine and Tyrosine - (PKU/Tyrosinaemia Type I) Methionine - HCU Glutaryl carnitine (C5-DC) - GA1 Isovalerylcarnitine (C5) - IVA Octanoylcarnitine (C8) – and Decanoylcarnitine (C10) - MCADD Leucine - MSUD	Tandem mass spectrometry. Underivatized samples, electrospray ionisation (ESI), MRM analysis using:  - API 6500 SLM-SBG-SOP-4  SLM-SBG-SOP-5 - Tandem tests	B46
Sweat	Sweat test for Cystic Fibrosis: Chloride concentration	Wescor sweat inducer model 3710 - pilocarpine iontophoresis stimulation. Macroduct sweat collector. Sherwood chloride analyser 926. Sweat testing, collection and analysis procedure SLM-SBG-SOP-6	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Plasma/serum, urine, CSF	<u>Biochemical Genetics</u> Amino acid analysis: Quantitative amino acid analysis	Biochrom 30+ analysers -ion exchange chromatography to separate amino acids with visualisation at 570 nm and 440nm.  Use of Biochrom amino acid analysers, SLM-SBG-SOP-27	B46
Urine	Qualitative amino acid analysis	2-directional thin layer chromatography (TLC) with visual assessment of stained plates  Urine Amino Acid Analysis by 2D TLC SLM-SBG-SOP-19	B46
Urine	Organic acid analysis - qualitative	Agilent 8890 gas chromatograph with 5977B mass selective detector and/or  Use of Agilent 8890 & 5975B Gas Chromatographs with Mass Selective Detectors (GCMS) SLM-SBG-SOP-7	B46
Urine	Quantitation of HMMA and HVA	Urine organic acids by GCMS SLM-SBG-SOP-26  HVA and HMMA by GCMS SLM-SBG-SOP-8  MDS Sciex/Applied Biosystems MS/MS API 6500 API 6500, Use of SLM-SBG-SOP-4	B46
Bloodspot	Dietary monitoring: Phenylalanine Tyrosine	LC-MS/MS (MRM analysis - in-house method) Diet monitoring SLM-SBG-SOP-9	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Plasma, Urine	<u>Biochemical Genetics</u> (cont'd)		
Urine only	Creatine metabolites: Creatine Guanidinoacetic acid (GAA) Creatinine	LC-MS/MS (MRM analysis - in-house method) Creatine and GAA by LCMSMS SLM-SBG-SOP-10	B46
Blood	White cell cystine, (TMS)	LC-MS/MS (MRM analysis - in-house method) White cell cystine, stage 2, Cystine analysis by TMS. SLM-SBG-SOP-31	B46
Blood	White cell cystine (protein assay)	Cobas Mira Plus : Modified Lowry protein assay measuring absorbance at 600nm. White cell cystine protein assay SLM-SBG-SOP-36	B46
Plasma	Total homocysteine	Cobas Mira Plus Axis Shield 2-step enzyme assay, measurement of NADH conversion to NAD+ at 340nm. Total plasma homocysteine SLM-SBG-SOP-23	B46
Urine	Mono- and disaccharide sugars	Thin layer chromatography with visual assessment of stained plates:  Sugar Thin Layer Chromatography - in-house method SLM-SBG-SOP-17	B46
Urine	Oligosaccharides	Oligosaccharides by Thin Layer Chromatography (in-house method) SLM-SBG-SOP-18	B46
Urine	Sialic acids	Sialic Acids by Thin Layer Chromatography (in-house method) SLM-SBG-SOP-35	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Biochemical Genetics (cont'd)</u>		
Urine	Mucopolysaccharides	Precipitation, extraction and 1D-electrophoresis with visual assessment of plates (in-house method) Mucopolysaccharides SLM-SBG-SOP-20	B46
Urine	Glucose, ketones, pH, protein, blood, nitrites and leucocytes	Bayer Multisix8 SG. Siemens Clinitek Status Urine Dipstick Reader. Multistix tests in urine SLM-SBG-SOP-28	B46
Serum	Biotinidase	Manual enzyme assay. Biochrom Photometer, Lightwave II spectrophotometric absorbance at 546nm. (In-house method) Biotinidase SLM-SBG-SOP-14	B46
Blood	Galactosaemia screen: Galactose-1-Phosphate Uridyl Transferase (Gal-1-PUT)	Manual spot test with visual assessment of fluorescence under long wavelength ultra violet light. Galactosaemia screening test (in-house method) SLM-SBG-SOP-15	B46



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HUMAN BODY FLUIDS	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Urine	<u>Biochemical Genetics</u> (cont'd)  Purines and Pyrimidines - Uric acid - Xanthine - Hypoxanthine - Deoxyadenosine - Deoxyinosine - Inosine - Uracil - Thymine - Thymidine - Orotic acid - AICAR - 2,8-dihydroxyadenine - Dihydrouracil - Dihydrothymine - N-C-B-Alanine - N-C-B-AIBA - Orotidine - Dihydroorotate - Succinyladenosine	LC-MS/MS API 5000 Mass spectrometry SOP: SLM-SBG-SOP-45	B46
Urine	<u>Metabolics</u>  Total Metanephrines	MDS Sciex/Applied Biosystems MS/MS API 5000 Shimadzu Prominence HPLC System Acidic hydrolysis and HPLC separation prior to ionisation and quantitation on TMS. Analysis of Total Urine Metanephrines by LC MS MS (in-house method) SLM-MTTI-SOP-1	B46





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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Plasma, Urine	<u>Metabolics</u> (cont'd) 5-hydroxyindole acetic acid (5-HIAA)	Shimadzu Prominence HPLC system. Separation by HPLC with detection by native fluorescence (in-house method)  5-HIAA in plasma by HPLC SLM-MTTI-SOP-2 Determination of 5-HIAA in urine (in-house method) SLM-MTTI-SOP-3	B46
Urine	Dopamine	MDS Sciex/Applied Biosystems MS/MS API 6500 Shimadzu Prominence HPLC System. Extracted using ion-exchange chromatography. Measurement by LC-MS/MS (in-house method).  Analysis of Urine Dopamine (in-house method) SLM-MTTI-SOP-18	B46



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<p>HUMAN BODY FLUIDS (cont'd)</p> <p>Urine</p>	<p><u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)</p> <p><u>Metabolics</u> (cont'd)</p> <p>Urine Drugs of Abuse 6-monoacetylmorphine, morphine, codeine, dihydrocodeine, amphetamine, 11-nor-9-carboxy-delta-9-tetrahydrocannabinol, nordiazepam, oxazepam, benzoylecgonine, methadone, EDDP, buprenorphine, norbuprenorphine, amphetamine, MDMA, MDA. Ketamine, norketamine, tramadol, Pholcodine and Oxycodone</p>	<p>In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House</p> <p>Applied Biosystems / Sciex API 5000 mass spectrometer Shimadzu Prominence HPLC system Glucuronidase hydrolysis and solvent extraction. LC-MS/MS analysis. 13 drugs with quantitative and 8 drugs with qualitative reporting. Quantitative measurements by comparison to 5 calibrators. Qualitative measurements by comparing retention times and MRM ion ratios with spiked urine</p> <p>Urine Drugs of Abuse using the API 5000 (in-house method) SLM-MTTI-SOP-5</p>	<p>B46</p>



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Urine	<u>Toxicology and trace elements</u>  Pregabalin and gabapentin	MDS Sciex/Applied Biosystems MS/MS API 5000 Shimadzu Prominence HPLC System Extraction by commercial ion-exchange column. Analysis by LC-MS/MS. Quantitative measurements by comparison to 5 calibrators. Reported qualitatively with respect to cutoff. Gabapentin and pregabalin and urine by LCMSMS (in-house method) SLM-MTTI-SOP-6	B46
Blood	Copper, zinc and selenium	Agilent 7700 ICPMS (collision cell) with ASX-500 autosampler:  Following dilution in a basic solution  Copper zinc and selenium in plasma (in-house method) SLM-MTTI-SOP-7	B46
	Lead	Following dilution in an ammonia solution via measurement of Isotopes 206,207 & 208 atomic mass units  Analysis of Blood Lead by ICPMS (in-house method) SLM-MTTI-SOP-8	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood	<u>Toxicology and trace elements</u> (cont'd)  Mercury (Hg)	Following dilution in an ammonia solution via measurement of isotopes 200 & 202 atomic mass units  Analysis of Blood Mercury Hg by ICPMS (in-house method) SLM-MTTI-SOP-9	B46
	Chromium, Cobalt and Manganese	Following dilution in an ammonia solution  Analysis of Blood and Plasma Chromium, Cobalt and Manganese by ICPMS (in-house method) SLM-MTTI-SOP-10	B46
Urine	Cadmium (Cd)	Agilent 7700 ICPMS with ASX-500 autosampler:  Via measurement of Isotopes 111, 114 & 112 atomic mass units  Analysis of Urine Cadmium (Cd) by ICPMS (in-house method) SLM-MTTI-SOP-11	B46
Plasma	Aluminium (Al)	Plasma aluminium by ICPMS (in-house method) SLM-MTTI-SOP-12	B46
Liver needle biopsy or tissue block	Tissue Copper (Cu) and Iron (Fe)	Nitric acid digestion. Analysis of Tissue Copper Cu and Iron Fe by ICPMS (in-house method) SLM-MTTI-SOP-13	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Toxicology and trace elements</u> (cont'd)		
Urine	Copper (Cu), Lead (Pb) and Mercury (Hg)	Cu measured by collision cell. Pb & Hg measured in non-collision mode (in-house methods) SLM-MTTI-SOP-14 Analysis of Urine Copper (Cu), Lead (Pb) and Mercury (Hg) by ICP	B46
Blood	Arsenic	Following dilution in an ammonia solution SLM-MTTI-SOP-15 Arsenic in blood	B46
Urine	Arsenic	Following dilution in nitric acid  Arsenic in urine (in-house method) SLM-MTTI-SOP-16	B46
Blood	Cadmium (Cd)	Following dilution in an ammonia solution via measurement of Isotopes 111, 112 & 114 atomic mass units  Analysis of Blood Cadmium Cd by ICPMS (in-house method) SLM-MTTI-SOP-17	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood	<u>Endocrinology</u> Dihydroepiandrosterone Sulphate (DHAS)	Siemens Immunulite Xpi chemilumescence SOP BSHC-SOP-14 and SLM-END-SOP-22	LGI
Heparinized plasma/Serum	Androstenedione	LC-MS/MS API5000 LC-MS/MS tandem mass spectrometer:  Extraction into tert-butyl-methyl ether (MTBE). Deuteriated internal standard. Electrospray ionisation with multiple reaction monitoring (MRM) mode; detection of 2 precursor (parent) to fragment (daughter) ion transitions  Determination of Androstenedione in plasma by Tandem Mass Spectrometry (in-house method) SLM-END-SOP-2  API5000 setting up to run routine endocrinology methods SLM-END-SOP-1	B46
Heparinized plasma/Serum	Testosterone	Precipitation of protein using zinc sulphate/methanol. Electrospray ionisation with multiple reaction monitoring (MRM) mode; Deuteriated internal standard Detection of 2 precursor (parent) to fragment (daughter) ion transitions  Testosterone by TMS (in-house method) SLM-END-SOP-3	B46



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Endocrinology</u> (cont'd)	LC-MS/MS API5000 LC-MS/MS tandem mass spectrometer:	
Heparinized plasma/Serum	Dihydrotestosterone (DHT)	Dihydrotestosterone by LC-MS/MS tandem mass spectrometer API5000 Sciex SLM-END-SOP-21	B46
Urine	Urinary free cortisol	Extraction into dichloromethane. Deuteriated internal standard. Electrospray ionisation with multiple reaction monitoring (MRM) mode Detection of 2 precursor (parent) to fragment (daughter) ion transitions	B46
		Urinary free cortisol by Tandem Mass Spectroscopy (in-house method) SLM-END-SOP-4	
		LC-MS/MS API5000 LC-MS/MS tandem mass spectrometer:	
Plasma	Plasma renin activity (PRA)	Generation of Angiotensin I from angiotensinogen which is proportional to plasma renin activity. Angiotensin I is extracted using SPE. Deuteriated internal standard. Electrospray ionisation with multiple reaction monitoring (MRM) mode and detection of 2 precursor (parent) to fragment (daughter) ion transitions.	B46
		Plasma renin activity by Tandem Mass Spectroscopy (in-house method) SLM-END-SOP-5	



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
	<u>Endocrinology</u> (cont'd)	LC-MS/MS API5000 LC-MS/MS tandem mass spectrometer:	
Heparinized plasma/Serum	17 alpha OH progesterone	Extraction into tert-butyl-methyl ether (MTBE)/ Precipitation of protein using zinc sulphate/methanol. Deuteriated internal standard. Electrospray ionisation with multiple reaction monitoring (MRM) mode; detection of 2 precursor (parent) to fragment (daughter) ion transitions,  17 alpha OH progesterone by Tandem Mass Spectroscopy (in-house method) SLM-END-SOP-6	B46
	Aldosterone	Extraction into tert-butyl-methyl ether (MTBE). Deuteriated internal standard. Atmospheric pressure chemical ionisation (APCI). Multiple reaction monitoring (MRM) mode detecting 2 precursor (parent) to fragment (daughter) ion transitions.  Aldosterone by Tandem Mass Spectroscopy (in-house method) SLM-END-SOP-7	B46





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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Serum	<u>Clinical Immunology</u> Autoantibody identification: Antinuclear Antibodies (includes antibodies to dsDNA, Ro, Ro52, Ro60, La, Sm, RNP, RNP 68, RNP A, SmRNP, Jo-1, Scl-70, Centromere, Chromatin, and Ribo) Anti-CCP Ab Anti-tTG Ab Anti-Phospholipid Ab (anti-Cardiolipin IgG and anti-Beta-2 Glycoprotein I) Anti-GBM Ab Anti-PR3 Ab Anti-MPO Ab	Bio-Rad Bioplex 2200 – multiplex magnetic bead technology (Luminex) SLM-CI-SOP-1	LGI
Faeces	Faecal haemoglobin	Faecal haemoglobin detection (for screening purposes) by Faecal immunochemical test (FIT); turbidometry using the HM-JACKArc analyser alpha laboratories SLM-CI-SOP-2	LGI
Blood	Infliximab	Detection of Infliximab drug level anti-Infliximab antibodies by ELISA using Dynex DS2 SLM-CI-SOP-4	LGI
Serum	Anti-GAD Ab	Alere/Dynex DS2 analyser ELISA plate reader for manual assays and processing of automated ELISAs SLM-CI-SOP-6	LGI



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**Leeds Teaching Hospitals NHS Trust**  
**Issue No: 013 Issue date: 08 November 2024**

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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Serum	<u>Clinical Immunology (cont'd)</u> ANA (Hep2) Antineutrophil Cytoplasmic Ab Autoimmune Liver Disease Ab (Includes gastric parietal cell Ab, mitochondrial Ab, smooth muscle Ab and liver kidney microsomal Ab) Pancreatic Islet Cell Ab Bullous Abs Steroidal Cell Ab (Includes Ovarian Ab, adrenal Ab and Testis Ab) Cerebellar Ab Striated Muscle Ab Crithidia Ab IgG and IgA Endomysial Ab	Werfen Quantalyser slide processor & Leica DMRB Fluorescence microscope – Indirect Immunofluorescence SLM-CI-SOP-5	LGI
Serum	Myositis associated Ab Mi-2 $\alpha$ , Mi-2 $\beta$ , TIF1 $\gamma$ , MDA5, NXP2, SAE1, Ku, PM-Scl100, PM-Scl75, Jo-1, SRP, PL-7, PL-12, EJ, OJ and Ro-52)  Scleroderma Ab (Scl-70, CENP A, CENP B, RP11 and RP155 (RNA Polymerase III subunits), Fibrillarin, NOR90, Th/To, PM-Scl100, PM-Scl75, Ku, PDGFR (platelet derived growth factor receptor) and Ro-52)  Autoimmune Liver Disease Ab (AMA-M2, M2-3E, Sp100, PML, LKM-1, LC, SLA/LP and Ro-52)  Neuronal Ab ANA Ab	EUROBlotOne for Immunblotting assays (commercial kit- Euroimmun) Strips coated with highly purified antigens are incubated with samples. Bound antibodies detected with enzyme-labelled anti-human IgG conjugate and evaluated digitally. SLM-CI-SOP-30	LGI



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufactures' instructions where relevant. Using Suppliers methods except where stated as In-House	
Serum	<u>Clinical Immunology</u> (cont'd) Functional antibodies (specific microbial protein antibodies) (to Anti-Haemophilus influenzae type B antibodies (HiB), Anti-tetanus toxoid antibodies (TET) and Anti-Pneumococcal antibodies (PCP)	Alere/Dynex DS2 automated ELISA analyser Binding site kits SLM-CI-SOP-1	LGI
Serum	<u>Proteins:</u> Quantitation of paraproteins Identification of paraproteins by immunosubtraction	Sebia Capillarys2 – CZE Sebia Hydrasys – Gel electrophoresis Helena IEF	LGI
Fluid	$\beta$ 2- transferrin	Sebia Capillarys2 Serum protein electrophoresis using Sebia CAPILLARYS system Qualitative analysis of serum proteins to identify presence of abnormal protein and protein group increase/decrease SLM-CI-SOP-8 Sebia Hydrasys Detection of Beta-2 transferrin SLM-CI-SOP-9	LGI



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufactures' instructions where relevant. Using Suppliers methods except where stated as In-House	
Serum	<u>Proteins:</u> (cont'd) Cryoglobulins	Sample cooling/heating from/up to 37C with visual inspection of the aliquot for cryoprecipitate. Typing of positives on Sebia Hydrasys SLM-CI-SOP-10 Investigation of cryoglobulins	LGI
Urine	Qualitative analysis of Urine proteins to identify presence of abnormal protein and protein group increase/decrease.	Sebia Hydrasys High resolution urine electrophoresis using the Sebia Hydrasys system SLM-CI-SOP-11	LGI
CSF	Oligoclonal bands	Helena Titan Gel IEF chamber 4065 Isoelectric focussing of CSF IgG SLM-CI-SOP-12	LGI
Serum and Urine	Paraprotein identification: IgG/IgA/IgM/Kappa/Lambda/IgD/IgE/ free Kappa light chains/free Lambda light chains	Sebia Hydrasys Serum and urine immunofixation (Hydrasys) SLM-CI-SOP-13	LGI
Serum	Alpha-1 anti-trypsin phenotype	Sebia Hydrasys (Hydrasys) SLM-CI-SOP-14	LGI



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis</u> (cont'd)	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Serum	<u>Proteins:</u> (cont'd) Specific Proteins: α1-antitrypsin α1-acid glycoprotein anti-Streptolysin O β2-microglobulin Caeruloplasmin C1 esterase inhibitor Complement (C3, C4) Haptoglobin Immunoglobulins (GAM) IgG subclasses (IgG1 - IgG4) Serum free light chains (kappa and lambda)	Siemens BN*II System Nephelometers Operation of the nephelometer - Siemens BNII system SLM-CI-SOP-15	LGI
CSF CSF	Transferrin CSF IgG CSF Alb		
Serum	Total Haemolytic Complement (CH100 - classical pathway)	Total Haemolytic complement functional assay - classical pathway (radial immunodiffusion) SLM-CI-SOP-16	LGI
Serum	C1 esterase inhibitor (functional)	Manual chromogenic assay C1-Esterase Inhibitor functional assay SLM-CI-SOP-17	LGI
Serum	Allergy: Total IgE Tryptase Specific IgE Specific IgG antibodies to Aspergillus fumigatus, Saccharopolyspora rectivirgula (previously known as Micropolyspora faenii ), Thermactinomyces vulgaris, pigeon and budgie serum	Phadia ImmunoCap 250. Fluorescent enzyme immuno assay (FEIA). SOP SLM-CI-SOP-18	LGI
	<b>See APPENDIX 1</b>		



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	HUMAN BODY FLUIDS
Blood	<u>Cellular Immunology</u> Primary Immune Deficiency: Lymphocyte function /anti CD3 assay. Functional activation of lymphocytes in response to stimulation with ant-CD3 Ab (counts per minute)	Wallac LKB Beta counter Cell harvester: Skatron AS semi-automated cell harvester Lymphocyte function test SLM-CEI-SOP-1	SJUH GW
Blood	Functional Neutrophil assay: Respiratory burst of neutrophils in response to <i>E coli</i> or PMA	FACSCanto II (Becton Dickinson) Flow Cytometer Neutrophil function test SLM-CEI-SOP-2	SJUH GW
Blood	Lymphocyte subsets: Extended phenotyping (HLA-DR on B cells and monocytes, T cell receptor expression, naïve T cells and HLA-DR +ve T cells) B cell panel: Measurement of memory B cells	FACSCanto II Flow cytometer Lymphocyte subsets on flow cytometer SLM-CEI-SOP-5 Extended immune cell phenotyping SLM-CEI-SOP-3 B Cell Phenotyping SLM-CEI-SOP-6	SJUH GW
Blood	CD34	Becton Dickinson Anti-human CD34 Flow cytometry using BD FACS Canto II	SJUH GW



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood/lymph node/spleen	<u>Transplant Immunology</u> DNA Extraction	<b>DNA extraction:</b> Automated: Maxwell RSC System Manual – Qiagen spin column Manual - Rapid salting out in-house  <b>DNA Quantitation:</b> Thermo Fisher Nanodrop Spectrophotometer  <b>Amplification:</b> Applied Biosystems Proflex 2 and Geneamp 9700	SJUH GW
DNA extracted from sample types listed above	HLA Typing including disease association: HLA-A HLA-B HLA-C HLA-DRB1 HLA-DRB3 HLA-DRB4 HLA-DRB5 HLA-DQB HLA-DQA HLA-DPB1 HLA B*57:01 HLA B*27	PCR-SSO using ThermoFisher LabXpress and Labscan 3D and OneLambda LabType kits with analysis by HLA Fusion  RT-PCR using Quantstudio DX and Quantstudio 6PRO real-time PCR instrument and OneLambda LinkSeq typing kit  PCR SSP using Readygene kit and Agarose gel electrophoresis of HLA PCR products. Imaging using Syngene Ingenius imager  HLA-B*57:01 Testing by PCR-SSP ReadyGene kit  HLA-B*27 Testing by PCR-SSO OneLambda Labtype kit	SJUH GW



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HUMAN BODY FLUIDS (cont'd)	<u>Examination activities for the purpose of clinical diagnosis (cont'd)</u>	In-house documented procedures incorporating manufacturers' instructions where relevant. Using Suppliers methods except where stated as In-House	
Blood/lymph node/spleen (cont'd)	<u>Transplant Immunology (cont'd)</u>  HLA Typing: (cont'd) HLA-A HLA-B HLA-C HLA-DRB1 HLA-DRB3 HLA-DRB4 HLA-DRB5 HLA-DQB HLA-DQA HLA-DPA1 HLA-DPB1	Next Generation Sequencing Fluorostar Omega fluorimeter Qubit Holotype HLA 24/11 kit Illumina MiSeq (SLM-TI-SOP-67)	SJUH GW
Blood	HLA Antibody screening/specificity analysis: HLA A, B, C (Class I) HLA-DR, DQ, DP (Class II) (IgG )	Automated and/or manual set up and automated read: ThermoFisher LABXpress, Labscan 3D and Luminex 200 and OneLambda Labscreen kit Analysis by HLA Fusion	SJUH GW
Blood/lymph node/spleen	Detection of IgG HLA specific antibodies to donor T and B lymphocytes	Flow Cytometry BD FACSCanto II Flow cytometer	SJUH GW
Previous donor/patient typing and antibody results using the methods above	Virtual Crossmatch	Review of data according to SLM-TI-SOP-25 Virtual Crossmatch Transplant and SLM-TI-SOP-11 Compiling the Virtual Crossmatch list	SJUH GW





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<p>HUMAN TISSUE AND FLUIDS</p> <p>Human DNA / RNA Blood, saliva, tissue, paraffin embedded tissue amniotic fluid, chorionic villus sampling (CVS) Extracted DNA from external sources</p>	<p><b><u>Genetics</u></b></p> <p><u>Molecular genetic examinations for the purpose of clinical diagnosis (including predictive and prenatal) for a range of disorders:</u></p> <p><u>DNA/RNA Extraction, quantification and quality check for subsequent in-house analysis (see below), referral to specialist centres and long-term storage</u></p>	<p>In house documented methods incorporating manufacturers' instructions where relevant</p> <p>Using a combination of the methods listed below, supported by:</p> <ol style="list-style-type: none"> <li>1. DNA Extraction by: Automated EZ1 robot: (LG-SR-SOP-1)</li> <li>2. Automated Chemagic and Chemagic 360i: ((LG-SR-SOP-2))</li> <li>3. Manual extraction of cfDNA from plasma with Qiagen QIAamp kit: (LG-SR-SOP-3))</li> <li>4. Automated extraction using Maxwell RSC 48 extraction robot SOP LG-SR-SOP-4</li> <li>5. DNA Quantification by Nanodrop spectrophotometer and Tecan plate reader F200 (PicoGreen) or Qubit: LG-SR-SOP-5</li> <li>6. Amplification by Polymerase Chain Reaction/PCR (Thermocyclers: LG-PCR-SOP-12, Tecan Robot: LG-NGS-SOP-1)</li> <li>7. Sanger DNA sequencing (Applied Biosystems (AB) Analysers 3730, 3500XL: LG-PCR-SOP-1)</li> <li>8. Multiplex Ligation-dependent Probe Amplification, (AB, Thermocyclers: LG-PCR-SOP-12)</li> <li>9. Gel Electrophoresis (LG-PCR-SOP-3)</li> <li>10. Fragment analysis (AB) : LG-PCR-SOP-4) (Applied Biosystems (AB) Analysers 3730, 3500XL: LG-PCR-SOP-1)</li> </ol>	<p>BEX</p> <p>ASH CSB</p>



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<p>HUMAN TISSUE AND FLUIDS (cont'd)</p>	<p><u>Molecular genetic examinations for the purpose of clinical diagnosis (including predictive and prenatal) for a range of disorders (cont'd)</u></p>	<p>In house documented methods incorporating manufacturers' instructions where relevant</p> <p>11.NGS Library preparation: (Sureselect – custom targeting and clinical exomellumina , Sureselect Library Prep: LG-NGS-SOP-2</p> <p>Agilent Bravo: LG-NGS-SOP-2 Sciclone SureSelect Library Preparation: LG-NGS-SOP-11 Tecan Liquid Handling SOP: LG-NGS-SOP-1</p> <p>Agilent Bioanalyser: LG-NGS-SOP-14</p> <p>Covaris LE220: LG-NGS-SOP-12 Quantitative DNA analysis (PicoGreen): LG-NGS-SOP-20</p> <p>Next Generation Sequencing: sequencing and dosage analysis:</p> <p>12. NovaSeq 6000</p> <p>13. CFEU2 (Cystic Fibrosis Base - Yourgene) (Thermocyclers, AB : LG-PCR-SOP-5) 14. MFI-Y Plus (Male Factor Fertility Base- Yourgene) (Thermocyclers, AB: LG-PCR-SOP-6)</p>	<p>CSB BEX</p> <p>CSB</p> <p>ASH</p>



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HUMAN TISSUE AND FLUIDS (cont'd)	<u>Molecular genetic examinations for the purpose of clinical diagnosis (including predicative and prenatal)</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Human DNA obtained from: A. blood, saliva, tissue, paraffin embedded tissue B. amniotic fluid, chorionic villus sampling (CVS)			ASH or ASH & CSB, or ASH, CSB & BEX (see techniques 1,2,4-8, 10, 11,12, above)
A, B	Li-Fraumeni syndrome	LG-IC-SOP-6	
A	Selected Gene Panel (Agilent Custom Design) including: Ataxia/Neuropathy panel BOB (Breast, ovarian, bowel) panel Cancer panel Connective tissue disorders panel Core (FH and CF) panel Dystonia/Paroxysmal (DYT) panel Gastrohepatology panel Haematology panel HSP/Degenerative disorders panel LGMD and MH panel Respiratory diseases panel Somatic BRCA panel YNExome panel (includes mitochondrial disorder targets)	LG-IC-SOP-4LG-NGS-SOP-6LG-NGS-SOP-6aLG-NGS-SOP-2	ASH or ASH & CSB, or ASH, CSB & BEX (see techniques 1.2.4-8,10, .11.12 above)
A, B	Variant Confirmation	LG-RD-SOP-33	



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HUMAN TISSUE AND FLUIDS (cont'd)	<u>Molecular genetic examinations for the purpose of clinical diagnosis (including predicative and prenatal)</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
A,B	Cystic Fibrosis	LG-PCR-SOP-5	ASH or ASH & CSB, or ASH, CSB & BEX (see techniques 1,2,4-8, 10-13 above)
A (Blood only)	Y Chromosome Microdeletions	LG-PCR-SOP-6	ASH, CSB & BEX (See techniques 2, 5, 6, 10, 14 above)
A,B	DNA Profiling	LG-PCR-SOP-7	
Blood (EDTA anticoagulant), amniotic fluid, chorionic villus or solid tissue	Detection of aneuploidy of chromosomes 13, 18, 21	QF-PCR analysis involving DNA extraction followed by molecular analysis of DNA dosage for rapid aneuploidy using ABI 3500 or ABI 3730 gene scanner (LG-CF-SOP-24, LG-CF-SOP-30; LG-PP-SOP-1, LG-PP-SOP-15, LG-PP-SOP-17)	ASH & BEX (See techniques 1, 2, 4, 5, 6, 10)
Paraffin embedded Tissue	Human identity testing for detection of specimen mix up	Microsatellite PCR test to identify DNA variation at multiple genomic loci known to be unique to individuals using Thermal cycler, ABI 3500XL or ABI 3730 genetic analyser, LG-SO-SOP-3	ASH & BEX (See techniques 4, 5, 6, 10 above)



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HUMAN TISSUE AND FLUIDS (cont'd)	<u>Molecular genetic examinations for the purpose of clinical diagnosis (including predicative and prenatal)</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Peripheral Blood	Detection of variants of DPYP gene indicating vulnerability to 5FU toxicity. Eleucie DPYD detection from the following alleles: c.1679T>G c.1905+1G>A c.2846A>T c.483+18G>A c.1129-5923C>G c.1236G>A.	Genotyping: Yourgene DPYD kit and analysis on using ABI 3500XL or ABI 3730 genetic analyser LG-IC-SOP-15	ASH & BEX (See techniques 4, 5, 6, 7, 9 above)
FFPE Tumour	Detection of methylation of the MLH1 gene (by DNA sequencing test)	Pyrosequencing involving DNA extraction followed by MLH1 methylation using Pyromark Q48 LG-PCR-SOP-11, LG-PCR-SOP-10, LG-NGS-SOP-5	ASH



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HUMAN TISSUE AND FLUIDS (cont'd)	<u>Molecular genetic examinations for the purpose of clinical diagnosis (including predicative and prenatal)</u> (cont'd)	In house documented methods incorporating manufacturers' instructions where relevant	
Blood plasma	Mutation testing of circulating tumour DNA - targeted mutation testing of the EGFR gene	Separation of blood plasma from whole blood, DNA extraction from blood plasma. Targeted EGFR mutation detection by real-time PCR using the Qiagen Rotagene Q and Therascreen Plasma RGQ PCR kit (LG-SO-SOP-24)	ASH & BEX (See techniques 3, 5 above)
Bone marrow, Blood	DNA extraction for the purposes of external Whole Genome Sequencing	Automated extraction using Chemagic and Chemagic 360i: (LG-SR-SOP-2)	BEX
HUMAN BODY FLUIDS/TISSUE	<u>Cytogenetics examination activities for the purpose of clinical diagnosis</u>	In house documented methods incorporating manufacturers' instructions where relevant	
Amniotic fluid, chorionic villus, solid tissue, blood (lithium heparin), bone marrow	Karyotype	Culture and karyotype analysis using G-banding LG-CF-SOP-3 and light microscope using SOPs:  LG-CF-SOP-4, LG-CF-SOP-6, LG-PP-SOP-11, LG-PPSOP-4 (amniotic fluid)  LG-CF-SOP-5, LG-CF-SOP-6, LG-PP-SOP-11,, LG-PPSOP-4 (chorionic villus)  Culture and karyotype analysis using G-banding LG-CF-SOP-3 and image analysis via automatic slide scanner /Cytovision using SOPs:  LG-CF-SOP-7, LG-CF-SOP-6, LG-PP-SOP-5, LG-PP-SOP-12, LG-PP-SOP-4 (solid tissue)	ASH



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HUMAN BODY FLUIDS/TISSUE (cont'd)	<u>Cytogenetics examination activities for the purpose of clinical diagnosis (cont'd)</u>	In house documented methods incorporating manufacturers' instructions where relevant	
Amniotic fluid, chorionic villus, solid tissue, blood (lithium heparin), bone marrow (cont'd)	Karyotype (cont'd)	LG-CF-SOP-1, LG-CF-SOP-14, LG-PP-SOP-9, LG-PP-SOP-3, LG-PP-SOP-5, LG-PP-SOP-12,, LG-PP-SOP-2 (blood) LG-CF-SOP-2, LG-PP-SOP-5, LG-PP-SOP-12,, LG-SO-SOP-6 (bone marrow)	ASH
Blood (lithium heparin anticoagulant)	Karyotype	Culture and karyotype analysis using G-banding and image analysis via automatic slide scanner /Cytovision LG-CF-SOP-1, LG-CF-SOP-3, LG-PP-SOP-3, LG-PP-SOP-5, LG-PP-SOP-12,, LG-PP-SOP-2	ASH
Bone marrow	Karyotype	Culture and karyotype analysis using G-banding and image analysis via automatic slide scanner /Cytovision LG-CF-SOP-2, LG-CF-SOP-3, LG-PP-SOP-5, LG-PP-SOP-12,, LG-SO-SOP-6	ASH
Illumina Bead Array GTC Files received from ISO 15189 accredited laboratory 9028	Interpretation of data to detect microscopic chromosomal imbalance (gains and losses) expressed as changes to copy number in: Postnatal disorders, prenatal diagnosis, neoplastic genetics	SNP array analysis using Illumina BlueFuse Multi software and SOP LG-RD-SOP-18	ASH
Fixed cells/Formalin Fixed Paraffin Embedded tissue (FFPE) from: Peripheral Blood Bone Marrow Amniotic fluid CVS- Chronic villus samples Solid tissues Solid tumours Buccal smears	Detection of chromosomal aberrations loci changes including confirmation of array CGH findings and rearrangements in the diagnosis of haematological malignancy, bone marrow failure syndromes, constitutional disorders, solid tumours	Pre analytical preparation of tissues for Fluorescent in situ hybridisation procedures (FISH) using Hybrite, Water bath, hot-plate and SOPs: LG-CF-SOP-9 (FFPE slides) (fixed suspension samples) followed by:	BEX



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<p>HUMAN BODY FLUIDS/TISSUE (cont'd)</p> <p>Fixed cells/Formalin Fixed Paraffin Embedded tissue (FFPE) from: Peripheral Blood Bone Marrow Amniotic fluid CVS- Chronic villus samples Solid tissues Solid tumours Buccal smears (cont'd)</p>	<p><u>Cytogenetics examination activities for the purpose of clinical diagnosis (cont'd)</u></p> <p>Break-apart probes Fusion product probes Single copy probes to detect gain or loss of a specific locus</p>	<p>In house documented methods incorporating manufacturers' instructions where relevant</p> <p>Fluorescent in situ hybridization (FISH) analysis of metaphase and interphase cells using commercial (and including probe validation/verification) using Cyto-vision analysis system and Fluorescent microscopy as defined in SOP LG-SO-MISC-4 v1.16 in conjunction with SOPs LG-CF-SOP-10, LG-CF-SOP-9, LG-SO-SOP-14, LG-CF-SOP-12, LG-CF-SOP-11</p>	<p>BEX</p>
END			





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**APPENDIX 1**

Phadia Specific IgE	
Code	Item Description
<b>ImmunoCAPS</b>	
<b>Foods</b>	
f1	Egg white
f2	Milk
f3	Cod
f4	Wheat
f5	Rye
f6	Barley
f7	Oat
f8	Maize
f9	Rice
f10	Sesame
f11	Buckwheat
f12	Pea
f13	Peanut
f14	Soya
f15	White Bean
f17	Hazel Nut
f18	Brazil Nut
f20	Almond
f23	Crab
f24	Shrimp
f25	Tomato
f26	Pork
f27	Beef
f31	Carrot
f33	Orange
f35	Potato
f36	Coconut
f37	Blue Mussel
f40	Tuna
f41	Salmon
f42	Haddock
f44	Strawberry
f45	Yeast



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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
f47	Garlic
f48	Onion
f49	Apple
f50	Chub Mackerel
f51	Bamboo Shoot
f54	Sweet potato
f55	Common millet
f56	Foxtail millet
f57	Japanese millet
f58	Pacific squid
f59	Octopus
f60	Jack mackerel, Scad
f61	Sardine, Japanese Pilchard
f75	Egg Yolk
f76	nBos d4 alpha-lactalbumin, Milk
f77	nBos d5 beta-lactoglobulin, Milk
f79	Gluten
f80	Lobster
f81	Cheese (cheddar type)
f82	Cheese (mould type)
f83	Chicken
f84	Kiwi fruit
f85	Celery
f86	Parsley
f87	Melon
f88	Mutton
f89	Mustard
f90	Malt
f91	Mango
f92	Banana
f93	Cacao
f94	Pear
f95	Peach
f96	Avocado
f98	Gliadin



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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
f124	Spelt Wheat
f147	Gulf flounder
f182	Lima bean
f201	Pecan nut
f202	Cashew nut
f203	Pistachio nut
f204	Trout
f205	Herring
f206	Mackerel
f207	Clam
f208	Lemon
f209	Grapefruit
f210	Pineapple
f211	Blackberry
f212	Mushroom
f213	Rabbit
f214	Spinack
f215	Lettuce
f216	Cabbage
f217	Brussel Sprout
f218	Paprika
f219	Fennel
f221	Coffee
f222	Tea
f224	Poppy seed
f225	Pumpkin
f226	Pumpkin seed
f227	Sugar-beet seed
f231	Boiled milk
f232	nGal d2 Ovalbumin, Egg
f233	nGal d1 Ovomuroid, Egg
f234	Vanilla
f235	Lentil
f236	Cow's whey
f237	Apricot



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Code	Item Description
<b>ImmunoCAPS</b>	
f242	Cherry
f244	Cucumber
f245	Egg
f246	Guar, guar gum (E412)
f247	Honey
f253	Pine nut, pignoles
f254	Plaice
f255	Plum
f256	Walnut
f258	Squid
f259	Grape
f260	Broccoli
f261	Asparagus
f262	Aubergine
f263	Green pepper
f264	Eel
f265	Caraway
f266	Mace
f267	Cardamom
f268	Clove
f269	Basil
f270	Ginger
f271	Anise
f272	Tarragon
f273	Thyme
f274	Marjoram
f275	Lovage
f276	Fennel, Fresh
f277	Dill
f278	Bay Leaf
f279	Chilli pepper
f280	Black pepper
f281	Curry
f283	Oregano
f284	Turkey meat



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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
f285	Elk/moose meat
f286	Mare's milk
f287	Red kidney bean
f288	Blueberry
f289	Date
f290	Oyster
f291	Cauliflower
f292	Guava
f293	Papaya
f294	Passion fruit
f295	Carambola
f296	Carob (E410)
f297	Gum arabic (E414)
f298	Tragacanth (E413)
f299	Sweet chestnut
f300	Goat milk
f301	Persimon
f302	Mandarin
f303	Halibut
f304	Langust (spiny lobster)
f305	Fenugreek
f306	Lime
f307	Hake
f308	Sardine
f309	Chickpea
f310	Blue vetch
f311	Megrin
f312	Sword fish
f313	Anchovy
f314	Snail
f315	Green bean
f316	Rape seed
f317	Corriander
f318	Jack fruit
f319	Beetroot



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**Phadia Specific IgE**

<b>Code</b>	<b>Item Description</b>
<b>ImmunoCAPS</b>	
f320	Crayfish
f321	Horse meat
f322	Red Currant
f323	nGal d3 Conalbumin
f324	Hop
f325	Sheep milk
f326	Sheep whey
f328	fig
f329	Watermelon
f330	Rose Hip
f331	Saffron
f332	Mint
f333	Linseed
f334	nBos d Lactoferrin, Milk
f335	Lupin seed
f336	Jujube
f337	Sole
f338	Scallop
f339	Allspice
f340	Cochineal extract
f342	Olive
f343	Raspberry
f344	Sage
f345	Macadamia nut
f346	Abalone
f347	Quinoa
f348	Litchi
f351	rPen a1 Tropomyosin, Shrimp
f352	rAra h8 peanut comp
f353	rGly m4 PR-10, Soy
f354	rBer e1 Brazil nut
f355	rCyp c1 Carp
f369	Cat Fish
f381	Red snapper
f384	Whitefish (Inconnu)



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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
f410	Grouper
f412	Orange roughly
f413	Pollock
f414	Tilapia
f415	Walleye pike
f416	Omega-5 Gliadin
f422	rAra h1 peanut comp
f423	rAra h2 peanut comp
f424	rAra h3 peanut comp
f425	rCor a8 (H nut comp)
f427	rAra h9 peanut comp
f428	rCor a1 (H nut comp)
f439	rCor a14 (H nut comp)
f440	nCor a9 (H nut comp)
f441	rJug r1 Walnut
f442	rJug r3 LTP, Walnut
fx1	(f13, f17, f18, f20, f36) Nut Mix
fx2	(f3, f24, f37, f40, f41) Seafood mix
fx3	(f4, f7, f8, f10, f11) cereal mix
fx5	(f1, f2, f3, f4, f13, f14) common food mix
fx9	(f20, f84, f87, f92, f259) Mixed fruit 1
fx15	(f33, f49, f92, f95) Mixed fruit 2
fx16	(f44, f94, f208, f210) Mixed fruit 3
fx22	(f201, f202, f203, f256) mixed nuts
fx71	(f265, f266, f267, f268) Spice Mix
fx74	(f3, f205, f206, f254) Mixed Fish
<b>Mites</b>	
d1	Dermatophagoides pteronyssinus - HDM
d2	Dermatophagoides farinae - HDM
<b>Insect and Venoms</b>	
i1	Honey bee
i3	Common wasp (yellow jacket)
i70	Fire ant
i71	Mosquito
i75	European hornet



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Code	Item Description
<b>ImmunoCAPS</b>	
i204	Horse fly
<b>Occupational</b>	
k70	Green coffee bean
k72	Ispaghula
k75	Isocyanate TDI (Toluene diisocyanate)
k76	Isocyanate MDI (Diphenylmethane diisocyanate)
k77	Isocyanate HDI (Hexamethylene diisocyanate)
k78	Ethylene oxide
k79	Phthalic anhydride
k80	Formaldehyde/Formalin
k82	Latex
k84	Sunflower seed
k86	Trimellitic anhydride, TMA
k87	nAsp 021 alpha-amylase
<b>Drugs</b>	
c1	Penicilloyl G
c2	Penicilloyl V
c5	Ampicilloyl
c6	Amoxicilloyl
c7	Cefaclor
c8	Chlorhexidine
c71	Insulin bovine
c73	Insulin human
c74	Gelatin bovine
c202	Suxamethonium
c260	Morphine
<b>Epidermals and Animal Proteins</b>	
e1	Cat dander
e3	Horse dander
e4	Cow dander
e5	Dog dander
e6	Guinea pig epithelium
e7	Pigeon droppings
e70	Goose feathers
e71	Mouse epithelium





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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
e72	Mouse urine proteins
e73	Rat epithelium
e74	Rat urine proteins
e77	Budgerigar droppings
e78	Budgerigar feathers
e80	Goat epithelium
e81	Sheep epithelium
e82	Rabbit epithelium
e83	Swine epithelium
e84	Hamster epithelium
e85	Chicken feathers
e86	Duck feathers
e87	Rat epithelium serum and urine proteins
e88	Mouse epithelium serum and urine proteins
e89	Turkey feathers
e196	Parakeet feathers
e197	Parakeet droppings
e200	Canary bird droppings
e201	Canary bird feathers
e208	Chinchilla epithelium
e211	Rabbit urine proteins
e213	Parrot feathers
e215	Pigeon feathers
ex71	(e70, e85, e86, e89) Feather mix
ex72	(e78, e201, e196, e213, e214) Cage bird mix
<b>Microorganisms</b>	
m2	Cladosporium herbarum
m3	Aspergillus fumigatus
m5	Candida albicans
m6	Alternaria alternata
m80	Staphylococcal enterotoxin A
m81	Staphylococcal enterotoxin B
m202	Acremonium kiliense
m227	Malassezia
mx1	(m1, m2, m3, m6) Mould Mix



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**Phadia Specific IgE**

Code	Item Description
<b>ImmunoCAPS</b>	
<b>Weed Pollens</b>	
w6	Mugwort
w203	Rape
wx3	(w6, w9, w10, w12, w20) Weed Mix
<b>Tree Pollens</b>	
t2	Grey alder
t3	Common silver birch
t4	Hazel
t7	Oak
t8	Elm
t11	Maple leaf sycamore, London plane
t16	White pine
t17	Japanese cedar
t25	European ash
t201	Spruce
tx8	(t1, t3, t4, t7, t11) tree mix
tx9	(t2, t3, t4, t7, t12) Tree Mix 2
<b>Grass Pollens</b>	
g1	Sweet vernal grass
g5	Rye-grass
g6	Timothy grass
g12	Cultivated rye
gx3	(g1, g5, g6, g12, g13) Grass mix
<b>Miscellaneous</b>	
o1	Cotton, crude fibers
o70	Seminal fluid
o215	nGal-alpha-1,3-Gal (alpha-Gal) Thyroglobulin, bovine
pax4	(f4, f14, k87, i202) Millers mix
Phadiatop	Inhaled allergen mix