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**Document review History**

Change Ref & date Implemented	Details of Change
CC533-Implemented 12.02.21	Updates under HVS section based on new procedure LP-MIC-235 C trachomatis and N. Gonorrhoea missing from previous version, now included
CR2104, CR 2103	T vaginalis
CC593-Implemented 01.03.21	Addition of Molecular Enterics testing
CC620, CR2198	CSF Lactate as per CC 620. (<17 YEARS REF 1.1-2.8 mol/L, >17 Years 1.1-2.4mmol/L)

**The A-Z Test Directory-Laboratory User manual includes relevant sample information and turnaround times for tests performed on site and for tests sent to other laboratories in Ireland and abroad**

Notes:

Tests are listed in alphabetical order per laboratory. To search for a particular test, press CTRL+F and enter your search term.  
TO FIND TEXT USING MOBILE PHONE:  
Step 1: Type www.mu.h.ie into search engine  
Step 2: 'Click here' to Download  
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Step 4: Scroll down to 'Find on Page'  
Step 5: Type in the item/word you want to find in the document

Turnaround times represent the average time between sample receipt in the Laboratory and result reporting i.e. validation and availability of results on the LIS (iLAB). Turnaround times quoted in days are based on routine working week (MonFri). Information relating to routine laboratory investigations is printed on the back of the Request Form. For further information, clinicians can contact the relevant Department

Urgent samples and critical results are handled according to departmental procedures.

Tests within the scope of INAB accreditation to ISO15189 are listed on the INAB website. Internal tests not within the scope of INAB accreditation are marked with\*\*  
Refer to laboratory user manual and other manuals for laboratory specific requirements such as Blood Order of Draw (LF-GEN-37) and blood transfusion procedures and manual; <http://muhintranet:9000/BloodTrans/default.aspx>

**TEST DIRECTORY (A-Z) FOR BIOCHEMISTRY DEPARTMENT**

<b>17-Alpha-OH-Progesterone</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/17OHP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/17OHP/</a>
Ref. Range:	See report form
<b>5-HIAA 5 Hydroxy Indole Acetic Acid - Urine</b>	
Laboratory:	Biochemistry: Referred to Biochemistry Beaumont Hospital Dublin,
Specimen:	24-hour acidified urine sample, Received < 72 hours
Comment:	20ml Acid container available for, biochemistry. Avoid Caffeine, Aubergines, Avocados, Bananas, Blackcurrants, Damson Plums, Gooseberries, Melon, Mirabelle Plums, Pineapple, Redcurrants, Tomatoes & walnuts, 48 prior to collection
Ref. Range:	See report form.
Turn-around time:	3 weeks
<b>ACE - Angiotensin converting enzyme (Serum)</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample), Received < 72 hours
Ref. Range:	See Report Form.
Turn-around time:	10 days
<b>ACE - Angiotensin converting enzyme (CSF)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ECAPL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ECAPL/</a>
Ref. Range:	See report form
<b>ACTH</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTH/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTH/</a>
Ref. Range:	See report form
<b>Acyl Carnitine</b>	
Laboratory:	Biochemistry: Referred to Metabolic Laboratory, The Childrens University Hospital, Temple St, Dublin
Specimen:	Guthrie Card, Received < 24 hrs
Comment:	Ensure relevant clinical details are supplied
Ref. Range:	See report form
Turn-around time:	4 weeks
<b>Adalimumab (Humira)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAL/</a>
Ref. Range:	See report form
<b>Adenosine Deaminase</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAD/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAD/</a>
Ref. Range:	See report form
<b>ADH-Antidiuretic hormone</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADH/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADH/</a>
Ref. Range:	See report form
<b>Adrenaline/ Noradrenaline</b>	
See Catecholamines	
<b>AFP - Alpha Fetoprotein</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml in blood plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	0-8.8 ng/ml
Turn-around time:	Next routine working day
<b>Albumin (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml in blood plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	0-14 years 38-54g/L, 14-60years 35-50g/L, >60years 34-48 g/L
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Alcohol:</b>	
See Toxicology / Drug Screen – Urine	
<b>Aldolase</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADOLA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADOLA/</a>
Ref. Range:	See report form

added 05.02.21

<b>Aldosterone</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ALDO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ALDO/</a>
Ref. Range:	See report form
<b>Alkaline Phosphatase (Alk Phos)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	<b>M:</b> 40-150 U/L (Adult >19 yrs) <b>F:</b> 40-150 U/L (Adult >15yrs) <b>M:</b> 58-237 U/L (15-19yrs) <b>F:</b> 62-209 U/L (13-15yrs) <b>M:</b> 55-488 U/L (<15yrs) <b>F:</b> 60-425 U/L (<13yrs)
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Alkaline phosphatase (Alk Phos) Iso enzymes</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/IPAL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/IPAL/</a>
Ref. Range:	See report form
<b>Alpha-1-Antitrypsin</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample), Received < 72 hours
Ref. Range:	See Report Form.
Turn-around time:	2 weeks
<b>Alpha Galactosidase A (Fabry's Testing)</b>	
Contact lab for instructions for sample collection and transport to reference laboratory	
<b>ALT - Alanine Aminotransferase</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood plain tube (serum sample) or lithium heparin. Received < 24 hours
Ref. Range:	Ref. Range: 0-55 U/L
Turn-around time:	Turn-around time: <b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
Comment:	Note:Sulfasalazine or its metabolites may cause interference with this laboratory assay. As a consequence, individuals who are taking medications containing sulfasalazine may have clinically significant incorrect laboratory test results.
<b>Amino Acids (Plasma)</b>	
Laboratory:	Biochemistry: Referred to Metabolic Laboratory, The Children's University Hospital, Temple St, Dublin
Specimen:	1.2 ml lithium heparin, transported to laboratory ASAP
Comment:	Ensure relevant clinical details are supplied
Ref. Range:	See report form.
Turn-around time:	4 weeks
<b>Amino Acids (CSF)</b>	
Laboratory:	Biochemistry: Referred to Metabolic Laboratory, The Children's University Hospital, Temple St, Dublin
Specimen:	1.5 ml CSF Specimen + 1.2 ml lithium heparin. (CSF is paired with Plasma to calculate ratios.), transported to laboratory ASAP
Comment:	Ensure relevant clinical details are supplied
Ref. Range:	See report form.
Turn-around time:	3 weeks
<b>Ammonia (EDTA)</b>	
Laboratory:	Biochemistry: Referred to Biochemistry Bon Secours Hospital Cork.
Specimen:	4.0ml EDTA sample, Received and frozen < 1 hr
Comment:	Haemolysis invalidates result.
Ref. Range:	<b>Children:</b> 21 - 50umol/L, <b>Adults:</b> 18 - 72umol/L
Turn-around time:	<b>Urgent:</b> < 24 hrs <b>Routine:</b> 5 days
<b>Amphetamine</b>	
See Toxicology / Drug Screen – Urine	
<b>Amylase (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	< 1 month 5- 65 U/L, Up to 70 years 25-125 U/L, >70years 20-160 U/L
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Amylase (Urine)</b>	
Laboratory:	Biochemistry
Specimen:	Spot or 24 Hr urine sample, No preservative, Received < 72 hours
Ref. Range:	No reference range established
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Amylase (Fluid)</b>	
See Sterile Body Fluid Biochemistry	
<b>Androgen Index</b>	
See SHBG	
<b>Androstendiones</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GADIO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GADIO/</a>
Ref. Range:	See report form
<b>Anti-Acetylcholine Receptor Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/REAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/REAC/</a>
Ref. Range:	See report form
<b>Anti-Adrenal Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/SURAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/SURAC/</a>
Ref. Range:	See report form
<b>Anti-AMPA Antibodies (Includes anti-NMDAR, AMPAR1, AMPAR2, Lgl1, Caspr2, GABAB, mGluR1, mGluR5, GlycR1.</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/AMPAR/">https://www.eurofins-biomnis.com/en/services/test-guide/page/AMPAR/</a>
Ref. Range:	See report form
<b>Anti-Amphipysin Antibodies</b>	
See Anti-neuronal Antibodies	
<b>Anti-Beta 2 Glycoprotein 1 Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPI/">https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPI/</a> (IgG)

Ref. Range:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPM/">https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPM/</a> (IgM) See report form
<b>Anti-Calcium Channel Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CALAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CALAC/</a>
Ref. Range:	See report form
<b>Anti-Carbonic Anhydrase Antibodies / Anti Lactoferrin Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PANCR/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PANCR/</a>
Ref. Range:	See report form
<b>Anti-Centromere Antibodies</b>	
See Anti ENA Antibody typing	
<b>Anti-Cerebellum Antibodies</b>	
See Anti-AMPA antibodies	
<b>Anti-CV2 Antibodies</b>	
See Anti-neuronal Antibodies	
<b>Anti-dsDNA Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/</a>
Ref. Range:	See report form
Comment:	Routinely performed in presence of positive ANA
<b>Anti-ENA Antibodies (SSA, SSB, Sm, Rnp, Jo1, Scl-70)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/</a>
Ref. Range:	See report form
Turn-around time:	Urgent: < 2 hrs
Comment:	Routinely performed in presence of positive ANA
<b>Anti-Endomysial Antibodies IgA/IgG</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOA/</a> (IgA) <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOG/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOG/</a> (IgG)
Turn-around time:	See report form
<b>Anti-GABA b (γ-Aminobutyric acid-B) Receptor Antibodies</b>	
See Anti-AMPA antibodies	
<b>Anti-Ganglioside Antibodies (Sulfatides, GM1, GM2, GM3, GM4, GD1a, GD1b, GD2, GD3, GT1a, GT1b, GQ1b)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GM1/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GM1/</a> (Serum) <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GM1PL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GM1PL/</a> (CSF)
Turn-around time:	See report form
<b>Anti-GAD ( anti-glutamic acid decarboxylase ) Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GAD/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GAD/</a> (Serum) <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GADPL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GADPL/</a> (CSF)
Turn-around time:	See report form
Comment:	Haemolysis invalidates results
<b>Anti-GBM (Glomerular Basement Membrane) Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MBG/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MBG/</a>
Turn-around time:	See report form
Comment:	Haemolysis invalidates results
<b>Anti-GD Antibodies ( GD1a, GD1b, GD2, GD3)</b>	
See Anti-Ganglioside Antibodies	
<b>Anti-GM Antibodies ( GM1, GM2, GM3, GM4)</b>	
See Anti-Ganglioside Antibodies	
<b>Anti-Glycolipid Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GAD/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GAD/</a> (Serum) <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GADPL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GADPL/</a> (CSF)
Ref. Range:	See report form
<b>Anti-GQ1b Antibodies</b>	
See Anti-Ganglioside Antibodies	
<b>Anti-GT Antibodies ( GT1a, GT1b)</b>	
See Anti-Ganglioside Antibodies	
<b>Anti-Hippocampus Antibodies</b>	
See Anti-AMPA antibodies	
<b>Anti-Hu Antibodies</b>	
See Anti-neuronal Antibodies	
<b>Anti-Insulin Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/INSAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/INSAC/</a>
Ref. Range:	See report form
<b>Anti-Islet Cell Antibodies/ Anti-pancreatic Islet cell Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ILO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ILO/</a>
Ref. Range:	See report form
<b>Anti Jo-1 Antibodies</b>	
See Anti ENA Antibody typing	
<b>Anti-LKM Antibodies, endoplasmic reticulum - screening</b>	
See Anti-neuronal Antibodies	
<b>Anti-Mitochondrial Antibodies</b>	
See Anti-Neutrophil Cytoplasmic Antibodies (ANCA) screen	
<b>Anti-Myelin Associated Glycoprotein (MAG) Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MOG/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MOG/</a> (Serum) <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MOGPL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MOGPL/</a> (CSF)
Ref. Range:	See report form
<b>Anti-Myeloperoxidase (MPO) Antibodies</b>	

See Anti-Neutrophil Cytoplasmic Antibodies (ANCA) screen	
<b>Anti-MuSK Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MUSK/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MUSK/</a>
Ref. Range:	See report form
<b>Anti-Neuromyelitis Optica (NMO) Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/NMOAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/NMOAC/</a>
Ref. Range:	See report form
<b>Anti-Neuronal Antibodies (Hu, Yo, Ri, CV2, Amphiphysin, Ma2)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/YOHU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/YOHU/</a>
Ref. Range:	See report form
<b>Anti-Neutrophil Cytoplasmic Antibodies (ANCA)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ANCAX/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ANCAX/</a>
Ref. Range:	See report form
Ref. Range:	In the case of a positive screening the anti-MPO and anti-PR3 antibody assay is performed
<b>Anti-N-Methyl D Aspartate (NMDA) Receptor Antibodies (SERUM or CSF)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDA/ (Serum)">https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDA/ (Serum)</a> <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDPL/ (CSF)">https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDPL/ (CSF)</a>
Ref. Range:	See report form
<b>Anti-Nuclear Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/AANX/">https://www.eurofins-biomnis.com/en/services/test-guide/page/AANX/</a>
Ref. Range:	See report form
<b>Anti-Ovarian Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/OVAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/OVAC/</a>
Ref. Range:	See report form
<b>Anti-Pancreatic Islet Cell Antibodies</b>	
See Anti-Islet Cell Antibodies	
<b>Anti-Parietal Cell Antibodies-stomach</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CELPA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CELPA/</a>
Ref. Range:	See report form
<b>Anti-Potassium Channel Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CAPO/ (Serum)">https://www.eurofins-biomnis.com/en/services/test-guide/page/CAPO/ (Serum)</a> <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VGKPL/ (CSF)">https://www.eurofins-biomnis.com/en/services/test-guide/page/VGKPL/ (CSF)</a>
Ref. Range:	See report form
<b>Anti-Proteinase3 (PR3) Antibodies</b>	
See Anti-Neutrophil Cytoplasmic Antibodies (ANCA) screen	
<b>Anti-Ri Antibodies</b>	
See Anti-Neuronal Antibodies	
<b>Anti Scl-70 Antibodies</b>	
See Anti-ENA Antibodies	
<b>Anti Smith (SM) Antibody</b>	
See Anti-ENA Antibodies	
<b>Anti-Smooth Muscle Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MUSCX/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MUSCX/</a>
Ref. Range:	See report form
<b>Anti SSA/RO Antibody</b>	
See Anti-ENA Antibodies	
<b>Anti SSB/La Antibody</b>	
See Anti-ENA Antibodies	
<b>Anti-Sulfatides Antibodies</b>	
See Anti-Ganglioside Antibodies	
<b>Anti-Thyroglobulin Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/TYRAC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/TYRAC/</a>
Ref. Range:	See report form
<b>Anti-Thyroperoxidase Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/TPO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/TPO/</a>
<b>Anti-Transglutaminase antibody IgA (IgA tTg )</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/TGLU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/TGLU/</a>
Ref. Range:	See report form
<b>Anti TSH Receptor Antibodies</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/TRAKH/">https://www.eurofins-biomnis.com/en/services/test-guide/page/TRAKH/</a>
Ref. Range:	See report form
<b>Anti-U1 RNP Antibodies</b>	
See Anti-ENA Antibodies	
<b>Anti Voltage Gated Potassium Channel Antibodies</b>	
See potassium Channel Antibodies	
<b>Anti-Yo Antibodies</b>	
See Anti-Neuronal Antibodies	
<b>AST - Aspartate Aminotransferase</b>	
Laboratory:	Biochemistry
Specimen:	<a href="#">4.0 ml blood plain tube (serum sample), Received &lt; 48 hours</a>
Ref. Range:	5-34 U/L
Turn-around time:	Urgent: < 2 hrs Routine: Same day service
Comment:	Haemolysis invalidates result

Note:Sulfasalazine or its metabolites may cause interference with this laboratory assay. As a consequence, individuals who are taking medications containing sulfasalazine may have clinically significant incorrect laboratory test results																																									
<b>Barbiturates</b>																																									
See Toxicology / Drug Screen- Blood or Urine																																									
<b>Bence-Jones Protein</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	<a href="#">Preferably early morning urine (20 mls urine), Received &lt; 72 hours</a>																																								
Ref. Range:	Should be NEGATIVE																																								
Turn-around time:	3 weeks																																								
<b>Benzodiazepines</b>																																									
See Toxicology / Drug Screen - Blood or Urine																																									
<b>Beta - hCG (human Corionic gonadatropin)</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	<a href="#">4.0 ml blood plain tube (serum sample), Received &lt; 72 hours</a>																																								
Ref. Range:	0-5 IU/L																																								
Turn-around time:	Urgent: < 3 hrs Routine: Next routine working day																																								
<b>Beta Hydroxybutyric Acid</b>																																									
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.																																								
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CETO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CETO/</a>																																								
<b>Beta-2-Microglobulin</b>																																									
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.																																								
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/B2M/">https://www.eurofins-biomnis.com/en/services/test-guide/page/B2M/</a>																																								
Ref. Range:	See report form.																																								
<b>Bicarbonate</b>																																									
See Blood gases																																									
<b>Bilirubin- Conjugated</b>																																									
Laboratory:	Biochemistry: Referred to Biochemistry CUH.																																								
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received ASAP																																								
Comment:	Protect sample from light with tinfoil.																																								
Ref. Range:	See report form.																																								
Turn-around time:	Urgent: < 24 hrs Routine: 10 days																																								
<b>Bilirubin-Total</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 48 hours																																								
Ref. Range:	3.4-20.5 µmol/L																																								
	Urgent: < 2 hrs Routine: Same day service																																								
	Comment - Of the drugs tested in vitro, propranolol and theophylline cause artificially low total bilirubin values as the tested drug level.																																								
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<b>Blood Gases (pH, pCO2, pO2, Lactate, Calculated Bicarbonate, COHb, MetHb, O2 Saturation).</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	Heparinised Blood Gas syringe, Received < 30 mins																																								
Ref. Range:	<table border="1"> <thead> <tr> <th>Analyte</th> <th>Unit</th> <th>Arterial</th> <th>Venous</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td></td> <td>7.35-7.45</td> <td>7.32-7.43</td> </tr> <tr> <td>pCO2</td> <td>kPA</td> <td>4.6-6.4</td> <td>4.3-6.4</td> </tr> <tr> <td>pO2</td> <td>kPA</td> <td>11.0-14.4</td> <td>N/A</td> </tr> <tr> <td>Saturated O2</td> <td>%</td> <td>95.0-98.0</td> <td>N/A</td> </tr> <tr> <td>Bicarbonate</td> <td>mmol/L</td> <td>22.0-26.0</td> <td>N/A</td> </tr> <tr> <td>Carboxy Hb</td> <td>%</td> <td>0.5-1.5</td> <td>N/A</td> </tr> <tr> <td>Meth Hb</td> <td>%</td> <td>3</td> <td>0.00-1.5</td> </tr> <tr> <td>Lactate</td> <td>mmol/L</td> <td>0.5-2.0</td> <td>0.6-1.4</td> </tr> <tr> <td>AbG Glucose</td> <td>mmol/L</td> <td>3.6-5.2</td> <td>3.6-5.3</td> </tr> </tbody> </table>	Analyte	Unit	Arterial	Venous	pH		7.35-7.45	7.32-7.43	pCO2	kPA	4.6-6.4	4.3-6.4	pO2	kPA	11.0-14.4	N/A	Saturated O2	%	95.0-98.0	N/A	Bicarbonate	mmol/L	22.0-26.0	N/A	Carboxy Hb	%	0.5-1.5	N/A	Meth Hb	%	3	0.00-1.5	Lactate	mmol/L	0.5-2.0	0.6-1.4	AbG Glucose	mmol/L	3.6-5.2	3.6-5.3
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AbG Glucose	mmol/L	3.6-5.2	3.6-5.3																																						
Turn-around time:	<1 hr																																								
<b>BNP - Brain Naturetic Peptide</b>																																									
Laboratory:	Biochemistry:																																								
Specimen:	4.0 ml EDTA blood, Received and frozen < 4 hrs																																								
Ref. Range:	0- 100 pg/ml – Heart failure unlikely 100 – 500 pg/ml – Greyzone > 500 pg/ml – High probability of heart failure																																								
Turn-around time:	1 week																																								
<b>C1 Esterase Inhibitor</b>																																									
Laboratory:	Biochemistry: Referred to Eurofins Biomnis																																								
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/INHCl/">https://www.eurofins-biomnis.com/en/services/test-guide/page/INHCl/</a>																																								
Ref. Range:	See report form																																								
<b>C3 / C4 (Complement)</b>																																									
Laboratory:	Biochemistry: Referred to Biochemistry CUH																																								
Specimen:	<a href="#">4.0 ml blood plain tube (serum sample), Received &lt; 72 hours</a>																																								
Ref. Range:	See report form.																																								
Turn-around time:	2 weeks																																								
<b>CA 125</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours																																								
Ref. Range:	0- 35 U/ml																																								
Turn-around time:	1 week																																								
<b>CA 15-3</b>																																									
Laboratory:	Biochemistry: Referred to Biochemistry CUH.																																								
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours																																								
Ref. Range:	See report form.																																								
Turn-around time:	1 week																																								
<b>CA 19-9</b>																																									
Laboratory:	Biochemistry																																								
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours																																								
Ref. Range:	0- 37 U/ml																																								
Turn-around time:	Next routine working day																																								
<b>Calcitonin</b>																																									
Laboratory:	Biochemistry, Referred to Eurofins Biomnis																																								
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CALCl/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CALCl/</a>																																								

Added 03.02

Ref. Range:	See report form
<b>Calcium/Adjusted Calcium (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample) or lithium heparin. Received < 72 hours
Ref. Range:	Adult: 2.10-2.55 mmol/L 2-12 years: 2.20-2.70 mmol/L 10 days to 2 years: 2.25-2.75 mmol/L 1-10 days : 1.90-2.60 mmol/L
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service <b>Comment:</b> - Complexing anticoagulants such as those used in glucose/FBC bottles (citrate, oxalate EDTA) must be avoided.
<b>Calcium (ionised)</b>	
Laboratory:	Performed on blood gas analyser
Specimen:	Heparinised Blood Gas Syringe, Received < 30 mins
Turn-around time:	<1 hr
<b>Calcium (Urinary)</b>	
Laboratory:	Biochemistry
Specimen:	24 Hr acidified urine collection, Received < 48 hours
Ref. Range:	2.5 - 7.5 mmol/24 Hr
Turn-around time:	Same day service
<b>Calcium / Creatinine Ratio (Urinary)</b>	
Laboratory:	Biochemistry
Specimen:	Fresh spot urine. Send to Biochemistry ASAP.
Ref. Range:	<6 months - 0- 2.42 mmol Ca/mmol creatinine 6-12months 0.09-2.2 1-2 years – 0.07-1.5 2-3 years – 0.06-1.4 3-5 years – 0.05-1.1 5 – 7 years - 0.04-0.8 >7 years – 0.04-0.7
Turn-around time:	Same day service
<b>Calprotectin –Faecal</b>	
Laboratory:	Biochemistry
Specimen:	<a href="#">20g minimum Stool sample, send to lab immediately, sample may be stored @ 4°C for one day before receipt</a>
Ref. Range:	< 100 ug/g: Normal 100-300 ug/g: Indeterminate, Repeat in 4-6 weeks >300 ug/g: Suggestive of active organic disease
Turn-around time:	1 week
Comment:	Sample should not be frozen
<b>Cannabis</b>	
See Toxicology / Drug Screen – Urine	
<b>Carbamazepine</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH
Specimen:	<a href="#">4.0 ml blood in plain tube (serum sample) or lithium heparin, Received &lt;72 hours</a>
Ref. Range:	See report form.
Turn-around time:	Urgent: On request Routine: 1 week
Comment:	Take trough sample immediately before next dose
<b>Carboxyhaemoglobin</b>	
See blood gases	
<b>Carnitine, Free &amp; Total</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CARTL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CARTL/</a>
Ref. Range:	See report form
<b>Catecholamines - Plasma</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CATE/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CATE/</a>
Ref. Range:	See report form
<b>Catecholamines –Urine</b>	
Laboratory:	Biochemistry: Referred to Biochemistry Beaumont Hospital Dublin
Specimen:	Adults: 24-hour acidified urine sample. Acidified containers available in Biochemistry, Received < 72 hours Children (0-15years): 20 ml Random urine sent to Biochemistry to be acidified ASAP (0.5mls of 50% HCL)
Comment:	<b>Avoid Caffeine containing drinks, 48 hours prior to collection.</b>
Ref. Range:	See Report Form.
Turn-around time:	3 weeks
<b>CEA - Carcinoembryonic Antigen</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	0- 5 ng/mL
Turn-around time:	Next routine working day
<b>Cerebrospinal Fluid (CSF)- Biochemistry Profile (Glucose and Protein)</b>	
Laboratory:	Biochemistry
Specimen:	1.5 ml CSF specimen, send to lab immediately
Ref. Range:	<b>Glucose:</b> <b>Child:</b> 3.33 – 4.44 mmol/L <b>Adult:</b> 2.22 – 3.89 mmol/L <b>And/OR</b> 2/3 plasma glucose value <b>Protein:</b> 0.15-0.45 g/L
Turn-around time:	<b>Urgent:</b> < 3 hrs <b>Routine:</b> Same day service
<b>Cerebrospinal Fluid (CSF) –Lactate</b>	
Laboratory:	Biochemistry.
Specimen:	1.5 ml CSF specimen in paediatric glucose bottle, Received < 24 hours
Ref. Range:	<17 years 1.1-2.8 mmol/L >17 years 1.1-2.4 mmol/L
Turn-around time:	<1 hr
<b>Ceruloplasmin</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CER/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CER/</a>
Ref. Range:	See report form
<b>Chloride (Blood)</b>	
Laboratory:	Biochemistry.
Specimen:	<a href="#">4.0 ml blood in plain tube (serum sample) or lithium heparin, Received &lt; 24 hours</a>
Ref. Range:	< 1 month: 98-113mmol/L

Added 05.02.21

Added 10.04.21

Turn-around time:	> 1 month: 98-107 mmol/L Urgent: < 2 hrs    Routine: Same day service
<b>Chloride (Urine)</b>	
Laboratory:	Biochemistry.
Specimen:	Random or 24 hr Urine specimen without preservatives Received < 72 hours
Ref. Range:	Adult – 110 to 250 mmol/24hr
Turn-around time:	Urgent: < 2 hrs    Routine: Same day service
<b>Cholesterol</b>	
Laboratory:	Biochemistry.
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours
Ref. Range:	0-5.0mmol/L.    Reference Range applies to fasting level.
Turn-around time:	Same day service
Comment:	Patients who are scheduled for a lipid profile test should fast (except for water) for 12-14 hours before the blood sample is drawn. If the patient's cholesterol is to be fractionated, he or she should also avoid alcohol for 24 hours before the test. Patients should also stop taking medications that may affect the accuracy of the test results. These include: corticosteroids, estrogen or androgens, oral contraceptives, some diuretics, haloperidol, some antibiotics, and niacin.
<b>Cholinesterase – Pseudo</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CHOLI/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CHOLI/</a>
Ref. Range:	See report form
<b>Chromogranin A</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CHRA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CHRA/</a>
Ref. Range:	See report form
<b>Citrate (Urine)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CITU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CITU/</a>
Ref Range:	See report form
<b>Cocaine see Toxicology / Drug Screen</b>	
See Toxicology / Drug Screen – Urine	
<b>Celiac Screen</b>	
See Anti-Transglutaminase antibody IgA (IgA tTg)	
<b>Complement</b>	
See C3/ C4	
<b>Copper (Blood)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CU/</a>
Ref. Range:	See report form
<b>Cortisol</b>	
Laboratory:	Biochemistry
Specimen:	<a href="#">4.0 ml blood in plain tube (serum sample) or lithium heparin, Received &lt; 72 hours</a>
Ref. Range:	8 am: 171-800 nmol/L. In the evaluation of adrenal failure: >550nmol/L: Highly unlikely, 0-138nmol/L virtually diagnostic Afternoon: Approximately half the 08H00 values
Turn-around time:	Next routine working day
Comment:	State collection time of specimen on bottle and form Increased levels of cortisol are associated with pregnancy. Physical and emotional stress can elevate cortisol levels. Drugs that may cause increased levels of cortisol include: oestrogen, oral contraceptives, amphetamine, cortisone and spironolactone. Drugs that may cause decreased levels include: androgens, aminoglutethimide, betamethasone and other steroid medications, danazol, lithium, levodopa, metrapone, and phenytoin
<b>C Peptide</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CPEP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CPEP/</a>
Ref. Range:	See report form
<b>Creatine Kinase (CK)</b>	
Laboratory:	Biochemistry
Specimen:	<a href="#">4.0 ml blood in plain tube (serum sample) or lithium heparin, Received &lt;72 hours</a>
Ref. Range:	Male: 30-200 U/L    Female: 29-168 U/L
Turn-around time:	Urgent: < 2 hrs    Routine: Same day service
Comment:	This test is not specific for cardiac damage, Troponin I is the test of choice for cardiac damage.
<b>Creatinine (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 48 hours
Ref. Range:	<b>Adult Male:</b> 64-111 µmol/L. <b>Adult Female:</b> 50-98 µmol/L <b>Check with laboratory for paediatric reference range</b>
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Creatinine (Urine)</b>	
Laboratory:	Biochemistry
Specimen:	24 hour sample. No preservative, Received < 48 hours
Ref. Range:	<b>Male:</b> 8.4-22.0 mmol/24 hr, <b>Female:</b> 6.3-14.6 mmol/24 hr.
Turn-around time:	Same day service
<b>Creatinine Clearance</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample) or lithium heparin and a 24-hour urine sample with no preservative. Received < 48 hours
Ref. Range:	<b>Male:</b> 66-163 mls/min. <b>Female:</b> 66-165 mls/min
Turn-around time:	Same day service
<b>CRP - C- Reactive Protein</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	0- 5 mg/L. (Significant bacterial infection > 50mg/L)
Turn-around time:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service
<b>Cryoglobulin</b>	
Laboratory:	Biochemistry
Specimen:	Blood must be collected into a gel-free, plain tube (serum sample) at 37 °C and sent to the lab in flask containing water heated to 37 °C immediately. (Flask will be provided by lab)
Comment:	Pre-arrange with Laboratory - Ext. 5733
Ref. Range:	Cryoglobulin should be NEGATIVE
Turn-around time:	6 days

<b>DHEA - Dehydroepiandrosterone</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/DHA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/DHA/</a>
Ref. Range:	See report form
<b>DHEAS - Dehydroepiandrosterone Sulphate</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/SDHA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/SDHA/</a>
Ref. Range:	See report form
<b>Dopamine</b>	
See Catecholamine	
<b>Digoxin</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours
Ref. Range:	Therapeutic Range 0.8 – 1.5 nmol/L.
Turn-around time:	Urgent: < 3 hrs      Routine: Same day service
Comment:	Sample at least 6 hours post dose
<b>Electrophoresis (Serum)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours
Ref. Range:	Should be 'Normal pattern. No paraprprotein seen'
Turn-around time:	3 weeks
<b>Electrophoresis (Urine)</b>	
See Bence Jones Protein	
<b>Elastase - Faecal</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours
Ref. Range:	See report form
<b>Epinephrine/ Nor epinephrine</b>	
See catecholamines	
<b>Ethosuximide</b>	
Laboratory:	Biochemistry Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ETHO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ETHO/</a>
Ref. Range:	See report form
<b>Faecal Occult Blood (FOB)</b>	
Laboratory:	Biochemistry
Specimen:	3 separate stool samples, Received < 72 hours
Ref. Range:	Should be 'Negative'
Turn-around time:	1 week
<b>Fatty Acids - Free- Non Esterified</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GRAS/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GRAS/</a>
Ref. Range:	See report form
<b>Fatty Acids - Long Chain -C16 - C22</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GRACX/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GRACX/</a>
Ref. Rang	See report form
<b>Fatty Acids - Very Long Chain - C22 - C26</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GRALE/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GRALE/</a>
Ref. Range:	See report form
<b>Ferritin</b>	
Laboratory:	Biochemistry.
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	<b>Male:</b> 21.8-275 ng/ml. <b>Female:</b> 4.6-204 ng/ml.
Turn-around time:	Next routine working day
<b>Folate (Folic Acid)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <48 hours
Ref Range:	3.5-20 ng/mL
Turn around time:	Next routine working day
Comment:	Haemolysis invalidates results. Samples from patients on methotrexate or leucovorin are contraindicated because of the cross reactivity of folate binding protein with these compounds.
<b>Free Light Chains (Serum)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/LAMBL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/LAMBL/</a>
Ref. Range:	See report form
<b>Free Light Chains (Urine)</b>	
See Bence Jones Protein	
<b>FSH-Follicle - Stimulating Hormone</b>	
Laboratory:	Biochemistry, Referred to Biochemistry CUH
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report
Turn-around time:	1 week
<b>Gallstones</b>	
See Stone	
<b>Gamma-glutamyl-transferase (γ-GT)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	<b>Male:</b> 12-64 U/L. <b>Female:</b> 9-36 U/L.
Turn-around time:	<b>Urgent:</b> < 3 hrs <b>Routine:</b> Same day service
<b>Gastrin</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GAST/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GAST/</a>
Ref. Range:	See report form
<b>GH - Growth hormone (Adult)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/GH/">https://www.eurofins-biomnis.com/en/services/test-guide/page/GH/</a>





Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/KEP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/KEP/</a>
Ref. Range:	See report form
<b>Lactate</b>	
Laboratory:	Available on blood gas analyser
Specimen:	Heparinised blood gas syringe, Received < 30 mins
Ref. Range:	<b>Arterial:</b> 0.4-1.3 mmol/L <b>Venous:</b> 0.5-1.7 mmol/L
Turn-around time:	< 1 hr
<b>Lactate/Pyruvate Ratio</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CETO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CETO/</a>
Comment:	Special Bottles available in Biochemistry with perchloric acid added, Received and frozen < 30 mins Fill bottle to marked line. Do not overfill. Invert to mix several times.
Ref. Range:	See report form
<b>Lamotrigene</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/LAMO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/LAMO/</a>
Ref. Range:	See report form
<b>LDH - Lactate dehydrogenase</b>	
Laboratory:	Biochemistry 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 6 hours
Specimen:	Haemolysis invalidates result.
Ref. Range:	125-243 U/L
Turn-around time:	Urgent: < 2 hrs Routine: Same day service
Comment:	Note:Sulfasalazine or its metabolites may cause interference with this laboratory assay. As a consequence, individuals who are taking medications containing sulfasalazine may have clinically significant incorrect laboratory test results.
<b>LDL Low Density Lipoprotein</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Comment:	Calculation. Unable to calculate if Triglyceride > 4.5 mmol/L
Ref. Range:	0- 3.0 mmol/L. Reference Range applies to fasting level.
Turn-around time:	Same day service
<b>Lead</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PBST/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PBST/</a>
Ref. Range:	See report form
<b>LH-Luteinising hormone</b>	
Laboratory:	Biochemistry, referred to Biochemistry CUH
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report
Turn-around time:	1 week
<b>Lipoprotein (a)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Comment:	Haemolysis invalidates results
Ref. Range:	See report form.
Turn-around time:	2 weeks
<b>Lithium</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours
Ref. Range:	0.4-1.0 mmol/L Therapeutic Range
Turn-around time:	Urgent: On request Routine: 4 days
Comment:	Sample 12 hours post evening dose (trough sample)
<b>Lysosomal Enzyme screen (Hexosaminidase A &amp; B).</b>	
Laboratory:	Biochemistry: Referred to Great Ormond St Hospital London via Eurofins Biomnis Transport Dept
Specimen:	Lithium Heparin (10 ml whole blood). Received ASAP
Comment:	Phone Biochemistry ext 5733 to arrange for transport before specimen is taken. Take specimen Monday to Wednesday am only. Specimen must arrive in GOSH, London within 24 hrs of specimen being taken.
Ref. Range:	See report form.
Turn-around time:	7-8 weeks
<b>Magnesium (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 48 hours
Comment:	Haemolysis invalidates result
Ref. Range:	< 6 years 0.70 - 0.95mmol/L 6-12 yrs 0.70 - 0.86 mmol/L 12-20 yrs 0.70 - 0.91 mmol/L Adult 0.66 - 1.07 mmol/L
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service <b>Comment -</b> Complexing anticoagulants such as those used in glucose/FBC bottles (citrate, oxalate EDTA) must be avoided.
<b>Manganese</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MN/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MN/</a>
Ref. Range:	See report form
<b>Mercury</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis.
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/HGST/">https://www.eurofins-biomnis.com/en/services/test-guide/page/HGST/</a>
Ref Range:	See report form.
<b>Methodone</b>	
See Toxicology / Drug Screen - Urine	
<b>Methatrexate</b>	
Laboratory:	Referred to Biochemistry CUH
Specimen:	4.0 ml blood in plain tube (serum sample no gel) light protected, separated ASAP
Ref. Range:	See Report Form
Turn-around time:	Same day service
<b>Metanephrines (Urine)</b>	
Laboratory:	Biochemistry: Referred to Biochemistry, Beaumont Hospital Dublin
Specimen:	24-hour acidified urine sample, Acidified containers available in Biochemistry, Received < 72 hours
Comment:	Avoid bananas chocolate and citrus fruit and reduce tea and coffee intake for 48 hrs prior to sampling

Ref. Range:	See report form.
Turn-around time:	3 weeks
<b>Methaemoglobin</b>	
See Blood gasses	
<b>Methylmalonic Acid</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MALON/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MALON/</a>
Ref. Range:	See report form
<b>Microalbumin Creatinine Ratio</b>	
Laboratory:	Biochemistry:
Specimen:	Spot Urine sample, Received < 48hours
Ref. Range:	<b>Female</b> Normal Microalbumin:Creatinine Ratio:0-3.5 mg/mmol. <b>Male</b> Normal Microalbumin:Creatinine Ratio:0-2.5 mg/mmol.
Turn-around time:	24 hrs
<b>Mucopolysaccharides</b>	
See Organic Acids	
<b>Oestradiol</b>	
Laboratory:	Biochemistry: Referred to CUH
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours
Ref. Range:	See report form
Turn-around time:	10 days
<b>Oligoclonal bands and CSF IgG index</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/EPLCR/">https://www.eurofins-biomnis.com/en/services/test-guide/page/EPLCR/</a>
Ref. Range:	See report form
<b>Opiates</b>	
See Toxicology / Drug Screen - Urine	
<b>Organic Acids - Urine</b>	
Laboratory:	Biochemistry: Referred to The Children's Hospital, Temple Street, Dublin
Specimen:	Spot Urine, Received and frozen < 30 mins
Comment:	Ensure relevant clinical details are supplied
Ref. Range:	See report form
Turn-around time:	4 weeks
<b>Osmolality (Serum )</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin,
Ref. Range:	275-295 mOsm/kg
Turn-around time:	<b>Urgent:</b> < 24 hrs <b>Routine:</b> 3 days
<b>Osmolality (Urine)</b>	
Laboratory:	Biochemistry
Specimen:	Spot urine sample
Ref. Range:	300-900 mOsm/kg (dependant on patients state of hydration)
Turn-around time:	<b>Urgent:</b> < 24hrs <b>Routine:</b> 3 days
<b>Oxalate - Urine</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/OXAU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/OXAU/</a>
Ref. Range:	See report form
<b>Pancreatic Polypeptide</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PPA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PPA/</a>
Ref. Range:	See report form
<b>Paracetamol</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood (lithium heparin /serum). Received < 72 hours
Comment:	Sample 4-12 Hours post ingestion.
Ref. Range:	Refer to nomogram relating concentration to ingestion time.
Turn-around time:	<b>Urgent:</b> <3 hrs <b>Routine:</b> Same day service
<b>Pericardial Fluid / Peritoneal Fluid / Pleural Fluid</b>	
See Sterile Body Fluid - Biochemistry.	
<b>Phenobarbitone / Phenobarbital</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report form.
Turn-around time:	<b>Urgent:</b> 24 hrs <b>Routine:</b> 1 week
<b>Phenytoin</b>	
Laboratory:	Biochemistry, Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Comment:	Sample immediately before the next dose.
Ref. Range:	See Report form
Turn-around time:	<b>Urgent:</b> On request <b>Routine:</b> 4 days
<b>Phosphate (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 24 hours
Comment:	Haemolysis invalidates results.
Ref Range:	<b>Adult Range:</b> 0.74-1.52 mmol/L (For Paediatric Reference Ranges please contact biochemistry lab.)
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<b>Phosphate (Urine)</b>	
Laboratory:	Biochemistry
Specimen:	24-hour acidified urine sample. Acidified containers available in Biochemistry, Received < 72 hours
Ref. Range:	12.9 - 42.0 mmol/24 Hr
Turn-around time:	Same day service
<b>Phytanic Acid</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/APHYX/">https://www.eurofins-biomnis.com/en/services/test-guide/page/APHYX/</a>
Ref. Range:	See report form.
<b>Porphobilinogen</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PORFU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PORFU/</a>

Ref. range:	See report form.
<b>Porphyryns (Erythrocyte Porphyryns)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/POE/">https://www.eurofins-biomnis.com/en/services/test-guide/page/POE/</a>
Ref. Range:	See report form.
<b>Porphyryns (Urine)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/POU/">https://www.eurofins-biomnis.com/en/services/test-guide/page/POU/</a>
Ref. Range:	See report form.
<b>Potassium (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 12hr.
Comment:	Haemolysis invalidates result.
Ref. Range:	SERUM: 3.5 - 5.1 mmol/L PLASMA: 3.5-4.9 mmol/L
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<b>Potassium (Urine)</b>	
Laboratory:	Biochemistry
Specimen:	Spot or 24 Hr urine collection, Received < 72 hours
Ref. Range:	25 - 125 mmol/24 Hr.
Comment:	No RR for spot urinary K <sup>+</sup> . Urinary K <sup>+</sup> done in conjunction with urinary Na <sup>+</sup> , Urinary Na <sup>+</sup> , normally exceeds Urinary K <sup>+</sup> , except with conditions which elevate aldosterone levels.
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<b>Progesterone</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report form.
Turn-around time:	2 weeks
<b>Proinsulin</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PRINS/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PRINS/</a>
Ref. Range:	See report form.
<b>Prolactin</b>	
Laboratory:	Biochemistry, Referred to Biochemistry, CUH
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	See Report Form
Turn-around time:	1 Week
<b>Propoxyphene</b>	
See Toxicology / Drug Screen	
<b>PSA Total</b>	
Laboratory:	Biochemistry.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	< <b>49yrs:</b> 0-2.1 µg/L < <b>59yrs:</b> 0-3.1 µg/L < <b>69yrs:</b> 0-4.1µg/L > <b>69yrs:</b> 0-4.9µg/L
Turn-around time:	Next routine working day <b>Comment:</b> - Do not take sample within 1 week of digital rectal examination, or 6 weeks after prostate biopsy. Do not sample if the patient has an active urinary tract infection
<b>PTH - Parathyroidhormone</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml EDTA plasma, Received and frozen < 30 mins
Ref. Range:	15-68pg/ml
Turn-around time:	1 week
<b>PTH - RP - Parathyroidhormone related protein</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/PTHRP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/PTHRP/</a>
Ref. Range:	See report form.
<b>Rast</b>	
See IgE	
<b>Renal Stone</b>	
See Stone (description and conclusion)	
<b>Renin</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/REN/">https://www.eurofins-biomnis.com/en/services/test-guide/page/REN/</a>
Ref. Range:	See report form.
<b>Salicylate</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	Therapeutic Range : 1.09-2.17 mmol/L, Toxic >2.17 mmol/L, Lethal >5.07 mmol/L
Turn-around time:	<b>Urgent:</b> <3 hrs <b>Routine:</b> Same day service
<b>Selenium</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/SE/">https://www.eurofins-biomnis.com/en/services/test-guide/page/SE/</a>
Ref. Range:	See report form
<b>Serotonin</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/SEROT/">https://www.eurofins-biomnis.com/en/services/test-guide/page/SEROT/</a>
Ref. Range:	See report form.
<b>SHBG Sex Hormone Binding Globulins (Androgen Index)</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Comment:	SHBG is analysed (females only) in conjunction with testosterone, Androgen index (AI) is then calculated.
Ref. Range:	See report form.
Turn-around time:	2 weeks
<b>Sodium (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 72 hours

Comment:	Haemolysis invalidates the result.																		
Ref. Range:	136-145 mmol/L																		
Turn-around time:	Urgent: <2 hrs Routine: Same day service																		
<b>Sodium (Urine)</b>																			
Laboratory:	Biochemistry																		
Specimen:	Spot or 24 Hr urine collection. Received < 72 hours																		
Ref. Range:	40-220 mmol/24 Hr (reflects daily intake).																		
Comment:	No RR for spot urinary Na <sup>+</sup> . Urinary Na <sup>+</sup> done in conjunction with urinary K <sup>+</sup> , Urinary Na <sup>+</sup> , normally exceeds Urinary K <sup>+</sup> , except with conditions which elevate aldosterone levels																		
Turn-around time:	Urgent: <2 hrs Routine: Same day service																		
<b>Somatostatin C</b>																			
See IGF-1																			
<b>Somatostatin</b>																			
Laboratory:	Biochemistry: Referred to Eurofins Biomnis																		
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/SOMAT/">https://www.eurofins-biomnis.com/en/services/test-guide/page/SOMAT/</a>																		
Ref. Range:	See report form																		
<b>Sterile Body Fluid - Biochemistry.</b>																			
Laboratory:	Biochemistry																		
Specimens:	Specialist collection according to local protocols. Pleural fluids, Ascitic fluids, Received < 48 hrs																		
Comment:	Profiles available: <b>Pericardial</b> : Total protein, LDH, Glucose <b>Peritoneal/Ascitic</b> : Total protein, Albumin, Glucose <b>Pleural</b> : Total protein, Albumin, LDH, Glucose <b>Synovial</b> : Total protein, Albumin, LDH, Glucose																		
Ref. Range:	<table border="0"> <thead> <tr> <th></th> <th>Trans</th> <th>Exudate</th> </tr> </thead> <tbody> <tr> <td><b>Fluid Glucose.</b></td> <td>as plasma glucose.</td> <td>0-3.3 mmol/L</td> </tr> <tr> <td><b>Fluid LDH.</b></td> <td>0-0.6 Plasma/Fluid.</td> <td>0-0.6 Plasma/Fluid.</td> </tr> <tr> <td><b>Fluid Total Protein.</b></td> <td>Trans 0-30 g/L.</td> <td>0-30 g/L</td> </tr> <tr> <td><b>Fluid Albumin</b></td> <td colspan="2">No reference range established</td> </tr> <tr> <td><b>Fluid Amylase</b></td> <td colspan="2">No reference range established</td> </tr> </tbody> </table>		Trans	Exudate	<b>Fluid Glucose.</b>	as plasma glucose.	0-3.3 mmol/L	<b>Fluid LDH.</b>	0-0.6 Plasma/Fluid.	0-0.6 Plasma/Fluid.	<b>Fluid Total Protein.</b>	Trans 0-30 g/L.	0-30 g/L	<b>Fluid Albumin</b>	No reference range established		<b>Fluid Amylase</b>	No reference range established	
	Trans	Exudate																	
<b>Fluid Glucose.</b>	as plasma glucose.	0-3.3 mmol/L																	
<b>Fluid LDH.</b>	0-0.6 Plasma/Fluid.	0-0.6 Plasma/Fluid.																	
<b>Fluid Total Protein.</b>	Trans 0-30 g/L.	0-30 g/L																	
<b>Fluid Albumin</b>	No reference range established																		
<b>Fluid Amylase</b>	No reference range established																		
Turn-around time:	Same day service																		
<b>Sterile Body Fluid (pH)-Biochemistry</b>																			
Laboratory:	Biochemistry																		
Specimens:	Fluid collected in Heparinised Blood Gas Syringe. Received < 30 mins																		
Ref. Range:	No Reference Range established																		
Turn-around time:	< 1 hr																		
<b>Stones (Description and Conclusion)</b>																			
Laboratory:	Biochemistry: Referred to Eurofins Biomnis																		
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CAL/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CAL/</a>																		
Ref. Range:	Turn-around time:																		
<b>Sweat Test</b>																			
Laboratory:	Biochemistry CUH																		
Specimen:	Sweat, Received < 4 hours																		
Ref. Range:	See report form																		
Turn-around time:	Next routine working day																		
<b>T3 - Triiodothyronine - Total</b>																			
Laboratory:	Biochemistry: Referred to Eurofins Biomnis																		
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/T3TOT/">https://www.eurofins-biomnis.com/en/services/test-guide/page/T3TOT/</a>																		
Comment:	Only done on patients who exhibit hypothyroidism ( low TSH) with a normal free T4																		
Ref. Range:	See report form.																		
<b>T4 Thyroxine (Free)</b>																			
Laboratory:	Biochemistry.																		
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received< 72 hour.																		
Comment:	Will only be done on patients with TSH 0-0.40 mIU/L Note:Sulfasalazine or its metabolites may cause interference with this laboratory assay. As a consequence, individuals who are taking medications containing sulfasalazine may have clinically significant incorrect laboratory test results.																		
Ref. Range:	9.0 - 19.0 pmol/L																		
<b>Testosterone</b>																			
Laboratory:	Biochemistry: Referred to Biochemistry CUH.																		
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours																		
Ref. Range:	See report form.																		
Turn-around time:	2 weeks																		
<b>Theophylline</b>																			
Laboratory:	Biochemistry, CUH																		
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin.Received < 72 hours																		
Comment:	Sample>2 hrs after dose or before next dose.																		
Ref. Range:	See Report Form																		
Turn-around time:	<b>Urgent:</b> On request <b>Routine:</b> 4 days																		
<b>Thyroglobulin</b>																			
Laboratory:	Biochemistry: Referred to Eurofins Biomnis																		
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/THYRO/">https://www.eurofins-biomnis.com/en/services/test-guide/page/THYRO/</a>																		
Ref. Range:	See report form																		
<b>Thyroid Stimulating Hormone (TSH)</b>																			
Laboratory:	Biochemistry																		
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours																		
Ref. Range:	0.35-4.9 mIU/L.																		
Turn-around time:	Next routine working day																		
<b>Total Protein</b>																			
Laboratory:	Biochemistry																		
Specimen:	4.0ml blood in plain tube(serum sample) or lithium heparin, Received < 72 hours																		
Ref. Range:	64-83 g/L																		
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service <b>Comment</b> - The total protein concentration is 4 to 8g/L lower when the sample is collected from a patient situated in the recumbent position rather than upright. Of the drugs tested in vitro, dextran causes artificially high total protein values at the tested drug level.																		
<b>Toxicology / Drug Screen: Blood</b>																			
Laboratory:	Biochemistry: Referred to Toxicology Laboratory, Beaumont Hospital Dublin																		
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours																		

Comment:	Tested for Benzodiazepines, Barbiturates, Paracetamol, Salicylate Tricyclics,												
Ref. Range:	See report form												
Turn-around time:	10 days												
<b>Toxicology / Drug Screen; Urine.</b>													
Laboratory:	Biochemistry: Referred to Toxicology Laboratory, Beaumont Hospital Dublin												
Specimen:	Spot urine, Received < 72 hours												
Comment:	Tested for Benzodiazepines, Barbiturates, Opiates, Cocaine, Propoxphene, Cannabis, Amphetamine, Methadone, Alcohol												
Ref. Range:	See report form												
Turn-around time:	10 days												
<b>TPMT - Thiopurine MethylTransferase - Activity</b>													
Laboratory:	Biochemistry: Referred to Eurofins Biomnis												
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTPM/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTPM/</a>												
Ref. Range:	See report form												
<b>Tricyclics</b>													
See Toxicology / Drug screen - Blood													
<b>Transferrin</b>													
Laboratory:	Biochemistry.												
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours												
Ref. Range:	<table border="0"> <tr> <td></td> <td style="text-align: center;"><b>Male</b></td> <td style="text-align: center;"><b>Female</b></td> </tr> <tr> <td>&gt;60yrs</td> <td>1.63-3.44 g/L</td> <td>1.73-3.60 g/L</td> </tr> <tr> <td>14-60yrs</td> <td>1.74-3.64 g/L</td> <td>1.80-3.82 g/L</td> </tr> <tr> <td>&lt;14yrs</td> <td>1.86-3.88 g/L</td> <td>1.80-3.91 g/L</td> </tr> </table>		<b>Male</b>	<b>Female</b>	>60yrs	1.63-3.44 g/L	1.73-3.60 g/L	14-60yrs	1.74-3.64 g/L	1.80-3.82 g/L	<14yrs	1.86-3.88 g/L	1.80-3.91 g/L
	<b>Male</b>	<b>Female</b>											
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14-60yrs	1.74-3.64 g/L	1.80-3.82 g/L											
<14yrs	1.86-3.88 g/L	1.80-3.91 g/L											
Turn-around time:	Same day service												
<b>Transferrin Isoforms (Carbohydrate-deficient Transferrin)</b>													
Laboratory:	Biochemistry: Referred to Eurofins Biomnis												
Specimens:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CDT/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CDT/</a>												
Ref. Range:	See report form												
<b>Transferrin Saturation %</b>													
Laboratory:	Biochemistry.												
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours												
Comment:	Calculated from the Iron and Transferrin results.												
Ref. Range:	<b>Male:</b> 15-45% <b>Female:</b> 10-40%												
Turn-around time:	Same day service												
<b>Triglycerides</b>													
Laboratory:	Biochemistry												
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 72 hours												
Ref. Range:	0-1.7 mmol/L, Reference Range applies to fasting level.												
Turn-around time:	Same day service												
	<u>Comment</u> - Patients who are scheduled for a triglycerides test should fast (except for water) for 12-14 hours before the blood sample is drawn.												
<b>Troponin I (High Sensitivity)</b>													
Laboratory:	Biochemistry												
Specimen:	4.0 ml blood in lithium heparin Received < 8 hours												
Ref. Range:	<p>Male Normal Upper Reference Limit : 0- 34 ng/L</p> <p>Female Normal Upper Reference Limit : 0- 16 ng/L</p> <p>Any increase after 3-6 hours above these levels or 50% increase on admission level may be considered significant.</p> <p>Refer to Mercy high Sensitivity Algorithm</p>												
Turn-around time:	<b>Urgent:</b> On request <b>Routine:</b> < 6 hours												
<b>Tryptase</b>													
Laboratory:	Biochemistry: Referred to Eurofins Biomnis												
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/TRYPT/">https://www.eurofins-biomnis.com/en/services/test-guide/page/TRYPT/</a>												
Comment:	Sample should be taken as soon as possible after anaphylactic shock, and then at + 2 hrs and + 8 hrs.												
Ref. Range:	See report form												
<b>Urea (Blood)</b>													
Laboratory:	Biochemistry												
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 72 hours												
Ref. Range:	<b>Male</b> < 50 yrs: 3.2-7.4 mmol/L, <b>Male</b> > 50 yrs : 3.0-9.2 mmol/L <b>Female</b> <50 yrs: 2.5-6.7 mmol/L. <b>Female</b> >50 yrs: 3.5-7.2 mmol/L												
Comment:	For paediatric references, please contact laboratory Note:Sulfasalazine or its metabolites may cause interference with this laboratory assay. As a consequence, individuals who are taking medications containing sulfasalazine may have clinically significant incorrect laboratory test results.												
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service												
<b>Urea (Urine)</b>													
Laboratory:	Biochemistry												
Specimen:	Spot or 24 Hr urine sample, Received < 72 hours												
Ref. Range:	428 – 714 mmol/24 Hr												
Turn-around time:	Same day service												
<b>Uric Acid - (Urate) Blood</b>													
Laboratory:	Biochemistry												
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 48 hours												
Ref. Range:	< <b>12 years:</b> 120- 320 umol/L. <b>Male:</b> 210-420 umol/L <b>Female:</b> 150-350 umol/L-												
Turn-around time:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service												
<b>Uric Acid - (Urate) Urine</b>													
Laboratory:	Biochemistry												
Specimen:	24 Hour plain collection, Received < 48 hour												
Ref. Range:	1500-4500 umol/24hr												
Turn-around time:	Same day service												
<b>Urinary Protein</b>													
Laboratory:	Biochemistry												
Specimen:	Spot or 24 Hr sample, Received < 72 hours												
Ref. Range:	0-0.3g/24 Hr												
Turn-around time:	Same day service												
<b>Urinary Protein/Creatinine Ratio.</b>													
Laboratory:	Biochemistry												
Specimen:	Spot urine, Received < 48 hours												

Ref. Range:	Normal: 0-0.2. Low-Moderate Proteinuria: 0.2-3.5. Nephrotic: > 3.5.
Turn-around time:	Same day service
<b>Valproate</b>	
Laboratory:	Biochemistry, Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Comment:	Trough sample immediately before next dose
Ref. Range:	See report form
Turn-around time:	<b>Urgent:</b> On request <b>Routine:</b> 4 days
<b>Very Long Chain Fatty acids</b>	
See Fatty Acids	
<b>VIP - Vasoactive intestinal Polypeptide</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VIP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VIP/</a>
Ref. Range:	See report form
<b>Vitamin A (Retinol)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VA/</a>
Comment:	<b>Protect Sample from light with tinfoil</b>
Ref. Range:	See report form
<b>Vitamin B1 (Thiamine)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VB1ST/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VB1ST/</a>
Comment:	<b>Protect Sample from light with tinfoil</b>
Ref. Range:	See report form
<b>Vitamin B6 (Pyridoxyl Phosphate)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VB6ST/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VB6ST/</a>
Comment:	<b>Protect Sample from light with tinfoil</b>
Ref. Range:	See report form
<b>Vitamin B12</b>	
Laboratory:	Biochemistry:
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	187-883 pg/ml.
Comment:	Haemolysis invalidates results
Turn-around time:	Next routine working day
<b>Vitamin C (Ascorbic Acid)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VCP/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VCP/</a>
Comment:	<b>Protect Sample from light with tinfoil</b>
Ref. Range:	See report form
<b>Vitamin D (1,25 Dihydroxy Vitamin D3 / Calcitriol)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/125D/">https://www.eurofins-biomnis.com/en/services/test-guide/page/125D/</a>
Ref. Range:	See report form
<b>Vitamin D (25Hydroxy Vitamin D3 / Hydroxycholecalciferol)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample) or lithium heparin. Received <72 hrs
Ref. Range:	<30nmol/L – Deficient 30-50 nmol/L – Increased risk of inadequacy >50nmol/L – Adequate >125 nmol/L – Increased risk of excess
Turn-around time:	Next Routine day
<b>Vitamin E (Tocopherol)</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/VE/">https://www.eurofins-biomnis.com/en/services/test-guide/page/VE/</a>
Comment:	<b>Protect Sample from light with tinfoil</b>
Ref. Range:	See report form
<b>VMA - Vanillylmandelic Acid</b>	
See metanephrines	
<b>Xanthochromia</b>	
Laboratory:	Biochemistry: Referred to Biochemistry Beaumont
Specimen:	1.5 ml CSF Specimen, Received ASAP
Comment:	Spec should sampled 12+ hours post suspected SAH to allow sufficient time for red cell breakdown and bilirubin production in CSF. <b>Protect Sample from light with tinfoil</b> Relevant clinical details and suspected incident time should be supplied
Ref.Range:	See Report Form.
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Zinc</b>	
Laboratory:	Biochemistry: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ZN/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ZN/</a>
Ref. Range:	See report form
<b>Turnaround Times</b>	
Turnaround time is defined as the time from receipt of specimen in the laboratory until the result is reported and available either on the ward computers or by phone. The Biochemistry Dept. will attempt to meet the following maximum turnaround times, subject to the availability of sufficient resources and the continued smooth functioning of the ward enquiry system. We usually turn results around much more quickly than these.	
<b>TEST DIRECTORY (A-Z) FOR BLOOD TRANSFUSION DEPARTMENT</b>	
<b>Blood Group / Antibody Screen(Group &amp; Hold) ROUTINE</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Samples to be hand delivered to Blood Bank as soon as possible from procurement. Ensure sample size is adequate to allow for Antibody Investigation and Identification if required. Haemolysed samples may not be suitable for processing.

	Note :Inform Blood Bank if patient is on any medication which may interfere with Antibody investigation (ie Daratumumab for Multiple Myeloma). Sample should be sent to Blood Bank PRIOR to start of course medication to allow for full phenotyping of patient.
Turn-around Time	Routine 2-6 hrs ♦ (Next scheduled batch)
<b>Blood Group / Antibody Screen (Group &amp; Hold) EMERGENCY</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Ensure EDTA sample bottle is in date. Contact Pathology Department in advance. Processed immediately on receipt.
Turn-around Time	ASAP -Within 2 hrs of receipt of sample ♦
<b>Blood Group and Compatibility Testing ROUTINE</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Patients with specific transfusion protocols may take longer to process as Irradiated /CMV negative products are not routine stock items and may need to be ordered from I.B.T.S .on request.
Turn-around Time	Routine 2-6 hrs ♦ (Next scheduled batch)
<b>Blood Group and Compatibility Testing EMERGENCY</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Patient with Antibody history must be documented on Request form.May be delay in issue of Blood Products depending on the complexity of the antibody Please note this is dependent on the complexity of antibodies present. Progress can be discussed by telephoning the Blood Transfusion laboratory.
Turn-around time:	1 working day
<b>Blood Group and Compatibility Testing for patients who have red cell immune antibodies EMERGENCY</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Blood Bank will inform ward of projected delays in issue of Blood Products depending on the complexity of the antibodies involved.
<b>Antibody Investigation</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Patients with complex antibodies may require to be sent to a referral lab (I.B.T.S.)
Turn-around time:	2 working days Progress can be discussed by telephoning the Blood Transfusion laboratory.
<b>Cold Agglutinins ROUTINE</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Contact laboratory if patient known to have CHAD. Sample for investigation to be taken @ 37°C and remain @ 37°C during transportation. Flask @ 37°C will be supplied by Blood Bank on request.
Turn-around time:	2 working days.
<b>Direct Antiglobulin Test ROUTINE</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Comment:	Blood Bank should be informed of any A.I.H.A. history.
Turn-around time:	Routine 2-6 hrs (Next scheduled batch)
<b>Direct Antiglobulin Test EMERGENCY</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood)
Turn-around time:	ASAP -Within 2 hrs of receipt of sample ♦ Contact Pathology Department in advance. Processed immediately on receipt.
<b>Transfusion reaction investigation</b>	
<b>Note all transfusion reactions are treated as emergency</b>	
Laboratory:	Sample referred to the Blood Bank Mercy University Hospital
Specimen:	(1) 7.5ml EDTA (Whole Blood) Post transfusion Sample. (2) 2-5ml Plain Clotted Sample The implicated unit(s) must be returned-Suitably sealed. (1) 7.5ml EDTA (Whole Blood) Post transfusion Sample. Pathology Department/ Medical Scientist on call must be phoned in advance. Contact medical consultant / medical registrar on duty / on call, for direction. Please return the following to the laboratory: • Implicated unit (if available)-(even an 'empty pack' may provide a sample from an attached segment) • Part B (white section) of the traceability label (LF-BB-0002) must not be removed from the units to be returned • The remaining un-transfused units must be also be returned to the Blood Transfusion Laboratory • Completed Request for Transfusion Reaction Investigation Form (LF-BB-4)
Comment:	
Turn-around time:	ASAP 2-6 hrs on receipt of sample for serological results ♦ Note: Where bacteriological screening of the implicated units is required, the turnaround time may be extended beyond 7 days.
<b>TEST DIRECTORY (A-Z) FOR HAEMATOLOGY DEPARTMENT</b>	
<b>Activated Partial Thromboplastin Time (APTT)</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M) (Specimens which are haemolysed under filled or overfilled cannot be analysed)
Stability:	Samples must be labelled with time of phlebotomy and delivered promptly to laboratory, within 2 hours of phlebotomy. Samples received greater than 4 hours post phlebotomy cannot be processed for APTT.
Ref. Range:	(Specimens which are haemolysed under filled or overfilled cannot be analysed)
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. A screening procedure used to evaluate abnormalities in the Intrinsic Coagulation Pathway and to monitor the effectiveness of heparin therapy also forms part of the Thrombophilia and /or Lupus screen. Test available Monday to Friday, during routine working hours, and for emergency reasons at all other times.
Ref. Range	Adult 20.5 – 28.4 seconds 0.8 – 1.11 Ratio, These normal ranges do NOT apply to patients on anticoagulants. Therapeutic Children < 3 months 25 – 45 seconds
Turn-around time:	Emergency specimens as per arrangement. Routine specimens 4 hours.
<b>Alpha Thalassaemia/ High affinity haemoglobins</b>	
Laboratory:	Referred from Haematology Dept. MUH to Oxford Molecular Diagnostics centre
Specimen:	5-10mls EDTA
Request Form	<a href="https://www.oxford-translational-molecular-diagnostics.org.uk/sites/default/files/NHRL%20Genotype%20Request%20form%20v12_0.pdf">https://www.oxford-translational-molecular-diagnostics.org.uk/sites/default/files/NHRL%20Genotype%20Request%20form%20v12_0.pdf</a>
Comment:	Oxford Molecular Diagnostic request form must be completed, accessible from hyperlink above.A copy of the FBC report must also be included. Haemoglobinopathies are caused by mutations which affect the genes that direct the synthesis of haemoglobin and may result in reduced synthesis or structural changes.
Ref.Range.	Please see copy of report.



<b>Anti-cyclic citrullinated peptide</b>	
Laboratory:	Haematology; referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CITRA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CITRA/</a>
Comment:	Anti-cyclic citrullinated antibodies are autoantibodies frequently detected in patients with rheumatoid arthritis.
Ref.Range:	See report
<b>Anti Factor Xa (Heparin Assay)</b>	
Laboratory:	Sample referred from Haematology Laboratory to Cork University Hospital
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Sample must be taken 4 hours post heparin administration. Essential to state the details of low molecular weight heparin (LMWH) on the request form
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Used to monitor the effectiveness of low molecular weight heparin therapy. Batch tested on Wednesday's. If sample is taken on Wed must be received in Haematology lab before 11 o'clock.
Turnaround	1 week.
Ref. Range:	See report
<b>Anti Thrombin</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M) (Specimens, which are haemolysed, underfilled or overfilled, cannot be analysed.)
Stability:	24 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Forms part of a Thrombophilia Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). Test available Mon to Fri during routine hours.
Turnaround:	Approximately 1 month
Ref. Range:	79-112 %
<b>Anti – Neutrophil Antibodies</b>	
Laboratory:	NHSBT Filton (Bristol) sent by DHL
Specimen:	Paediatric size EDTA sample
Form:	Histocompatibility & Immunogenetics NHS form 3E available from link below <a href="https://nhsbtbde.blob.core.windows.net/umbraco-assets-corp/20474/2021-0010-3e_a4_specimenbagformzxu1142-1.pdf">https://nhsbtbde.blob.core.windows.net/umbraco-assets-corp/20474/2021-0010-3e_a4_specimenbagformzxu1142-1.pdf</a>
Comment:	Specimen must be delivered within 24 hrs so sample must be in Haematology lab before 1pm. Do not send on Fridays.
Ref. Range:	See Report
<b>Anti – pyruvate dehydrogenase antibodies</b>	
Laboratory:	Sample referred from Haematology Dept MUH to Eurofins Biomnis.
Specimen:	Blood 4.9ml, S Monovette (serum gel sample/serum sample)
Form:	Haematology request form
Comment:	Sample must be spun and refrigerated immediately once received in Haematology
Ref. Range:	See report
<b>APOE GENOTYPING</b>	
Laboratory:	Referred from Haematology Dept. to National centre for Medical Genetics, Crumlin
Specimen:	5mls of venous blood in red, S Monovette (EDTA)
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-</a>
Comment:	Only available Monday to Wednesday to ensure sample can be delivered to referral laboratory before weekend while still viable for testing
Ref. Range:	See report form
<b>BCR/ABL ( Philadelphia Chromosome) - Referrals only through Haematology Team</b>	
Laboratory:	Referred from Haematology Dept MUH to Cancer Molecular Diagnostics St.James
Specimen:	9ml EDTA sample, request on MUH Haematology form
Comment:	Delivery to St James within 24 hours of phlebotomy essential. Samples must be received in Haematology laboratory Monday - 11am Thursday's
Ref. Range:	See report
<b>Beta-2-Glycoprotein Antibodies IgG and IGM and Anticardiolipin Antibody IgG</b>	
Laboratory:	Haematology; referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPI/">https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPI/</a> <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPM/">https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPM/</a> <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/CARD/">https://www.eurofins-biomnis.com/en/services/test-guide/page/CARD/</a>
Comment:	Request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory).
Turnaround:	1 month
Ref. Range:	See report
<b>Bone Marrow Examination / Bone Marrow Biopsies (trephines)</b>	
Laboratory:	Haematology
Specimen:	Fresh bone marrow films. Specimen should be sent to the Haematology Dept., as soon as possible as some staining procedures Bone marrow biopsies are placed in Formal saline and are sent to Histology Dept., CUH via the Haematology laboratory, MUH. With the exception of trephine samples taken in theatre which are sent directly to CUH from Theatre.
Comment:	Test available Monday to Friday during routine working hours.
<b>CALR - Referrals only through Haematology Team</b>	
Laboratory:	Haematology; Referred to Cancer Molecular Diagnostics St.James
Specimen:	Adult EDTA sample, request on MUH Haematology form
Comment:	Sample can be stored in fridge overnight.
Ref. Range:	See report
<b>Cationic Trypsinogen Gene</b>	
Laboratory:	Haematology; Referred to Eurofins Biomnis
Specimen:	10mls EDTA, Order Number required from DCEO
Form:	<a href="https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf">https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf</a>
Comment:	Sample must be received in lab Monday - Wednesday. Medical team required to arrange order number from Deputy CEO's office due to high cost of test, please ensure the order number has been approved prior to phlebotomy
Ref Range:	See report.
<b>CD4 Count</b>	
Laboratory:	Haematology; Referred to Haematology C.U.H.
Specimen:	Blood 2.7ml, red, S Monovette (EDTA). DO NOT refrigerate specimens
Comment:	Test available Mon to Fri during routine working hours
Ref.Range:	See report
Turn-around Time	2-4 days
<b>CD8 Count</b>	
Laboratory:	Haematology; Referred to Haematology C.U.H.

Specimen:	Blood 2.7ml, red, S Monovette (EDTA). DO NOT refrigerate specimens
Comment:	Test available Mon to Fri during routine working hours
Ref. Range:	See report
Turn-around Time	2-4 days.
<b>CD4/CD8 Ratio- same as for individual tests detailed above</b>	
Ref. Range	See Report
<b>CD3 / CD4/ CD8 / CD19 / CD56 Counts</b>	
Laboratory:	Haematology: Referred to Haematology C.U.H.
Specimen:	Blood 2.7ml, red, S Monovette (EDTA). DO NOT refrigerate specimens.
Comment:	Test available Mon to Fri during routine working hours.
Turnaround:	2-4 days.
Ref. Range	See Report
<b>Cerebrospinal Fluid – Haematology - See also Flow Cytometry/Immunophenotyping</b>	
Laboratory:	Haematology: referred to St James Hospital
Specimen:	1.5 ml CSF specimen, request on MUH Haematology form
Stability:	Fresh specimen required, deliver to Haematology by hand immediately- do not use pneumatic chute system
Comment:	Haematological patients only.
Turnaround:	24 hours
Ref. Range:	N/A
<b>Coagulation Factor Inhibitors - Quantitation of</b>	
Laboratory:	Haematology: Referred to Haematology C.U.H.
Specimen:	Blood 3mL x2, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Samples must be received in CUH within 4 hours of phlebotomy
Comment:	Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2
Turnaround:	24 hrs
Ref. Range:	See Report
<b>Coagulation Factor Inhibitor Screen</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL x2, green, S Monovette (sodium citrate 0.106M) Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Samples must be received in CUH within 4 hours of phlebotomy
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection
Turnaround:	24 hours,
Ref. Range:	Positive/Negative
<b>Colagen 4 Gene Mutation (COL4A1)</b>	
Laboratory:	Haematology: Referred to National Centre for Medical Genetics, Our Ladies Hospital for Sick Children, Crumlin
Specimen:	1 adult EDTA and 1 adult Lithium heparin
Form:	<a href="https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf">https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf</a>
Turnaround:	NA
Ref. Range:	See report form
<b>Cystic Fibrosis - Genetic Test</b>	
Laboratory:	Haematology: Referred to National Centre for Medical Genetics, Our Ladies Hospital for Sick Children, Crumlin
Specimen:	3-5ml EDTA sample, request form and questionnaire must both be sent with sample
Form:	<a href="https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf">https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf</a>
Questionnaire:	<a href="https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Parents-Patients-Clinicians/CF-Test-Questionnaire.pdf">https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Parents-Patients-Clinicians/CF-Test-Questionnaire.pdf</a>
Turnaround:	3 months
Ref. Range:	See report form
<b>Cytogenetics (G banding karyotype/FISH/Microarray aCGH)</b>	
Laboratory:	Haematology: Referred to National Centre for Medical Genetics, Our Ladies Hospital for Sick Children, Crumlin
Specimens:	Microarray - 3-5ml EDTA. Karyotype/FISH 2.7ml Lithium Heparin or Bone marrow/peripheral blood in RPMI if Haematology referral
Form:	<a href="https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf">https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anvlsis.pdf</a>
Comment:	High resolution of G band chromosome analysis and molecular cytogenetics involving fluorescence in situ hybridisation (FISH) for microdeletion syndromes are utilised in the study of chromosome origin, structure and function. It is advisable to contact the Haematology Laboratory before ordering these tests to enquire about special requirement and special forms that may be needed. <b>Copy of negative covid swab must be sent to Haematology Lab with all Karyotype requests</b>
Turnaround:	Vary according to test
Ref. Range:	See report
<b>D-dimers</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M)
Stability:	24 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. The presence of cross-linked D-dimer domain is diagnostic for lysis of a fibrin clot. Test available Monday to Friday during routine working hours, and for emergency reasons at all other times.
Turnaround:	Emergency specimens as per arrangement. Routine specimens 4 hours.
Ref. Range:	Cut off threshold for exclusion of PE and DVT is 0.5mg/L FEU Higher values– indicate significant levels of circulating fibrin derivatives
<b>Diamond Blackfan Syndrome</b>	
Laboratory:	Haematology : Referred to St Thomas Hospital, London
Specimens:	10ml EDTA.
Form:	Haematology request form accepted
Comment:	Must be received in UK by 5.30pm the next day. Sample cannot be stored in fridge over weekend., so no samples should be
Ref. Range:	See report
<b>DNA Hypermutational Analysis</b>	
Laboratory:	Haematology: referred to Royal Marsden NHS Trust, UK.
Specimen:	10mls EDTA
Comment:	Sample must arrive in UK the following day. Please contact Haematology Laboratory in advance. Test only available Mon – Thurs morning.
Ref. Range:	See report
<b>EMA Antigen (Hereditary Spherocytosis)</b>	
Laboratory:	Haematology: referred to Our Ladies Hospital for Sick Children, Crumlin
Specimen:	Blood, S Monovette (EDTA) minimum 3mls
Turnaround:	48 – 72 hours

Ref. Range:	Positive/Negative
<b>Erythropoietin</b>	
Laboratory:	Haematology: Referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/ERY/">https://www.eurofins-biomnis.com/en/services/test-guide/page/ERY/</a>
Turnaround:	14 days
Ref. Range:	See report
<b>Everolimus</b>	
Laboratory:	Haematology: referred to Institute of Liver Studies, London
Specimen:	2.7ml EDTA sample
Form:	Haematology form
Comment:	Must be delivered to Haematology before 11am . Must reach referral lab within 24hrs
<b>ESR</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7ml, red, S Monovette (EDTA)
Stability:	Sample stability is 4 hours post collection. Samples must be labelled with time of phlebotomy and delivered promptly... Samples received outside this time limit will not be processed
Turnaround:	4 hours
Ref. Range:	Males: 0 – 19mm/ hour Females: 0 – 17mm/hour
<b>Exon 12/ Jak2 Mutation- referrals only through Haematology team</b>	
Laboratory:	Haematology: Referred to Viapath, Guy's Hospital, London
Specimen:	5-10mls peripheral blood or bone marrow
Form:	<a href="http://www.viapath.co.uk/sites/default/files/upload/LF-G-LiquidReferral.pdf">http://www.viapath.co.uk/sites/default/files/upload/LF-G-LiquidReferral.pdf</a>
Stability:	Samples must be sent to Haematology by 11am , as they need to arrive in referral lab. within 24 hours of phlebotomy
Turnaround:	See final report
<b>Fabry's Disease</b>	
Laboratory:	Haematology: Referred to National centre for Medical Genetics, Crumlin
Specimen:	Adult EDTA FBC bottle
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf</a>
Comment:	Ideally should only be taken Mon – thurs
Turnaround:	See final report
<b>Factor 1 (see Fibrinogen)</b>	
Laboratory:	Haematology
<b>Factor 11</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3ml, green, S Monovette (sodium citrate 0.106M). Specimens which are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Determines the activity of coagulation Factor 11 (Prothrombin). Test available Monday to Friday, during routine working hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor V</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Determines the activity of coagulation Factor V. Test available Monday to Friday, during routine working hours.
Turnaround:	24 hours
Ref. Range:	See report
<b>Factor V Leiden</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7m L, red, S Monovette (EDTA)
Comment:	Request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). – with signed patient consent on reverse of request form. Genetic Testing for Thrombophilia- Patient Information leaflet LI-HAE-10 available from Haematology lab Performed on the GeneXpert System using PCR assays Rare Factor V mutations (A1696G, G1689A and A1692C) will not be detected using this assay Patients on heparin therapy and blood transfusion patients may have blood specimens that potentially interfere with the PCR results and lead to invalid or erroneous results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference.
Turnaround:	1 month
Ref. Range:	Pos (Heterozygous or Homozygous) Neg.
<b>Factor V11</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Determines the activity of coagulation Factor V11. Test available Monday to Friday, during routine working hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor V111</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Determines the activity of coagulation Factor V111. Test available Mon to Fri, during routine hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor V111 Inhibitors</b>	

Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Comment:	Demonstrates the inhibitory effect of Factor V111 antibodies. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday, during routine working hours. Quantitative assays performed by reference laboratory.
Turnaround:	2-4 days
Ref. Range:	Positive / Negative
<b>Factor V111 Related antigen (F V111 R:Ag)</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Comment:	The quantitative determination of Von Willebrand's factor antigen is required for differential diagnosis of coagulation disorders associated with the F V111 complex. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday, during routine working hours.
Turnaround:	2 - 3 weeks
Ref. Range:	See report
<b>Factor IX</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Determines the activity of coagulation Factor IX. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Mon to Fri, during routine hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor X</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Determines the activity of coagulation Factor X. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Mon to Fri, during routine hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor X1</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Determines the activity of coagulation Factor X1. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Mon to Fri, during routine hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor X11</b>	
Laboratory:	Haematology: referred to Haematology CUH
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	Determines the activity of coagulation Factor X11. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Mon to Fri, during routine hours.
Turnaround:	24 hours.
Ref. Range:	See report
<b>Factor X111</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Stability:	4 hours
Comment:	A qualitative assay to diagnose congenital deficiency. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Mon - Fri, during routine hours.
Turnaround:	48 hours.
Ref. Range:	Positive / Negative.
<b>Fanconis Anaemia</b>	
Laboratory:	Haematology: referred -to Bristol Genetics laboratory, UK.
Specimen:	1 X adult sized EDTA and 1 X adult sized Lithium Heparin
Form:	<a href="https://www.nbt.nhs.uk/sites/default/files/document/BGL%20request%20form.pdf">https://www.nbt.nhs.uk/sites/default/files/document/BGL%20request%20form.pdf</a>
Comment:	Fanconis anaemia occurs as a result of a genetic defect in a cluster of proteins responsible for DNA repair. Test available Mon – Thurs morning only.
Ref. range:	See report
<b>Fibrinogen (factor 1)</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M). (Specimens which are haemolysed, underfilled or overfilled cannot be analysed)
Stability:	24 hours
Comment:	Determines the concentration of plasma fibrinogen. Forms part of a Thrombophilia and/ or Lupus screen. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday, during routine working hours, and for emergency reasons at all other times.
Turnaround:	Emergency specimens as per arrangement. Routine specimens 4 hours.
Ref. Range:	Adults 1.7-3.5/dl
<b>FISH (Fluorescence in situ Hybridization) for Microdeletion Syndromes</b>	
Laboratory:	Referred from Haematology Dept. MUH to National Centre Medical genetics
Specimen:	Peripheral blood 2.7 ml Lithium Heparin. Peripheral blood or bone marrow for Haematological referrals sample must be taken into RPMI - available from Haematology Lab.
Form	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf</a>
Comment:	Sample should only be done Mon – Thursday

Ref. range:	See report
<b>Flow Cytometry/Immunophenotyping- Peripheral blood/Bone marrow Aspirate/CSF</b>	
Laboratory:	Sample referred from Haematology Laboratory to Cork University Hospital
Specimen:	Fresh Blood or Bone Marrow – 2.7mL, red, S Monovette (EDTA). CSF – TRANSFIX stabilising medium added upon receipt in Haematology-ENSURE IN STOCK WITH HAEMATOLOGY LAB. PRIOR TO LUMBAR PUNCTURE
Comment:	Used as a diagnostic tool in identifying leukaemias. Test available Mon to Fri, during routine hours. If required Friday please send to laboratory by 10am. CSF to be delivered to Haematology immediately once procured
Turnaround:	Approximately 2 days (CUH)
Ref. Range:	N/A
<b>Fragile X Chromosome</b>	
Laboratory:	Haematology: referred to National Centre for Medical genetics, Crumlin
Specimen:	Blood 2.7mL, red, S Monovette (EDTA) – two EDTA samples required
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf</a>
Comment:	Sample must be received in Haematology lab. by 11am Monday to Thursday Samples have to be in Crumlin within 48 hours.
Turnaround:	Approx. one month
Ref. Range:	See report form
<b>Frataxin Gene (For Fredricks Ataxia)</b>	
Laboratory:	Referred from Haematology Dept MUH to National Centre for Medical Genetics
Specimen:	2.7mls EDTA sample
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-</a>
Comment:	Sample should only be done Mon – Thursday for next day delivery to Crumlin
Ref. Range:	See final report
<b>Full Blood Count</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Stability:	24 hours
Comment:	Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Extremely high WBC will interfere with RBC results. Some irreversibly sickled cells that occur in cases of sickle cell anaemia may not completely sphere in the system, resulting in an elevated RDW and therefore an underestimation of the MCV. Flow Cytometry Technology. Test available Monday to Friday, during routine working hours and for emergency reasons at all other times.
Turnaround:	Routine specimens 2 hours, and 24 hours if URGENT. if manual differential required. Routine differential next working day
Ref. Range:	The FBC consists of 17 individual results, values which may depend on age and sex. Reference ranges available on Haematology reports.
<b>G6PD ASSAY</b>	
Laboratory:	Haematology: Referred to Haematology CUH
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Used in the investigation of Hereditary Haemolytic Anaemias. It is recommended that assays not be performed after severe haemolytic crisis, since G6PD levels may be falsely elevated. Test available Monday to Friday, during routine working hours.
Turnaround:	7-10 days
Ref. Range:	See report. Note: Values for new-borns may range somewhat higher
<b>Gilberts Function (UGT1A1 Mutation)</b>	
Laboratory:	Haematology: referred to National Centre for Medical genetics, Crumlin
Specimen:	EDTA x 1
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-</a>
Comment:	Gilberts syndrome is a genetic liver disorder which produces an elevated level of unconjugated bilirubin in the blood stream.
Ref. Range:	See final report
<b>Haemochromatosis – Genetic Test</b>	
Laboratory:	Haematology: referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/HMC/">https://www.eurofins-biomnis.com/en/services/test-guide/page/HMC/</a> <a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/H63D/">https://www.eurofins-biomnis.com/en/services/test-guide/page/H63D/</a>
Form:	<a href="https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf">https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf</a>
Comment:	Genetic test for the C282Y and H63D mutations in the Haemochromatosis gene.
Turnaround:	2-3 weeks
Ref. Range:	Positive / Negative.
<b>Haemoglobin A2 Electrophoresis</b>	
Laboratory:	Haematology: Referred to Haematology, Cork University Hospital
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Haemoglobin A2 concentration is useful for the diagnosis of the thalassaemias and related disorders. Test available Monday to Friday, during routine working hours. PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Turnaround:	1 week.
Ref. Range:	See report
<b>Haemoglobin A1C</b>	
Laboratory:	Haematology: Referred to Haematology, Cork University Hospital
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Test available Monday to Friday, during routine working hours. Cannot be requested by A/E Consultant only available if patient has been transferred to inhouse Consultant As blood glucose rises, the increase in non – enzymatic glycation of proteins is proportional to both the level of glucose and the life span of the proteins in the circulation or tissues, therefore the measurement of HB A1c reflects the effectiveness of treatment in diabetes mellitus.
Turnaround:	3 days.
Ref. Range:	See report
<b>Haemoglobin F</b>	
Laboratory:	Haematology: Referred to Haematology, Cork University Hospital
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Determined using HPLC / Electrophoresis Technologies. Test available Monday to Friday, during routine working hours.  PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Turnaround:	1 week.
Ref. Range:	See report.
<b>Haemoglobin S Electrophoresis</b>	
Laboratory:	Haematology: Referred to Haematology, Cork University Hospital
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Determines the percentage of Hb S. Test available Monday to Friday, during routine working hours.

	PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Turnaround:	1 week
Ref. Range:	See report
<b>Haemoglobin S Sickle Screen</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Test available Monday to Friday during routine working hours, and for emergency reasons at all other times. Used in screening for sickle cell disease and sickle cell trait. False positives may be caused by the presence of abnormal plasma proteins or when patients are receiving parenteral nutrition. In the neonatal period HB F will be present in large amounts and so may mask the presence of HB S, if necessary the test should be repeated when the infant is over six months old.
	PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Stability:	24 hours
Turnaround:	Emergency specimens as per arrangement. Routine specimens 4 hours.
Ref. Range:	Positive / Negative.
<b>Haemoglobinopathies</b>	
Laboratory:	Haematology; referred to Haematology, Cork University Hospital. If further investigation required follow up testing is referred to National Haemoglobin Reference Laboratory, Oxford Haemophilia Centre, Churchill Hospital, Oxford OX3 7LJ
Specimen:	EDTA sample: minimum 2 mLs blood
Comment:	PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Turnaround:	Approx. one month
Ref. Range:	See report form
<b>Heparin Induced Thrombocytopenia (HIT) screen (only if 4T scoring yields results of 4 or higher) referrals only through Haematology Team</b>	
Laboratory:	Rapid screening test performed in Haematology Laboratory MUH. Specimens referred to St James for confirmatory test
Specimen:	3 x 6ml serum samples. Samples must be frozen within 4 hours of phlebotomy. Samples will not be processed without the 4T scoring template filled out.
Form:	<a href="http://www.stjames.ie/media/HIT%20request%20form.pdf">http://www.stjames.ie/media/HIT%20request%20form.pdf</a>
Comment:	All samples sent for confirmatory testing St James
Turn-around time:	24 hours for initial
Ref. Range:	Positive/Negative
<b>Heparin Induced Thrombocytopenia (HIT) confirmatory ELISA</b>	
Laboratory:	Specimen referred from Haematology Laboratory to St. James Hospital, Dublin
Turn-around time:	24 hours from receipt in St James
Ref. Range:	<0.4
<b>Hereditary Hemorrhagic Telangiectasia (HHT)</b>	
Laboratory:	Haematology; Referred to Molecular Genetics Laboratory, Western General Hospital Edinburgh
Specimen:	3-5mLs EDTA
Form:	<a href="https://services.nhslothian.scot/clinicalgeneticservice/GeneticLaboratoryServices/Documents/GENETIC%20TEST%20REQUEST%20V08.pdf">https://services.nhslothian.scot/clinicalgeneticservice/GeneticLaboratoryServices/Documents/GENETIC%20TEST%20REQUEST%20V08.pdf</a>
Comment:	HHT is a disorder that results in the development of multiple abnormalities in the blood vessels. It is caused by mutations in the ACVRL1, ENG, and SMDA4 genes.
Ref. Range:	See Final report
<b>Hereditary Spastic Paraplegia (HSP)</b>	
Laboratory:	Referred from Haematology dept MUH to Sheffield
Form:	Download 'SDGS Referral Form' from link below in Google Chrome <a href="https://www.sheffieldchildrens.nhs.uk/sdgs/">https://www.sheffieldchildrens.nhs.uk/sdgs/</a>
Specimen:	2-5mLs EDTA
Comment:	HSP comprises a large group of inherited neurological disorders. It is classified according to the mode of inheritance, the HSP locus when known and whether the spastic paraplegia syndrome occurs alone or is accompanied by additional neurologic or systemic abnormalities.
Ref Range:	See Final report
<b>Huntington's Disease</b>	
Laboratory:	Haematology; Referred to National Centre for Medical Genetics
Specimen:	Blood 2.7mL, red, S Monovette (EDTA) and Lithium Heparin, orange
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf</a>
Comment:	Sample should only be done Mon – Thursday for next day delivery to Crumlin
Turn-around time:	3-4 months.
Ref. Range:	See report form
<b>Infectious Mononucleosis Antibody</b>	
Laboratory:	Haematology
Specimen:	Blood 5.5mL, white, S Monovette (serum) or Blood 2.7mL, red, S Monovette (EDTA)
Stability:	24 hours
Comment:	Results should be assessed in conjunction with clinical and haematological findings. Negative results may be obtained if insufficient antibody is present in the specimen. Up to 10-20% of infected adults and 50% of children <4yrs of age may fail to produce IM heterophile antibodies.
Turn-around time:	Emergency specimens as per arrangement. Routine specimens 4 hours.
Ref. Range:	Negative or positive. Antibody levels may persist for 6 – 12 months post initial infection.
<b>INR Prothrombin Time</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, green, S Monovette (sodium citrate 0.106M)
Stability:	24 hours
Comment:	Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday, during routine working hours, and for emergency reasons at all other times. Clotting is initiated via the extrinsic and common pathway in a global screening test the prothrombin time (PT). The test is used as a screen to detect single or combined deficiencies of the extrinsic system, liver disease or vitamin K deficiency. Many commonly administered drugs may affect the results. This should be kept in mind especially when unusual or unexpected results have been obtained.
Turn-around time:	Emergency specimens as per arrangement. Routine specimens 2 hours.
Ref. Range:	Adult 0.9 - 1.1, These normal ranges do NOT apply to patients on anticoagulants. Therapeutic ranges are decided by clinicians Children < 3 months 0.9 – 1.6
<b>Intrinsic Factor Antibodies</b>	
Laboratory:	Haematology; Referred to Haematology, Cork University Hospital
Specimen:	Blood 4.9mL, S Monovette (serum)
Comment:	Test available Monday to Friday, during routine working hours. Tests for IF antibodies are carried out on patients with suspected megaloblastic anaemia and a depressed serum vitamin B <sub>12</sub> to aid in the diagnosis of pernicious anaemia.
Turn-around time:	3 – 4 weeks.
Ref. Range:	Positive / Negative
<b>JAK-2 V617F Mutation (Myeloproliferative Disorders)- Referrals only accepted through Haematology Team</b>	

Laboratory:	Haematology: Referred to Cancer Molecular Diagnostics Lab., St James Hospital
Specimen:	Peripheral Blood 3-5 ml, red, S Monovette (EDTA) or Bone Marrow in RPMI
Comment:	This assay does not distinguish between those patients with heterozygous and homozygous mutations
Turnaround :	14 to 21 days
Ref Range	See final report
<b>Karyotyping- See Cytogenetics</b>	
Comment:	Copy of negative covid swab must be sent to Haematology Lab with test request
<b>Lupus Anticoagulant Screen (also includes anticardiolipin screen)</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL x 3, green, S Monovette (sodium citrate 0.106M), Blood 4.9ml, S Monovette (serum)
Stability:	24 hours
Comment:	Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Test available Monday to Friday, during routine working hours. Lupus anticoagulants are immunoglobulins that interfere with phospholipid-dependent coagulation tests. The screen includes the following tests: PT, APTT, Fibrinogen assay, AFSL, and LA. Anti-Cardiolipin and beta 2 elycoprotein antibodies
Turnaround:	Approximately 1 month
Ref. Range:	Positive/Negative
<b>Malaria Screen</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Stability:	2 hours
Comment:	CLINICAL HISTORY AND DETAILS OF TRAVEL DESTINATION OR COUNTRY OF ORIGIN NECESSARY Test available Monday to Friday during routine working hours, and for emergency reasons at all other times. A screening test is used for the detection of infection <i>Plasmodium species</i> differentiating between <i>Plasmodium falciparum</i> and <i>Plasmodium vivax/ovale</i> and <i>malariae</i> in whole blood. Plasmodium Knowlesi and rare isomers of Plasmodium Ovale may not be detected. Blood films are examined to confirm presence of same, and to identify species of Malaria and also to estimate the percentage of infestation.
Turn-around time:	Emergency specimens as per arrangement. Routine specimens 4 hours
Ref. Range:	Positive / Negative. (Positives confirmed by referral laboratory)
<b>Malaria Species Confirmation</b>	
Laboratory:	Haematology: referred to PHLS Malaria Reference Laboratory, London School of Hygiene and Tropical Medicine, Kepple St., London WC1E 7HT
Specimen:	Sample submitted for screen will be referred onwards
Form:	<a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/815967/Malaria_Form_VS_v8.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/815967/Malaria_Form_VS_v8.pdf</a>
Ref. Range:	See report form
<b>Methylene tetra hydro folate reductase (MTHFR)</b>	
Laboratory:	Haematology: referred to Eurofins Biomnis
Specimen:	<a href="https://www.eurofins-biomnis.com/en/services/test-guide/page/MTHFR/">https://www.eurofins-biomnis.com/en/services/test-guide/page/MTHFR/</a>
Form:	<a href="https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf">https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf</a>
Turn-around time:	Approx. one month
Ref. Range:	See report form
<b>Molecular Genetics</b>	
Laboratory:	Haematology: referred to National Centre for Medical genetics, Crumlin
Specimen:	Blood 2.7mL, red, S Monovette (EDTA) X 1. Lithium Heparin, Orange. Clinical and family history must accompany every specimen. It is advisable to contact the Haematology Laboratory before ordering these tests to enquire about special requirement and special forms that may be needed.
Form:	<a href="https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf">https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-analysis.pdf</a>
Comment:	Enzyme, electrophoresis, fluorescence and autoradiograph technologies are applied to detect changes in DNA structure and sequence that underlie specific genetic disorders. As the full human genome (the full complement of DNA) is so large and complex each test can only examine a tiny portion of a patients DNA so tests are entirely specific for a particular disorder.
Turn-around time:	Times vary according to test complexity and specimen numbers received (Please contact laboratory)
Ref. Range:	See report form or contact referral laboratory
<b>Molecular Genetic analysis for suspected Mitochondrial Disorders</b>	
Laboratory:	Haematology: referred to Newcastle University
Specimen: Stability	Generally blood, urine and tissue samples are sent. However it is advised that the team contact the appropriate lab for sample details.
Comment:	Samples should be in lab before 1pm. Should only be taken Mon – Wed.
Form	<a href="https://www.newcastle-mitochondria.com/wp-content/uploads/2019/02/Newcastle-Referral-form.pdf">https://www.newcastle-mitochondria.com/wp-content/uploads/2019/02/Newcastle-Referral-form.pdf</a>
Turn-around time:	See final report
<b>Nucleated Red Blood Cells (NRBCs)</b>	
Laboratory:	Haematology
Specimen:	Blood, 2.7 mL, red, S Monovette (EDTA)
Stability	24 hours.
Comment:	Test available from Monday to Friday during routine working hours and for emergency reasons at all other times. The number of NRBCs present in blood is an index of RBC production by the bone marrow and therefore is a valuable parameter in assessing haemolytic processes. NRBCs are reported only when requested or when deemed necessary.
Turn-around time:	Routine specimens 4 hours. Emergency specimens as per arrangement.
<b>Plasma Viscosity</b>	
Laboratory:	Haematology: referred to St James Hospital, Dublin
Specimen:	EDTA
Comment:	Haematology MUH form The plasma viscosity is helpful in diagnosing two specific inflammatory diseases, temporal arteritis and polymyalgia rheumatica.
Ref Range:	See report
<b>Platelet Function Test includes PFA 100 and Platelet aggregation</b>	
Laboratory:	Haematology: Referred to Haematology, Cork University Hospital
Specimen:	PFA 100: 3 x green sodium citrate, 1X red EDTA Samples <u>should not be sent to the Lab using the Chute system</u> as this may cause platelet activation and interfere with test results  Platelet Aggregometry : 6X 3mL green, S Monovette (sodium citrate 0.106M). <b>NB. Must be booked in advance with CUH</b>  Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Specimens with platelet counts $<150 \times 10^9/l$ are unsuitable for testing. Patient must not be on aspirin for the past 10 days. Tests must be performed within 3 hours of venesection. Testing only done on Mondays – sample should be in the lab before 10am.



Comment:	CUH recommends that PFA 100 and vWF are performed first before full platelet aggregometry is considered. The process of platelet adhesion and aggregation following a vascular injury is simulated in vitro, and the platelets aggregates, which form as a result of being exposed to collagen, ADP and epinephrine, are detected by changes in light transmittance. The most common causes of platelet dysfunction are related to uremia, von Willebrand disease and exposure to agents such as acetyl salicylic acid.
Turn-around time:	24 hours,
Ref. Range:	See report
<b>PNH ( Paroxysmal Nocturnal Haemoglobinuria)</b>	
Laboratory:	Haematology: Referred to St James Hospital, Dublin
Specimen:	Blood 2.7mL, red, S Monovette (EDTA).
Comment:	Test available Monday to Thursday, sample must be received in Haematology before 1pm to ensure delivery within 48 hours of phlebotomy. PNH is the only haemolytic anaemia caused by an acquired intrinsic defect in the cell membrane. Characterised by intermittent intravascular haemolysis due to hypersensitivity of RBC'S to the haemolytic action of complement due to a deficiency of glycosphosphatidylinositol leading to the absence of protective proteins on the membrane CD55 and CD59. Diagnosis is possible by flow cytometry for CD55 and CD59 on white and red blood cells
Stability	24 hours,
Ref. Range:	Quantitative report of CD59 (Erythrocytes) CD16 (Granulocytes) FLAER (Granulocytes) CD24 (Granulocytes) with interpretative comment
<b>Protein C</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M)
Stability	24 hours
Comment:	Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday during routine working hours, and for emergency reasons at all other times. In this assay the Protein C present in the test plasma is activated by an enzyme, this in turn hydrolyses a chromogenic substrate which is then measured. Decreased levels are reported in congenital abnormalities, also in patients with hepatic disorders, those receiving oral anticoagulants and in cases of DIC. Congenital abnormalities often result in severe recurrent venous thrombosis.
Turn-around time:	Emergency specimens as per arrangement. Approximately 1 month.
Ref. Range:	70-140%
<b>Protein S</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green, S Monovette (sodium citrate 0.106M)
Stability	24 hours
Comment:	Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Lipaemia may interfere or lead to rejection of sample. If lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. Test available Monday to Friday, during routine working hours. Protein S is a vitamin K dependent protein, which serves as a co – factor for the anticoagulant activity of activated protein C in the degradation of factors V and VIII. This assay forms part of the Thrombophilia screen.
Turn-around time:	Approximately 1 month
Ref. Range:	Male 67.5-139% Female 60.1-113.6%
<b>Prothrombin DNA Mutation Studies (Prothrombin variant G20210A)</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Comment:	Forms part of a Thrombophilia screen - Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). With signed consent on reverse. Genetic testing for Thrombophilia- Patient information leaflet LI-HAE-10 available from Haematology lab. Patients on heparin therapy and blood transfusion patients may have blood specimens that potentially interfere with the PCR results and lead to invalid or erroneous results
Turn-around time:	1 month
Ref. Range:	Normal / Heterozygous /Homozygous.
<b>PTEN Analysis</b>	
Laboratory:	Haematology: referred to National centre for Medical Genetics Crumlin, and onward to Wessex for testing
Specimen:	EDTA adult size - Please attach as many clinical details as possible
Form:	<a href="https://www.salisbury.nhs.uk/media/b3nj5xkc/postnatalreferralformipassportv1-5.pdf">https://www.salisbury.nhs.uk/media/b3nj5xkc/postnatalreferralformipassportv1-5.pdf</a>
Comment:	Germline mutations in the PTEN gene are associated with a rare collection of clinical syndromes referred to as PTEN hamartoma tumour syndrome (PHTS). Affected individuals have an increased risk of cancer, including cancers of the breast , endometrium, thyroid, colon and kidney. PHTS is an autosomal dominant disorder.
Ref Range:	See report form
<b>Pyruvate Kinase</b>	
Laboratory:	Haematology: referred to Kings College Hospital, London
Specimen:	Blood 3-5mLs red, S Monovette (EDTA).
Form:	<a href="http://www.viopath.co.uk/sites/default/files/upload/Molecular%20Pathology%20Request%20Form_0.pdf">http://www.viopath.co.uk/sites/default/files/upload/Molecular%20Pathology%20Request%20Form_0.pdf</a>
Comment:	Test available Mon-WED only. Please send as early as possible in the day to allow for prompt dispatch. Nonspherocytic congenital haemolytic anaemia may be the result of a deficiency of the red cell enzyme pyruvate kinase. PK deficient RBC'S can be demonstrated by failure of conversion of NADH to NAD, which can be detected by a fluorescent screening test.
Ref. Range:	See report form.
<b>Red cell Enzymopathy</b>	
Laboratory:	Haematology: Referred to Kings College Hospital, London, UK
Specimen:	5 – 10mLs EDTA
Form:	<a href="http://www.viopath.co.uk/sites/default/files/upload/Molecular%20Pathology%20Request%20Form_0.pdf">http://www.viopath.co.uk/sites/default/files/upload/Molecular%20Pathology%20Request%20Form_0.pdf</a>
Comment:	Samples must be received in Haematology lab before 1pm Mon – Thurs. Do not take on Friday
Ref Range:	See Final report
<b>Red cell membrane electrophoresis</b>	
Laboratory:	Haematology: referred to Red cell reference Laboratory, Bristol, UK
Specimen:	Adult EDTA – Sample must be collected prior to blood transfusion A normal patient control must be included.



Comment:	Referring clinicians must contact the laboratory in Bristol to discuss the appropriateness of the proposed investigations. Sample sent without the consent of the laboratory may not be investigated. A normal patient control must be included. Test only available Mon – Thurs morning
Ref. Range:	See report form.
<b>Reticulocyte Count</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA).
Stability:	24 hours
Comment:	As with the RBC any cells that are resistant to sphering can present problems with the reticulocyte method. Certain conditions may also impere this method: Malarial parasites, Howell jolly bodies, Heinz bodies, Pappenheimer bodies, Macrothrombocytes, Megaloblastic Anaemia. Any condition that causes basophilic stippling Very high retic counts may also give problems
Turn-around time:	Routine specimens 4 hours. Emergency specimens as per arrangement. 23-93 x10 <sup>9</sup> /L
<b>Rheumatoid Factor</b>	
Laboratory:	Haematology
Specimen:	Blood 4.9ml, S Monovette (serum )
Stability:	24 hours
Comment:	Latex immunoassay. Results should be assessed in conjunction with clinical findings. Since increased levels of rheumatoid factor may accompany certain acute immune responses such as infectious mononucleosis, certain disease such as sarcoidosis, systemic lupus erythematosus and Sjogren;s syndrome and may also be found in a considerable percentage of elderly individuals, the interpretation of the clinical significance of a positive test result must be made with caution.
Turn-around time:	1 week
Ref. Range:	Less than 10 IU/ML
<b>Sirohimus</b>	
Laboratory:	Haematology; Referred to Mater Public Hospital Dublin
Specimen:	EDTA
Form:	Haematology request form
Ref Range:	See final report
<b>Spinal Cerebellar Ataxia</b>	
Laboratory:	Haematology; referred toNational Centre for Medical Genetics
Specimen:	6mils EDTA
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf</a>
Comment:	Test only available Mon – Thurs morning only.
Ref. Range:	See report form.
<b>SPINK 1 gene mutation</b>	
Laboratory:	Haematology; Liverpools Women`s hospital, Liverpool
Specimen:	5-10mils EDTA
Form:	<a href="https://www.liverpoolwomens.nhs.uk/media/1957/genetics-referral-form.pdf">https://www.liverpoolwomens.nhs.uk/media/1957/genetics-referral-form.pdf</a>
Comment:	Must be in haematology lab before 11am. If test performed as part of Hereditary Pancreatitis testing, referred to Eurofins. In this case Eurofins Genetic request form and consent required
Ref Range:	See final report
<b>T Cell Receptor Gene rearrangement for ? LGL</b>	
Laboratory:	Referred from Haematology MUH to Cancer Molecular Diagnostics Laboratory, St James.
Specimen :	EDTA sample
Form:	Haematology request Form
Comment:	T-cell receptor gene rearrangement is used to help diagnose T-Cell lymphomas and to evaluate for residual or recurrent disease after treatment.
Ref range:	See final report
<b>Thrombophilia Screen</b>	
Laboratory:	Haematology
Specimen:	Blood 3mL, green x 4, S Monovette (sodium citrate 0.106M), Blood 2.7ml, Red, S Monovette (EDTA), Blood 4.9ml, S Monovette (serum )
Stability:	Samples must be labelled with time of phlebotomy and delivered promptly to laboratory, within 2 hours of phlebotomy. Samples received outside this time limit may not be processed
Comment:	Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). With signed consent on reverse. Genetic testing for Thrombophilia-Patient information leaflet LI-HAE-10 available from Haematology lab. Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Test available Mon to Fri, during routine working hours. Thrombosis occurs when activation of blood coagulation overwhelms the ability of the natural anticoagulant mechanism and fibrinolytic system to prevent thrombus formation taking place. Thrombophilia screen consists of: PT, INR, APTT, FIB, Actin FSL, LA test, Antithrombin, Protein C, , Protein S assays, Prothrombin variant, factor V Leiden and Anti-Cardiolipin and beta 2 glycoprotein antibodies Refer to MUH Thrombophilia Testing Guideline; location MUH Intranet;Pathology;Haematology Shared documents
Turn-around time:	4 weeks
Ref. Range:	See individual tests
<b>Tuberous Sclerosis</b>	
Laboratory:	Haematology; referred to National centre for Medical Genetics, Crumlin
Specimen:	EDTA and serum
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anlysis.pdf</a>
Comment:	Tuberous Sclerosis or Tuberous Sclerosis Complex (TSC) is a rare multi-system genetic disease caused by a mutation of either of two genes TSC1 and TSC2, that causes benign tumours to grow in the brain and on other vital organs such as kidney, hearts eyes lungs and skin.
Ref. Range:	See report form
<b>Von Willebrands Screen</b>	
Laboratory:	Haematology; Referred to Haematology Laboratory, Cork University Hospital
Specimen:	Blood 3mL x 3, green, S Monovette (sodium citrate 0.106M)
Comment:	Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Test available Monday to Friday, during routine working hours. Screen includes Factor V111 assay, vWF:ag (FV111 Related Antigen), vWFactor Activity (Ristocetin Co-Factor)
Turn-around time:	Approx 1 month
Ref. Range:	vWF:ag (FV111 Related Antigen) 50-150% vWF Activity (Ristocetin Co-factor) 55-156%
<b>ZAP 70, CD38, P53,Mutational status of IgVH</b>	
Laboratory:	Referred from Haematology Dept MUH to Royal Marsden NHS Trust, UK
Specimen:	Blood 2.7ml, Red, S Monovette (EDTA)
Comment:	Test only available from Mon – Thurs morning only. Zap-70 in B-cells is used as a prognostic marker in identifying different forms of chronic lymphocytes leukaemia.
Ref. Range:	See report form.
Specimen:	Blood 3mL, green x 4, S Monovette (sodium citrate 0.106M), Blood 2.7ml, Red, S Monovette (EDTA), Blood 4.9ml, S Monovette (serum )

Stability:	Samples must be labelled with time of phlebotomy and delivered promptly to laboratory, within 2 hours of phlebotomy. Samples received outside this time limit may not be processed
Comment:	Screen request must be accompanied by a completely filled in Thrombophilia request form LF-HAE-47 (Available from Haematology Laboratory). With signed consent on reverse. Genetic testing for Thrombophilia-Patient information leaflet LI-HAE-10 available from Haematology lab. Underfilled coagulation samples will all be rejected as they lead to inaccurate results. Test available Mon to Fri, during routine working hours. Thrombosis occurs when activation of blood coagulation overwhelms the ability of the natural anticoagulant mechanism and fibrinolytic system to prevent thrombus formation taking place. Thrombophilia screen consists of: PT, INR, APTT, FIB, Actin FSL, LA test, Antithrombin, Protein C, , Protein S assays, Prothrombin variant, factor V Leiden and Anti-Cardiolipin and beta 2 glycoprotein antibodies Refer to MUH Thrombophilia Testing Guideline; location MUH Intranet;Pathology;Haematology Shared documents
Turn-around time:	4 weeks
Ref. Range:	See individual tests
<b>Tuberous Sclerosis</b>	
Laboratory:	Referred from Haematology, MUH to National centre for Medical Genetics, Crumlin
Specimen:	EDTA and serum
Form:	National Centre for Medical Genetics
Comment:	Tuberous Sclerosis or Tuberous Sclerosis Complex (TSC) is a rare multi-system genetic disease caused by a mutation of either of two genes TSC1 and TSC2, that causes benign tumours to grow in the brain and on other vital organs such as kidney, hearts eyes lungs and skin.
<b>Von Willebrands Screen</b>	
Laboratory:	Sample referred from Haematology Laboratory to Haematology Laboratory, Cork University Hospital
Specimen:	Blood 3mL x 3, green, S Monovette (sodium citrate 0.106M) Specimens that are haemolysed, underfilled or overfilled cannot be analysed.
Comment:	Test available Monday to Friday, during routine working hours. Screen includes Factor V111 assay, vWF:ag (FV111 Related Antigen), vWF:Factor Activity (Ristocetin Co-Factor)
Turn-around time:	Approx 1 month
Ref. Range:	vWF:ag (FV111 Related Antigen) 50-150% vWF Activity (Ristocetin Co-factor) 55-156%
<b>ZAP 70</b>	
Laboratory:	Referred from Haematology Dept MUH to Royal Marsden NHS Trust, UK
Specimen:	Blood 2.7ml, Red, S Monovette (EDTA)
Comment:	Test only available from Mon – Thurs morning only. Zap-70 in B-cells is used as a prognostic marker in identifying different forms of chronic lymphocytes leukaemia.
Ref. Range:	See report form.
<b>TEST DIRECTORY (A-Z) FOR MICROBIOLOGY DEPARTMENT</b>	
Please note that the below test directory details the most commonly requested tests in Microbiology. However, other tests may be available upon request. If a test is Interfering substances:	
1. Any cultures - Administration of antibiotic pre sample may inhibit recovery of organisms	
2. For tests sent to external Reference Laboratories, please refer to extern Lab User Manual	
<b>Adenovirus PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal and/or throat swabs combined in viral transport fluid (Remel red-capped swabs) or Nasopharyngeal aspirate or Bronchoalveolar Lavage in universal container without additive
Comment:	Test sent to the NVRL. Suite of 8 viruses tested as part of viral screen.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	PCR Positive or Negative
<b>Acid Fast Bacilli (AFB)</b>	
Refer to Mycobacteria Testing (TB/AFB)	
<b>Amikacin / Amikin</b>	
Specimen:	2ml clotted blood (brown or white bottle), taken at least 18hrs post dose for once-daily dosage.
Comment:	Sent to CUH. Please inform Microbiology as early as possible to allow for advance notice to be given to CUH. N.B. specify whether specimen is pre or post dose. Pre specimens are most useful guide for monitoring therapy. All forms must indicate the specimen time and time of last administration of drug. Please refer to MUH Antibiotic guidelines.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Trough: <5mg/L (once-daily or x3 daily dosage)
Specimen:	2ml clotted blood (brown or white bottle), taken at least 18hrs post dose for once-daily dosage.
<b>Arbovirus Serology</b>	
Laboratory:	Microbiology
Specimen :	4.0 mL blood in plain tube (clotted sample)
Comment:	Specimen sent to National Virus Reference Laboratory by arrangement.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range	Not applicable
<b>Anti- Streptolysin-O (ASO) Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL clotted blood (brown or white bottle)
Comment:	Test available Monday to Friday.
Turnaround:	24 hours
Ref. Range:	Anti- streptolysin-O (ASO) antibodies <200 IU/mL
<b>Ascitic Fluid Microbiology</b>	
See Sterile Body Fluid – Microscopy and Culture	
<b>Aspergillus Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL clotted blood (brown or white bottle)
Comment:	Test performed by Eurofins Biomnis Laboratories
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative
<b>Avian Antibodies / Fowl Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL clotted blood (brown or white blood). Screen includes Bird Breeders Lung and Chlamydomphila psittaci
Comment:	Test performed by Eurofins Biomnis Laboratories
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative
<b>Bartonella henselae Antibodies</b>	
Test discontinued by Reference laboratory	

<b>Bartholin's Abscess</b>	
Laboratory:	Microbiology
Specimen:	Aspirate using a syringe (ideally a minimum of 1mL) or using a sterile swab. Specimens should be taken before antimicrobial therapy where possible. The volume of specimen influences the transport time that is acceptable. Larger volumes of purulent material maintain the viability of anaerobes for longer. Transport ASAP in charcoal containing transport media. The viability of <i>N. gonorrhoeae</i> is lost over time. If processing is delayed refrigeration is preferable to storage at room temperature.
Comment:	Test performed routinely Monday–Friday 8am–5pm or by urgent request.
Turnaround:	Prelim: 24 hours; Final: up to 7 days. Clinically significant isolates are telephoned when available to the requesting area.
Report Format:	Culture report: Any clinically significant isolate with the appropriate sensitivities.
<b>Blood Culture</b>	
Laboratory:	Microbiology
Specimen:	Adults: 8-10mls blood per blood culture bottle, Aerobic (green) and Anaerobic (orange) Paediatric: 1-4mls blood in a single Paediatric (yellow) blood culture bottle N.B. 1. Bottles should be stored at room temperature before and after inoculation. DO NOT place in fridge. 2. Do not use unless fluid is clear and sensor at bottom of bottle is grey before inoculation. 3. Do not use after expiry date. 4. Do not cover bar code labels or grey sensor layer at bottom of bottle. Hand write details on bottles. Removable bar code labels are required in the lab for identification purposes, therefore: <b>PLEASE DO NOT REMOVE BAR CODE LABELS</b>
Comment:	1. To avoid contamination of blood culture bottles, appropriate skin disinfection should be carried out and, where blood for other tests is required, inoculation of blood culture bottles should take place first. 2. Please specify if a particular condition is suspected e.g. endocarditis or meningitis. 3. Always considered urgent and transported to lab as soon as possible. Inoculated bottles should be incubated on the Blood Culture system as soon as possible, ideally within a maximum of 4 hours. 4. Do not place in fridge. 5. For paediatric blood cultures, if infection due to anaerobes is suspected an anaerobic blood culture bottle should also be taken. 6. A full list of FilmArray targets are available on request from the Consultant Microbiologist or by contacting the Microbiology Laboratory.
Turnaround:	Positive Preliminary result: Gram stain and/or FilmArray phoned within 4 hrs after flagging positive Positive Final result: Identification and antibiotic susceptibility 24-48hrs. Please note that this is dependent on how long it takes for a pure and adequate growth of the isolate and may take longer for slow growing or fastidious organisms. Negative Preliminary result: Available in real time as 'Negative to date' once specimen is loaded on instrument. Negative Final report: up to 8 days for report to be issued Negative ? Endocarditis: up to 13 days for report to be issued (requires extended culture)
Turnaround:	Positive: phoned as soon as available (most organisms are detected within 24-48hrs) Negative: up to 8 days for report to be issued Negative ? Endocarditis: up to 13 days for report to be issued (requires extended culture)
Report:	Negative: No growth after 5 or 10 days Positive: Organism reported with appropriate antibiotic susceptibility
<b>Bordetella Species - Culture</b>	
Laboratory:	Microbiology
Specimen:	<b>Must be received in lab by 3pm.</b> Pernalas swabs are inserted through a nostril and advanced along the floor of the nose until it reaches the nasopharynx. It has been suggested that the swab be held against the posterior nasopharynx for up to 30s or until the patient coughs. In practice, it is more likely that a patient will only be able to tolerate this for a few seconds. Note: Cough plates and throat swabs are unsatisfactory and will not be processed. <i>B. pertussis</i> is very susceptible to drying and is a very slow grower, so transport must keep the organism moist and prevent overgrowth of normal flora. Transport specimens ASAP. The laboratory must be notified in advance of taking the nasopharyngeal swab.
Comment:	Test performed by Cork University Microbiology Laboratory Monday–Friday during routine working hours.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	"Bordetella pertussis" NOT isolated or "Bordetella pertussis / parapertussis" isolated.
<b>Bordetella pertussis PCR</b>	
Laboratory:	Microbiology
Specimen:	Respiratory specimen, E.G. Nasopharyngeal aspirate
Comment:	Test performed by Childrens Hospital, Crumlin. This test is advised for patients who have exhibited symptoms of whooping cough within the last 21 days
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Detected or not detected
<b>Bordetella pertussis serology</b>	
Laboratory:	Microbiology
Specimen:	Serum Sample
Comment:	IgG test performed by Childrens Hospital, Crumlin, on children > 1yr old. This test is advised for patients who have experienced symptoms of whooping cough over 21 days ago. It is not for immunity. (No test available for immunity) Not suitable if patients are < 1yr old Not suitable if patients have been vaccinated in the last 12 months
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive/negative
<b>Borrelia burgdorferi antibodies</b>	
See "Lyme serology"	
<b>Bronchoalveolar lavage fluid Culture</b>	
Laboratory:	Microbiology
Specimen:	It is difficult to be specific on volume required; in principle as large a volume as possible is preferred. The specimen should be collected into a sterile universal. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Please include any appropriate clinical details e.g. "Cystic fibrosis patient". If an unusual pathogen is suspected, the laboratory should be informed, e.g. <i>Burkholderia pseudomallei</i> and <i>Nocardia</i> sp require longer incubation of cultures. All bronchial washings are cultured for TB. Refer to Mycobacteria Testing.
Comment:	Test performed routinely Monday–Friday 8am–5pm or by urgent request. Traps containing a specimen should be properly sealed.
Turnaround:	Prelim: 24 hours; Final: up to 7 days
Report:	Aerobic culture with sensitivities, if appropriate, as well as AFB smear and culture for Mycobacteria.
<b>Brucella Serology (Brucella abortus)</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL clotted sample (brown or white bottle)
Comment:	Test performed by Eurofins Biomnis Laboratories. Test detects total antibodies and IgM antibodies (acute disease)
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	A negative result generally excludes a diagnosis of brucellosis. Positive Brucella agglutination reactions should be regarded as supportive evidence for the diagnosis of brucellosis provided there is reasonable epidemiological and clinical evidence to support the diagnosis. Titres of < 1:40 in the SAT are of doubtful significance. A rising or falling titre is more significant than a single titre.

Added 02.02.21  
Added 08.12.20

<b>Bursa Fluid</b>																										
See "Sterile Body Fluid – Microscopy and Culture".																										
<b>Candida albicans Antibodies</b>																										
Laboratory:	Microbiology																									
Specimen:	Blood 4mL clotted sample (brown or white bottle)																									
Comment:	Test performed by Eurofins Biomnis Laboratories. This test is rarely necessary as the fungus is usually cultured in systemic infections.																									
Turnaround:	Refer to User Manual of Reference Laboratory																									
Report	Positive or Negative																									
<b>Carbapenemase Producing Enterobacteriaceae (CPE) Culture</b>																										
Laboratory	Microbiology																									
Specimen	Rectal swab																									
Comment	Routine screening - Culture on chromogenic agar																									
Turnaround	24-72hrs (may take longer if reference laboratory referral is required)																									
Report	CPE not isolated or isolated (with antibiotic sensitivities)																									
<b>Carbapenemase Producing Enterobacteriaceae (CPE) PCR</b>																										
Laboratory	Microbiology																									
Specimen	Paired rectal Copan swabs (available from Infection control)																									
Comment	Only performed when strongly suspected. Please consult Infection Control																									
Turnaround	4hrs																									
Report	CPE PCR (GeneXpert) detected or not detected																									
<b>Catheter / Intravascular Cannulae</b>																										
Laboratory:	Microbiology																									
Specimen:	Disinfect the skin around the cannula entry site, remove cannula using aseptic technique, and cut off 4cm of the tip into a sterile labelled universal using sterile scissors. The sample should be transported ASAP to prevent drying. If processing is delayed, refrigeration is preferable to storage at ambient temperature.																									
Comment:	Please send IV devices only if an infection is queried. The routine culture of devices removed for other reasons is unnecessary. Foley catheters are not cultured since growth represents distal urethral culture. A urine sample is more appropriate. Skin disinfection procedures depend on local protocols and may vary.																									
Turnaround:	Prelim: 24 hours; Final: up to 7 days																									
Report:	Culture report: Any clinically significant isolate with the appropriate sensitivities.																									
<b>Cat Scratch Disease Antibodies (Bartonella henselae Antibodies)</b>																										
Test discontinued by Reference laboratory																										
<b>Cerebrospinal Fluid - Culture/Microscopy</b>																										
Laboratory:	Microbiology																									
Specimen:	Ideally, the laboratory should receive a minimum volume of 1mL. The specimen should be collected in sterile universals. For Mycobacteria, as large a volume as possible should be sent (given the patient's clinical circumstances). All specimens should be taken before antimicrobial therapy where possible, but therapy should not be delayed unnecessarily pending lumbar puncture.																									
Comment:	Test performed as an urgent sample. CSF is normally collected sequentially into separate containers and should be numbered appropriately. Common practice is to send the first and last specimens taken for microbiological examination and the second specimen for Biochemistry. If only one specimen of CSF is collected, it should be submitted to Microbiology first. Transport specimens ASAP. Cells disintegrate and a delay may produce a cell count that does not reflect the clinical situation of the patient. If a sub-arachnoid haemorrhage is suspected bottles 1 and 3 must be sent for red cell count. In a SAH the 2 bottles will have a similar count whereas in a traumatic CSF the red cell count will decrease in bottle 3.  With a culture negative lymphocytic CSF(WBCs >10/cmm), consideration should be given to other tests such as Viral PCR and Mycobacterial testing. A clearly labelled stool sample for enteroviral culture should also be considered.  CSF, EDTA blood and paired serum samples may be sent to the Meningococcal Reference Laboratory for PCR and serological examination. All isolates of N. meningitidis are referred for serotyping. Do not refrigerate specimen. Do not send through the pneumatic tube.																									
Turnaround:	Microscopy: Within 2 hours of receipt. Urgent report telephoned when available. Culture: Prelim: 24-48 hours; Final: up to 7 days																									
Report	Gross appearance of the CSF																									
	Presence of a clot if applicable Presence or absence of Xanthochromia. Xanthochromia is determined by visual assessment. If quantitative xanthochromia is required, please contact Biochemistry. Microscopic report on the numbers of WBCs/cmm and RBCs/cmm. Bacterial/Viral PCR is performed on all CSF specimens with raised WBC per cmm. See table below for normal values A differential leucocyte count and /or gram stain can be performed on request Cell counts are not performed on specimens containing a clot, which would invalidate the cell count. For haemorrhagic CSFs a WBC: RBC ratio of 1:500 is generally regarded as not indicative of infection. Culture report: Any organism isolated with the appropriate sensitivity results. <b>Normal CSF Values:</b>																									
	<table border="1"> <thead> <tr> <th colspan="3">Normal CSF Values</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Leucocytes</td> <td>Neonates</td> <td>0 - 30 cells per cmm</td> </tr> <tr> <td>1 - 4yr old</td> <td>0 - 20 cells per cmm</td> </tr> <tr> <td>5yr - puberty</td> <td>0 - 10 cells per cmm</td> </tr> <tr> <td>Adults</td> <td>0 - 5 cells per cmm</td> </tr> <tr> <td rowspan="2">Erythrocytes</td> <td>Newborn</td> <td>0- 675 cells per cmm</td> </tr> <tr> <td>Adults</td> <td>0 - 10 cells per cmm</td> </tr> <tr> <td rowspan="2">Protein</td> <td>Neonates ≤ 6d</td> <td>0.7g/L</td> </tr> <tr> <td>Others</td> <td>0.2 - 0.4g/L (&lt;1% of serum protein concentration)</td> </tr> <tr> <td>Glucose</td> <td></td> <td>≥60% of simultaneously determined plasma concentration (CSF: serum ratio &gt;</td> </tr> </tbody> </table>	Normal CSF Values			Leucocytes	Neonates	0 - 30 cells per cmm	1 - 4yr old	0 - 20 cells per cmm	5yr - puberty	0 - 10 cells per cmm	Adults	0 - 5 cells per cmm	Erythrocytes	Newborn	0- 675 cells per cmm	Adults	0 - 10 cells per cmm	Protein	Neonates ≤ 6d	0.7g/L	Others	0.2 - 0.4g/L (<1% of serum protein concentration)	Glucose		≥60% of simultaneously determined plasma concentration (CSF: serum ratio >
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<b>Cerebrospinal Fluid PCR (Bacterial/Viral)</b>																										
Laboratory:	Microbiology																									
Specimen:	CSF approximately 0.3 ml																									
Comment:	Performed if WCC is raised or on request Panel includes the following targets: <b>Bacteria:</b> Escherichia coli K1 Haemophilus influenzae Listeria monocytogenes Neisseria meningitidis (encapsulated) Streptococcus agalactiae Streptococcus pneumoniae																									

	<p><b>Viruses:</b></p> <ul style="list-style-type: none"> <li>Cytomegalovirus</li> <li>Enterovirus</li> <li>Herpes simplex virus 1</li> <li>Herpes simplex virus 2</li> <li>Human herpesvirus 6</li> <li>Human parechovirus</li> <li>Varicella zoster virus</li> </ul> <p><b>Yeast:</b></p> <ul style="list-style-type: none"> <li>Cryptococcus neoformans/gattii</li> </ul>
Comment:	<p>Some organisms (S.pneumoniae /H.influenza ) can be shed from the respiratory tract of healthy individuals.          HSV-1 may be shed from individuals with cold sores.          Caution should be taken during specimen collection and testing to prevent contamination leading to false positives.          Has not been evaluated for immunocompromised patients.          The FilmArray ME Panel does not distinguish between latent and active CMV and HHV-6 infections. Detection of these viruses may indicate primary infection, secondary reactivation, or the presence of latent virus. Results should always be interpreted in conjunction with other clinical, laboratory and epidemiological information.</p>
Turnaround Report	<p>Same day          Detected or not detected</p>
<b>Cerebrospinal Shunts</b>	
Laboratory:	Microbiology
Specimen:	CSF is usually obtained from the shunt reservoir and sent for investigation. When a shunt is removed all three portions should be sent in separate containers of the appropriate size. This will include the proximal catheter, a valve or reservoir, and a distal catheter. The specimen should be collected into a sterile universal. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	Test performed routinely Monday–Friday 8am–5pm or by urgent request.
Turn-around Time	Prelim: 24 hours; Final: up to 7 days
<b>Cervical swab</b>	
Refer to "Genital swab"	
<b>Chlamydia pneumoniae IgG/IgM serology</b>	
Laboratory:	Microbiology
Specimen:	Nasopharynx, bronchial secretions, BAL
Comment:	Test sent to Eurofins Biomnis Laboratories
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Chlamydia psittaci Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Nucleic acid amplification method. Special PCR STD Specimen Collection and Transport Kits must be used (available from Micro lab). Please read the kit insert for information on specimen collection. Specimens sent to CUH
Comment:	Test sent to CUH Microbiology Laboratory. Test available Monday-Friday. Specimens must arrive at the test site within 24 hours.
Ref.Range:	PCR for detection of Chlamydia trachomatis positive or negative.
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Chlamydia trachomatis and Neisseria gonorrhoeae and T. Vaginalis PCR</b>	
Laboratory:	Microbiology
Specimen:	Urine or Endocervical/Urethral Aptima multitest swab
Comment:	Please send urine in Aptima urine collection containers, available from Microbiology. Fill Aptima urine collection tube to level between black lines. Urine can be transferred from universal container to Aptima tube up to 24hrs post collection. Specimens sent to NVRL
Turn-around Time	Refer to User Manual of Reference Laboratory
Ref.Range:	PCR Result Detected or Not Detected
<b>Conjunctivitis</b>	
See "Eye Swab".	
<b>CNS Serology Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (white bottle)
Turnaround:	Refer to User Manual of Reference Laboratory
Ref Range:	IgM antibody positive or negative for the relevant organisms.
Comment:	Test performed by National Virus Reference Laboratory. Screen includes Mumps, Measles, Herpes simplex, Varicella zoster virus and Cytomegalovirus. For patients with idiopathic encephalopathies or unusual CNS signs or symptoms consideration should be given to syphilis, Lyme and HIV serology.
<b>COVID-19 PCR (SARS-CoV2)</b>	
Laboratory:	Microbiology
Specimen:	Rapid Test: Nasopharyngeal/Oropharyngeal Swab only Routine Test: Nasopharyngeal/Oropharyngeal Swab, Sputum, BAL
Turnaround:	48 hours for routine specimens 4 hours for urgent
Report:	Detected/Not Detected Presumptive Positive for SARS-COV (where E-gene only is detected)
Comment:	Molecular Detection of SARS-CoV2 RNA. Rapid test available only on request for urgent cases
<b>Coxiella burnetii IgM Antibodies (Q fever)</b>	
Laboratory:	Microbiology
Specimen:	See Enterovirus below
Comment:	Serology is not the diagnostic method of choice for the diagnosis of infections caused by Enteroviruses (including Coxsackie virus).
Report:	Part of Enterovirus IgM (EIA) : Negative
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Cryptococcal Antigen – Serum/CSF</b>	
Laboratory:	Microbiology
Specimen:	Faeces. Performed routinely on all children <10yrs, on bloody or watery samples or where specifically requested. Other types of clinical specimen such as duodenal aspirates may also be stained for Cryptosporidia.
Comment:	Tests are batched and performed routinely Mon–Fri 8am–5pm. Diagnosis is based upon demonstration of oocysts in stools, using an auramine-phenol stain (and confirmed using a modified Ziehl-Neelsen stain).
Report	Cryptosporidium species seen or not seen
Turn-around Time	24 hours-72 hours.
<b>CSF – Culture &amp; Microscopy</b>	
See "Cerebrospinal Fluid – Culture and Microscopy"	
<b>CSU - Catheter Urine</b>	
See "Urine Microscopy and Culture".	
<b>Cytomegalovirus (CMV) IgM or IgG Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (brown or white bottle)

Updated 12/04

Comment:	Test sent to the National Virus Reference Laboratory. Two CMV antibody tests are available. The clinician must indicate the appropriate test by full history etc. The CMV scan will detect total (IgM and IgG) antibodies and provides evidence of prior exposure to the virus. The CMV IgM Test will detect IgM antibodies to CMV and can be useful in the diagnosis of current primary infection, particularly in pregnant women.
Ref.Range:	CMV Total Antibodies Positive or Negative. CMV IgM antibodies Positive or Negative. CMV PCR may also be clinically indicated using an EDTA sample of blood or a urine sample (babies).
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Dermatophytosis</b>	
See "Mycology"	
<b>Dengue fever Antibodies - Serum</b>	
Laboratory:	Microbiology
Specimen:	Specimens will be obtained by specialist collection according to local protocols. The sample volume may vary - ideally, a minimum volume of 1 mL should be sent to the lab. A screw-capped sterile universal container is practical for this purpose. Transport specimens ASAP. If processing is delayed refrigeration is preferable to storage at room temperature. Delays of over 48h are undesirable.
Comment:	Test referred to University College Hospital London. Fluid from the duodenum is examined for the presence of <i>Strongyloides stercoralis</i> larvae, <i>Giardia lamblia</i> trophozoites, <i>Cyclospora</i> , and <i>Isospora belli</i> . Duodenal fluid is also examined for the presence of <i>Microsporidia</i> where specifically requested and/or immunocompromised patients.
Report	Report on any parasites seen.
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Ear Swab</b>	
Laboratory:	Microbiology
Specimen:	Swab any pus or exudate.
Comment:	Test performed routinely Mon-Fri 8am-5pm or by urgent request. If processing is delayed, refrigeration is preferable to storage at room temp. Collect separate swab if fungal culture is desired (scrapings are preferable to swabs), see - Mycology. Tympanocentesis (needle aspiration) and Myringotomy (surgical incision of tympanic membrane), to sample middle ear effusion, is rarely justified.
Report	Culture report: Any clinically significant isolate with the appropriate sensitivities.
Turn-around Time	Prelim: 24 hours; Final: up to 7 days
<b>Ebola virus</b>	
See Viral Haemorrhagic fever	
<b>E. coli 0157 Serology</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (brown or white bottle). Note: A faeces sample sent for <i>E. coli</i> 0157 culture is the preferred method of diagnosis. Refer to "Faeces Microscopy & Culture".
Comment:	Test performed by PHLS Collindale in London
Report	Positive or Negative
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Endocervical swab</b>	
Refer to "Genital swab"	
<b>Enterovirus PCR</b>	
Laboratory:	Microbiology
Specimen:	Faeces or Viral Throat Swab (See also CSF viral PCR)
Comment:	Test performed by the National Virus reference Laboratory. EV PCR can also be performed on EDTA blood specimen, however, serology is not the diagnostic method of choice for the diagnosis of infections caused by Enteroviruses (including Coxsackievirus). Please send a faeces sample and a viral throat swab. The specimens should be clearly labelled and provide all relevant clinical details. If enterovirus is detected in stool specimen, it will be subtyped accordingly (e.g. Coxsackievirus subtype)
Report	Detected or not detected. If enterovirus is detected further subtyping is performed including Coxsackie and Echo
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Enterovirus Serology</b>	
Test discontinued by Reference Laboratory	
<b>Epstein-Barr Virus (EBV) Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (brown or white bottle)
Comment:	Test sent to the National Virus Reference Laboratory. This test individually assays for IgG and IgM antibodies.
Report	EBV IgM antibody positive indicates acute/current infection. EBV IgG antibody positive indicates previous exposure (immunity).
Turn-around Time	Refer to User Manual of Reference Laboratory
<b>Exanthem Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (brown or white bottle)
Comment:	Test performed by the National Virus Reference Laboratory. Screen includes Measles, Rubella, Parvovirus B19. Note: Varicella zoster and Herpes zoster have a characteristic clinical picture and serology is rarely required to confirm these. These tests are available if requested separately.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	IgM antibody positive or negative for the relevant organisms.
<b>Eye Swab</b>	
Laboratory:	Microbiology
Specimen:	Culture both eyes with separate swabs. Any available pus should be sampled as well as the area of interest. Transport specimens ASAP in swabs containing transport media. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Separate special swabs are needed for the diagnosis of viral and chlamydial infections which are available from Microbiology
Comment:	Test performed routinely Monday-Friday 8am-5pm or by urgent request.
Turnaround:	Prelim: 24 hours; Final: up to 7 days
Report:	Culture report: Any clinically significant isolate with the appropriate sensitivities.
<b>Faeces - Investigation for Enteric Pathogens</b>	
Laboratory:	Microbiology
Specimen:	1-2g of liquid or semi-solid stool. Solid specimens and Rectal swabs are not suitable and will be rejected. The specimen should be collected into a sterile universal. Ideally, all specimens should be taken as soon as possible after onset of symptoms. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature. A number of important pathogens such as <i>Shigella</i> species may not survive the pH changes that occur in stool specimens that are not promptly delivered to the laboratory, even if refrigerated.
Comment:	All diarrhoeal specimens undergo molecular testing initially to determine if nucleic acids for the following pathogens are present: <i>Salmonella</i> species <i>Shigella</i> species <i>Campylobacter</i> species <i>E.coli</i> 0157/EIEC toxigenic <i>C.difficile</i> <i>Yersinia enterocolitica</i>
Turnaround:	48 hours. Confirmation of positive results from Reference labs may take considerably longer.

Updated 12/0/21

Report:	Molecular result: Detected or Not detected for all pathogens undergoing molecular screening. Culture result: Isolated or Not Isolated for other pathogens, such as Vibrio or other Yersinia species Enzyme Immunoassay result: Positive or Negative - where toxigenic <i>Clostridium difficile</i> is detected, the phenotypic expression of the toxin is confirmed by EIA.
<b>Faeces - Microscopy for Cryptosporidium</b>	
Laboratory:	Microbiology
Specimen:	1-2g of liquid or semi-solid stool. Solid specimens and Rectal swabs are not suitable and will be rejected.
Comment:	Performed on children aged <10yrs and on bloody or watery specimens
Turnaround:	48 hrs
Report:	Cryptosporidium species seen or not seen
<b>FilmArray Respiratory Panel</b>	
Laboratory:	Microbiology
Specimen:	Naso/oropharyngeal swab in appropriate transport media
Comment:	This following viruses and bacteria are detectable by the FilmArray Respiratory panel: Adenovirus, Coronavirus 229E, Coronavirus HKU1, Coronavirus NL63, Coronavirus OC43, Middle east respiratory syndrome coronavirus (MERS-CoV), Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV2), Human Metapneumovirus, Human Rhino/Enterovirus, Influenza A, Influenza B, Parainfluenza virus 1, Parainfluenza virus 2, Parainfluenza virus 3, Parainfluenza virus 4, Respiratory Syncytial Virus, Bordetella parapertussis, Bordetella pertussis, Chlamydia pneumoniae, Mycoplasma pneumoniae.
Turnaround:	24 hours for non-urgent tests, 4 hours for urgent requests (e.g. SARS-CoV2 symptomatic patients)
Report:	respiratory
<b>Farmers Lung Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white blood)
Comment:	Test performed by Eurofins Biomnis Laboratories
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative
<b>Fungal Microscopy and Culture</b>	
See "Mycology"	
<b>Genital Swab</b>	
Laboratory:	Microbiology
Specimen:	Because these specimens are often taken from sites harbouring large numbers of commensal (normal) flora, attention to specimen selection and collection methods is critical. Specimens should be collected using a sterile swab in transport media and transported ASAP. The viability of <i>N. gonorrhoeae</i> is lost over time. If processing is delayed, refrigeration is preferable to storage at ambient temperature. Smears should be made directly on a clean glass slide; unfixed slides should be handled with care and transported to the laboratory in a suitable container. A separate special Chlamydia swab is required for the detection of <i>Chlamydia trachomatis</i> .
Comment:	Test performed routinely Mon-Fri 8am-5pm or by urgent request. Culture for <i>Neisseria gonorrhoeae</i> performed only where clinical details indicate or on request.
Turnaround:	Prelim: 24 hours; Final: up to 7 days
Report Format:	Microscopic report on the presence or absence of <i>Trichomonas vaginalis</i> , Yeast and WBCs. The presence and relative numbers of pus cells and epithelial cells influence interpretation; presence of yeasts supports a diagnosis of Candidiasis. Culture report on any clinically significant isolate with the appropriate sensitivities.
<b>Gentamicin</b>	
Specimen:	2ml clotted blood ( brown or white bottle) Once-daily dosage taken at least 18hrs post dose Multiple-daily dosage taken immediately before (Trough) and 1hr post dose(Peak) – usually peak not necessary.
Comment:	N.B. Fill out antibiotic request form fully, indicating time of specimen, dose given and time of last dose. Pre specimens are most useful guide for monitoring antibiotic therapy and generally post specimens are unnecessary. Please refer to MUH Antibiotic guidelines.
Comment:	Test available Monday to Friday between the hours of 8am and 9pm inclusive and at weekends including bank holidays between 9am and 5pm. Samples from patients on B-lactams should be assayed immediately or stored frozen as give falsely low results Falsely elevated values for Gentamicin may be obtained from patient samples which contain cephalixin, netilmicin, sisomicin, sagamicin, kanamycin B, neomycin or tobramycin. Anomalous results for gentamicin may be obtained from specimens from patients receiving mouse monoclonal antibodies or specimens which contain heterophilic antibodies, including Rheumatoid Factor (RF). Potentially interfering compounds: Triglycerides >30g/L, Haemoglobin >5.0 g/L
Turnaround:	4 hrs
Ref. Range:	Once-daily dosage: Trough <1mg/L Multiple-daily dosage: Trough <2mg/L Peak 5-12mg/L
<b>Haemophilus influenzae B Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white blood)
Comment:	Test performed by Immunology Dept., St James' Hospital
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative
<b>Hantavirus Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white blood)
Comment:	Test performed by National Virus Reference Laboratory by arrangement.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative
<b>Helicobacter pylori Urea Breath Test</b>	
Laboratory:	Microbiology
Specimen:	Breath taken using Helicobacter diagnostic Test Kit
Comment:	Kits can be purchased from the Microbiology Secretary's office or any pharmacy. Please phone laboratory for current cost of kit. The kit contains information on how to take the samples and there is also an information sheet available from the Microbiology office. Please note, before taking specimens: 1. Patient should be off antibiotics for at least 4 weeks. 2. Patient should be off antacids for at least 2 weeks. 3. Patient should not eat for at least 6hrs (may drink water). Specimens are stable at room temperature for several weeks and need not be refrigerated. Use appropriate kit as follows: <3 years old No suitable test kit available 3-11 years INFAI Child kit 12-17 years INFAI Adult kit ≥18 years Diabact kit
Turnaround:	2 weeks
Ref. Range	Diabact Kit (Adults only): Positive > 1.5 Negative <1.5 INFAI Kit (Adults OR Childrens kits): Positive >4, Negative <4
<b>Helicobacter pylori culture</b>	
Laboratory	Microbiology

Added 4.12.20

Updated 12/0/21

Specimen	Gastric biopsy
Comment	N.B. **This test can only be performed by prior arrangement. Ideally, at least 2 weeks notice should be given in order for fresh <ol style="list-style-type: none"> <li>1. Phone Microbiology MUH, to arrange date of procedure (minimum 2 weeks notice)</li> <li>2. Microbiology to order in media and to phone Microbiology CUH</li> <li>3. On day of procedure, media to be collected from Microbiology MUH</li> <li>4. In Theatre, biopsy placed into media and sent directly from Theatre to Microbiology CUH (culture must be performed within 1 hour of taking sample)</li> <li>5. Theatre to phone Microbiology CUH to advise that sample has been sent</li> </ol>
Turnaround	Refer to User Manual of Reference Laboratory
Report	H. pylori isolated or Not isolated
<b>Hepatitis A IgG (Immune Status)</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to Cork University Hospital. It is used to determine the immune status to hepatitis A and is often used to monitor the success of hepatitis A vaccination. It is often performed prior to vaccination in certain risk groups e.g. army personnel going on overseas duty or foreign travel to high risk areas. Virus specific IgM is the most reliable marker for determining the acute stage of disease – see Hepatitis A IgM.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	A positive result indicates previous exposure to the Hepatitis A virus and immunity. A negative result indicates that the individual is susceptible to infection with Hepatitis A virus.
<b>Hepatitis A IgM Antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white blood)
Comment:	Test available Monday-Friday. A qualitative test for detecting IgM Antibody to Hepatitis A Virus. It can be used to determine whether a patient has, or has recently had, acute or asymptomatic hepatitis A infection and is included as part of the "Hepatitis Screen". This test cannot determine immune status to hepatitis A – see Hepatitis A Total antibody. This test is a screening test and positive results are confirmed by the National Virus Reference Laboratory.
Comment:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Negative: Routine – 3 days, Urgent – 4 hours Positive: Refer to User Manual of Reference Laboratory
Report:	Positive or Negative. IgM anti-HAV reactivity should be correlated with patient history and other hepatitis markers for diagnosis of past or present infection.
<b>Hepatitis Bs Antibody (anti-HBs)</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white blood)
Comment:	This test is used to check the immune status to hepatitis B and is often used to monitor the success of hepatitis B vaccination. Please indicate patient vaccination history on the request form. Test available Monday-Friday. Emergency samples from recipients of needle stick injuries are processed On-Call.
Comment:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Routine: Up to 1 week. Urgent: 4 hrs
Ref. Range:	For a needlestick injury, antibodies $\geq 10\text{mIU/mL}$ are considered protective and gamma globulin is not necessary. However if antibodies are between 10-100IU/mL an immediate booster is recommended. For a completed course of vaccination, antibodies $>100\text{mIU/mL}$ are considered an adequate response and such patients do not require further boosting or testing. Further information - please discuss with the Occupational Health
<b>Hepatitis B Surface Antigen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test available Monday-Friday. Emergency samples are processed On-Call. A positive result indicates acute or chronic carriage of the Hepatitis B virus. This test is included as part of the "Hepatitis Screen". This test is a screening test and all Positive results are confirmed by the National Virus reference Laboratory
Comment:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Negative: Routine - 3 days, Urgent - 4 hours Positive: Refer to User Manual of Reference Laboratory
Report:	Negative samples are reported immediately. Positive samples are tested with a full "Hepatitis B Virus Marker Profile", which includes Anti-HBc (CORE), HBeAg, anti HBe and HB antibody status) in the National Virus Reference Laboratory. A repeat sample is requested on all newly diagnosed positive patients.
<b>Hepatitis C Antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test available Monday-Friday. Emergency samples are processed On-Call. This test is included as part of our "Hepatitis Screen". This test is a screening test and all positives are confirmed by the National virus Reference Laboratory.
Comment:	Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Negative: Routine – 3 days, Urgent - 4 hours Positive: Refer to User Manual of Reference Laboratory
Report:	Negative samples are reported immediately. Positive samples are considered presumptive positive only and are sent to the Viral Reference Laboratory for confirmation and if positive on repeat sent for PCR Testing. Hepatitis C PCR sample must be separated and frozen within 6 hours and sent on ice to the National Virus Reference Laboratory
<b>Hepatitis Screen</b>	



Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test available Monday-Friday. Urgent sample done on request. Screen includes Hepatitis A IgM antibody, Hepatitis B surface antigen, and Hepatitis C total antibody. Components also offered individually. This test is a screening test and all positives are confirmed by the National virus Reference Laboratory. This test is a screening test and all positives are confirmed by the National virus Reference Laboratory. The liver may also be involved in a variety of infections due to other viruses, bacteria and protozoa e.g. Epstein Barr virus, CMV, Leptospira and <i>Toxoplasma gondii</i> . These should be requested separately if clinically indicated.
Comment:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Negative: Routine – 3 days, Urgent - 4 hours. Positive: Refer to User Manual of Reference Laboratory
Report:	Hepatitis A, B, or C: Positive or Negative. Positive results are sent to the Viral Reference Laboratory for confirmation.
<b>Hepatitis D IgM/IgG</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to the National Virus Reference Laboratory. Hepatitis Delta is a subparticle of Hepatitis B infection and therefore NVRL will only test Hepatitis B surface antigen positive specimens for Hepatitis D.
Turnaround:	Refer to User Manual of Reference Laboratory
Report	Positive/Negative
<b>Hepatitis E Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to the National Virus Reference Laboratory. This test individually assays for Hepatitis E IgM antibodies.
Turnaround:	Refer to User Manual of Reference Laboratory
Report	Hepatitis E IgM Positive/Negative
<b>Herpes Simplex Virus 1,2 (HSV) PCR</b>	
Laboratory	Microbiology
Specimen	Viral swab of vesicle fluid
Comment	Test sent to the National Virus Reference Laboratory For culture or PCR please contact Microbiology Laboratory
Turnaround	Refer to User Manual of Reference Laboratory
<b>High Vaginal Swab (HVS)</b>	
Laboratory:	Microbiology
Specimen:	It is important to avoid vulval contamination of the swab. The posterior fornix, including any obvious candidal plaques should be swabbed. Low vaginal swabs are discouraged because the presence of high numbers of commensal flora makes them difficult to interpret. Only swabs sent in suitable transport medium will be processed - swabs that are sent without transport medium may be dry and will not yield the targeted organisms. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	All vaginal swabs are investigated routinely for common causes of vaginal discharge. HVS samples from women aged 12-55 years are investigated for Bacterial Vaginosis (BV) using Gram Stain and Hay's Criteria interpretation Vaginal swabs are not recommended for gonococcal culture on adults and an endocervical specimen is more appropriate. A separate sample should be collected for the detection of <i>C. trachomatis</i> or <i>T vaginalis</i> (see above).
Turnaround:	Prelim: 24 hours; Final: up to 7 days.
Report format:	Gram Stain for HVS: ( 12-55 years) Yeast and Clue cells are reported if present. Yeasts and hyphae suggest Candidiasis, Clue Culture: Any clinically significant isolate with the appropriate sensitivities.
<b>Histoplasma Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by PHLS Mycology Reference Lab, Bristol
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Positive or Negative
<b>HTLV-I / II Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Positive or Negative
<b>Human Immunodeficiency Virus ( HIV Ag/Ab Combo Assay)</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test available Monday-Friday. Emergency samples can be processed On-Call. This test is a screening test and all positives are confirmed by the National virus Reference Laboratory.
Comment:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Sample taken from a drip arm Specimen containing red Blood cells, clots or particulate matter Heat inactivated specimens Specimen grossly Haemolysed Specimens with obvious bacterial contamination Specimens from heparinised patient
Turnaround:	Negative: Routine – 3 days, Urgent - 4 hours Positive: Refer to User Manual of Reference Laboratory
Ref. Range:	Negative samples are reported as negative for HIV antibodies. Positive samples are referred to the National Virus Reference Laboratory, Dublin, for confirmation. A repeat sample is requested on all newly diagnosed positive patients.
<b>Human Immunodeficiency Virus Viral Load</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of EDTA. Sample must be separated and frozen within 6 hours.
Comment:	This test is sent to the National Virus Reference Laboratory on ice.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	The interpretation of results depends upon the clinical circumstances.
<b>Influenza A H1N1 virus PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal or nasal/throat swabs combined in viral transport fluid (Remel red-capped swabs)
Comment:	For processing at weekends, specimens must be received in Microbiology by 10am
Turnaround:	Same day if received during routine hours

Comment:	Potential interference substances include blood, pus, mammalian cells and haemoglobin.
Report:	Influenza A H1N1 RNA: Detected or Not detected
<b>Influenza A virus PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal /throat swabs combined in viral transport fluid (Remel red-capped swabs) For processing at weekends, specimens must be received in Microbiology by 10am
Comment:	Potential interference substances include blood, pus, mammalian cells and haemoglobin.
Turnaround:	Same day if received during routine hours
Ref. Range:	Influenza A RNA: Detected or Not detected
<b>Influenza B virus PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal/throat swabs combined in viral transport fluid (Remel red-capped swabs)
Comment:	For processing at weekends, specimens must be received in Microbiology by 10am
Comment:	Potential interference substances include blood, pus, mammalian cells and haemoglobin.
Turnaround:	Same day if received during routine hours
Report:	Influenza B RNA: Detected or Not detected
<b>Intra-Uterine Infection Screen / TORCH Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle) (Minimum volume for baby samples: 1mL whole blood).
Comment:	Test performed by the Viral Reference Laboratory. "TORCH Screen" includes Toxoplasma gondii IgM, Rubella IgM, and CMV IgM antibodies. Parvovirus B19 IgM antibodies are also included in cases of miscarriage and stillborn babies.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	IgM antibody positive or negative for the relevant organisms.
<b>Intravascular Cannulae - Culture</b>	
See "Catheter / Intravascular Cannulae"	
<b>Intra-Uterine Contraceptive Device (IUCD)</b>	
Laboratory:	Microbiology
Specimen:	Place the entire IUD, including any exudate, in a sterile universal. Transport ASAP. If processing is delayed, refrigeration is preferable to storage at room temperature.
Comment:	Test performed Mon-Fri 8am-5pm.
Turnaround:	Prelim: 24 hours; Final: up to 7 days.
Report Format:	Any clinically significant isolate with the appropriate sensitivities. Culture for <i>Actinomyces</i> sp. proceeding which will be reported if positive.
<b>JC Virus PCR</b>	
Laboratory:	Microbiology
Specimen:	Serum/CSF/EDTA
Comment:	Test is sent to the NVRL
Turnaround:	Refer to User Manual of Reference Laboratory
Report Format:	Detected or not detected
<b>Joint Fluid</b>	
See "Sterile Body Fluid – Microscopy and Culture".	
<b>Legionella pneumophila antibodies</b>	
Test discontinued by Reference Laboratory (see below)	
<b>Legionella pneumophila urinary antigen</b>	
Laboratory:	Microbiology
Specimen:	5mLs urine (may be refrigerated for up to 14 days before testing)
Comment:	Test provided on a limited basis: ICU patients or by prior approval of Consultant Microbiologist
Turnaround:	24hrs
Report:	Legionella pneumophila urinary antigen: Positive or Negative
<b>Leptospirosis serology</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to a National Virus Reference Laboratory Negative reports for Leptospiral antibody are reported immediately. Positive sera are sent to the Leptospirosis Reference Laboratory in Hereford for confirmation. In either case (positive or negative), a second sample is required 7 – 10 days after the first sample is taken.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Leptospiral antibody negative or positive (with titre). <i>Note:</i> Positive results are rarely obtained in the 1 <sup>st</sup> 2 weeks of infection.
<b>Lyme serology / Borrelia burgdorferi antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle) or CSF (1 mL)
Comment:	Test performed by National Virus Reference Laboratory. Enzyme-linked immunosorbent assay (ELISA) followed by Western blot confirmation.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive ELISA (confirmed / not confirmed)
<b>Lymphoma granuloma</b>	
See <i>Chlamydia trachomatis</i>	
<b>Measles IgG antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Immune or Non-immune.
<b>Measles IgM antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Measles IgM antibodies positive or negative.
<b>Meningitis C vaccine antibodies - Serum</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by reference laboratory.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Positive or Negative
<b>Meningococcal PCR</b>	

See CSF PCR	
<b>Methicillin-Resistant Staph aureus (MRSA)</b>	
Laboratory:	Microbiology
Specimen:	Swabs containing transport media should be used. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	Test performed Mon–Fri 8am-5pm. Label all microbiology forms with MRSA SCREEN and Indicate if the patient was previously MRSA positive. Refer to MUH MRSA policy for further advice
Turnaround:	Prelim: 24 hours; Final: 48 - 72 hours.
Report:	“MRSA not isolated” or “MRSA isolated” with appropriate sensitivity results. Extra sensitivities are available from the Laboratory.
<b>MMR (Measles, Mumps, Rubella IgG antibodies)</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle )
Comment:	Tests performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Immune or Non-immune
<b>Mouth Swab</b>	
Laboratory:	Microbiology
Specimen:	Sample pus if present otherwise sample any lesions or inflamed areas. A tongue depressor or spatula may be helpful to aid vision and avoid contamination from other parts of the mouth. Swabs should be transported as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	Test performed routinely Mon–Fri 8am-5pm. For possible herpes infection, consider a “Viral PCR”. A separate viral swab is necessary.
Turnaround:	Prelim: 24 hours; Final: Up to 7 days.
Ref. Range:	Culture report: Any clinically significant isolate with the appropriate sensitivities.
<b>MSU – Midstream Urine</b>	
See “Urine Microscopy and Culture”.	
<b>Mumps IgG antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle )
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Immune or Non-immune
<b>Mumps IgM antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle )
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Mumps IgM antibodies positive or negative.
<b>Mycobacteria Stain/Culture (TB/AFB)</b>	
Laboratory	Microbiology
Specimen:	<u>Sputum</u> : Early morning sputum on 3 consecutive days – minimum volume 5mls. Saliva and postnasal secretions are not suitable. Only one sample per day will be processed. <u>Bronchial washings</u> : minimum volume preferably 5mls <u>Urine</u> : Early morning urine on 3 consecutive days – volume of 20mls is sufficient. MSU not suitable. Only one sample per day will be processed. Blood/Bone marrow: Please contact the Microbiology lab. Special bottles must be used. NB.: <b>Advance notice is required as this test is processed in CUH and requires special bottles that are not readily available. Microbiology MUH must be phoned in advance to organise delivery of said bottles.</b> <u>Body fluid/Aspirates/Pus</u> : Collect aseptically as much as possible into a sterile container. <u>CSF</u> : Ideally 5-10mls in a sterile container. <u>Skin/Tissue biopsy/Post mortem specimens</u> : Collect, if possible, a caseous portion, into a sterile container, <b>without</b> preservative. As large a specimen as possible should be sent. <u>Swabs</u> : Microscopy is generally not performed on swabs unless the swab holds a copious amount of pus or material. Ideally, place material in a sterile container rather than a swab.
Comment:	Requests for AFB are initially screened microscopically and, if negative, reported without further processing. AFB culture is only performed on the following: 1. ZN stain positive specimens 2. All bronchial washings 3. All Pleural fluids 4. Requests stating “specific need for TB culture” or “AFB culture” 5. Requests stating ?TB, Mantoux positive, consolidation or shadowing of lung. 6. Other specimens by prior arrangement with Consultant Microbiologist
Comment:	Administration of anti-tubercular treatment and other antibiotics pre sample collection may inhibit recovery of Mycobacterium
Turnaround:	Microscopy: Routine 24-72hrs, Urgent: 3hrs (should reach the lab before 3pm) Culture: Refer to User Manual of Reference Laboratory Susceptibility: Refer to User Manual of Reference Laboratory
Report:	Microscopy Negative: No AFB seen Microscopy Positive: AFB positive, with enumerator + or ++ etc. Culture Negative: Culture for Mycobacterium Negative Culture Positive: Mycobacterium (species named), with appropriate susceptibility
<b>Mycobacterium tuberculosis Complex PCR</b>	
Laboratory	Microbiology
Specimen	Sputum
Comment	Please telephone Microbiology to request. If sample has already been treated for culture or staining, a fresh sample must be sent for PCR
Comment:	Potential interference substances found in sputum include blood, pus, mammalian cells and haemoglobin.
Turnaround	Same day if received during routine hours
Report	Mycobacterium tuberculosis Detected OR Not Detected Rifampicin resistance Detected OR Not Detected
<b>Mycology</b>	
Laboratory	Microbiology
Specimen:	Clean lesions with surgical spirit prior to collection. Collect specimens into a sterile container without fixative or a Mycological 1. Scalp: Scrape with a blunt scalpel and include hair stubs, plugged follicles and skin scales. Hairs should be plucked and not cut. 2. Nail: clippings should be taken from any discoloured, dystrophic or brittle parts of the nail. Cut as far back as possible and scrapings can also be taken from beneath the nail, to supplement nail clippings. 3. Skin: Scrape with a blunt scalpel blade or the edge of a microscope slide, scraping outwards from the edges of the lesion. The use of clear sticky tape(sellotape) is not recommended. However, if taken, the sellotape strips are pressed against the lesion, peeled off and placed sticky side down onto a glass microscope slide.
Comment:	Sent to Cork University Hospital
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Direct smear: Fungal elements seen or not seen.

Culture: No Fungus isolated or "Named species" isolated.	
<b>Mycoplasma pneumoniae IgM Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle )
Comment:	Test performed Mon – Fri 8am-5pm or by urgent request on children.
Turnaround:	24- 48 hours
Report:	Mycoplasma pneumoniae IgM antibodies Positive or Negative.
<b>Neisseria gonorrhoeae and Chlamydia trachomatis PCR</b>	
see Chlamydia trachomatis and Neisseria gonorrhoeae PCR	
<b>Neisseria meningitidis PCR</b>	
Laboratory:	Microbiology
Specimen:	Blood 4 mls EDTA bottle (See also CSF PCR)
Comment:	Test performed by Meningococcal Reference Laboratory, Temple St Hospital
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Positive or Negative (with group).
<b>Norovirus RNA</b>	
Laboratory:	Microbiology
Specimen:	Faeces
Comment:	Processed by arrangement only. Any requests received without prior approval are stored at -20 <sup>0</sup> C for 2 days and reported as: 'Please contact the Consultant Microbiologist if testing is necessary'.
Comment:	Potential interfering substances include blood, mucus, faecal fat and medications used to relieve gastroenteritis symptoms
Turnaround	Assay interference may be observed in the presence of Benzalkonium (≥0.2%w/v) and Bismuth(5%w/v) Same day, Monday to Friday routine hours
Result:	Norovirus RNA detected or not detected
<b>Nose Swab</b>	
Laboratory:	Microbiology
Specimen:	Sample anterior nares gently rotating the swab on the surface. Transport specimens to the Laboratory as soon as possible. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	Aerobic culture - To detect nasal carriage of bacteria, especially <i>Staphylococcus aureus</i> during an outbreak of staphylococcal infection. Test performed routinely Mon–Thurs 8am-5pm
Turnaround:	Prelim: 24 hours; Final: up to 7 days.
Report:	Presence of <i>Staphylococcus aureus</i> reflects carrier state.
<b>Organ Donor Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted ( brown or white bottle)
Comment:	Please specify Organ Donor on request form as the National Virus Reference Laboratory is the only approved laboratory for organ donor screening. A screen for a potential organ donor consists of Hepatitis B virus, Hepatitis C virus, HIV antibodies, CMV total antibodies, <i>Toxoplasma gondii</i> total antibodies, HTLV and syphilis antibodies.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	A written /printed copy of results is required in the ward before harvesting of organs can begin.
<b>Parvovirus / B 19 IgM Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Positive or Negative
<b>Parasitology (Ova, cysts and parasites)</b>	
Laboratory:	Microbiology
Specimen:	Collect faeces in a sterile leak-proof container. Do not refrigerate. 3 specimens spaced 2-3 days apart are recommended for best recovery of parasites. No more than one specimen per 24hrs should be examined and will be rejected if received. If Entamoeba histolytica or Giardia lamblia are suspected and the first 3 specimens are negative, ideally, 3 additional specimens should be submitted at weekly intervals.
Comment:	<b>Due to the very low yield in this country, specimens will only be processed on requests which state a history of foreign travel</b> All other specimens will be rejected, unless prior approval has been sought from the Consultant Microbiologist. Test performed by Eurofins-Biomnis Please state if specific organisms are suspected e.g. cyclospora or microsporidia. Transport specimens ASAP as certain parasites will not survive if specimen dries out.
Turnaround:	<b>Routine:</b> Refer to User Manual of Reference Laboratory
Report:	No Ova, cysts or parasites or "Named species" seen.
<b>Parasitology serology</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by Dept of Clinical Parasitology, University College London Hospitals. There are many different parasites that can be tested serologically including Amoeba, Echinococcus, Filaria, Schistoma (Bilharzia), Trichenella, Trypanosoma cruzi. <b>Must specify parasite to be tested.</b>
Turnaround:	Refer to User Manual of Reference Laboratory
Ref.Range	Positive or Negative
<b>Penile Swab</b>	
Refer to "Genital swab"	
<b>Pericardial Fluid / Peritoneal Fluid / Pleural Fluid</b>	
See "Sterile Body Fluid – Microscopy and Culture".	
<b>Pernasal Swab /Pertussis</b>	
See "Bordetella species – Culture".	
<b>Pinworm/Enterobius vermicularis</b>	
See "Parasites"	
<b>Polio Antibodies - Serum</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by Polio Reference Laboratory, Colindale, London
Turnaround:	Refer to User Manual of Reference Laboratory
Ref.Range	Quantitative report with an interpretative comment.
<b>Pregnancy Test (Urinary β-HCG)</b>	
Laboratory:	Microbiology
Specimen:	Fresh urine specimen, preferably early morning urine (EMU)
Comment:	Urine tests for confirming pregnancy are based on detecting elevated levels of human chorionic gonadotropin (hCG) which the placenta begins to produce in increasing amounts about 10 days after fertilisation. Test available Monday to Friday during routine working hours. Other clinical symptoms should be taken into consideration when a HCG is positive.

Turnaround:	Routine specimens 24 hrs
Ref.Range	HCG Positive or Negative
<b>Q Fever</b>	
See " <i>Coxiella burnetii</i> IgM Antibodies"	
<b>Quantiferon TB</b>	
Laboratory:	Microbiology
Specimen:	Blood taken into 3 specific tubes, to be ordered in advance from Microbiology.
Comment:	Fill tubes to black line, being careful not to overfill, and send with a Microbiology request form and a Eurofins Biomnis request form. Sample must be received in the lab ideally ASAP and not more than 16hrs after taking the sample.  Must be received in Microbiology by 8pm, Monday-Thursday Must be received in Microbiology by 5pm Friday Do NOT take samples out-of-hours or at weekends/BH
Turnaround:	Refer to User Manual of Reference Laboratory
Report	Positive, Negative or Indeterminate, with interpretive comment
<b>Respiratory Syncytial Virus – PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal/Throat swabs taken into Viral Transport Media – use red-capped Remel swabs. Influenza and RSV are tested simultaneously on the same sample.
Comment:	Test available Mon-Fri.
Turnaround:	Same day
Report:	Detected or Not detected. Positive results phoned to ward.
<b>Rotavirus / Adenovirus Assay</b>	
Laboratory:	Microbiology
Specimen:	Fresh faeces sample. 1-2g is sufficient.
Comment:	Immunochromatographic test using anti-Adenovirus monoclonal and anti-Rotavirus polyclonal reagents. Test performed Mon-Fri 8am-5pm. Any stool sample on children <4 yrs and all stools from childrens wards sent for routine investigation or where specifically requested.
Turnaround:	24 – 48 hours. Positive reports are telephoned when available to the requesting area.
Ref. Range:	Positive or negative for Rotavirus and Adenovirus
<b>Rubella IgG Antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test available Monday-Friday. This test is used in the determination of immune status to rubella. Typically, this test is done as part of an antenatal or occupational health screen. Rubella IgM testing is recommended for the diagnosis of recent primary rubella infection.  Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results Potentially Interfering substances:Haemoglobin >5.0g/l, Triglycerides >30g/L
Turnaround:	1 week
Ref. Range:	Rubella IgG levels of 10 IU/mL or greater are considered immune. Rubella IgG levels less than 10 IU/mL are considered non-immune.
<b>Rubella IgM Antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to the National Virus Reference Laboratory. Patient history required.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Rubella IgM Negative or Positive.
<b>Schistosoma species</b>	
Laboratory:	Microbiology
Specimen:	Collection of a midday urine specimen is recommended (between 10.00h and 14.00h is the period of maximum activity). Alternatively, a collection of a 24h collection of terminal samples may be obtained (last-voided portion). Sterile containers without boric acid must be used. In patients with haematuria, eggs may be found trapped in the blood and mucus in the terminal portion of the urine specimen. Transport specimens ASAP. If processing is delayed refrigeration is preferable to storage at room temperature. Delays of over 48h are undesirable.
Comment:	Test performed by Eurofins-Biomnis
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Ova of <i>Schistosoma</i> spp.not present" or Ova of <i>Schistosoma</i> 'named species' present"
<b>Sputum Culture</b>	
Laboratory:	Microbiology
Specimen:	Sputum from the lower respiratory tract expectorated by deep coughing. Check that specimen is of adequate quality as samples of saliva and postnasal secretions are usually unsuitable. Ideally, the laboratory should receive a minimum volume of 1mL. The specimen should be collected into a sterile universal. Sputum may be refrigerated for up to 2 – 3h without an appreciable loss of pathogens. Any delay beyond this time may allow overgrowth of Gram-negative bacilli, and <i>Haemophilus</i> species and <i>S. pneumoniae</i> may die. Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	NB. Only one sputa per patient per day is cultured and multiple samples will be rejected unless by prior arrangement. Please include any appropriate clinical details e.g. "Cystic fibrosis patient". If an unusual pathogen is suspected, the laboratory should be informed, e.g. <i>Burkholderia pseudomallei</i> and <i>Nocardia</i> sp require longer incubation of cultures. Refer to Mycobacteria Testing for instructions for sputum collection for TB culture. TB culture only processed when specifically requested.  As sputa are cultured Mon-Fri only, please avoid taking specimens at weekends, unless unavoidable and then, only by prior arrangement with the laboratory. Sputa which have been placed in the fridge after 17.00 on Friday may be rejected on Monday morning as being unsuitable for culture due to excessive length of storage.
Turnaround:	Prelim: 24 hours; Final: up to 7 days.
Report:	Culture report: Any clinically significant isolate with the appropriate sensitivities.
<b>Sterile Body Fluid - Microscopy and Culture</b>	
Laboratory:	Microbiology
Specimen:	Specialist collection according to local protocols. Ideally, a minimum volume of 1mL should be collected into a sterile universal. The volume of specimen influences the transport time that is acceptable. Large volumes of purulent material maintain the viability of anaerobes for longer. Results from delayed samples must be interpreted with caution bearing in mind the difficulties in isolating anaerobes from these samples Transport specimens ASAP. If processing is delayed, refrigeration is preferable to storage at ambient temperature.
Comment:	Test performed routinely Mon-Fri 8am-5pm or by urgent request.
Turnaround:	Microscopy if requested: 2 hours. Culture: Prelim: 24 hours; Final: up to 10 days. Urgent report telephoned when available.
Report Format:	If requested a white Cell Count, differential (if appropriate) and Gram Stain will be reported. Culture will be reported on all
<b>Synovial Fluid</b>	
See "Sterile Body Fluid – Microscopy and Culture"	
<b>Syphilis Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to Cork University Hospital  If requested in combination with Lyme, sent to NVRL

Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Positive sera by the EIA method are considered provisionally positive, subject to confirmation.
<b>Throat Swab</b>	
Laboratory:	Microbiology
Specimen:	Swab the tonsillar area and/or posterior pharynx avoiding the tongue and uvula. Transport specimens ASAP if processing is delayed, refrigeration is preferable to storage at ambient temperature. If diphtheria or gonorrhoea or pertussis is suspected special testing should be requested (per-nasal swab for pertussis). Specimens for viral isolation should be submitted in appropriate viral swabs.
Comment:	Test performed routinely Mon–Fri 8am-5pm or by urgent request.
Turnaround:	Prelim: 24 hours; Final: 48 - 72 hours.
Report:	β-haemolytic streptococci and other bacteria with sensitivity if appropriate.
<b>TORCH</b>	
See “Intra-Uterine Infection Screen”	
<b>Toxocara Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test performed by Department of Clinical Parasitology, University College London Hospitals. A special request form must be filled in and is available from Microbiology.
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	Quantitative report with an interpretative comment.
<b>Toxoplasma gondii (anti-Toxoplasma gondii total Ig) Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to National Virus Reference Laboratory
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	EIA for Toxoplasma gondii total antibodies Positive indicates exposure to Toxoplasma i.e. either present infection or a past infection with immunity now.
<b>Toxoplasma gondii (anti-toxoplasma IgM) Antibodies</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle)
Comment:	Test sent to CUH
Turnaround:	Refer to User Manual of Reference Laboratory
Ref. Range:	EIA for Toxoplasma IgM Positive - should be interpreted with caution as positive IgM antibodies can be detected for up to 2 years after the acute infection.
<b>Trichomonas vaginalis PCR</b>	
Laboratory:	Microbiology
<i>See Chlamydia trachomatis and Neisseria gonorrhoeae PCR</i>	
<b>Urinary Pneumococcal Antigen</b>	
Laboratory:	Microbiology
Specimen:	Urine
Comment:	Test detects <i>Streptococcus pneumoniae</i> antigen
Turnaround:	<b>Same day</b>
Report:	Positive or Negative
<b>Tuberculosis Testing</b>	
Refer to Mycobacteria Testing (TB/AFB)	
<b>Ulcer Swab</b>	
See Wound Swab	
<b>Urethral swab</b>	
Refer to “Genital swab”	
<b>Urine Microscopy and Culture</b>	
Specimen:	Minimum of 1ml urine collected into a sterile container. Specimen types: 1. Mid-stream urine(MSU): recommended for routine use. Clean genitalia, discard first part of voided urine, and, without interrupting the flow, collect approx 10mls into a sterile container. 2. Bag urine: commonly used for infants. The sterile bag is taped over the genitalia and the collected urine transferred to a sterile container. Frequent problems of contamination with this method of collection. 3. Clean catch urine(CCU): Thorough periurethral cleaning is recommended. The whole specimen is collected into a sterile container and an aliquot sent for examination. 4. Suprapubic aspirate(SPA): Use of this invasive procedure is usually reserved for clarification of equivocal results from voided urine e.g. in infants. 5. Catheter urine (CSU): May be collected from suprapubic or per urethral. The specimen should not be obtained from the collection bag. 6. Ileal conduit-urostomy: Urine is collected via a catheter passed aseptically into the stomal opening after removal of the external appliance. Results may be difficult to interpret. Should only be performed if there is clinical evidence of infection. 7. Cystoscopy: Urine is obtained directly from bladder using a cystoscope. It is important that the type of specimen is clearly indicated to guide interpretation of results.
Comment:	· It is important, for accurate results to be obtained, that there is minimal delay before culture. If processing is to be delayed for more than 6hrs, refrigerate for up to 48hrs. · Urine for casts – please indicate if casts are suspected as further processing is necessary. A fresh specimen is essential for casts. · Urine for AFB – see Mycobacteria · Urine for <i>Schistosoma haematobium</i> – see <i>Schistosoma haematobium</i>
Turnaround:	Microscopy: Routine – 24hrs, Urgent – 2hrs Culture: Negative – 24hrs Positive – Preliminary 24hrs, Final 24-72hrs
Report:	Microscopy: Quantity of WBC and RBC per cmm, as well as presence of bacteria, yeasts, <i>Trichomonas vaginalis</i> and casts, if present. Culture: Bacterial growth in orgs/ml, with antibiotic susceptibilities and comment if appropriate.
<b>Urinary schistosomiasis</b>	
See “Schistosoma haematobium”	
<b>Vancomycin</b>	
Laboratory:	Microbiology
Specimen:	2ml clotted blood ( brown or white bottle) Once-daily dosage taken at least 18hrs post dose Multiple-daily dosage taken immediately before(Trough) and 1hr post dose(Peak) – usually peak not necessary.
Comment:	N.B. Fill out antibiotic request form fully, indicating time of specimen, dose given and time of last dose. Pre specimens are most useful guide for monitoring antibiotic therapy. Please refer to MUH Antibiotic guidelines. Test available Monday to Friday between the hours of 8am and 9pm inclusive and at weekends including bank holidays between 9am and 6pm. Please ensure these times are taken into consideration when prescribing these antibiotics.
Comment:	Potentially interfering substances-Haemoglobin >5.0 g/L Triglycerides >20g/L

Turnaround:	Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results 4 hrs
Ref. Range:	Once-daily dosage: Trough 10-20mg/L Multiple-daily dosage: Trough 10-20mg/L Peak 20-40/L
<b>Vancomycin Resistant Enterococci (VRE)</b>	
Laboratory:	Microbiology
Specimen:	VRE may be isolated from any specimen, but a common site cultured for colonisation is a rectal swab, sent in transport medium.
Comment:	Test performed Monday – Friday 8am-5pm. <b>VRE are NOT a recognised cause of diarrhoea</b> and should not be requested on stool specimens. If colonisation is suspected, please send a rectal swab and state if the patient was previously VRE positive. Transport specimens ASAP. If processing of swabs is delayed, refrigeration is preferable to storage at ambient temperature.
Turnaround:	48 - 72 hours.
Report Format:	“VRE not detected”, “Vancomycin-Resistant <i>Enterococcus faecium</i> detected” or “Vancomycin-Resistant <i>Enterococcus faecalis</i> detected”
<b>Varicella-Zoster Virus IgG Antibody</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle) or CSF sample.
Comment:	Test performed by the National Virus Reference Laboratory. A STAT test (VZV scan) is also available for urgent samples in Microbiology Laboratory, CUH. Prior arrangement with the laboratory is required.
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	VZV IgG Antibodies Positive or Negative. VZV IgG Antibody positive indicates previous exposure, and immunity to chicken pox.
<b>Viral Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (white bottle) Specimens labelled “Viral screen” will not be processed as this is a very broad term . . . Always specify virus to be tested.
Comment:	The following table is a guide to identifying possible causative viruses/agents:
<b>Provisional Diagnosis/Symptoms</b>	<b>Possible Virus/Agent</b>
Respiratory infection	<i>Mycoplasma pneumoniae</i> <i>Chlamydia pneumoniae</i> <i>Coxiella burnetii</i> (Q fever) Adenovirus <i>Legionella pneumophila</i> Influenza A/B Respiratory Syncytial virus (RSV)
Arthralgia	Rubella Parvovirus B19 <i>Mycoplasma pneumoniae</i> <i>Borrelia burgdorferi</i> (Lyme)
Exanthem	Measles Rubella Parvovirus B19
Central Nervous system infection	Measles Mumps Herpes simplex Varicella Zoster Virus (VZV) Cytomegalovirus (CMV) Enterovirus (Coxsackie, Echo)
Hepatitis	Hepatitis A IgM Hepatitis B surface antigen Hepatitis C antibody Hepatitis E Epstein Barr virus (EBV) Cytomegalovirus (CMV)
Intra-uterine infection/ TORCH screen	Toxoplasmosis
Organ Donor	Rubella Cytomegalovirus (CMV) Parvovirus B19 IgM Syphilis CMV Toxoplasmosis (total) Hepatitis B surface antigen and core antibodies Hepatitis C HIV
Antenatal	Rubella IgG Hepatitis B surface antigen Syphilis VZV
Pericarditis/Myocarditis	<i>Coxiella burnetii</i> (Q fever) Chlamydia group <i>Mycoplasma pneumoniae</i> Coxsackie B virus
Lymphadenopathy and glandular fever	Epstein Barr virus (EBV)
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	IgM antibody positive indicates recent infection with the relevant virus.
<b>Viral Culture/PCR</b>	
Laboratory:	Microbiology
Specimen:	Special Virology swabs (available from Microbiology laboratory)
Comment:	Test performed by National Virus Reference Laboratory. Please state which virus or viruses required Consult NVRL User Manual or Microbiology to determine viruses which can be tested by culture or PCR
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	Specific virus detected
<b>Viral Haemorrhagic fevers</b>	
Laboratory:	Microbiology
Specimen:	EDTA Whole Blood (2-5 mls)
Comment:	Test performed by National Virus Reference Laboratory

	Specimen must arrive to the NVRL in Dublin within 12 hours of venepuncture N.B. Microbiology to be notified in advance so that transport can be organized.
Turnaround	Refer to User Manual of Reference Laboratory
Report	Detected or not detected
<b>Whooping Cough</b>	
See " <i>Bordetella</i> species – Culture, PCR, Serology".	
<b>Wound Swab (skin/abscess/decubitus ulcer/bite/burn etc.)</b>	
Specimen:	Specimens of pus, if present, placed in a sterile universal container, are preferable to swabs. Swabs should be soaked in exudates where possible. Sample the deepest part of the wound, avoiding superficial microflora.  Always use swabs with transport medium. Large volumes of purulent material maintain the viability of anaerobes for longer. The recovery of anaerobes is compromised by delays in transport. Results of delayed samples (>3hrs) must be interpreted with caution, bearing in mind the difficulty in isolating anaerobes from these samples. Processing of superficial swabs of ulcers should be discouraged.
Comment:	Always state site and type of wound on the request form as appropriate culture can only be performed with this information. Unspecified swabs will be rejected.
Turnaround:	Urgent microscopy: 2hrs Culture: Preliminary 24hrs, Final up to 7 days
Report:	Microscopy: Report on the numbers of WBC/cmm and the presence of organisms. Culture: "No Growth" or "Normal Flora" or a report of any clinically significant organism isolated with appropriate susceptibility.
Specimen:	Specimens of pus, if present, placed in a sterile universal container, are preferable to swabs. Swabs should be soaked in exudates where possible. Sample the deepest part of the wound, avoiding superficial microflora.  Always use swabs with transport medium. Large volumes of purulent material maintain the viability of anaerobes for longer. The recovery of anaerobes is compromised by delays in transport. Results of delayed samples (>3hrs) must be interpreted with caution, bearing in mind the difficulty in isolating anaerobes from these samples. In the absence of infection, taking superficial swabs of ulcers should be discouraged.
<b>Yersinia Antibodies</b>	
Test discontinued by Reference laboratory	

### Document review History

Change Ref & date Implemented	Details of Change
CR2020-implemented 04.12.20	Filmarray Respiratory panel added
CR2035-implemented 08.12.20	TAT: Blood Culture amended to comply with Irish guidelines for investigation of blood cultures
CR2088-implemented 02.02.21	<b>Blood culture Filmarray target list available from Consultant Microbiologist or from the laboratory</b>
CR2026 -implemented 03.02.21	Change Blood Gas reference ranges to GEM 5000 recommended ranges.
CR2086 -implemented 05.02.21	Comments added to '5-HIAA 5 Hydroxy Indole Acetic Acid - Urine' and 'Catecholamines –Urine'
<b>CC533-Implemented 12.02.21</b>	<b>Updates under HVS section based on new procedure LP-MIC-235</b> <b>C trachomatis and N. Gonorrhoea missing from previous version, now included</b>
CR2104, CR 2103	T vaginalis
CC593-Implemented 01.03.21	Addition of Molecular Enterics testing
CC620, CR2198	CSF Lactate as per CC 620. (<17 YEARS REF 1.1-2.8 mol/L, >17 Years 1.1-2.4mmol/L)