

**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**

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.muh.ie into search engine

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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>

### Document review History

Implemented	Details of Change
28/02/2024	CR3694 Add NT pro BNP details
28/02/2024	CR3686 Add comment to creatinine and to eGFR on enzymatic assay in use on Alinity
28/02/2024	CR3688 Xanthochromia - min 1 ml, send last sample from LP, use specific CUH form.
24/11/2023	CR3504 'Plasma Metanephrines' in the A-Z Biomnis link & removed ref to Plasma Catecholamines
15/09/2023	CR3407 Change laboratory for Urine and serum Toxicology. Urine & Serum now sent to Biomnis
31/08/2023	CR3372 update cationic trypsinogen gene to reflect change in testing centre.
24/08/2023	CR3364 ASO: No longer available in-house, refer to Eurofins. TAT approx 5 days
18/09/2023	CR3363 Bordetella pertussis culture- No longer available, PCR recommended
24/08/2023	CR2830, CR3363, CR3285 Helicobacter pylori culture - Changed to CUH.Criteria for collection of biopsy samples updated & TAT changed
29/06/2023	CR3262 PTH -remove receive and frozen within 30 mins
15/05/2023	CR3203 C. difficile: - Change Enzyme Immunoassay to Fluorescence Immunoassay
31/08/2023	CR3372 update cationic trypsinogen gene to reflect change in testing centre.
27/02/2024	CR3662 Update RSV TAT
23/02/2024	CR3680 Remove ref to microbiology request form

22/05/2023	CR3202 Update Faeces investigation TAT
23/02/2024	CR3678 update E coli for PCR as preferred method
15/05/2023	CR3203 C diff updated for FIA and minor word formatting changes
23/02/2024	CR3367 Update Brucella serology for ref range
23/02/2024	CR3654 Chlamydomphila pneumoniae IgG/IgM serology updated for specimen requirements
18/09/2023	CR3363 Bordetella Species - Culture
01/01/2024	CR3655 Chlamydia psittaci Antibodies update details
23/02/2024	CR3656 COVID-19 (SARS-CoV-2 PCR)
23/02/2024	CR3658 Dengue fever antibodies updated for ref lab details
19/12/2023	CR3660 Update FilmArray Respiratory Panel for report and when it can be done
23/02/2024	CR3661 Genital Swab updated for test details
23/02/2024	CR3560 remove ref to Legionella pneumophila antibodies
23/02/2024	CR3659 Faeces - Microscopy for cryptosporidium - remove section as same information already present as Cryptosporidium species
31/07/2023	CR3653 Remove section on CPE PCR testing. Test no longer performed performed using genexpert. Only Culture method done.
23/02/2024	CR3677 Brucella: Remove Ref Range comment and refer to Reference Lab
13/03/2024	CR3742 add globulin calculation to the a-z
20/03/2024	CR3758 add addiitonal comment to adjusted calcium
<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.
Turnaround:	See referral laboratory manual, allowing time for transport
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 20ml Acid container available for, biochemistry. Avoid Caffeine, Aubergines,Avocados,Bananas,Blackcurrants,Damson Plums,
Comment:	Gooseberries,Melon,Mirabelle Plums,Pineapple,Redcurrants,Tomatoes & walnuts, 48 prior to collection
Ref. Range:	See report form.
Turnaround:	See referral laboratory manual, allowing time for transport
<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.  
Turnaround: See referral laboratory manual, allowing time for transport

**ACE - Angiotensin converting enzyme (CSF)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ECAPL/>  
Ref. Range. See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Acid Fast Bacilli (AFB)**

Refer to Mycobacteria Testing (TB/AFB)

**ACTH**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTH/>  
Ref. Range. See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Activated Partial Thromboplastin Time (APTT)**

Laboratory: Haematology  
Blood 3mL, green, S Monovette (sodium citrate 0.106M)  
(Specimens which are haemolysed under filled or overfilled cannot be analysed)

Specimen: 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. Specimens which are haemolysed under filled or overfilled cannot be analysed) Underfilled coagulation samples will all be rejected as they lead to inaccurate results.

Stability: 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.

Comment: Adult 20.5 – 28.4 seconds 0.8 – 1.11 Ratio, These normal ranges do NOT apply to patients on anticoagulants. Therapeutic ranges are decided by clinicians

Ref. Range Children < 3 months 25 – 45 seconds

Turn-around time: Emergency specimens as per arrangement. Routine specimens 4 hours.

**Acyl Carnitine**

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 on specific clinical details form.

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

#### **Adalimumaub (Humira)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAL/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

#### **Adenosine Deaminase**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ADAD/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

#### **Adenovirus PCR**

Laboratory: Microbiology

Specimen: Nasal and/or throat swabs combined in viral transport fluid 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

#### **ADH-Antidiuretic hormone**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ADH/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

#### **Adrenaline/ Noradrenaline**

See Catecholamines

#### **AFP - Alpha Fetoprotein**

Laboratory: Biochemistry

Specimen: 4.0 ml in blood plain tube (serum sample) or lithium heparin, Received < 72 hours

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: 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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround: <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
Turnaround: See referral laboratory manual, allowing time for transport
<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
Turnaround: See referral laboratory manual, allowing time for transport
<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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround: <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
Turnaround: See referral laboratory manual, allowing time for transport
<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.
Turnaround: See referral laboratory manual, allowing time for transport

<b>Alpha Galactosidase A (Fabry's Testing)</b>	
Contact biochemistry lab for instructions for sample collection and transport to reference laboratory	
<b>Alpha Thalassaemia/ High affinity haemoglobins</b>	
Laboratory:	Referred from Haematology Dept. MUH to Oxford
Specimen:	5 - 10mls EDTA Request form attached must be completed, Patients consent form and 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.
Comment:	changes.
Ref.Range:	Please see copy of report.
<b>ALT - Alanine Aminotransferase</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood plain tube (serum sample) or lithium heparin. Received < 24 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	<b>Urgent:</b> < 2 hrs <b>Routine:</b> Same day service 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.
Comment:	medications containing sulfasalazine may have clinically significant incorrect laboratory test results.
<b>Amikacin / Amikin</b>	
Laboratory:	<b>Microbiology</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)
<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 on specific clinical details form.
Ref. Range:	See report form.
Turnaround:	See referral laboratory manual, allowing time for transport
<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.  
Turnaround: See referral laboratory manual, allowing time for transport

**Ammonia (EDTA)**

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: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

**Amphetamine**

See Toxicology / Drug Screen – Urine

**Amylase (Blood)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

**Amylase (Urine)**

Laboratory: Biochemistry  
Specimen: Spot or 24 Hr urine sample, No preservative, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

**Amylase (Fluid)**

See Sterile Body Fluid Biochemistry

**Androgen Index**

See SHBG

**Androstendiones**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GADIO/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Acetylcholine Receptor Antibodies**

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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Anti-AMPA Antibodies (Includes anti-NMDAR, AMPAR1, AMPAR2, Lgi1, 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/AMPA/">https://www.eurofins-biomnis.com/en/services/test-guide/page/AMPA/</a>
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Anti-Amphipysin Antibodies</b>	
See Anti-neuronal Antibodies	
<b>Anti-Beta 2 Glycoprotein 1 Antibodies</b>	
Laboratory:	Refer to Beta 2 Glycoprotein 1 Antibodies
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) <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)
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport
<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>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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Anti-Carbonic Anhydrase Antibodies / Anti Lactoferrin Antibodies</b>	



Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/PANCR/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Centromere Antibodies**

See Anti ENA Antibody typing

**Anti-Cerebellum Antibodies**

See Anti-AMPA antibodies

**Anti-cyclic citrullinated peptide**

Laboratory: Haematology: referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CITRA/>  
Comment: Anti-cyclic citrullinated antibodies are autoantibodies frequently detected in patients with rheumatoid arthritis.  
Ref.Range. See report

**Anti-CV2 Antibodies**

See Anti-neuronal Antibodies

**Anti-dsDNA Antibodies**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/>  
Ref. Range: See report form  
Comment: Routinely performed in presence of positive ANA  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-ENA Antibodies (SSA, SSB, Sm, Rnp, Jo1, Scl-70)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ADNAC/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport  
Comment: Routinely performed in presence of positive ANA

**Anti-Endomysial Antibodies IgA/IgG**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: [https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOA/ \(IgA\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOA/ (IgA))  
[https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOG/ \(IgG\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/ENDOG/ (IgG))  
Ref. Range: See report form

Turnaround:	See referral laboratory manual, allowing time for transport
Turnaround:	See referral laboratory manual, allowing time for transport
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 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.
Comment:	received in Haematology lab before 11 o clock.
Turnaround	1 week.
Ref. Range:	See report

#### **Anti-GABA b ( $\gamma$ -Aminobutyric acid-B) Receptor Antibodies**

See Anti-AMPA antibodies

#### **Anti-Ganglioside Antibodies (Sulfatides, GM1, GM2, GM3, GM4, GD1a, GD1b, GD2, GD3, GT1a, GT1b, GQ1b)**

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)
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport

#### **Anti-GAD ( anti-glutamic acid decarboxylase ) Antibodies**

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
Turnaround:	See referral laboratory manual, allowing time for transport

#### **Anti-GBM (Glomerular Basement Membrane) Antibodies**

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>
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport

#### **Anti-GD Antibodies ( GD1a, GD1b, GD2, GD3)**

See Anti-Ganglioside Antibodies

#### **Anti-GM Antibodies ( GM1, GM2, GM3, GM4,)**

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 Turnaround: See referral laboratory manual, allowing time for transport
<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 Turnaround: See referral laboratory manual, allowing time for transport
<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 Turnaround: See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Anti – Neutrophil Antibodies</b>	
Laboratory:	<b>Referred from Haematology laboratory</b> NHSBT Filton (Bristol) sent by DHL
Specimen:	Paediatric size EDTA sample
Form:	Histocompatibility & Immunogenetics NHS form 3E available from link below <a href="https://nhsbtde.blob.core.windows.net/umbraco-assets-corp/20474/2021-0010-3e_a4_specimenbagformz xu1142-1.pdf">https://nhsbtde.blob.core.windows.net/umbraco-assets-corp/20474/2021-0010-3e_a4_specimenbagformz xu1142-1.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-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  
Comment In the case of a positive screening the anti-MPO and anti-PR3 antibody assay is performed  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-N-Methyl D Aspartate (NMDA) Receptor Antibodies (SERUM or CSF)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDA/> (Serum)  
<https://www.eurofins-biomnis.com/en/services/test-guide/page/NMDPL/> (CSF)

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Nuclear Antibodies**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/AANX/>

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Ovarian Antibodies**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/OVAC/>

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Pancreatic Islet Cell Antibodies**

See Anti-Islet Cell Antibodies

**Anti-Parietal Cell Antibodies-stomach**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CELPA/>

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Anti-Potassium Channel Antibodies**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CAPO/> (Serum)  
<https://www.eurofins-biomnis.com/en/services/test-guide/page/VGKPL/> (CSF)

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

<b>Anti- Proteinase3 (PR3) Antibodies</b>
See Anti-Neutrophil Cytoplasmic Antibodies (ANCA) screen
<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>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 Turnaround: See referral laboratory manual, allowing time for transport
<b>Anti SSA/RO Antibody</b>
See Anti ENA Antibodies
<b>Anti SSB/La Antibody</b>
See Anti ENA Antibodies
<b>Anti- Streptolysin-O (ASO) Antibodies</b>
Laboratory: Microbiology Referred to Eurofins Biomnis. Specimen: 2ml clotted blood ( brown or white bottle) Turnaround: See referral laboratory manual, allowing time for transport Ref. Range: See referral laboratory manual.
<b>Anti-Sulfatides Antibodies</b>
See Anti-Ganglioside Antibodies
<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:	Samples for Antithrombin, should not be sent if a patient is on heparin, or LMW heparin or any oral anti-coagulants including DOAC/NOAC as this would lead to erroneous results. 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-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
Turnaround:	See referral laboratory manual, allowing time for transport
<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>
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turn-around time:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Anti-UI 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>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>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) <a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf</a> Form: 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>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>AST - Aspartate Aminotransferase</b>
Laboratory: Biochemistry Specimen: <a href="#">4.0 ml blood plain tube (serum sample), Received &lt; 48 hours</a> Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate Turnaround: 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

**Avian Antibodies / Fowl Screen**

Laboratory: Microbiology  
Specimen: Blood 4mL clotted blood (brown or white blood). Screen includes Bird Breeders Lung and Chlamydophila psittaci  
Comment: Test performed by Eurofins Biomnis Laboratories  
Turnaround: Refer to User Manual of Reference Laboratory  
Report: Positive or Negative

**Bartonella henselae Antibodies**

Test discontinued by Reference laboratory

**Bartholin's Abscess**

Laboratory: Microbiology  
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 *N. gonorrhoeae* is lost over time. If processing is delayed refrigeration is preferable to storage at room temperature.  
Specimen:  
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.

**BCR/ABL ( Philadelphia Chromosome) - Referrals only through Haematology Team**

Laboratory: Referred from Haematology Dept MUH to Cancer Molecular Diagnostics St.James  
Specimen: 9ml EDTA sample, request on MUH Haematology form  
Delivery to St James within 24 hours of phlebotomy essential. Samples must be received in Haematology laboratory Monday - 11am  
Comment: Thursday's  
Ref. Range: See report

**Bence-Jones Protein**

Laboratory: Biochemistry  
Specimen: Preferably early morning urine (20 mls urine), Received < 72 hours  
Ref. Range: Should be NEGATIVE  
Turnaround: 3 weeks

**Benzodiazepines**

See Toxicology / Drug Screen - Blood or Urine

**Beta - hCG (human Corionic gonadatropin)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood plain tube (serum sample), Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Urgent: < 3 hrs Routine: 1 week

**Beta Hydroxybutyric Acid**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CETO/>  
Ref. Range: See report  
Turnaround: See referral laboratory manual, allowing time for transport

**Beta-2-Glycoprotein Antibodies IgG and IGM and Anticardiolipin Antibody IgG**

Laboratory: Haematology: referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPI/>  
<https://www.eurofins-biomnis.com/en/services/test-guide/page/B2GPM/>  
<https://www.eurofins-biomnis.com/en/services/test-guide/page/CARD/>  
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  
Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/B2M/>  
Ref. Range: See report form.

**Beta-2-Microglobulin (B2M)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/B2M/>  
Ref. Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

**Bicarbonate**

See Blood gases

**Bilirubin- Conjugated**

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.

Turnaround: See referral laboratory manual, allowing time for transport

### Bilirubin-Total

Laboratory: Biochemistry

Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 48 hours

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

### Blood Culture

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:

#### **PLEASE DO NOT REMOVE BAR CODE LABELS**

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)

Report: Negative: No growth after 5 or 10 days

Positive: Organism reported with appropriate antibiotic susceptibility

<b>Blood Gases (pH, pCO<sub>2</sub>, pO<sub>2</sub>, Lactate, Calculated Bicarbonate, COHb, MetHb, O<sub>2</sub> Saturation)</b>	
Laboratory:	Point of Care Testing Heparinised Blood Gas syringe, Sample should be analysed with 15 minutes at the Point of Care site. Ensure
Specimen:	proper mixing of the sample before analysis
Ref. Range:	Up-to-date reference intervals will be applied to all reports as appropriate
Turnaround:	20mins
<b>Blood Group / Antibody Screen(Group &amp; Hold) ROUTINE</b>	
Laboratory:	Blood Transfusion
Specimen:	3-7.5ml EDTA (whole Blood) Samples to be hand delivered to Blood Bank as soon as possible from procurement..Ensure sample size is adequate to allow for Antibody
Comment:	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 Tii 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:	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) Patients with specific transfusion protocols may take longer to process as Irradiated /CMV negative products are not routine stock items and
Comment:	may need to ordered from I.B.T.S .on request.
Turn-around Tii 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) Patient with Antibody history must be documented on Request form.May be delay in issue of Blood Products depending on the complexity of
Comment:	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: 1 working day

**Blood Group and Compatibility Testing for patients who have red cell immune antibodies EMERGENCY**

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.

**Blood Group and Compatibility Testing ROUTINE**

Laboratory: Blood Transfusion

Specimen: 3-7.5ml EDTA (whole Blood)

Patients with specific transfusion protocols may take longer to process as Irradiated /CMV negative products are not routine stock items and may need to ordered from I.B.T.S .on request.

Turn-around: Routine 2-6 hrs ♦ (Next scheduled batch)

**Blood Group and Compatibility Testing EMERGENCY**

Laboratory: Blood Transfusion

Specimen: 3-7.5ml EDTA (whole Blood)

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: 1 working day

**Blood Group and Compatibility Testing for patients who have red cell immune antibodies EMERGENCY**

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.

**Bone Marrow Examination / Bone Marrow Biopsies (trephines)**

Laboratory: Haematology

Fresh bone marrow films. Specimen should be sent to the Haematology Dept., as soon as possible as some staining procedures require immediate fixation.. All slides should be labelled clearly.

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.

**BNP - Brain Naturetic Peptide**

Laboratory: Biochemistry:

Specimen: 4.0 ml EDTA blood, Received and frozen < 4 hrs

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: 1 week

**Bordetella Species - Culture**

Comment: **Bordetella pertussis culture- No longer available, PCR recommended**

**Bordetella pertusis PCR**

Laboratory Microbiology  
Specimen Respiratory specimen, E.G. Nasopharyngeal aspirate  
Comment Test performed as part of the Filmarray Respiratory panel  
Turnaround: Same day  
Report: Detected or not detected

**Bordetella pertusis serology**

Laboratory Microbiology  
Specimen Blood 4mL clotted sample (brown or white bottle)  
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

**Borrelia burgdorferi antibodies**

See "Lyme serology"

**Bronchoalveolar lavage fluid Culture**

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. Burkholderia pseudomallei and Nocardia 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 suggest 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.
<b>Bursa Fluid</b>	
See "Sterile Body Fluid – Microscopy and Culture".	
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>C3 / C4 (Complement)</b>	
Laboratory:	Biochemistry: Referred to Biochemistry CUH
Specimen:	4.0 ml blood plain tube (serum sample), Received < 72 hours
Ref. Range:	See report form.
Turnaround:	See referral laboratory manual, allowing time for transport
<b>CA 125</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	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 tin	See referral laboratory manual, allowing time for transport
<b>CA 19-9</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Next routine working day

### Calcitonin

Laboratory: Biochemistry, Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CALCI/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### Calcium/Adjusted Calcium (Blood)

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in a plain tube (serum sample) or lithium heparin. Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service  
Complexing anticoagulants such as those used in glucose/FBC bottles (citrate, oxalate EDTA) must be avoided.  
**The calculation used to adjusted calcium is Adjusted Calcium = Total calcium +(0.014\*(38-Albumin) and is only applicable to patients greater than 1 year old.**  
Comment

### Calcium (ionised)

Laboratory: Point of Care Testing  
Heparinised Blood Gas syringe, Sample should be analysed with 15 minutes at the Point of Care site. Ensure  
Specimen: proper mixing of the sample before analysis  
Turnaround: <20 mins  
Ref. Range: Up-to-date reference intervals will be applied to all reports as appropriate

### Calcium (Urinary)

Laboratory: Biochemistry  
Specimen: 24 Hr acidified urine collection, Received < 48 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

### Calcium / Creatinine Ratio (Urinary)

Laboratory: Biochemistry  
Specimen: Fresh spot urine. Send to Biochemistry ASAP.  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

### Calprotectin –Faecal

Laboratory: Biochemistry



Specimen: 20g minimum Stool sample, send to lab immediately, sample may be stored @ 4°C for one day before receipt  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: 1 week

### **Cannabis**

See Toxicology / Drug Screen – Urine

### **CALR - Referrals only through Haematology Team**

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

### **Candida albicans Antibodies**

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

### **Carbamazepine**

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.  
Turnaround: See referral laboratory manual, allowing time for transport  
Comment: Take trough sample immediately before next dose

### **Carboxyhaemoglobin**

See blood gases

### **Carnitine, Free & Total**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CARTL/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### **Carbapenemase Producing Enterobacteriaceae (CPE) Culture**

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>	
Comment	PCR no longer available see CPE Culture
<b>Catecholamine Refer to Metanephrines - Plasma</b>	
<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:	Avoid Caffeine containing drinks, 48 hours prior to collection.
Ref. Range:	See Report Form.
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Catheter / Intravascular Cannulae</b>	
Laboratory:	Microbiology 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
Specimen:	to storage at ambient temperature. 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
Comment:	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>Cationic Tryps See Hereditary Pancreatitis</b>	
<b>Cat Scratch Disease Antibodies (Bartonella henselae Antibodies)</b>	
Test discontinued by Reference laboratory	
<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 Tii	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

**CD4/CD8 Ratio- same as for individual tests detailed above**

Ref. Range See Report

**CD3 / CD4/ CD8 / CD19 / CD56 Counts**

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.

**CEA - Carcinoembryonic Antigen**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample). Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Next routine working day

**Cerebrospinal Fluid (CSF)- Biochemistry Profile (Glucose and Protein)**

Laboratory: Biochemistry  
Specimen: 1.5 ml CSF specimen, send to lab immediately  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

**Cerebrospinal Fluid – Haematology - See also Flow Cytometry/Immunophenotyping**

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

**Cerebrospinal Fluid (CSF) –Lactate**

Laboratory: Biochemistry.  
Specimen: 1.5 ml CSF specimen in paediatric glucose bottle, send to lab immediately  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

**Cerebrospinal Fluid (CSF) - Culture/Microscopy**

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.

**Normal CSF Values:**

<b>Leucocytes</b>	Neonates	0-30 cells per cmm
	1-4 yr old	0-20 cells per cmm
	5 yr-puberty	0-10 cells per cmm
	Adults	0-5 cells per cmm
<b>Erythrocytes</b>	Neonates	0-675 cells per cmm

	Adults	0-10 cells per cmm
<b>Protein</b>	Neonates	0.7g/l
	Others	0.2-0.4g/l (<1% of serum protein concentration)
Glucose	>60% of simultaneously determined plasma concentration (CSF:serum ratio>	

These values represent the upper and lower limits of normality. Bacterial or viral infection may still need to be considered where leucocyte counts are near the upper normal limits in neonates and young children.

**Cerebrospinal Fluid PCR (Bacterial/Viral/Yeast) FilmArray ME Panel**

Laboratory:	Microbiology
Specimen:	CSF approximately 0.3 ml
Comment:	<p>Performed if WCC is raised or on request</p> <p>Panel includes the following targets:</p> <p><b>Bacteria:</b></p> <p>Escherichia coli K1</p> <p>Haemophilus influenzae</p> <p>Listeria monocytogenes</p> <p>Neisseria meningitidis (encapsulated)</p> <p>Streptococcus agalactiae</p> <p>Streptococcus pneumoniae</p> <p><b>Viruses:</b></p> <p>Cytomegalovirus</p> <p>Enterovirus</p> <p>Herpes simplex virus 1</p> <p>Herpes simplex virus 2</p> <p>Human herpesvirus 6</p> <p>Human parechovirus</p> <p>Varicella zoster virus</p> <p><b>Yeast:</b></p> <p>Cryptococcus neoformans/gattii</p>
Comment:	<p>Some organisms (S.pneumoniae /H.influenza ) can be shed from the respiratory tract of healthy individuals.</p> <p>HSV-1 may be shed from individuals with cold sores.</p> <p>Caution should be taken during specimen collection and testing to prevent contamination leading to false positives.</p> <p>Has not been evaluated for immunocompromised patients.</p>

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.

Turnaround Same day  
Report Detected or not detected

### Cerebrospinal Shunts

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.  
Turnaround Prelim: 24 hours; Final: up to 7 days

### Ceruloplasmin

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CER/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### Cervical swab

Comment: Refer to "Genital swab"

### Chlamydia pneumoniae IgG/IgM serology

Laboratory: Microbiology  
Specimen: **Blood 4mL of clotted blood (white bottle)**  
Comment: Test sent to Eurofins Biomnis Laboratories  
Turn-around Tii Refer to User Manual of Reference Laboratory

### Chlamydia psittaci Antibodies

Laboratory: **Microbiology**  
Specimen: **Blood 4mL of clotted blood (white bottle)**  
Comment: **Specimens sent to Eurfins Biomnis**  
Turn-around Tii **Refer to User Manual of Reference Laboratory**  
Ref.Range. **Refer to User Manual of Reference Laboratory**

### Chlamydia trachomatis and Neisseria gonorrhoeae and T. Vaginalis PCR

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

**Chlamydia trachomatis and Neisseria gonorrhoeae and T. Vaginalis PCR**

**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

**Chloride (Blood)**

**Laboratory:** Biochemistry.

**Specimen:** 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 24 hours

**Ref. Range:** Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

**Turnaround:** Urgent: < 2 hrs Routine: Same day service

**Chloride (Urine)**

**Laboratory:** Biochemistry.

**Specimen:** Random or 24 hr Urine specimen without preservatives Received < 72 hours

**Ref. Range:** Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

**Turnaround:** Urgent: < 2 hrs Routine: Same day service

**Cholesterol**

**Laboratory:** Biochemistry.

**Specimen:** 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours

**Ref. Range:** Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

**Turnaround:** Same day service

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.

**Comment:**

**Cholinesterase – Pseudo**

**Laboratory:** Biochemistry: Referred to Eurofins Biomnis.

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CHOLI/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

#### Chromogranin A

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CHRA/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

#### Citrate (Urine)

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CITU/>  
Ref Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

#### Clostridioides difficile

Laboratory: Microbiology  
Specimen: Fresh faeces sample, liquid or semi-solid, not solid, 1-2g (1-2mL) is sufficient.  
Comment:  
Routinely tested as part of molecular enteric panel - see Faeces – Investigation for Enteric Pathogens. **Fluorescence Immunoassay** can be performed for the confirmation of *C. difficile* Toxins A and B, or for out-of-hours urgent processing. Requests for *C. difficile* should be performed on patients with diarrhoea of unknown cause usually associated with antibiotic therapy.  
Urgent requests will only be processed following approval from the Clinical Microbiological Team.  
*C. difficile* PCR is performed initially.  
If PCR is positive, the specimen is subsequently tested for *C. difficile* Toxins A and B, and, a final report of *C. difficile* Toxin A/B Positive or Negative is issued.  
Turnaround: Urgent: 4 hrs from receipt of phone call. Routine: 72 hours. Positive reports are telephoned as soon as available to the requesting area.  
Report:  
**C. difficile Toxin PCR Target Detected or Target Not Detected target not detected. If Target Detected a further report is issued of:**  
C. difficile Toxin A/B Positive or Negative

#### CNS Serology Screen

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.



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.

### Coagulation Factor Inhibitors - Quantitation of

Laboratory: Haematology: Referred to Haematology C.U.H.  
Specimen: Blood 3mL x2, green, S Monovette (sodium citrate 0.106M).  
Comment: Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Samples must be received in CUH within 4 hours of phlebotomy. 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 **by arrangement with Haematology CUH**. Quantitation of coagulation factor inhibitors reported in Bethesda Units. One Bethesda Unit is the amount of inhibitor in 1 mL of plasma that will neutralise 50% of the clotting factor activity.  
Turnaround: 24 hrs  
Ref. Range: See Report

### Coagulation Factor Inhibitor Screen

Laboratory: Haematology  
Specimen: Blood 3mL x2, green, S Monovette (sodium citrate 0.106M)  
Comment: Specimens that are haemolysed, underfilled or overfilled cannot be analysed. Samples must be received in CUH within 4 hours of phlebotomy. 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. Screen for coagulation factor inhibitors. Test available Mon to Fri during routine working hours **by arrangement with Haematology CUH**  
Turnaround: 24 hours,  
Ref. Range: Positive/Negative

### Cocaine see Toxicology / Drug Screen

### Cold Agglutinins ROUTINE

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.  
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>Coeliac Screen</b>	
See Anti-Transglutaminase antibody IgA (IgA tTg )	
<b>Cologen 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="#">anlysis.pdf</a>
Turnaround:	NA
Ref. Range:	See report form
<b>Complement</b>	
See C3/ C4	
<b>Conjunctivitis</b>	
See “Eye Swab”.	
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Cortisol</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	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, danzol, lithium, levodopa, metyrapone, and phenytoin.
<b>COVID-19 (SARS-CoV-2 PCR)</b>	
Laboratory:	Microbiology
Specimen:	Rapid SARS-CoV-2 PCR: Nasopharyngeal/Oropharyngeal Swab only Routine SARS-CoV-2 PCR : Nasopharyngeal/Oropharyngeal Swab
Turnaround:	<b>same day</b> for routine specimens/4 hours for urgent
Report:	SARS-CoV-2 PCR: Detected/Not Detected

Comment: Molecular Detection of SARS-CoV2 RNA. Available on genexpert and filmarray

**Creatine Kinase (CK)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: 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.

**Creatinine (Blood)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 48 hours  
Ref. Range: Up to date reference intervals will be applied to all Biochemistry reports as appropriate.  
Turnaround: Urgent: < 2 hrs Routine: Same day service  
Comment **Enzymatic creatinine assay in use on new Abbott Alinity instruments**

**Creatinine (Urine)**

Laboratory: Biochemistry  
Specimen: 24 hour sample. No preservative, Received < 48 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Creatinine Clearance**

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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**CRP - C- Reactive Protein**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in a plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** < 2 hrs **Routine:** Same day service

**Cryoglobulin**

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  
Turnaround: 6 days

#### **Cystic Fibrosis - Genetic Test**

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  
<https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>  
Form: <https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Parents-Patients-Clinicians/CF-Test-Questionnaire.pdf>  
Questionnaire: [Questionnaire.pdf](#)  
Turnaround: 3 months  
Ref. Range: See report form

#### **Cryptococcal Antigen – Serum/CSF**

Laboratory: Microbiology  
Specimen: Blood 4mL of clotted blood (white bottle) or CSF (1 mL)  
Comment: Test performed by Mycology Reference Laboratory, Leeds.  
Report 2-3 weeks  
Turn-around T<sub>ii</sub> Positive or Negative

#### **Cryptosporidium species - Microscopy**

Laboratory: Microbiology  
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.  
Specimen: Tests are batched and performed routinely Mon–Fri 8am–5pm. Diagnosis is based upon demonstration of oocysts in stools, using an auromine-phenol stain (and confirmed using a modified Ziehl-Neelsen stain).  
Comment: 24 hours-72 hours.  
Turnaround: *Cryptosporidium* species seen or not seen  
Report:

#### **CSU - Catheter Urine**

See “Urine Microscopy and Culture”.

#### **Cytogenetics (G banding karyotype/FISH/Microarray aCGH)**

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  
<https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>  
Form:

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. **Copy of negative covid swab must be sent to Haematology Lab with all Karyotype requests**

Comment: **swab must be sent to Haematology Lab with all Karyotype requests**

Turnaround: Vary according to test

### Cytomegalovirus (CMV) IgM or IgG Antibodies

Laboratory: Microbiology

Specimen: Blood 4mL of clotted blood (brown or white bottle)

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).

### Dengue fever Antibodies

Laboratory: Microbiology

Specimen: Blood 4mL of clotted blood (brown or white bottle) or CSF

Comment: Test referred to NVRL

Report Refer to User Manual of Reference Laboratory

Turn-around Time Refer to User Manual of Reference Laboratory

### Dermatophytosis

See "Mycology"

### Dexamthazone Test

Biochemistry: Refer to the Pathology department; departments information section on the MUH website or the following link for full details

Laboratory: [.https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department](https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department)

### D-dimers

Laboratory: Haematology

Specimen: Blood 3mL, green, S Monovette (sodium citrate 0.106M)

Stability: 24 hours

Comment: lipaemia is due to parenteral nutrition cessation of treatment for a least 2 hours prior to phlebotomy may alleviate the interference. The

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

### **DHEA - Dehydroepiandrosterone**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/DHA/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

### **DHEAS - Dehydroepiandrosterone Sulphate**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SDHA/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

### **Diamond Blackfan Syndrome**

Laboratory: Haematology : Referred to St Thomas Hospital, London

Specimens: 10ml EDTA.

Form: Haematology request form accepted

Must be received in UK by 5.30pm the next day. Sample cannot be stored in fridge over weekend., so no samples should be taken on Friday.

Comment: (Mon – Thurs only)

Ref. Range: See report

### **Direct Antiglobulin Test ROUTINE**

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)

### **Direct Antiglobulin Test EMERGENCY**

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.

### **DNA Hypermutational Analysis**

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

### **Dopamine**

See Catecholamine

### **Digoxin**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Urgent: < 3 hrs      Routine: Same day service  
Comment: Sample at least 6 hours post dose

### **Ear Swab**

Laboratory: Microbiology  
Specimen: Swab any pus or exudate.  
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.  
Comment:  
Report Culture report: Any clinically significant isolate with the appropriate sensitivities.  
Turn-around Tii Prelim: 24 hours; Final: up to 7 days

### **Ebola virus**

See Viral Haemorrhagic fever

### **Serology**

Laboratory: Microbiology  
Blood 4mL of clotted blood (brown or white bottle). Note: A faeces sample sent for E. coli 0157 PCR is the preferred method of diagnosis.  
Specimen: Refer to “Faeces Microscopy & Culture”.  
Comment: Test performed by PHLS Collindale in London  
Report Positive or Negative  
Turn-around Tii Refer to User Manual of Reference Laboratory

### **eGFR (Estimated Glomerular Filtration Rate)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 48 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate.

**Turnaround:** < 2 hrs Routine: Same day service.  
The calculation used to estimate GFR is based on the CKD-EPI 2021 formula and is only applicable to patients greater than 18 years old.  
**Comment:** Enzymatic creatinine assay in use on new Abbott Alinity instruments.

**Electrophoresis (Serum)**

**Laboratory:** Biochemistry  
**Specimen:** 4.0 ml blood in plain tube (serum sample only). Received <72 hours  
**Ref. Range:** Should be 'Normal pattern. No paraprotein seen'  
**Turnaround:** 3 weeks

**Electrophoresis (Urine)**

See Bence Jones Protein

**Elastase - Faecal**

**Laboratory:** Biochemistry: Referred to Eurofins Biomnis  
**Specimen:** <https://www.eurofins-biomnis.com/en/services/test-guide/page/ELASS/>  
**Ref. Range:** See report form  
**Turnaround:** See referral laboratory manual, allowing time for transport

**EMA Antigen (Hereditary Spherocytosis)**

**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

**Endocervical swab**

“Genital swab”

**Enterovirus PCR**

**Laboratory:** Microbiology  
**Specimen:** Faeces or Viral Throat Swab (See also CSF viral PCR)  
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)  
**Comment:**  
**Report** Detected or not detected. If enterovirus is detected further subtyping is performed including Coxsackie and Echo  
**Turn-around** Tii Refer to User Manual of Reference Laboratory



<b>Enterovirus Serology</b>
Test discontinued by Reference Laboratory
<b>Epstein-Barr</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>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>Epinephrine/ Nor epinephrine</b>
See catecholamines
<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>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 Turnaround See referral laboratory manual, allowing time for transport
<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>Exanthem Screen</b>	
Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood (brown or white bottle) 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.
Comment:	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>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 <a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf</a>
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf">anylsis.pdf</a>
Comment:	Ideally should only be taken Mon – thurs
Turnaround:	See final report

<b>Factor I (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
<b>Factor V Leiden</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7m L, red, S Monovette (EDTA) 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
Comment:	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: Approximately 1 month  
Ref. Range: Pos (Heterozygous or Homozygous)  
Neg.

**Factor V11**

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  
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.  
Comment: Determines the activity of coagulation Factor V11. Test available Monday to Friday, during routine working hours.  
Turnaround: 24 hours.  
Ref. Range: See report

**Factor V111**

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  
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.  
Comment: Determines the activity of coagulation Factor V111. Test available Mon to Fri, during routine hours.  
Turnaround: 24 hours.  
Ref. Range: See report

**Factor V111 Inhibitors**

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.  
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.  
Comment: Friday, during routine working hours. Quantitative assays performed by reference laboratory.  
Turnaround: 2-4 days  
Ref. Range: Positive / Negative

**Factor V111 Related antigen (F V111 R:Ag)**

**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.  
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.  
**Comment:** hours.  
**Turnaround:** 2 – 3 weeks  
**Ref. Range:** See report

**Factor IX**

**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  
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.  
**Comment:** routine hours.  
**Turnaround:** 24 hours.  
**Ref. Range:** See report

**Factor X**

**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  
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.  
**Comment:** routine hours.  
**Turnaround:** 24 hours.

**Factor XI**

**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

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.

Comment: routine hours.

Turnaround: 24 hours.

Ref. Range: See report

**Factor X11**

Ref. Range: See report

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

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.

Comment: routine hours.

Turnaround: 24 hours.

Ref. Range: See report

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

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.

Comment: routine hours.

Turnaround: 24 hours.

Ref. Range: See report

**Factor X111**

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

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.

Comment: hours.

Turnaround: 48 hours.

Ref. Range: Positive / Negative.

**Faecal Occult Blood (FOB)**

Laboratory: Biochemistry

Specimen: 3 separate stool samples, Received < 72 hours

Ref. Range: See report form

Turnaround: 1 week

**Faeces – Investigation for Enteric Pathogens**

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 *Shigella* 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: *Salmonella* species  
*Shigella*  
*Campylobacter*  
species  
species  
*E.coli* 0157/EIEC  
toxigenic *C.difficile*  
*Yersinia enterocolitica*  
Norovirus  
Rotavirus  
Adenovirus  
Astrovirus  
Sapovirus.

Further testing by culture or enzyme immunoassay, or referral to a Reference Laboratory may be required for confirmation of positive results. Full clinical information should be provided, especially the presence and duration of symptoms, recent travel history or shellfish ingestion and previous antibiotics. This is essential to ensure that other pathogens are screened for if clinically indicated (e.g. *Vibrio*, *Cryptosporidium*). If examination for ova, cysts and parasites is required, it should be specifically requested giving full clinical details and travel history see - Parasitology. Molecular testing performed Mon - Friday only. Urgent requests for Norovirus and *C.diff* may be processed out-of-hours only by prior approval of the Consultant Microbiology Team

Turnaround: **72 hours.** Confirmation of positive results from Reference labs may take considerably longer.  
Clinically significant isolates are telephoned as soon as available.

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  
**Fluorescence** Enzyme Immunoassay result: Positive or Negative - where toxigenic Clostridioides difficile is detected, the phenotypic expression of the toxin is confirmed by **FIA**.

**Fanconis Anaemia**

Laboratory: Haematology: referred -to Bristol Genetics laboratory, UK.  
Specimen: 1 X adult sized EDTA and 1 X adult sized Lithium Heparin  
Form: <https://www.nbt.nhs.uk/sites/default/files/document/BGL%20request%20form.pdf>  
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

**Farmers Lung Antibodies**

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

**Fatty Acids - Free- Non Esterified**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GRAS/>  
Ref. Range. See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Fatty Acids - Long Chain -C16 - C22**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GRACX/>  
Ref. Range See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Fatty Acids - Very Long Chain - C22 - C26**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GRALE/>  
Ref. Range. See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Ferritin**



Laboratory: Biochemistry.  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Next routine working day

#### **Fibrinogen (factor 1)**

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 1.7-3.5g/L

#### **FilmArray Respiratory Panel**

Laboratory: Microbiology  
Specimen: Naso/oropharyngeal swab in appropriate transport media  
Comment: **Due to limited capacity on the instrument this is a restricted test and will only be performed by prior arrangement:** The 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/Entervirus, 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: **Detected or not detected for each target**

#### **FISH (Fluorescence in situ Hybridization) for Microdeletion Syndromes**

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.  
<https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>  
Form  
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>Folate (Folic Acid)</b>	
Laboratory	Biochemistry
Specimen	4.0 ml blood in plain tube (serum sample) or lithium heparin, Received <48 hours
Ref Range	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	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>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 <a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf</a>
Form:	<a href="https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf">anylsis.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>Fratxin 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-for-genetic-anylsis.pdf">anylsis.pdf</a>
Comment:	Sample should only be done Mon – Thursday for next day delivery to Crumlin
Ref. Range:	See final report
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Full Blood Count</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA)
Stability:	24 hours 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.
Comment:	
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>Fungal Microscopy and Culture</b>	
See "Mycology"	
<b>G6PD ASSAY</b>	
Laboratory:	Haematology: Referred to Haematology CUH
Specimen:	Blood 2.7mL, red, S Monovette (EDTA) 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.
Comment:	
Turnaround:	7-10 days
Ref. Range:	See report. Note: Values for new-borns may range somewhat higher
<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	<b>Urgent:</b> < 2 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
Turnaround:	See referral laboratory manual, allowing time for transport
<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.. 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:	Culture report on any clinically significant isolate with the appropriate sensitivities.
<b>Gentamicin</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 and generally post specimens are unnecessary. 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. 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:

Urgent 4hrs. If sample received after cut-off times for processing i.e., 9pm Mon-Fri and 6pm Sat/Sun/BH, Turnaround: Non-urgent 24hrs.

Ref. Range:

Once-daily dosage: Trough <1mg/L

Multiple-daily dosage: Trough <2mg/L Peak 5-12mg/L

### **GH - Growth hormone (Adult)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GH/>

Ref. Range: See report form

Turnaround See referral laboratory manual, allowing time for transport

### **GH - Growth hormone (Child) (As part of hypoglycaemia screen)**

Laboratory: Biochemistry, Referred to Biochemistry CUH

Specimen: 4.0 ml blood in plain tube (serum sample) received and frozen < 1 hr

Ref. Range: See report

Turnaround See referral laboratory manual, allowing time for transport

### **Gilberts Function (UGT1A1 Mutation)**

Laboratory: Haematology: referred to National Centre for Medical genetics, Crumlin

Specimen: EDTA x 1

Form: <https://www.olhc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>

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

### **Globulin**

Laboratory: Biochemistry

Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours

Comment: Calculation.

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: Urgent < 2 hours Routine: Same day service

### **Glucagon**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/GLUC/>

Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### Glucose

Laboratory: Biochemistry  
Specimen: 4.0 ml Sodium fluoride EDTA blood, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Comment: Patient should be fasting for 8-12 hours (water only)  
Turnaround: **Urgent:** < 2 hrs      **Routine:** Same day service

### Glucose Tolerance Test

**Biochemistry: Refer to the Pathology department; departments information setion on the MUH website or the following link for full details**  
Laboratory: [.https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department](https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department)

### Haemochromatosis – Genetic Test

Laboratory: Haematology: referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/HMC/>  
<https://www.eurofins-biomnis.com/en/services/test-guide/page/H63D/>  
Form: <https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf>  
Comment: Genetic test for the C282Y and H63D mutations in the Haemochromatosis gene.  
Turnaround: 2-3 weeks  
Ref. Range: Positive / Negative.

### Haemoglobin A2 Electrophoresis

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 thalasseмии 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

### Haemoglobin A1C

Laboratory: Haematology: Referred to Haematology, Cork University Hospital  
Specimen: Blood 2.7mL, red, S Monovette (EDTA)

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.

Comment: of treatment in diabetes mellitus.

Turnaround: 3 days.

Ref. Range: See report

#### **Haemoglobin F**

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.

#### **Haemophilus influenzae B Antibodies**

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

#### **Haemoglobinopathies**

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

#### **Haemoglobin S Electrophoresis**

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) 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
Comment:	should be repeated when the infant is over six months old. PLEASE STATE COUNTRY OF ORIGIN ON REQUEST FORM
Stability:	24 hours Routine specimens 4 hours.
Specimen:	EDTA sample: minimum 2 mLs blood
<b>Haptoglobin</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:
Turnaround:	See referral laboratory manual, allowing time for transport
<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 Kits can be purchased from the Microbiology Secretary's office or any pharmacy. <b>If purchasing from the MUH, please pay for the kit in the accounts department (in person or over the phone), before collection from Microbiology.</b> 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,
Comment:	before taking specimens: <ol style="list-style-type: none"><li>1. Patient should be off antibiotics for at least 4 weeks.</li><li>2. Patient should be off antacids for at least 2 weeks.</li><li>3. Patient should not eat for at least 6hrs (may drink water).</li></ol> 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:	1 month
Ref. Range	Diabact Kit (Adults only): Positive > 1.5 Negative <1.5 INFAI Kit (Adults OR Childrens kits): Positive >4, Negative <4

**Helicobacter pylori culture**

Laboratory	Microbiology: Referred to Microbiology CUH
Specimen	Gastric biopsy
Comment	<p>ADVANCE NOTICE TO CUH and MUH LABORATORIES</p> <ul style="list-style-type: none"> <li>•The optimal day for testing is Thursday. H. pylori is a fastidious organism which requires careful processing and extended incubation. Thursdays work best Microbiologically as the isolate is generally well grown by the following Monday morning, and ready to perform antimicrobial susceptibility testing. However, CUH will accept Biopsy's on other days if absolutely essential. Please bear this in mind when booking patients in.</li> <li>•2-week minimum advance notice is required by CUH microbiology laboratory. Phone CUH Microbiology lab on 021 4922505, asking for either the Senior in Setup or a Senior from the main lab. If more than 1 patient is scheduled on the same day, ensure that these are scheduled consecutively where possible.</li> <li>•2-week minimum advance notice is required by MUH microbiology laboratory to ensure that transport media is in stock. Phone ext 5719 or email the Senior Medical Scientist team:</li> </ul> <p>Day of Procedure</p> <ul style="list-style-type: none"> <li>•Ideally, two biopsies are taken, one from the antrum and one from the body.</li> <li>•Ensure that biopsies for culture are taken first.</li> <li>•Place both biopsies in one transport medium, which is available from Microbiology MUH.</li> <li>•Ensure that biopsies are completely pushed down into transport media.</li> <li>•Clearly label bottle and form, giving details of medications.</li> </ul>
Turnaround	Refer to User Manual of Reference Laboratory
Report	H. pylori isolated or Not isolated. Antimicrobial sensitivities performed when H.pylori isolated.

**Heparin Induced Thrombocytopenia (HIT) screen (only if 4T scoring yields results of 4 or higher) referrals only through Haematology Team**

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

### Heparin Induced Thrombocytopenia (HIT) confirmatory ELISA

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

### Hereditary Hemorrhagic Telangiectasia (HHT)

Laboratory: Haematology: Referred to Molecular Genetics Laboratory, Western General Hospital Edinburgh

Specimen: 3-5mls EDTA

Form <https://services.nhslothian.scot/clinicalgeneticsservice/GeneticLaboratoryServices/Documents/GENETIC%20TEST%20REQUEST%20v08.pdf>

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

Laboratory: Haematology: Referred to Molecular Genetics Laboratory, Western General Hospital Edinburgh

Specimen: 3-5mls EDTA

Form <https://services.nhslothian.scot/clinicalgeneticsservice/GeneticLaboratoryServices/Documents/GENETIC%20TEST%20REQUEST%20v08.pdf>

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

### Hereditary Pancreatitis (PRSS1 - Cationic trypsinogen gene) SPINK1

Laboratory: Referred from Haematology to Sheffield Diagnostic Genetics Service

Form: <https://www.sheffieldchildrens.nhs.uk/download/319/laboratory-genetics/61781/genetic-testing-request-form-rare-disease-neyglh.docx>

Specimen: 3-5mls EDTA

Comment: Requesting team need to specify the Genes they require. The options are PRSS1, SPINK1 and CFTR or just PRSS1 and SPINK1

### Hereditary Spastic Paraplegia (HSP)

Laboratory: Referred from Haematology dept MUH to Sheffield

Form: Download 'SDGS Referral Form' from link below in Google Chrome

<https://www.sheffieldchildrens.nhs.uk/sdgs/>

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

**Hepatitis A IgG (Immune Status)**

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.

**Hepatitis A IgM Antibody**

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.

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.

**Hepatitis Bs Antibody (anti-HBs)**

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.

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  $\geq 10$  mIU/mL are considered protective and gamma globulin is not necessary. However if antibodies are between 10-100 IU/mL an immediate booster is recommended. For a completed course of vaccination, antibodies  $> 100$  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

### Hepatitis B Surface Antigen

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

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

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

Report: newly diagnosed positive patients.

### Hepatitis C Antibody

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 Negative samples are reported immediately. Positive samples are considered presumptive positive only and are sent to the Viral Reference
Report:	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

### Hepatitis Screen

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. 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.

### Hepatitis D IgM/IgG

Laboratory:	Microbiology
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**Specimen:** Blood 4mL of clotted blood ( brown or white bottle)  
Test sent to the National Virus Reference Laboratory. Hepatitis Delta is a subparticle of Hepatitis B infection and therefore NVRL will only  
**Comment:** test Hepatitis B surface antigen positive specimens for Hepatitis D.  
**Turnaround:** Refer to User Manual of Reference Laboratory  
**Report** Positive/Negative

**Hepatitis E Antibodies**

**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

**Herpes Simplex Virus 1,2 (HSV) PCR**

**Laboratory** Microbiology  
**Specimen** Viral swab of vesicle fluid  
**Comment** Test sent to the National Virus Reference Laboratory  
**Turnaround** Refer to User Manual of Reference Laboratory

**HDL: High Density lipoprotein**

**Laboratory:** Biochemistry  
**Specimen:** 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours  
**Ref. Range:** Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
**Turnaround:** Same day service  
**Comment:** High-density lipoprotein measurement in conjunction with other lipid determinations has been shown to be useful in assessing the risk of coronary heart disease. All lipids in plasma circulate in combination with proteins. These lipoproteins are classified as chylomicrons (primarily triglycerides with little protein), very low-density lipoproteins (VLDL, triglycerides, and cholesterol with increasing phospholipids and protein), and high-density lipoproteins (HDL, primarily protein with cholesterol and phospholipids). The risk of coronary heart disease is lowered with increased levels of HDL. Usually, VLDL and LDL are selectively precipitated from serum or plasma samples followed by determination of cholesterol in the HDL-containing supernatant. Non-fasting sample results are slightly lower than fasting results.

**High Vaginal Swab (HVS)**

**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 *C. trachomatis* or *T vaginalis* (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 cells suggest Bacterial Vaginosis. Hays Criteria reported as follows: Normal:  
Predominantly Lactobacillus morphotypes. Intermediate:  
mixed Lactobacillus species and other morphotypes. Assess with clinical criteria and send repeat to confirm if necessary.  
Abnormal: Few or absent Lactobacillus morphotypes, but greatly increased numbers of *G. vaginalis* and other bacterial morphotypes suggestive of BV. In  
situations where Hay's criteria cannot be applied e.g. if patient is on antibiotics or no organisms seen on smear, the gram stain is then reported as 'Unable to provide a grading to indicate the presence or absence of bacterial vaginosis, due to the absence of normal flora'  
Culture: Any clinically significant isolate with the appropriate sensitivities.

**Histoplasma Antibodies**

**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

**Homocystine - Total and Free (Homocystinuria profile)**

**Laboratory:** Biochemistry: Referred to Metabolic Laboratory, The Children's University Hospital, Temple St, Dublin  
**Specimen:** 4.9 ml Lithium Heparin sample, ( 2x 1.2 ml Lithium Heparin samples for children) Received and frozen < 2 hrs.  
**Comment:** **Samples need to be deproteinised in Biochemistry as soon as possible after collection**  
**Ref. Range:** See report form  
**Turnaround:** See referral laboratory manual, allowing time for transport

**Homocysteine - Total**

**Laboratory:** Biochemistry: Referred to Eurofins Biomnis  
**Specimen:** <https://www.eurofins-biomnis.com/en/services/test-guide/page/HOCY/>  
**Ref. Range:** See report form  
**Turn-around:** See referral laboratory manual, allowing time for transport

**HMMA - Hydroxymethylmandelic acid - Urine**

See metanephrines

<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>Humiria</b>	
See Adalimumaub	
<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: [anylsis.pdf](#)  
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

**IGF-1 Insulin Like Growth Factor -1 (Somatomedin C)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SOMC/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**IgG Subclasses (IgG 1, IgG 2, IgG 3, IgG 4)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: [https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG1/ \(IgG1\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG1/(IgG1))  
[https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG2/ \(IgG2\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG2/(IgG2))  
[https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG3/ \(IgG3\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG3/(IgG3))  
[https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG4/ \(IgG4\)](https://www.eurofins-biomnis.com/en/services/test-guide/page/IGG4/(IgG4))  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**IgE Total and Specific (RAST)**

Laboratory: Biochemistry: Referred to Immunology CUH.  
Specimen: 4.0 ml blood in plain tube (serum sample). Received < 72 hours  
Comment: Provide clinical history e.g. symptoms and possible allergens.  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Immunoglobulins (IgA, IgG, IgM)**

Laboratory: Biochemistry.  
Specimen: 4.0 ml blood a plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Infectious Mononucleosis Antibody**

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.

#### **Infliximab**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/INFAC/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

#### **Influenza A virus PCR**

Laboratory: Microbiology

Specimen: Nasal /throat swabs combined in viral transport fluid.

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

#### **Influenza B virus PCR**

Laboratory: Microbiology

Specimen: Nasal/throat swabs combined in viral transport fluid

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

#### **INR Prothrombin Time**

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

**Insulin**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/INS/>  
Ref. Range: See report form  
Turnaround See referral laboratory manual, allowing time for transport

**Intra-Uterine Infection Screen / TORCH Screen**

Laboratory: Microbiology  
Specimen: Blood 4mL of clotted blood ( brown or white bottle)  
(Minimum volume for baby samples: 1mL whole blood).  
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.  
Comment:  
Turnaround: Refer to User Manual of Reference Laboratory  
Ref. Range: IgM antibody positive or negative for the relevant organisms.

**Intravascular Cannulae - Culture**

See “Catheter / Intravascular Cannulae”

**Contraceptive**

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 *Actinomyces* sp. proceeding which will be reported if positive.

**Intrinsic Factor Antibodies**

Laboratory: Haematology: Referred to Haematology, Cork University Hospital  
Specimen: Blood 4.9ml, S Monovette (serum)  
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.  
Comment:  
Turn-around time: 3 – 4 weeks.

Ref. Range: Positive / Negative
<b>Iron</b>
Laboratory: Biochemistry
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround: Same day service
<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>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>Karyotyping- See Cytogenetics</b>
Comment: Copy of negative covid swab must be sent to Haematology Lab with test request
<b>Keppra (Levetiracetam)</b>
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
Turnaround: See referral laboratory manual, allowing time for transport
<b>Lactate</b>
Laboratory: Point of Care Testing

Specimen:	Heparinised Blood Gas syringe, Sample should be analysed with 15 minutes at the Point of Care site. Ensure proper mixing of the sample before analysis
Ref. Range:	Up-to-date reference intervals will be applied to all reports as appropriate
Turnaround:	20 mins
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	Urgent: < 2 hrs Routine: Same day service
Comment:	<b>LDH may be falsely elevated following transport via the Pneumatic tube system.</b>
<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	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
Turnaround:	See referral laboratory manual, allowing time for transport
<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.

**Lupus Anticoagulant Screen (also includes anticardiolipin screen)**

Laboratory:	Haematology
Specimen:	Blood 3mL x 3, green, S Monovette (sodium citrate 0.106M), Blood 4.9ml, S Monovette (serum)
Stability:	24 hours
	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 glycoprotein antibodies
Comment:	
Turnaround:	Approximately 1 month
Ref. Range:	Positive/Negative

**LH-Luteinising hormone**

Laboratory:	Biochemistry, referred to Biochemistry CUH
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report
Turnaround:	See referral laboratory manual, allowing time for transport

**Lipoprotein (a)**

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.
Turnaround:	See referral laboratory manual, allowing time for transport

**Lithium**

Laboratory:	Biochemistry
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Urgent: On request      Routine: 4 days  
Sample 12 hours post evening dose (trough sample) recommended to assess adequate therapy. Peak concentration is reached 2 to 4 hours after oral dose  
Comment:

**Lyme serology / Borrelia burgdorferi antibodies**

Laboratory: Microbiology  
Specimen: Blood 4mL of clotted blood ( brown or white bottle) or CSF (1 mL)  
Test performed by National Virus Reference Laboratory. Enzyme-linked immunosorbent assay (ELISA) followed by Western blot confirmation.  
Comment:  
Turnaround: Refer to User Manual of Reference Laboratory  
Report: Positive ELISA (confirmed / not confirmed)

**Lymphoma granuloma**

See Chlamydia trachomatis

**Lysosomal Enzyme screen (Hexosaminidase A & B).**

Laboratory: Biochemistry: Referred to Great Ormond St Hospital London via Eurofins Biomnis Transport Dept  
Specimen: Lithium Heparin (10 ml whole blood). Received ASAP  
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.  
Ref. Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

**Magnesium (Blood)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 48 hours  
Comment: Haemolysis invalidates result  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** <2 hrs      **Routine:** Same day service  
Comment: Complexing anticoagulants such as those used in glucose/FBC bottles (citrate, oxalate EDTA) must be avoided.

**Malaria Screen**

Laboratory: Haematology  
Specimen: Blood 2.7mL, red, S Monovette (EDTA)  
Stability: 2 hours

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 and malariae</i> in whole blood. <i>Plasmodium Knowlesi</i> and rare isomers of <i>Plasmodium Ovale</i> 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.
Comment:
Turn-around time: Emergency specimens as per arrangement. Routine specimens 4 hours
Ref. Range: Positive / Negative. (Positives confirmed by referral laboratory)

### Malaria Species Confirmation

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

### Manganese

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
Turnaround: See referral laboratory manual, allowing time for transport

### Measles IgG antibody

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.

### Measles IgM antibody

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.

### Meningitis C vaccine antibodies - Serum

Laboratory: Microbiology
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Specimen: Blood 4mL of clotted blood ( brown or white bottle)  
Comment: Test performed by Meningococcal Reference Laboratory, Manchester.  
Turnaround: Refer to User Manual of Reference Laboratory  
Ref. Range: Positive or Negative

#### **Meningococcal PCR**

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).

#### **Mercury**

Laboratory: Biochemistry: Referred to Eurofins Biomnis.  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/HGST/>  
Ref Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Metanephrines (Urine)**

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.  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Metanephrines (Plasma)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/METS/>  
Ref Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Methadone**

See Toxicology / Drug Screen - Urine

#### **Methatrexate**

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

Turnaround: See referral laboratory manual, allowing time for transport

### **Methaemoglobin**

See Blood gasses

### **Methicillin-Resistant Staph aureus (MRSA)**

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.

### **Methylene tetra hydro folate reductase (MTHFR)**

Laboratory: Haematology: referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/MTHFR/>

Form: <https://cdnmedia.eurofins.com/european-west/media/1930290/genetic-test-request-option-2.pdf>

Turn-around  
time: Approx. one month

Ref. Range: See report form

### **Methylmalonic Acid**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/MALON/>

Ref. Range: See report form

Turnaround: See referral laboratory manual, allowing time for transport

### **Microalbumin Creatinine Ratio**

Laboratory: Biochemistry:

Specimen: Spot Urine sample, Received < 48hours

Ref. Range: See report form

Turnaround: up to 72 hrs

### **MMR (Measles, Mumps, Rubella IgG antibodies)**

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

### **Molecular Genetics**

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.  
<https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>  
Form: 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.  
Comment:  
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

### **Molecular Genetic analysis for suspected Mitochondrial Disorders**

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 <https://www.newcastle-mitochondria.com/wp-content/uploads/2019/02/Newcastle-Referral-form.pdf>  
Turn-around time: See final report

### **Mouth Swab**

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.

### **MSU – Midstream Urine**

See “Urine Microscopy and Culture”.

### **Mucopolysaccharides**

See organic acids

<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:	<p><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.</p> <p><u>Bronchial washings</u>: minimum volume preferably 5mls</p> <p><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.</p> <p>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></p> <p><u>Body fluid/Aspirates/Pus</u>: Collect aseptically as much as possible into a sterile container.</p> <p><u>CSF</u>: Ideally 5-10mls in a sterile container.</p> <p><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.</p> <p><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.</p>
Comment:	<p>Requests for AFB are initially screened microscopically and, if negative, reported without further processing. AFB culture is only performed on the following:</p> <ol style="list-style-type: none"><li>1. ZN stain positive specimens</li><li>2. All bronchial washings</li><li>3. All Pleural fluids</li><li>4. Requests stating “specific need for TB culture” or “AFB culture”</li></ol>

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 species.

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

### **Mycobacterium tuberculosis Complex PCR**

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  
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

### **Mycology**

Laboratory Microbiology

Specimen: Clean lesions with surgical spirit prior to collection. Collect specimens into a sterile container without fixative or a Mycological transport pack. Loose slides should not be used.

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.

**Mycoplasma pneumoniae IgM Antibodies**

Laboratory: Microbiology  
Specimen: Blood 4mL of clotted blood ( brown or white bottle )  
Comment: Test performed by Eurofins  
Turnaround: Refer to User Manual of Reference Laboratory  
Report: Mycoplasma pneumoniae IgM antibodies Positive or Negative.

**Norovirus RNA**

Laboratory: Microbiology  
Specimen: Faeces  
Comment: **Routinely tested as part of molecular enteric panel - see Faeces – Investigation for Enteric Pathogens.**  
**Urgent requests will only be processed following approval from the Clinical Microbiological Team, post liaising with the ADON on duty.**  
**Urgent requests will only be processed at weekends between 9am-6pm.**  
For urgent specimens, potential interfering substances include blood, mucus, faecal fat and medications used to relieve gastroenteritis symptoms  
Comment: Assay interference may be observed in the presence of Benzalkonium ( $\geq 0.2\%w/v$ ) and Bismuth( $5\%w/v$ )  
Turnaround: **Routine (Mon-Fri only): 72 hours. Urgent: 4 hours.**  
Result: Norovirus RNA detected or not detected

**Nose Swab**

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: Test performed routinely Mon–Thurs 8am-5pm  
Turnaround: Prelim: 24 hours; Final: up to 7 days.  
Report: Culture report: Any clinically significant isolate with the appropriate sensitivities.

**NT-pro BNP**

Laboratory: Biochemistry  
Specimen: Serum, received <24 hours  
Ref. Range: See report  
Turnaround: Next routine working day

**Nucleated Red Blood Cells (NRBCs)**

Laboratory: Haematology  
Specimen: Blood, 2.7 mL, red, S Monovette (EDTA)

Stability	24 hours. 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.
Comment:	NRBCs are reported only when requested or when deemed necessary.
Turn-around time:	Routine specimens 4 hours. Emergency specimens as per arrangement.

#### Oestradiol

Laboratory:	Biochemistry: Referred to CUH
Specimen:	4.0 ml blood in a plain tube (serum sample). Received < 72 hours
Ref. Range:	See report form
Turnaround:	See referral laboratory manual, allowing time for transport

#### Oligoclonal bands and CSF IgG index

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
Turnaround:	See referral laboratory manual, allowing time for transport

#### Opiates

See Toxicology / Drug Screen - Urine

#### Organ Donor Screen

Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted ( brown or white bottle) Please specify Organ Donor on request form as the National Virus Reference Laboratory is the only approved laboratory for organ donor screening.
Comment:	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.

#### Organic Acids - Urine

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
Turnaround:	See referral laboratory manual, allowing time for transport

#### Osmolality (Serum )

Laboratory: Biochemistry Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate Turnaround: <b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<b>Osmolality (Urine)</b>
Laboratory: Biochemistry Specimen: Spot urine sample Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate Turnaround: <b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<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 Turnaround: See referral laboratory manual, allowing time for transport
<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 Turnaround: See referral laboratory manual, allowing time for transport
<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. Turnaround: <b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<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. 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  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.

#### Parasitology serology

Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle) 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>
Comment:	
Turnaround:	Refer to User Manual of Reference Laboratory
Ref.Range	Positive or Negative

#### Penile Swab

Refer to "Genital swab"

#### Pericardial Fluid / Peritoneal Fluid / Pleural Fluid-Microbiology

See "Sterile Body Fluid – Microscopy and Culture".

#### Pericardial Fluid / Peritoneal Fluid / Pleural Fluid-Biochemistry

See Sterile Body Fluid - Biochemistry.

#### Phenobarbitone / Phenobarbital

Laboratory:	Biochemistry: Referred to Biochemistry CUH.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 72 hours
Ref. Range:	See report form.
Turnaround:	See referral laboratory manual, allowing time for transport

#### Phenytoin

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

Turnaround: See referral laboratory manual, allowing time for transport

### Phosphate (Blood)

Laboratory: Biochemistry

Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 24 hours

Comment: Haemolysis invalidates results.

Ref Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: Urgent: <2 hrs Routine: Same day service

### Phosphate (Urine)

Laboratory: Biochemistry

Specimen: 24-hour acidified urine sample. Acidified containers available in Biochemistry, Received < 72 hours

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: Same day service

### Phytanic Acid

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/APHYX/>

Ref. Range: See report form.

Turnaround: See referral laboratory manual, allowing time for transport

### Pinworm/Enterobius vermicularis

See "Parasites"

### Plasma Viscosity

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

### Platelet Function Test includes PFA 100 and Platelet aggregation

Laboratory: Haematology: Referred to Haematology, Cork University Hospital

PFA 100: 3 x green sodium citrate, 1X red EDTA

Samples should not be sent to the Lab using the Chute system as this may cause platelet activation and interfere with test results

Platelet Aggregometry : 6X 3mL green, S Monovette (sodium citrate 0.106M). **NB. Must be booked in advance with CUH**

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.

Specimen: 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

### **PNH ( Paroxysmal Nocturnal Haemoglobinuria)**

Laboratory: Haematology: Referred to St James Hospital, Dublin

Specimen: Blood 2.7mL, red, S Monovette (EDTA).

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 glycoposphatidylinositol leading to the absence of protective proteins on the membrane CD55 and CD59. Diagnosis is possible by flow cytometry for CD55 and CD59 on

Comment: white and red blood cells

Stability 24 hours,

Ref. Range: Quantitative report of CD59 (Erythrocytes) CD16 (Granulocytes) FLAER (Granulocytes) CD24 (Granulocytes) with interpretative comment

### **Antibodies -**

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.

### **Porphobilinogen**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/PORFU/>

Ref range: See report form.

Turn-around tin See referral laboratory manual, allowing time for transport

<b>Porphyrins (Erythrocyte Porphyrins)</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.
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Porphyrins (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.
Turn-around time	See referral laboratory manual, allowing time for transport
<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate 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
Comment:	conditions which elevate aldosterone levels.
Turnaround:	<b>Urgent:</b> <2 hrs <b>Routine:</b> Same day service
<b>Pregnancy Test (Urinary β-HCG)</b>	
Laboratory:	Microbiology
Specimen:	Fresh urine specimen, preferably early morning urine (EMU) 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.
Comment:	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>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.  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Proinsulin**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/PRINS/>  
Ref. Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Prolactin**

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  
Turnaround: See referral laboratory manual, allowing time for transport

#### **Propoxyphene**

See Toxicology / Drug Screen

#### **Protein C**

Laboratory: Haematology  
Specimen: Blood 3mL, green, S Monovette (sodium citrate 0.106M)  
Stability: 24 hours

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. Samples for Protein C, should not be sent if a patient is on heparin, or LMW heparin or any oral anti-coagulants including DOAC/NOAC as this would lead to 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. 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.

Comment:  
Turn-around time: Emergency specimens as per arrangement. Approximately 1 month.  
Ref. Range: 70-140%

#### **Protein S**

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. Samples for Protein S should not be sent if a patient is on heparin, or LMW heparin or any oral anti-coagulants including DOAC/NOAC as this would lead to 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. 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.
Turn-around time:	Approximately 1 month
Ref. Range:	Male 67.5-139% Female 60.1-113.6%

#### **Prothrombin DNA Mutation Studies (Prothrombin variant G20210A)**

Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA) 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
Comment:	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:	Approximately 1 month
Ref. Range:	Normal / Heterozygous /Homozygous.

#### **PSA Total**

Laboratory:	Biochemistry.
Specimen:	4.0 ml blood in plain tube (serum sample). Received < 24 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	Next routine working day 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
Comment	

#### **PTEN Analysis**

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>

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.

Comment: kidney. PHTS is an autosomal dominant disorder.

Ref Range: See report form

### Pyruvate Kinase

Laboratory: Haematology: referred to Kings College Hospital, London

Specimen: Blood 3-5mls red, S Monovette (EDTA).

Form: [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)

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.

Comment: failure of conversion of NADH to NAD, which can be detected by a fluorescent screening test.

Ref. Range: See report form.

### PTH - Parathyroidhormone

Laboratory: Biochemistry:

Specimen: 4.0 ml EDTA plasma,

Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: 1 week

### PTH - RP - Parathyroidhormone related protein

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/PTHRP/>

Ref. Range: See report form.

Turnaround: See referral laboratory manual, allowing time for transport

### Q Fever

See "Coxiella burnetii IgM Antibodies"

### TB

Laboratory: Microbiology

Specimen: Blood taken into 4 specific tubes, to be ordered in advance from Microbiology.  
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.

Comment: 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>Rast</b>	
See IgE	
<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>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.
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Respiratory Syncytial Virus – PCR</b>	
Laboratory:	Microbiology
Specimen:	Nasal/Throat swabs taken into Viral Transport Media.
Turnaround:	<b>Urgent: 4 hrs.</b> Routine: Same day
Report:	Detected or Not detected. Positive results phoned to ward.
<b>Reticulocyte Count</b>	
Laboratory:	Haematology
Specimen:	Blood 2.7mL, red, S Monovette (EDTA).



Stability	24 hours
	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
Comment:	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.
Ref. Range:	23-93 x10 <sup>9</sup> /L

### **Rheumatoid Factor**

Laboratory:	Haematology
Specimen:	Blood 4.9ml, S Monovette (serum )
Stability	24 hours
	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 disaease 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.
Comment:	
Turn-around time:	1 week
Ref. Range:	Less than 10 IU/ML

### **Rubella IgG Antibody**

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:	Rubella IgG levels of 10 IU/mL or greater are considered immune. Rubella IgG levels less than 10 IU/mL are considered non-immune.

### **Rubella IgM Antibody**

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.

### **Salicylate**

Laboratory:	Biochemistry
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Specimen: 4.0 ml blood in a plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** <2 hrs **Routine:** Same day service

#### Schistosoma species

Laboratory: Microbiology  
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.  
Specimen:  
Comment: Test performed by Eurofins-Biomnis  
Turnaround: Refer to User Manual of Reference Laboratory  
Report: Ova of *Schistosoma* spp.not present” or Ova of *Schistosoma* ‘named species’ present”

#### Selenium

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SE/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

#### Serotonin

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SEROT/>  
Ref. Range: See report form.  
Turnaround: See referral laboratory manual, allowing time for transport

#### SHBG Sex Hormone Binding Globulins (Androgen Index)

Laboratory: Biochemistry: Referred to Biochemistry CUH.  
Specimen: 4.0 m 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.  
Turnaround: See referral laboratory manual, allowing time for transport

#### Sirolimus

Laboratory: Haematology: Referred to Mater Public Hospital Dublin  
Specimen: EDTA  
Form: Haematology request form

Ref Range: See final report

**Sodium (Blood)**

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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Urgent: <2 hrs Routine: Same day service

**Sodium (Urine)**

Laboratory: Biochemistry  
Specimen: Spot or 24 Hr urine collection. Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
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  
Turnaround: Urgent: <2 hrs Routine: Same day service

**Somatomedin C**

See IGF-1

**Somatostatin**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SOMAT/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Spinal Cerebellar Ataxia**

Laboratory: Haematology: referred to National Centre for Medical Genetics  
Specimen: 6mls EDTA  
Form: <https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.pdf>  
Comment: Test only available Mon – Thurs morning only.  
Ref. Range: See report form.

**SPINK 1 gene mutation**

Laboratory: Haematology: Liverpools Women's hospital, Liverpool  
Specimen: 5-10mls EDTA

Form: <https://www.liverpoolwomens.nhs.uk/media/1957/genetics-referral-form.pdf>  
 Must be in haematology lab before 11 am. If test performed as part of Hereditary Pancreatitis testing, referred to Eurofins. In this case  
 Comment: Eurofins Genetic request form and consent required  
 Ref Range: See final report

### Sputum Culture

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 *Haemophilus* species and *S. pneumoniae* 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. *Burkholderia pseudomallei* and *Nocardia* 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.

### Sterile Body Fluid - Biochemistry.

Laboratory: Biochemistry  
 Specimens: Specialist collection according to local protocols. Pleural fluids, Ascitic fluids, Received < 48 hrs  
 Comment: Profiles available:  
**Pericardial** : Total protein, LDH, Glucose  
**Peritoneal/Ascitic**: Total protein, Albumin, Glucose  
**Pleural**: Total protein, Albumin, LDH, Glucose  
**Synovial**: Total protein, Albumin, LDH, Glucose  
 Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
 Turnaround: Same day service

### Sterile Body Fluid (pH)-Biochemistry

Laboratory: Biochemistry  
 Specimens: Fluid collected in Heparinised Blood Gas Syringe. Received < 30 mins  
 Ref. Range: No Reference Range established

Turnaround: < 1 hr

**Sterile Body Fluid - Microscopy and Culture**

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. If requested a white Cell Count, differential (if appropriate) and Gram Stain will be reported. Culture will be reported on all fluids and all isolates are reported with appropriate sensitivities. Total white cell counts are not performed on specimens containing a clot, which would  
Report Format: invalidate the cell count.

**Stones (Description and Conclusion)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CAL/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Sweat Test**

Laboratory: Biochemistry CUH  
Specimen: Sweat, Received < 4 hours  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Synacthen test**

Biochemistry: Refer to the Pathology department; departments information section on the MUH website or the following link for full details  
Laboratory: [.https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department](https://www.muh.ie/index.php/38-services/clinical-biochemistry-department/61-clinical-biochemistry-department)

**Synovial Fluid**

See “Sterile Body Fluid – Microscopy and Culture”

**Syphilis Screen**

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.

### **T3 - Triiodothyronine - Total**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/T3TOT/>

Comment: Only done on patients who exhibit hyperthyroidism ( low TSH) with a normal free T4

Ref. Range: See report form.

Turnaround: See referral laboratory manual, allowing time for transport

### **T4 Thyroxine (Free)**

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. Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate

Turnaround: Next routine working day

### **T Cell Receptor Gene rearrangement for ? LGL**

Laboratory: Referred from Haematology MUH to Cancer Molecular Diagnostics Laboratory, St James.

Specimen : EDTA sample

Form: Haematology request Form

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

### **Testosterone**

Laboratory: Biochemistry: Referred to Biochemistry CUH.

Specimen: 4.0 ml blood in plain tube (serum sample). Received < 72 hours

Ref. Range: See report form.

Turnaround: See referral laboratory manual, allowing time for transport

### **Theophylline**

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

Turnaround: See referral laboratory manual, allowing time for transport

<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 ) Samples must be labelled with time of phlebotomy and delivered promptly to laboratory, within 2 hours of phlebotomy. Samples received
Stability:	outside this time limit may not be processed 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
Comment:	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:	Approximately 1 month
Ref. Range:	See individual tests
<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>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
Turnaround:	See referral laboratory manual, allowing time for transport
<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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Next routine working day

### **TORCH**

See "Intra-Uterine Infection Screen"

### **Total Protein**

Laboratory: Biochemistry  
Specimen: 4.0ml blood in plain tube(serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** <2 hrs **Routine:** Same day service

### **Toxicology / Drug Screen: Blood**

Laboratory: **Biochemistry: Referred to Eurofins Biomnis**  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SCRIB/>  
Comment: Tested for Benzodiazepines, Barbiturates, Paracetamol, Salicylate Tricyclics,  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### **Toxicology / Drug Screen; Urine.**

Laboratory: **Biochemistry: Referred to Eurofins Biomnis**  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/SCRIU/>  
Comment:  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

### **Toxocara Antibodies**

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.

### **Toxoplasma gondii (anti-Toxoplasma gondii total Ig) Antibodies**

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.

**Toxoplasma gondii (anti-toxoplasma IgM) Antibodies**

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.

**TPMT - Thiopurine MethylTransferase - Activity**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/ACTPM/>  
Comment: Only accepted Monday and Tuesday by lab  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Transferrin**

Laboratory: Biochemistry.  
Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Transferrin Isoforms (Carbohydrate-deficient Transferrin}**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimens: <https://www.eurofins-biomnis.com/en/services/test-guide/page/CDT/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Transferrin Saturation %**

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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Transfusion reaction investigation**

Laboratory: Sample referred to the Blood Bank Mercy University Hospital

Specimen:	<p>(1) 7.5ml EDTA (Whole Blood) Post transfusion Sample. (2) 2-5ml Plain Clotted Sample The implicated unit(s) must be returned-Suitably sealed.</p> <p>(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:</p> <ul style="list-style-type: none"> <li>• Implicated unit (if available)-(even an ‘empty pack’ may provide a sample from an attached segment)</li> <li>• Part B (white section) of the traceability label (LF-BB-0002) must not be removed from the units to be returned</li> <li>• The remaining un-transfused units must be also be returned to the Blood Transfusion Laboratory</li> </ul>
Comment:	<ul style="list-style-type: none"> <li>• Completed Request for Transfusion Reaction Investigation Form (LF-BB-4)</li> </ul>
Turn-around time:	<p>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. Note all transfusion reactions are treated as emergency</p>

**Trichomonas vaginalis PCR**

*Chlamydia trachomatis*  
and *Neisseria*

**Tricyclics**

See Toxicology / Drug screen - Blood

**Triglycerides**

Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 72 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	Same day service
Comment	Patients who are scheduled for a triglycerides test should fast (except for water) for 12-14 hours before the blood sample is drawn.

**Troponin I (High Sensitivity)**

Laboratory:	Biochemistry
Specimen:	4.0 ml blood in lithium heparin. Received < 8 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Comment:	Any increase after 3-6 hours above these levels or 50% increase on admission level may be considered significant. Refer to MUH High Sensitivity Algorithm
Turn-around time	<b>Urgent:</b> On request <b>Routine:</b> < 6 hours

**Tryptase**

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
Turnaround:	See referral laboratory manual, allowing time for transport
<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-anylsis.pdf">https://www.olchc.ie/Services/Departments-A-Z/Department-of-Clinical-Genetics/Information-Leaflets-Forms/Consent-form-for-genetic-anylsis.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>Tuberculosis Testing</b>	
Refer to Mycobacteria Testing (TB/AFB)	
<b>Ulcer Swab</b>	
See Wound Swab	
<b>Urea (Blood)</b>	
Laboratory:	Biochemistry
Specimen:	4.0 ml blood in plain tube (serum sample) or lithium heparin. Received < 72 hours
Ref. Range:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	<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:	Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate
Turnaround:	Same day service
<b>Urethral swab</b>	
Refer to "Genital swab"	
<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: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: **Urgent:** <2 hrs **Routine:** Same day service

**Uric Acid - (Urate) Urine**

Laboratory: Biochemistry  
Specimen: 24 Hour plain collection, Received < 48 hour  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Urinary  
Pneumococcal  
Antigen**

Laboratory Microbiology  
Specimen Urine  
Comment Test detects *Streptococcus pneumoniae* antigen  
Turnaround **Same day**  
Report Positive or Negative

**Urinary Protein**

Laboratory: Biochemistry  
Specimen: Spot or 24 Hr sample, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Urinary Protein/Creatinine Ratio.**

Laboratory: Biochemistry  
Specimen: Spot urine. Received < 48 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Same day service

**Urine Microscopy and Culture**

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 *Schistosoma haematobium* – see *Schistosoma haematobium*

Turnaround: Microscopy: Routine – 24hrs, Urgent – 2hrs

Culture: Negative – 24hrs

Positive – Preliminary 24hrs, Final 24hrs- 4 days

Report: Microscopy: Quantity of WBC and RBC per cmm, as well as presence of bacteria, yeasts, *Trichomonas vaginalis* and casts, if present.

Culture: Bacterial growth in orgs/ml, with antibiotic susceptibilities and comment if appropriate.

### Urinary schistosomiasis

See “Schistosoma haematobium”

### Valproate

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

Turnaround: See referral laboratory manual, allowing time for transport

### Vancomycin

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 Samples from patients who have received preparations of mouse monoclonal antibodies may give inaccurate results
Turnaround:	<b>Urgent 4hrs. If sample received after cut-off times for processing i.e., 9pm Mon-Fri and 6pm Sat/Sun/BH, Turnaround: Non-urgent 24hrs.</b>
Ref. Range:	Once-daily dosage: Trough 10-20mg/L Multiple-daily dosage: Trough 10-20mg/L Peak 20-40/L

### Vancomycin Resistant Enterococci (VRE)

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”

### Varicella-Zoster Virus IgG Antibody

Laboratory:	Microbiology
Specimen:	Blood 4mL of clotted blood ( brown or white bottle) or CSF sample.
Comment:	Test performed by the National Virus Reference Laboratory.
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.

### Very Long Chain Fatty acids

See Fatty Acids

### VIP - Vasoactive intestinal Polypeptide

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
Turnaround:	See referral laboratory manual, allowing time for transport

### Viral Screen

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:

**Provisional Possible Virus/Agent**

**Diagnosis/Symptoms**

Respiratory infection	<i>Mycoplasma pneumoniae</i> <i>Chlamydia pneumoniae</i> <i>Coxiella burnetti</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 EEpstein Barr virus (EBV)
	Cytomegalovirus (CMV)
Intra-uterine infection/ TORCH screen	Toxoplasmosis
	Rubella
	Cytomegalovirus (CMV)
	Parvovitus B19 IgM
Organ Donor	Syphilis
	CMV
	Toxoplasmosis (total)
	Hepatitis B surface antigen and core antibodies
	Hepatitis C
	HIV
Antenatal	Rubella IgG
	Hepatitis B surface antigen
	Syphilis
	VZV
Pericarditis/My ocarditis	Coxiella burnettii (Q fever)
	Chlamydia group
	Mycopasma pneumoniae
	Coxachie B virus
Lymphadenopa thy and glandular fever	Epstein Barr virus (EBV)
	CMV
	Toxoplasma IgM
Turnaround:	Refer to User Manual of Reference Laboratory
Report:	IgM antibody positive indicates recent infection with the relevant virus.

**Viral Culture/PCR**

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>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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<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
Turnaround:	See referral laboratory manual, allowing time for transport
<b>Vitamin B12</b>	
Laboratory:	Biochemistry.

Specimen: 4.0 ml blood in plain tube (serum sample) or lithium heparin, Received < 72 hours  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Comment: Haemolysis invalidates results  
Turnaround: Next routine working day

**Vitamin C (Ascorbic Acid)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: Serum, protect with foil. **Take only Monday and Tuesday.**  
Comment: Protect sample from light with tinfoil  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Vitamin D (1,25 Dihydroxy Vitamin D3 / Calcitrol)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/125D/>  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**Vitamin D (25Hydroxy Vitamin D3 / Hydroxycholecalciferol)**

Laboratory: Biochemistry  
Specimen: 4.0 ml blood in a plain tube (serum sample) or lithium heparin. Received <72 hrs  
Ref. Range: Up-to-date reference intervals will be applied to all Biochemistry reports as appropriate  
Turnaround: Next Routine day

**Vitamin E (Tocopherol)**

Laboratory: Biochemistry: Referred to Eurofins Biomnis  
Specimen: <https://www.eurofins-biomnis.com/en/services/test-guide/page/VE/>  
Comment: **Protect Sample from light with tinfoil**  
Ref. Range: See report form  
Turnaround: See referral laboratory manual, allowing time for transport

**VMA - Vanillylmandelic Acid**

See metanephrines

**Von  
Willebrands  
Screen**

Laboratory: Haematology: Referred 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.  
Test available Monday to Friday, during routine working hours. Screen includes Factor V111 assay, vWF:ag (FV111 Related Antigen),  
Comment: 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%

### Whooping Cough

See "Bordetella species – Culture, PCR, Serology".

### Wound Swab (skin/abscess/decubitus ulcer/bite/burn etc.)

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.  
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.  
Comment: Urgent microscopy: 2hrs  
Turnaround: 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. Specimens of pus, if present, placed in a sterile universal container, are preferable to swabs.

### Xanthochromia

Laboratory: Biochemistry: Referred to Biochemistry Beaumont  
Specimen: **Minimum 1 ml CSF Specimen, Received ASAP. It is best to send the last sample taken during the LP.**  
Spec should be sampled 12+ hours post suspected SAH to allow sufficient time for red cell breakdown and bilirubin production in CSF. **Protect**  
Comment: **Sample from light with tinfoil**  
Relevant clinical details and suspected incident time should be supplied **on specific CSF Xanthochromia form from CUH. Include phone number of lab for results.**  
Ref.Range: See Report Form.  
Turnaround: See referral laboratory manual, allowing time for transport

### Yersinia Antibodies

Test discontinued by Reference laboratory

**ZAP 70, CD38, P53, Mutational status of IgVH**

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.

**Zinc**

Laboratory: Biochemistry: Referred to Eurofins Biomnis

Specimen: Serum or lithium heparin plasma

Ref. Range: See report form.

Turnaround: See referral laboratory manual, allowing time for transport