



## Pathology Laboratory User Manual

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<b>ROSCOMMON UNIVERSITY HOSPITAL</b>	
<b>PATHOLOGY LABORATORY</b>	
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## 1 INTRODUCTION

The Pathology service in Roscommon University Hospital (RUH) is part of the Diagnostic Directorate of the [HSE West and North West Region](#). It is organised into a Blood Sciences Department (combined Haematology and Biochemistry) and Blood Transfusion. This manual is designed to provide a guide to services provided by the Pathology Laboratory of Roscommon University Hospital.

### 1.1 SERVICES AVAILABLE AT RUH PATHOLOGY LABORATORY:

The pathology department provides a routine and emergency diagnostic service in Blood Sciences and Transfusion to all clinical areas at Roscommon University Hospital. It also provides a diagnostic services to other healthcare institutions and to the community of General Practitioners (GPs) supported by the hospital. A Haemovigilance Service is available in the hospital; see Table 1 for contact details.

### 1.2 SERVICES UNAVAILABLE AT RUH PATHOLOGY LABORATORY:

All samples for Immunology, Histology and Microbiology are referred to the Laboratory Medicine Department at Galway University Hospital (GUH). All results are available on the Laboratory Information system but access to some results especially Histology will be restricted to certain users. In the event that a specific Immunology, Histology or Microbiology test is not available in GUH then the sample may be referred to an outside laboratory for testing.

All Biochemistry and Haematology tests not available in the Pathology Laboratory at Roscommon Hospital are referred to Laboratory Medicine Department at Galway University Hospital. All results are available on the Laboratory Information system. In the event that a specific Biochemistry or Haematology test is not available in GUH then the sample may be referred by either GUH or RUH to an outside laboratory for testing. For these samples the laboratory operates a tracking system for all tests referred out. When samples are referred out they are booked into the LIS with details of the test name and referral centre. When reports are returned from the referral laboratory, RUH dispatches the original report to the requestor.

Details of all tests referred to GUH can be obtained in the current version of the Laboratory Medicine User Guide University Hospital Galway.

See <https://www.saolta.ie/documents/guh-laboratory-medicine-user-guide-version-313>

A full list of tests available, laboratory opening hours and contact details for all consultants are available in this publication.

All samples for referral to GUH are sent by courier at 13:00 each day Monday to Friday and should be received in the Laboratory no later than 12:50 to be included in the routine dispatch. If there is a need to send samples urgently to GUH please contact the Laboratory to arrange delivery. For Blood Cultures taken between 12 midnight and 09:00 am please use the transport boxes provided on the Wards. Full instructions and contact details are included on the box.

### 1.3 ACCREDITATION:

- The Haematology Laboratory, Blood Transfusion Laboratory and Haemovigilance Service are accredited by the Irish National Accreditation Board (INAB) in compliance with the International Standard ISO/IEC 15189 and AML-BB (Minimum Requirements for Blood Bank Compliance with Article 14 (Traceability) and Article 15 (Notification of Serious Adverse Reactions and Events) of EU Directive 2002/98/EC).
- All activities are performed in accordance with the requirements of the above standards.
- INAB Registration number: 238MT.

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Details of the scope of accreditation can be seen at <https://www.inab.ie/fileupload/medical-testing/roscommon-university-hospital-saolta-university-healthcare-group-238mt.pdf>

All laboratory activities are subject to continuous review through quality assurance and audit.

The laboratory participates in a number of external quality assessment schemes, all of which are accredited. A list of assays and relevant schemes is available on request.

#### 1.4 CONFIDENTIALITY:

All Laboratory staff are bound by the Health Service Executive Codes of Standards and Behaviour which states:

“Employees must not improperly disclose, during or following termination of employment, information gained in the course of their work.

Employees may have access to or hear information concerning the medical or personal affairs of patients and/or employees, or other health service business. Such records and information are strictly confidential and can only be divulged or discussed in the performance of normal duty. Disclosure of records or information under various statutory provisions (e.g. Freedom of Information Acts 1997 and 2003; Data Protection Acts 2001 and 2003; the Health Acts 1947 to 2007) will be made in accordance with HSE policies, procedures and protocols.”

GDPR provides for high standards of data protection for individuals and imposes increased obligations on organisations that process personal data. All HSE staff must comply with all applicable data protection, privacy and security laws and regulations including the HSE Data Protection Policy which sets out the requirements of the HSE relating to the protection of personal data where we act as a Data Controller and / or Data Processor, and the measures to be taken to protect the rights of data subjects, in line with EU and Irish legislation. HSE Data Protection Policy is available from: <https://www.hse.ie/eng/gdpr/hse-data-protection-policy/hse-data-protection-policy.pdf>.

## 2 CONTACT DETAILS

Section	Telephone
Laboratory Office (all enquiries)	09066 32258 or 09066 32176
Roscommon University Hospital – Switchboard	09066 32000
Emergency out of hours on call service	9 (switchboard) –and request to be connected to mobile of scientist on-call.
Chief Medical Scientist	09066 32131
Blood Transfusion	09066 32023
Quality Manager	09066 32131
Haemovigilance Office	09066 32350 or bleep 335
Consultant Haematologist	091 524222 and request to speak to the Haematology consultant on call.
Other Galway University Hospital Laboratory Medicine Consultants	Refer to <a href="https://www.saolta.ie/documents/guh-laboratory-medicine-user-guide-version-313">https://www.saolta.ie/documents/guh-laboratory-medicine-user-guide-version-313</a>
Postal Address	Pathology Laboratory, Roscommon University Hospital, Athlone Road, Roscommon, F42 AX61.
email	<a href="mailto:denise.lally@hse.ie">denise.lally@hse.ie</a>
Complaints:	<a href="mailto:denise.lally@hse.ie">denise.lally@hse.ie</a>
Feedback on Services	<a href="mailto:denise.lally@hse.ie">denise.lally@hse.ie</a>
GP Supplies:	<a href="mailto:orders@cruinn.ie">orders@cruinn.ie</a>
Haemovigilance Officer	<a href="mailto:mary.mimnagh@hse.ie">mary.mimnagh@hse.ie</a>

**Table 1. Contact details.**

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### 3 LOCATION

The Laboratory is located on the first floor of the hospital. The external door is controlled via swipecard access. Please ring bell for access.

### 4 OPENING HOURS

<b>Department/Activity</b>	<b>Opening Hours</b>
Routine Laboratory Diagnostic Service Mon. to Fri.	09:00 to 20:00
Routine Laboratory Diagnostic Service Sat. a.m.	09:30 to 12:00
On call Mon. to Fri. (Contact Med. Scientist on call via switchboard before sending samples)	20:00 to 09:00 (next morning)
On call Sat. (Contact Med. Scientist on call via switchboard before sending samples)	12:00 to 09:30 (Sunday morning)
On call Sun. & Bank Holidays. (Contact Med. Scientist on call via switchboard before sending samples)	09:30 to 09:00 (next morning)

**Table 2. Opening Hours**

To facilitate efficient processing of requests, samples should be delivered to the laboratory before 19:00. The “On-call” service should not be used to run routine bloods for elective cases.

### 5 ON-CALL SERVICE

An emergency out of hours service (on call) is in place for emergency work, i.e. non deferrable tests necessary for decisions regarding patient treatment. During these hours, the laboratory is staffed by one medical scientist on call. The scientist must be contacted when urgent samples are being sent to the laboratory (via switch – dial ‘9’ from within RUH).

**All tests listed in Section 10 are available on call with the exception of Urinary chemistries.**

For advice on any test not included in these lists, please contact the medical scientist on-call.

**Blood gases** can be analysed on the blood gas instrument. Lactate, ionised Calcium, Sodium, Potassium, Chloride, Haemoglobin and Carboxyhemoglobin are also available on this instrument. The Blood Gas analyser is password controlled. Please contact the Pathology Laboratory if you require a password.

### 6 LABORATORY SUPPLIES

All users must use approved specimen containers, which can be obtained from the Laboratory or directly from Cruinn Diagnostics.

#### 6.1 HOSPITAL

Collect supplies from Laboratory as required during routine opening hours. Please do a complete stock check on a monthly basis and send order for any products required rather than submitting multiple orders for one or two items.

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## 6.2 GENERAL PRACTITIONERS

Cruinn Diagnostics centrally process and supply all requisitions from external service users as per the Roscommon order form available from Cruinn.

All supply orders received by 12pm will be delivered by the next working day.

Cruinn Diagnostics Ltd  
Email: orders@cruinn.ie  
Telephone: 01 629 7400  
Fax: 01 629 7401

For added convenience Cruinn Diagnostics Ltd will also supply a number of ancillary items such as Request Forms, bags, swabs, urine containers etc.

## 7 SAMPLE AND REQUEST FORM REQUIREMENTS

The Pathology Laboratory has 2 request forms:

- Blood transfusion request form (RCH/BT/F001) is used for blood transfusion requests, including group and screen, group and cross match, direct coomb's test, transfusion reaction investigation, blood component requests. For Blood Transfusion samples refer to **Positive identification** of the patient prior to sample collection is detailed in Haemovigilance procedure RCH/HVIG/CP/003.

**Patient Consent** for transfusion must be documented on Transfusion Prescription and Administration Document for Blood and Blood Components RCH/HVIG/CF009 following discussion between doctor and patient who provide the patient with the information detailed in policy for Provision of Information to Patients Regarding the Administration of Blood Component or Product RCH/HVIG/CP/001.

- Blood Sciences request form (RCH/BS/F001) used for all non Transfusion requests. This is a triplicate request form and if using pre printed patient ID labels ensure a copy of the label is placed on all 3 copies. Note for RUH patients the ward and consultant are not specified on pre printed labels and **MUST BE** handwritten on form. This request form may be utilised for all non-Transfusion requesting, ensuring the appropriate number of specimens are provided. Once collected, submit the entire specimen to the laboratory with the fully completed request form

**Table 3: Specimen / Request Form Acceptance/Rejection Criteria**

Information Required on Specimen	Information Required on Request Form	Requirements	Action if non-compliant
Surname & Forename	Surname & Forename	Details on specimen must match details on request form.	Request will be rejected.  (If Blood Track label / patient ID label is offline or any of the required information is missing then request will be rejected.)  Note: In Transfusion the urgent need for blood overrides the strict sample labelling requirements. If the situation is critical, blood samples shall be identified with sufficient information to identify the patient, two independent identifiers (e.g. patient full name and PID number) and the individual who drew the blood. Specimen may be processed.  A comment will be included in the printed test report detailing the nature of the non-conformance.
DOB	DOB		
Unique ID (PID (Patient Identification) number)	Unique ID (PID (Patient Identification) number)	All specimens from within RUH should be labelled with Blood Track label generated at the bedside except OPD or theatre specimens which may be handwritten or in exceptional circumstances when all Blood Track PDA / printers are out of service or in emergency situation.	
Date and time of specimen collection	Date and time of specimen collection	In the case of samples not originating within RUH it is the responsibility of the requesting Doctors/Phlebotomists who opt to use printed labels to have safe procedures in place for controlling and printing, affixing and checking patient details of such labels.	
Gender	Gender		
	Sample type		
Blood Track COLLECT label (if applicable)	Blood Track COLLECT label (if applicable)	NEVER use felt tip pens to label samples or complete request forms.	
Signature of specimen taker	Signature of specimen taker	Blood Track COLLECT label is acceptable as signature of the taker on specimens and request forms from within RUH	

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Information Required on Specimen	Information Required on Request Form	Requirements	Action if non-compliant
Ward/Location (RUH in-patients and OPD patients only)	Ward/Location	Must be on specimen or form. Details on specimen should match details on request form.	If absent from request form sender will be asked to confirm before sample can be processed Sample is processed.
	Consultant / Requesting G.P.	Must be on request form.	A comment will be included in the test report detailing the nature of the non-conformance.
	Test Request/Product required (in the case of Transfusion request form)	Must be on request form.	If absent from request form sender will be asked to confirm before sample can be processed Sample is processed. A comment will be included in the printed test report detailing the nature of the non-conformance.
	Clinical Details or Special Requirements	All <b>Blood Transfusion</b> special requirements e.g. CMV Neg or Irradiated must be specified on form.	If absent from <b>Transfusion request form</b> sender will be asked to confirm before sample can be processed Sample is processed. A comment will be included in the printed test report detailing the nature of the non-conformance.
	Signature of requestor + Bleep or Ext. No. or contact phone number	For <b>Transfusion request forms</b> all fields must be complete on bottom left section of request form and must be traceable via user ID from the Blood Track label.	Requesting Doctor or nominee may amend the Request form.

**Table 4: Transfusion specific requirements**

Information Required on Request Form	Requirements	Action if non-compliant
Type of Blood Component	Must be on <b>Blood Transfusion</b> request form	If absent from <b>Transfusion request form</b> sender will be asked to confirm before sample can be processed Sample is processed.
Quantity of Blood Component required.		
Date required		
Time required		
Previous Transfusion history	All <b>Blood Transfusion</b> special requirements e.g. CMV Neg or Irradiated must be specified on form.	A comment will be included in the printed test report detailing the nature of the non-conformance.
Clinical Details or Special Requirements		
Signature of requestor + Bleep or Ext. No. or contact phone number	For <b>Transfusion request forms</b> all fields must be complete on bottom left section of request form and must be traceable via user ID from the Blood Track label.	Requesting Doctor or nominee may amend the Request form.

**Table 5: Additional Specimen Rejection Criteria**

Issue	Action
Current patient details relating to patients name, date of birth, hospital number or PID (Patient Identification) number do not match with historical details on file.	Requestor will be contacted and if current details are correct request will be accepted. If incorrect it will be rejected.
Haemolysed Blood Transfusion Samples ( <i>Haemolysis in the patient sample may mask antibody-induced haemolysis and therefore may significantly affect the interpretation of transfusion results</i> )	Request will be rejected. Requestor will be informed.
Clotted FBC, ESR or Coagulation samples	Request will be rejected. Requestor will be informed.
Incorrect sample container, under filled, grossly haemolysed, sample leaked, or no sample	Request will be rejected. Requestor will be informed.
Specimen containers that are externally contaminated with body fluids	
Details on sample illegible	
Request form contaminated / blood stained	
Use of correction fluid on sample or request form or sample	
Empty sample container	
Expired sample container	Due to the nature of histology and CSF samples, incorrectly labelled samples or request forms may be amended. The requesting doctor will be informed and if he/she is confident that the sample can be correctly identified, it may be accepted once the amendments have been made. The doctor must sign the request form to confirm that he/she has amended the sample or form and is satisfied that both sample and form are now correct. Amendments are also permitted on 24 hr Urine Collection samples.
Urgent samples or samples that cannot be repeated.	



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## **A list of factors known to affect the performance of Haematology examinations or the interpretation of Haematology results are available on request**

Please remember that inadequately completed request forms can cause delays in issuing reports. Some requests for biochemistry and haematology are listed on the request form and requested by means of a 'tick box'. All other investigations required must be clearly handwritten on form.

These criteria for sample acceptance are essential for patient safety. They are in place to decrease the risk of potential harm caused by labelling errors. Samples not meeting the minimum requirements may be rejected. Only addressograph labels generated by the Blood Track handheld system are acceptable on Blood Transfusion samples. If a sample is to be submitted to the Blood Transfusion Laboratory and the Blood Track handheld system is not available the sample label must be handwritten and must contain all the mandatory information detailed in table 3.

Addressograph labels are acceptable on all other samples.

The laboratory reserves the right to reject specimens that are improperly labelled or are accompanied by forms that are incompletely filled. Consistent practices for specimen rejection are employed across the laboratory.

The laboratory recognises that, in certain cases where the specimen, involves an invasive procedure, or could not otherwise be easily recollected, it may be acceptable to apply an exception of specimen rejection. Exceptions are applied using strict and explicit criteria in accordance with established procedures. The person who collected the specimen will be required to come to the laboratory to identify the specimen and record reason for acceptance and sign the request form, assuming responsibility for the identification of the specimen. Reports relating to such samples will carry a disclaimer stating the nature of the non conformance.

If insufficient specimen is received for all tests requested and the specimen is easily re collectable (e.g. urine, stool, sputum, blood), a repeat collection will be requested. Test(s) for which there is sufficient specimen will be performed.

If the specimen is not easily re-collectable (e.g. CSF, fluids), the ordering clinician will be contacted to establish priority order of tests to be performed.

## **8 SPECIMEN COLLECTOIN AND PATIENT CONSENT**

Refer to CLN-NM-0460 Hospital Venepuncture Policy for instructions on specimen collection. Always ensure positive patient identification prior to venepuncture.

For most routine laboratory procedures, consent can be inferred when the patient willingly submits to the sample collecting procedure, for example, venepuncture.

**Patient Consent** for transfusion must be documented on Transfusion Prescription and Administration Document for Blood and Blood Components RCH/HVIG/CF009 following discussion between doctor and patient who provide the patient with the information detailed in policy for Provision of Information to Patients Regarding the Administration of Blood Component or Product RCH/HVIG/CP/001.

Any further patient consent requirements are outlined in the alphabetical test directory contained in section 16 of this document. Patient consent remains the responsibility of the requesting clinician and the laboratory cannot accept responsibility for referral laboratory rejection of requests due to patient consent being unavailable.



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## 9 ORDER OF DRAW, SAMPLE VOLUMES FOR BLOOD SAMPLES

The order of draw is important to minimize carry-over of anticoagulant. **Note: Blood cultures must be drawn first to avoid contamination.**

Please note, it is preferable that blood tubes, especially those containing preservatives, are filled to their stated capacity. This avoids the risk of insufficiency or interferences from excess concentrations of preservative. This is mandatory for some tests (e.g. coagulation), where an imbalance of preservative due to under-filling or over-filling would invalidate the test. Ensure all blood collection tubes are in date before use.

Submit the entire specimen to the laboratory. Never pour samples from one bottle to another.

**Table 6: Order of venipuncture.**

Specimen Type or Tube Colour and Order of Draw	Additive	Laboratory Use
BLOOD CULTURES	Soya broth	Blood cultures aerobic & anaerobic. Send to Laboratory immediately. For Blood Cultures taken between 12 midnight and 09:00 am please use the transport boxes provided on the Wards. Full instructions and contact details are included on the box.
	Trisodium Citrate	Coagulation Studies & D Dimers. If using butterfly needles and a coagulation sample is the first sample to be taken then a discard sample must be taken before the coagulation sample. Fill to mark on tube.
	5ml plain gel tube	Serum determinations.
	Na+. EDTA	Trace Elements
	Lithium Heparin	Contact lab for list of tests
	K3EDTA 6.0 mL blood	Blood Transfusion Group & Hold, X Match, DCT & Transfusion Reaction Investigation.
	3.0 mL K3 EDTA	Full Blood count, ESR & DCT. Fill to mark on tube.
	Sodium fluoride/Potassium oxalate	Blood glucose
	Urine in plain vacutainer – part of Griener urine collection system Transfer urine into <b>Yellow Top</b> Vacuette (Z Urine No Additive)	Urine ACR (albumin:creatinine ratio) and any other spot urine biochemistry assays.
	Plain urine container (white top)  Boric acid container (red top)	

Always ensure sample containers are in date.

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Following sample collection discard all materials used in collection safely according to local policy for disposal of healthcare risk waste. Contaminated sharps are potentially hazardous and must be disposed of in a rigid, leak-proof container.

## 10 TRANSFUSION SPECIFIC INFORMATION:

- 9.1. Collected specimens should be sent at room temperature immediately, or as soon as practically possible, to the Blood Transfusion laboratory. Specimens must arrive in the Laboratory within 5 hours of being taken. It is the policy of the Transfusion department to process all specimens received to the blood transfusion laboratory immediately, or as soon as practically possible depending on workload and urgency of sample.
- 9.2. Blood transfusion specimens are valid for ordering additional testing/ blood components for a period of 72 hours from the time the sample was drawn. Cross matched blood is held for a patient for a period of not more than 72 hours. Laboratory will contact ward to inform of crossmatched units that may be de reserved for a given patient before the 72 hours have elapsed, e.g. blood needed for another patient during an emergency bleed.
- 9.3. Patients that are transfused within the 72 hour time frame of the original specimen need not be re drawn; however a new sample is required after the 72 hours post time of sample draw has elapsed.
- 9.4. Urgent specimens for blood transfusion may be sent by the chute system (number 2 for laboratory), alternatively, the specimen may be delivered by designated hospital staff to the medical scientist “on call” and the person generating the request must contact the scientist on call.
- 9.5. Blood Transfusion samples from outside agencies will be processed Mon-Fri 09.00-20.00 and a report will issued on the same day.
- 9.6. Blood transfusion requests from outside agencies must be accompanied by 2 samples see table 2 and table 3 for labelling requirements.
- 9.7. A Haemovigilance service is available in the hospital. Further information can be got from the Haemovigilance Officer or by contacting the hospital blood bank (see contact details in table 1).
- 9.8. The following products are stocked in the Blood Transfusion Laboratory:
  - Red Cells
  - LG Plasma (Octoplas)
  - Albumin 20%
  - Octaplex
  - Fibrinogen 1g
  - Platelets are ordered from the IBTS on a named patient basis only and are not stocked at RUH.
- 9.9. The special coagulation factors shown in Table 7 can be supplied by the Blood and Tissue Establishment (BTE) GUH. Administration of these products must be approved by the patient’s consultant after discussion with the Haematologist on call in GUH. Contact the Blood Transfusion Lab. RUH to arrange delivery. As transfusion of these products is likely to be an extremely rare event these products will be administered as specified in relevant policies supplied by BTE GUH.

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Table 7. Special coagulation factors available from BTE GUH

Product	Supplier	Apex Product Code	Supplier Code/ Stock Source	Purpose
Activated PCC/FEIBA 1000IU	Baxalta	FEIBA1000	x	Activated PCC product (Human) for treatment of patients with Haemophilia A who have antibodies to Factor VIII
Activated PCC/FEIBA 500IU	Baxalta	FEIBA500	x	
Wilate 500IU	Octapharma	WILA500	o	Von Willebrand factor/Coag. factor VIII complex (Human) for treatment of patient's with Von Willebrand's disease
Wilate 1000IU	Octapharma	WILA1000	o	
Alprolix 250 IU	Sobi	ALP250	S	Alprolix is used for the treatment and prevention of bleeding in all age groups of patients with haemophilia B (inherited bleeding disorder caused by factor IX deficiency)
Alprolix 500 IU	Sobi	ALP500	S	
Alprolix 1000 IU	Sobi	ALP1000	S	
Alprolix 2000 IU	Sobi	ALP2000	S	
Alprolix 3000 IU	Sobi	ALP3000	S	
Novoseven 1mg	Uniphar	NS50	n	Coagulation Factor VIIa recombinant. Treatment of patients with haemophilia A or B who have inhibitors , congenital Factor VII deficiency and patients with Glanzmann's Thrombasthenia who have a decreased or absent response to platelet transfusions.
Novoseven 2mg	Uniphar	NS100	n	
ELOCTA 250IU	Sobi	ELOC250	S	Recombinant coagulation factor VIII, Fc fusion protein. Treatment and prevention of bleeding in all age groups of patients with haemophilia A (factor VIII deficiency). ELOCTA is prepared by recombinant technology without addition of any human- or animal-derived components in the manufacturing process.
ELOCTA 500IU	Sobi	ELOC500	S	
ELOCTA 750IU	Sobi	ELOC750	S	
ELOCTA 1000IU	Sobi	ELOC1000	S	
ELOCTA 1500IU	Sobi	ELOC1500	S	
ELOCTA 2000IU	Sobi	ELOC2000	S	
ELOCTA 3000IU	Sobi	ELOC3000	S	
Fibrinogen	IBTS	RIASTAP	q	RiaSTAP, Fibrinogen Concentrate (Human) indicated for the treatment of acute bleeding episodes in patients with congenital fibrinogen deficiency, including afibrinogenemia and hypofibrinogenemia. RiaSTAP is not indicated for dysfibrinogenemia.
Praxbind	Reversal agent for Pradaxa (Dabigatran) request from Pharmacy RUH who will obtain from BTEGUH or PUH as required. This is a Pharmacy product and details will not be stored on Apex.			

- 9.10. All activities relating to transfusion of red blood cells and platelets are monitored using the Blood Track System. Data relating to all blood, platelet and product transfusions are maintained on the Laboratory Information system.

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## 10.1 LIFE THREATENING EMERGENCY BLEED:

- 9.1.1. The blood transfusion department has 2 units of group confirmed O Rh D negative, phenotype CE and Kell negative red blood cells for emergency transfusion only, when the risk of not transfusing outweighs the risk of waiting for fully crossmatched compatible blood.
- 9.1.2. Staff should be advised that supply of group specific uncross matched blood will take 10 minutes from time of specimen receipt for patients with a known history. Patient's history unknown & blood required sooner than 40 mins, give the emergency uncrossmatched O Rh (D) Negative units.
- 9.1.3. Supply of fully crossmatched blood will take 40 -60 minutes.
- 9.1.4. Supply of compatible blood is compromised if the patient has irregular antibodies, laboratory will advise on availability.
- 9.1.5. The two units of O negative red blood cells are located in the Roscommon Issue Fridge at the Pathology laboratory specimen reception area. Units are clearly labelled as "Emergency Blood". Use only in extreme emergency. A blood transfusion report form is kept with these units, please complete patient details on this form and keep in patient's chart.
- 9.1.6. Plasma is also available on request from the laboratory. Plasma can be issued from the laboratory within 30 minutes on receipt of request.
- 9.1.7. Fibrinogen 1g is also available on request from the laboratory. Fibrinogen can be issued from the laboratory within 15 minutes on receipt of request.
- 9.1.8. Platelets are not available on site but can be ordered as required. Please note that the transport time for platelets on request is approximately 90 minutes.
- 9.1.9. In a life threatening bleed/ multiple trauma, it is imperative that the Medical Officer or deputy, contacts the blood transfusion laboratory, or "on call" scientist as soon as possible to advise of the clinical situation.
- 9.1.10. A properly labelled transfusion specimen must be drawn, before transfusing the 2 O Rh negative units. This is imperative for accurate patient blood grouping.
- 9.1.11. To prevent the risk of samples being lost in the air chute system, it may be advisable to send a member of staff with the sample, directly to the transfusion laboratory.

## 10.2 TRANSFUSION REACTION INVESTIGATION

If a transfusion reaction is suspected then:

- Stop the Transfusion immediately
- Notify a senior member of the clinical team immediately
- Notify the Laboratory and Haemovigilance immediately

The following samples must be sent to the Laboratory if indicated:

- ABO/ Rh group and antibody screen
- Blood cultures
- First voided urine sample for haemosiderin test
- SMAC
- Direct Antiglobulin Test (DAT)
- FBC
- Coagulation
- MSU
- Return implicated unit to laboratory

All Transfusion reaction investigations are treated as urgent.

**Send all samples to the Laboratory as soon as possible after phlebotomy to ensure sample integrity is maintained.**

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## 11 BLOOD SCIENCES TEST PROFILES:

### Haematology Test Profiles:

**Full Blood Count (FBC):** White Cell Count, Red Cell Count, Haemoglobin, HCT (Haematocrit), Mean Cell Volume, Mean Cell Haemoglobin, Mean Cell Haemoglobin Concentration, Platelet count, Neutrophils, Lymphocytes, Monocytes, Eosinophils, Basophils (may also include Nucleated Red Blood Cell count and / or Reticulocytes as appropriate).

**Coagulation Screen:** INR, Prothrombin Time, Activated Partial Thromboplastin Time and Fibrinogen (Clauss).

**Other Haematology tests available:** Infectious Mononucleosis (Monospot), D-Dimers and ESR.

### Biochemistry Test Profiles:

**Renal Profile (U+E):** Sodium, Potassium, Chloride, Urea, Creatinine and eGFR (where appropriate).

**Liver Profile (LFT):** Albumin, Alkaline Phosphatase (ALP), Alanine aminotransferase (ALT), Total Bilirubin, Gamma-Glutamyl transferase (GGT), Total Protein

**Bone profile:** Calcium, Calcium (adjusted), Inorganic Phosphate, Albumin and Alkaline Phosphatase (ALP)

**Haematinics:** Vitamin B12, Folate and Ferritin.

### **Other Biochemistry tests available:**

C-Reactive Protein (CRP)	Aspartate Aminotransferase (AST)
Creatine Kinase (CK)	Amylase
Troponin T	pro B-Type Natriuretic Peptide (pBNP)
Magnesium	Urate
Bicarbonate	Glucose
Human Chorionic Gonadotropin (HCG)	

### **Urine Chemistries:**

Urine Sodium	Urine Potassium,
Urine Calcium	Urine Creatinine
Urine Albumin	Urine Albumin:Creatinine Ratio
Urine Total Protein	Urine Protein:Creatinine Ratio
Calculation of Calcium Excretion rate	
Calculation of Calcium: Creatinine Molar Ratio	
24 hr Creatinine Clearance	

### **Faecal Analysis:**

Faecal Occult blood.

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Many clinicians request the profile ‘SMAC’ on request forms, which includes (*depending on the origin of the specimen*):

Biochemistry (SMAC) Profile for RUH hospital patients	Biochemistry (SMAC) Profile for GP and other non-RUH patients.	Biochemistry (SMAC) Profile for aged samples.
Sodium	Sodium	Sodium
Potassium	Potassium (must arrive <4hrs post phlebotomy)	Chloride
Chloride	Chloride	Urea
Urea	Urea	Creatinine ± eGFR
Creatinine ± eGFR	Creatinine ± eGFR	Calcium
Glucose	Calcium	Calcium (adjusted),
Calcium	Calcium (adjusted)	Alkaline Phosphatase
Calcium (adjusted)	Total Bilirubin	Alanine Aminotransferase
Total Bilirubin	Alanine Aminotransferase	Total Protein
Inorganic phosphate	Alkaline Phosphatase	Albumin
Alanine Aminotransferase	Total Protein	Gamma –Glutamyl Transferase will be added if Alkaline Phosphatase result is >104 U/L
Gamma –Glutamyl Transferase	Albumin	
Alkaline Phosphatase	Gamma –Glutamyl Transferase will be added if Alkaline Phosphatase result is >104 U/L.	
Total Protein		
Albumin		

## 12 PATIENT INSTRUCTIONS FOR 24-HOUR URINE COLLECTION

### Important points

- 11.1. It is very important that all urine passed in an exact 24 hour period is collected. Loss of any urine or a collection made for either more or less than 24 hours will invalidate the tests and might lead to an incorrect diagnosis
- 11.2. Do not void urine directly into the 24-hour container, but into a suitable clean detergent-free jug and then pour into the 24-hour container.
- 11.3. If the container contains acid (used as a preservative) or has a warning label, then care needs to be exercised when adding urine from the collection vessel. Hydrochloric acid causes burns and is irritating to eyes, skin and respiratory system. If it comes in contact with skin, wash the affected area immediately with plenty of water and seek medical advice. Keep out of reach of children. Not to be taken internally – would cause severe irritation and damage.
- 11.4. Ensure that the container is correctly labelled as per table 3.

### 12.1 INSTRUCTIONS TO PATIENT FOR SAMPLE COLLECTION

- 11.1.1. Empty your bladder on rising and throw away the sample. The collection is started after this sample has been passed. Write the start time on the specimen container label.
- 11.1.2. Collect all urine in the container provided on every occasion that it is passed during the following 24 hours and store refrigerated if possible.
- 11.1.3. Empty your bladder on rising the next morning and add this sample to the collection.
- 11.1.4. Write the finish time on the container label.
- 11.1.5. Bring the container to the laboratory on the day of completion.

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## 12.2 INCOMPLETE COLLECTIONS

- 11.2.1. If a sample is forgotten or lost down the toilet, then all the urine collected to this point should be thrown away and the collection re-started the following morning.
- 11.2.2. If the incomplete sample is an acid collection, the original container should be returned to the laboratory and a new one requested.

## 12.3 ADDITIONAL REQUESTS / SAMPLE RETENTION

If further additional testing is required after the specimen has been sent to the laboratory, please contact the relevant department to investigate the feasibility of using the initial specimen for analysis. If test is feasible you will be requested to forward an additional request form with details of additional tests required.

## 12.4 URGENT REQUESTS

All Blood Sciences requests from UCC, MDS, MAU, Radiology and RAC are treated as urgent and are fast-tracked through the laboratory's system. Once authorized, results are available for reviewing on the Ward Enquiry module of the Laboratory Information System (see section 17 for details on accessing results electronically).

All other urgent requests should be labelled as such **AND** the laboratory phoned to advise of the urgency. Please note that during on-call times **all requests should be phoned to the Medical Scientist on call**. See section 2 of this manual for contact details.

For tests that require urgent referral to Galway University Hospital or another institution please contact the Laboratory to arrange transport.

# 13 SAMPLE TRANSPORTATION

## 13.1 HEALTH AND SAFETY

It is the policy of the Laboratory to treat all samples as potentially infectious or high risk.

Therefore, we advise that universal precautions are taken in the collection process, packaging, and delivery of specimens to the Laboratory for analysis.

Specimens should always be placed in a biohazard transport bag with the request form placed in the pouch and the bag should be sealed. All samples should be sent to the Laboratory as soon as possible.

## 13.2 SAMPLE DELIVERY WITHIN THE HOSPITAL

Samples may be sent to the Laboratory via the Pneumatic Tube System (PTS). The following samples must **never** be sent in the PTS:

- Histology specimens
- CSFs

**NOTE:** The Laboratory is responsible for the maintenance of the PTS. In the event of System failure please notify the Laboratory @ ext. 2258.

## 13.3 PACKAGING OF DIAGNOSTIC SPECIMENS FROM OUTSIDE RUH

It is the responsibility of all persons sending samples to the laboratory to adhere to national and international regulations ensuring that specimens sent to the laboratory do not present a risk to anyone coming in contact with them during transportation or on receipt in the laboratory. Carriage of goods by road must comply with the European Agreement Concerning the International Carriage of Dangerous Goods by Road regulations (ADR) (2012). See Health and Safety Authority website [www.hsa.ie](http://www.hsa.ie) for a copy of the regulations.

Specimens may be brought directly to the laboratory and placed in the locked GP SAMPLE BOX.



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#### 13.4 INSTRUCTIONS:

- 12.4.1. The packaging must be of good quality, strong enough to withstand the shocks and loadings normally encountered during carriage.
- 12.4.2. The packaging must consist of at least three components:
  - a. A leak proof primary receptacle e.g. blood collection tube, MSU container;
  - b. A secondary sealable package to enclose and protect the primary container(s), e.g. plastic specimen bag, approved GP transport containers.
  - c. Outer package: the secondary package is placed in an outer transport container with suitable cushioning that protects it and its contents from external influences such as physical damage and water while in transit. This must conform to ADR regulations.
- 12.4.3. For carriage, the outer packaging must be marked with UN 3373 and 'Biological Substances, Category B' marked adjacent to the diamond shaped mark.



**BIOLOGICAL SUBSTANCE, CATEGORY B**

**Sending of samples through the post is not permitted.**

#### 13.5 STORAGE OF SAMPLES PRIOR TO TRANSPORT TO THE LABORATORY

Samples should be transported to the Laboratory as soon as possible after collection. **Samples should not be stored in ward areas or in GP practices overnight or over the weekend.** Samples that are not transported in a timely manner to the laboratory may be rejected if there is any doubt about the sample integrity.

### 14 PROCEDURE FOR THE TRANSPORT OF INFECTIOUS OR SUSPECTED INFECTIOUS SPECIMENS

- 13.1. Specimens or samples to be sent should be stored in a secure (preferably plastic) primary container, containing absorbent material.
- 13.2. Place primary container containing the specimen into a plastic biohazard bag, seal bag.
- 13.3. State clearly on the request form RCH/BT/F001 or RCH/BS/F001 that the sample is from a possible or confirmed "High Risk" patient.
- 13.4. Place the request form on the plastic sleeve on the bio hazard bag. Place the name, address and contact number of the originator on the outside of the box.

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## 15 REFERENCE RANGES

### 15.1 FACTORS THAT INFLUENCE THE REFERENCE RANGE INCLUDE:

- The manufacturer of the reagents
- Technology utilised to carry out the examination
- Population/laboratory studies
- Literature/reference books
- Clinical advice

Where appropriate reference ranges are age and gender related and are available on all reports both electronic and paper formats.

Any changes to reference ranges are notified to the clinician for a minimum of a 3 month period following the change and included as a comment on all reports. Any changes to reference ranges will not apply to historical results.

## 16 REPORTS & ENQUIRIES

### 16.1 ELECTRONIC ACCESS TO REPORTS

As soon as reports are authorized, they may be viewed within the Ward Enquiry module of the Laboratory Information System. The LIS is a shared system between Roscommon University Hospital, Galway University Hospital and Mayo University Hospital and most results generated and authorised on these sites are available for review on the LIS. Histology results are only available to approved clinicians who require access to these results. Some tests are deemed confidential and are only available to the patients clinician e.g. Genetic testing, HIV testing.

Upon authorisation, Blood Sciences reports for GP patients are released to Healthlink (for all GPs registered with Healthlink).

### 16.2 INSTRUCTIONS FOR ACCESSING REPORTS ELECTRONICALLY WITHIN ROSCOMMON HOSPITAL AND SHH:

Authorised results (for Roscommon University Hospital, Galway University Hospital or Mayo University Hospital) from the following departments may be accessed as described below:

- Biochemistry
- Haematology
- Microbiology
- Immunology

Access to results is password controlled. Each staff member who requires access to Laboratory results must have their own unique User ID and Password. This is issued to each individual who completes a Lab User Access Form and sends same to colm.walsh2@hse.ie

This unique username and password can be used to access all results using the Web based ward Enquiry option. A shortcut is available in the GUH Useful Resources folder. Double click on shortcut to display log on screen or follow link below:

<http://guh-limsweb/apex/mgwms32.dll?MGWLPN=APEX&APP=PCOMB&APPDIR=/APEX>

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Figure 5. Log on screen for Web ward enquiry.

After entry of username and password the user can search using either the PID (Patient Identification) number and first 2 letters of surname or an unknown search using a combination of name/DOB/Sex . See Figure 6 below.

Figure 6. Patient enquiry screen

### 16.3 APPEARANCE OF HAEMATOLOGY AND BIOCHEMISTRY UNAUTHORISED REPORTS:

If a sample has been received in the Laboratory and testing is not complete then no results will be displayed and a message “In Progress” or “Not Fully Authorised” will be displayed until the all results have been validated.

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## 16.4 **HARDCOPY REPORTS**

### 16.4.1 ***RUH hardcopy reports***

To facilitate identification, hospital reports are colour-coded as follows:

**Department Report colour**

Biochemistry White with Green

Haematology White with Purple

Transfusion Pink

Hardcopy reports are delivered to ward areas via the chute system throughout the day. For all other areas (OPD etc), reports are delivered to Medical Records.

### 16.4.2 ***Hardcopy reports for patients outside of RUH***

Electronic reporting is available via Healthlinks for all registered GP's. For further information on Healthlinks contact 091 775909.

For GPs who receive hardcopy reports and any other organisations who do not have access to electronic reports, they are sent via an Post.

Any reports received in error should be returned to the laboratory.

### 16.4.3 ***Reports for referred samples***

Reports for specimens that have been referred out for testing will be on hardcopy and in the reporting format as defined by the referral laboratory. Such reports will contain patient demographics, results and interpretations.

For Blood Transfusion details of blood group, antibody investigation results and relevant compatible units will be included.

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## 17 PHONING OF CRITICAL RESULTS

Abnormal results defined in the critical limits table below will be telephoned to the requesting source. Please note that it is laboratory policy to ask for name of recipient and that results be repeated back when phoned to ensure accurate transfer of information.

Table 8. Critical Limits

Discipline	Test code	RESULTS TO BE PHONED IF
Haematology	Hb	$\leq 9.0$ g/dl <i>first time</i> presentation at RUH and all GP's $\leq 8.0$ g/dl every time $\geq 19$ g/dl Males $\geq 17$ g/dl Females
	Plt	$\leq 100 \times 10^9/l$ <i>first time</i> presentation at RUH and all GP's $\leq 20 \times 10^9/l$ every time $\geq 1000 \times 10^9/l$ every time
	WCC	$\leq 3.0 \times 10^9/L$ <i>first time</i> presentation at RUH and all GP's $\geq 30 \times 10^9/L$ every time
	NEUTS	$\leq 1.5 \times 10^9/L$ <i>first time</i> presentation for RUH patients and all GP's
	Monocytes	$\leq 0.1 \times 10^9/L$ <i>first time</i> presentation
	Blasts	After confirmation for <i>first time</i> patients only.
	PT	$\geq 30$ secs. and no evidence of anticoagulant therapy.
	APTT	$\geq 50$ secs. and no evidence of anticoagulant therapy.
	INR	$\geq 4$
	FIB	$\leq 1.5$
Haematinics	Vit B12	$< 125$ pg/ml
Biochemistry	CRP	$\geq 300$ mg/L (Unless $> 300$ mg/L in previous 24 hours and phoned)
	Na	$\leq 120$ or $\geq 150$ mmol/l
	K	$\leq 2.5$ or $\geq 6.0$ mmol/l
	Urea	For <i>first time</i> presentation $\geq 30$ mmol/l $\geq 50\%$ change in 30 hours (Delta check)
	Creatinine	$\geq 345$ $\mu$ mol/L
	eGFR	$\leq 15$ ml/min
	GLUC	$\leq 2.5$ & $\geq 25$ mmol/l Not known diabetic $\geq 30$ mmol/l Known diabetics
	CALCIUM	$\leq 1.8$ or $\geq 3.0$ mmol/l
	Adjusted CA	$\leq 1.8$ or $\geq 3.0$ mmol/l
	ALT	$\geq 600$ U/L
	AMY	$\geq 200$ U/L
	CK	$\geq 700$ U/L for ext. patients (GP's, etc.) $\geq 3000$ U/L in-patients
	Phos	$\leq 0.45$ mmol/l
	Mg	$\leq 0.4$ mmol/l
	TT	$\geq 20$ ng/L for ext. patients (GP's, etc.) $\geq 100$ ng/L for <i>first time</i> in patients at RUH
Transfusion	Group and Hold or X Match	Positive antibody screen. Discrepancy between current results and historical results. Difficulty in determining patients group. Any other reason that could result in significant delay in providing products requested.
Other e.g. factors known to significantly affect the performance of the examination or the interpretation of the results		Unsuitable blood samples. If a sample cannot be fully processed for whatever reason e.g. incorrectly labelled, under filled, haemolysed etc. the Lab staff will attempt to contact the Ward or GP. If unsuccessful the result will be available via the LIS or healthlink.
		Any written or verbal requests to phone results when available.
		Amended reports.
<i>First time refers to the first time a result is noted above the values listed for any admission.</i>		

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## 18 E MAILING OF RESULTS

The laboratory follows the HSE Electronic Communications policy regarding transmission of patient information. See [http://www.hse.ie/eng/services/Publications/pp/ict/Electronic\\_Communications\\_Policy.pdf](http://www.hse.ie/eng/services/Publications/pp/ict/Electronic_Communications_Policy.pdf). And the HSE Data Protection policy <https://www.hse.ie/eng/gdpr/hse-data-protection-policy/hse-data-protection-policy.pdf>

## 19 TELEPHONE ENQUIRIES

Telephone enquiries for reports should be directed to the laboratory ext. 2258 (09066 32258)  
Please note that electronic reports are available as described in section 17 above. Staff should first check for the availability of electronic reports on the LIS or Healthlink before contacting the Lab.

## 20 TURNAROUND TIMES

The Laboratory has set target turnaround times for all tests performed. See section 26 Alphabetical Test Directory for details.  
Turnaround times are determined from the date and time of receipt of the sample in the laboratory to the date and time of authorization. Turnaround times are subject to regular audit.

## 21 ADVICE AND CONSULTATION

Scientific and medical advice on issues within the laboratory's range and competence is available. Refer to Section 2 for a list of all contacts.

## 22 SATISFACTION & COMPLAINTS

The pathology laboratory welcomes feedback from clinical users and patients, both positive and negative. All feedback is communicated to management and staff to allow us to shape our processes.  
There are a number of channels by which comments and complaints may be identified to the Laboratory. In all cases, it is department policy to respond in an open, positive and professional manner to issues raised. Where necessary, adjustment to process may ensue. Complaints should be referred to the Chief Medical Scientist, e-mail [denise.lally@hse.ie](mailto:denise.lally@hse.ie) or by telephone and request to speak to the medical scientist in charge.  
The laboratory performs annual surveys of user satisfaction. The survey results are circulated and discussed at the annual quality management review.

## 23 MANAGEMENT OF PATIENT INFORMATION

The laboratory has implemented processes to ensure that patient information is maintain confidentially at all times. No patient information is placed in the public domain by the laboratory. Information regarding the patient is only released to the clinician/clinical team responsible for the care of the patient. In the case of Blood Transfusion patients, where a Serious Adverse Event or Reaction is identified, anonymised information (medical record number and details of the occurrence) may be shared with the National Haemovigilance Office as part of mandatory reporting of Serious Adverse Events and Reactions. A definition of Serious Adverse Events and Reactions is available at <https://www.hpra.ie/safety-information/how-we-monitor-safety/blood>

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## 24 POINT OF CARE TESTING

**ABL Flex 90: Arterial Blood Gas Analyser** is available in Laboratory Reception. The blood gas analyser is maintained and quality controlled by laboratory staff. User password is required. Contact the laboratory at 2258 if any problems noted.

### Storage time and temperature recommendations

#### Plastic syringe

- If it is not possible to analyse the sample immediately, analyse it within 30 minutes
- Recommended sample storage temperature is room temperature
- Samples with expected high pO<sub>2</sub> values should be analysed immediately or within five minutes (Refer to ABL90 FLEX Operator's manual section 12 Sampling)

The parameters available are:

**Measured:** pH, ChC+, pCO<sub>2</sub>, pO<sub>2</sub>, Na+, K+, Cl-, Ca++, HB, Glu, Lactate, Bili

**Derived:** TCO<sub>2</sub>, BEecf, tHb(c), BE(B), AG, sO<sub>2</sub>(c), HCO<sub>3</sub>-(c), HCO<sub>3</sub>-std.

**Abbott Blood Glucose and Ketone testing:** Meters available on all Wards and Out Patient Departments for Blood Glucose Testing. The blood glucose meters are maintained and quality controlled by laboratory staff. User password is required and password is renewed automatically if the user has run and passed the required internal Quality Control samples at least once in past year. Contact the laboratory at 2258 if any problems noted or if re certification is required or user badge ID has changed. Note Ketones are only available on selected meters and these meters will be labelled as "Ketones enabled". It will be necessary to run and pass Ketone controls before any patient tests can be run.

**Clinitech Status Urinary HCG testing:** Available on St. Bridgets Ward and Endoscopy. The Clinitech status analyser is maintained and quality controlled by laboratory staff. User password is required. Contact the laboratory at 2258 for password setup or if any problems noted.

## 25 MUSCLE BIOPSIES OR LYMPH NODES.

The Histopathology laboratory GUH, telephone 091524425, must always be notified by the consultant performing the biopsy at least 24 hours in advance.



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## 26 ALPHABETICAL TEST DIRECTORY

### ACTH

Laboratory: Clinical Biochemistry GUH  
Specimen: x2 3mL k<sup>+</sup>EDTA FBC samples . Send to lab immediately, lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

### Activated Partial Thromboplastin Time (APTT)

Laboratory: Haematology RUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube  
Comment: Must fill bottle to mark. Note : do not refrigerate, send to labortry with 6 hrs of draw  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: Refer to report

### Activated Protein C Resistance (APC-R) (see Thrombophillia Screen)

Laboratory: Haematology GUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube  
Comment: Fresh specimen required. Must fill bottle to mark.  
Turnaround: 5 weeks  
Ref. Range: Refer to report

### Adenovirus / Rotavirus Antigen

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

### Adiponectin

Laboratory: Referred to Eurofins SCDL  
Specimen: 5 mL blood in a plain gel tube, Send to lab immediately, lab to separate and freeze  
Turnaround: 2 weeks  
Ref. Range: On report form

### Adrenaline / Noradrenaline / Dopamine

See “Catecholamines/Fractionated Metanephries”

### Adjusted Calcium

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Calculated parameter  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

### Alanine amino Transferase (ALT)

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

### Albumin

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

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#### Albumin (Urine) / Microalbumin, Albumin/Creat Ratio (ACR)

Laboratory: Biochemistry, RUH  
Specimen: Urine in plain vacutainer – part of Griener urine collection system  
Comment: Date of collection must be stated on the request form.  
Turnaround: 1 day from receipt in RUH.  
Ref. Range: Refer to report form.

#### Alcohol (Ethanol)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube filled completely & delivered immediately to the laboratory.  
For RUH, 4.0mL blood collected into a fluoride oxalate (grey top) tube filled completely is the preferred sample as transport time will delay receipt of sample in GUH.  
Comment: Do not use alcohol wipes. Analysis for medical use only  
Turnaround: From receipt in GUH lab : Urgent: 1hour. All other requests : 3hours  
Interpretation : On report form

#### Aldosterone

Laboratory: Clinical Biochemistry , GUH  
Specimen: 2 x 5 mL: k<sup>+</sup>EDTA FBC samples. Send to lab immediately, lab to separate and freeze  
Comment: Please provide clinical/antihypertensive medication details.  
Turnaround: 3 weeks  
Ref. Range: On report form

#### Aldosterone/Plasma Renin Activity Ratio

Laboratory: Clinical Biochemistry, GUH  
Specimen: 2 x 5ml mL: k<sup>+</sup>EDTA FBC samples. Send to lab immediately, lab to separate and freeze  
Comment: Please provide clinical/antihypertensive medication details  
Turnaround: 3 weeks  
Ref. Range: On report form

#### ALK Translocation (EML4-ALK translocation)

Laboratory: Department of Histopathology, Cytopathology and Molecular pathology, GUH  
Specimen: Tissue samples already processed by the Histopathology Laboratory, arrange via consultant pathologist.  
Comment: Testing available on request by Pathologist.  
Referrals: Contact the Department of Histopathology, Cytopathology and Molecular pathology on 091 544078  
Turnaround: 5 – 10 working days after request from Pathologist received.  
Report: Integral part of Histopathology report issued by Division of Anatomic Pathology, Department of Histopathology, Cytopathology and Molecular Pathology.

#### Alkaline phosphatase (Alk Phos)

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Allergen Specific IgE (Rast)

Laboratory: Immunology, GUH  
Specimen: 5 mL blood in a plain gel tube. Must specify allergen according to history.  
Comment: Those not performed in GUH are referred to Immunology Dept, Northern General Hospital, Sheffield. Note restrictions in place for referral requests.  
Turnaround: 7 working days  
Ref. Range: 0 - 0.35 kUA/L

#### Alpha-1-Antitrypsin

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0.9 - 2.0 g/L

#### Alpha-1-Antitrypsin Phenotyping

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: See report- including interpretative comment

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#### Alpha fetoprotein (AFP)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form

#### 17-Alpha-OH-Progesterone

Laboratory: Referred to Eurofins SCDL  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1 week  
Ref. Range: On report form

#### Aluminium

Laboratory: Referred to Eurofins SCDL  
Specimen: 5.0 mL lithium heparin (request sample tube from lab)  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Amikacin

Laboratory: Medical Microbiology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1 day  
Comment : Specify time specimen collected, peak or trough  
Ref. Range: On report form

#### Amphetamine

See “Toxicology Screen”

#### Amylase

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Androstenedione

Laboratory: Referred to to Eurofins SCDL  
Specimen: 5.0 mL blood in a plain gel tube. Send to lab immediately. Lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

#### Angiotensin Converting Enz (ACE)

Laboratory: Referred to to Eurofins SCDL  
Specimen: 5.0 mL blood in a plain gel tube. Send to lab immediately, lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

#### Angiotensin II

Laboratory: Referred to to Eurofins SCDL  
Specimen: x2 3mL k<sup>+</sup>EDTA FBC samples . Send to lab immediately, lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

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#### Antibody Titration

Laboratory: Blood & Tissue Establishment, GUH  
Specimen: 6.0 mL EDTA K<sup>2</sup>E blood  
Turnaround: Within 1 day, with the exception of weekends and bank holidays and in the event of additional testing or if an antibody that requires extensive investigation  
Ref. Range: N/A

#### Anti IgA Antibodies

Laboratory: Referred to NHS Blood & Transplant, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Acetylcholine Receptor Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Adrenal Antibodies

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti Beta-2 Glycoprotein-1 Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Ref. Range: Refer to report

#### Anti Beta-Interferon Neutralising Antibodies

Laboratory: Referred to UCL, London.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti Basal Ganglia Antibodies

Laboratory: Referred to UCL, London.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Cardiac Muscle Antibodies

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti Cardiolipin Antibodies IgG, IgM, Cardiolipin Beta 2 glycoprotein

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Ref. Range: On report form including interpretative comment

#### Anti-CASPR2 antibodies

Laboratory: Referred Immunology Dept, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Comment: Refer to anti-VGKC  
Turnaround: 6 weeks  
Report: Refer to report

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#### Anti CCP (Citrullinated Cyclic Peptide)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment : Requests for Anti-CCP will also be tested for Rheumatoid Factor  
Turnaround: 7 working days  
Report: Negative <10 U/mL

#### Anti-Centromere Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Positive/Negative

#### Anti-C1q Antibody

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-D Quantitation

Laboratory: Blood Transfusion, referred to IBTS, St James's Street, Dublin 8  
Specimen: 6.0 mL EDTA K<sup>2</sup>E blood  
Turnaround: Test performed Tuesdays and Thursdays only  
Ref. Range: N/A

#### Anti-dsDNA Antibody

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment : Only performed in the context of positive ANA  
Turnaround: 7 working days  
Ref. Range: Refer to report

#### Anti-ENA Screen (Extractable Nuclear Antigens: Sm / RNP / Ro / La / Scl-70 / Jo-1)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Refer to report.

#### Anti-Endomysial Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: IgA anti-endomysial antibody test if IgA anti-tTG screening test positive.  
Turnaround: 10 working days  
Report: Positive/Negative

#### Anti-GABA (anti-glutamate receptor antibodies)

Laboratory: Referred to Immunology Dept, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Turnaround: 6 weeks  
Report: Refer to report

#### Anti-Ganglioside Antibodies

Laboratory: Referred to Neuroscience Group, Institute of Molecular Medicine, John Radcliffe Hospital, Oxford  
Specimen: 5.0 mL blood in plain gel tube  
Comment: As several types of anti-ganglioside antibodies occur please specify test required and provide clinical details.  
Turnaround: 6 weeks  
Report: Positive/Negative

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#### Anti-Gastric Parietal Cell Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Positive/Negative

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

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Report: 0 – 10 U/mL

#### Anti-Glutamic Acid Decarboxylase (GAD) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 3 weeks  
Ref Range: 0-9 IU/mL

#### Anti-Glycine Receptor Antibodies

Laboratory: Referred to Immunology Dept, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Turnaround: 6 weeks  
Report: Refer to report

#### Anti-Histone Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive/Negative

#### Anti-HMGCR antibodies (anti-HMG-CoA Reductase antibodies)

Laboratory: Referred to Immunology Dept, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube.  
Turnaround: 6 weeks  
Report: Refer to report

#### Anti-IA2 Antibodies

Laboratory: Referred to Immunology Dept, Northern General hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive / Negative

#### Anti-Insulin Antibodies

Laboratory: Referred to Immunology Dept, Northern General hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Ref. Range: 0-5 mg/l

#### Anti-Intrinsic Factor Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 2 weeks  
Report: 0 – 6 U/mL

#### Anti-Islet Cell Antibodies

Laboratory: Referred to Immunology Dept, Northern General hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive / Negative

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#### **Anti-Jo-1 Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

#### **Anti-La (SS-B) Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

#### **Anti-LGIl antibodies**

Laboratory: Referred to Immunology Dept, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Comment: Refer to anti-VGKC  
Turnaround: 6 weeks  
Report: Refer to report

#### **Anti-Liver Kidney Microsomal (LKM) Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Positive/Negative

#### **Anti-Myelin Associated Glycoprotein (MAG) Antibodies**

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### **Anti-Mitochondrial Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Positive/Negative

#### **Anti-M2 Mitochondrial (Pyruvate Dehydrogenase) Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive/Negative

#### **Anti--MUSK Antibodies**

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 Weeks  
Report: Positive/Negative

#### **Anti-Myeloperoxidase (MPO) Antibodies**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0 - 3.5 IU/ml



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#### Anti-Natalizumab (Tysabri) Antibodies

Laboratory: Referred to Barts Hospital, London  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 4 weeks  
Report: Positive/Negative

#### Anti-Neuromyelitis Optica Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Neuronal Nuclear Cell (Hu Ri) Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Supply clinical details and specify if other neuronal antibody tests required.  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Neutrophil Cytoplasmic Antibodies (ANCA)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Positive/Negative. See report form for interpretative comment.

#### Anti Nuclear Antibody (ANA)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Report: Screened at 1/80  
Negative/Positive. Positive results titre 1/80 to  $\geq 1/1280$ . ANA Pattern reported.

#### Anti NMDA Receptor Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Ovarian Antibodies

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Paraneoplastic Antibodies: See anti-Hu Ri Yo

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Comment: Supply clinical details and specify if other paraneoplastic antibody tests ( CV2/CRMP5, Ma1/Ma2, anti-amphiphysin) required.  
Turnaround: 6 weeks  
Report: Positive/Negative

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#### Anti-Pemphigus & Pemphigoid Autoantibodies

Laboratory: Referred to Immunology Dept, St James Hospital, Dublin 12  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report : Positive/Negative

#### Anti-Phospholipase 2A receptor (PLA2R) antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Ref. Range: 0-14 RU/mL

#### Anti-Platelet antibody investigation

Laboratory: Blood Transfusion: - referred to IBTS, St James's Street, Dublin 8  
Specimen: 6.0 mL EDTA K<sup>2</sup>E blood  
Turnaround: Variable  
Ref. Range: N/A

#### Anti-Proteinase 3 (PR3) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0 -2 IU/ml

#### Anti-Purkinje Cell (Yo) Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Comment: Supply clinical details and specify if other neuronal antibody tests required.  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Ribosomal P Protein Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive/Negative

#### Anti-Ro (SS-A) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

#### Anti-Salivary Gland Antibodies

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Scl-70 (Topoisomerase 1) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

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#### Anti-Skeletal (Striated) Muscle Antibodies

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Sm (Smith) Antibody

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

#### Anti-Smooth Muscle Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 7 working days  
Ref. Range: Positive/Negative

#### Anti-Soluble Liver Antigen (SLA) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive/Negative

#### Anti-Streptolysin-O (ASO)

Laboratory: Virology, GUH  
Specimen: 7.0 mL blood in plain gel tube  
Comment: Available in specific cases only and by prior arrangement with a Consultant Microbiologist.  
Turnaround: 1 week  
Report: Reported in International Units. Normal Range <200 IU.

#### Anti-Thrombin (see Thrombophilia Screen)

Laboratory: Haematology, GUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube.  
Comment: Requests should be sent to the laboratory immediately, for dispatch to GUH  
If received after 1pm Mon-Fri, samples will be separated and frozen  
Details of anticoagulant therapy required. Must fill bottle to mark.  
Turnaround: 5 weeks  
Ref. Range: Refer to report

#### Anti-Thyroid Peroxidase (TPO) Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0 – 25 IU/ml

#### Anti-TSH Receptor Antibodies (TRAB see TSH Receptor antibodies)

Laboratory: Biochemistry, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Lab staff: if ordered with Anti TPO, send Anti TPO and Anti TSH to Medlab.  
Turnaround: 10 working days  
Ref. Range: on report form

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#### Anti-Tissue TransGlutaminase (tTG) Antibodies (Coeliac Screen)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: IgA anti-tTG antibody test. If selective IgA deficiency then IgG anti-tTG test performed. Contact Immunology GUH for further information  
Turnaround: 7 working days  
Ref. Range: IgA anti tTG : 0-10 IU/ml. IgG anti-tTG : 0-7 IU/ml

#### Anti-U1-RNP Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Report: Positive/Negative

#### Anti-Voltage Gated Calcium Channel (VGCC) Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Anti-Voltage Gated Potassium Channel (VGKC) Antibodies

Laboratory: Referred to Immunology Laboratory, Churchill Hospital, Oxford OX3 7LJ.  
Specimen: 4.0 mL blood in a plain gel tube. CSF analysis also available.  
Turnaround: 6 weeks  
Report : Positive/Negative

#### Ascitic Fluid - Cytology

See "Effusions"

#### Ascitic Fluid (see Fluid / Tissue / Pus)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Aspartate amino Transferase (AST)

Laboratory: Biochemistry RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Aspirates - Cytology

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology  
Specimen: Cells obtained from any palpable lump/mass or cyst  
Comment: Prepare immediately on site: Clearly label 2 frosted coded slides with patient name, DOB or BN. Air dry one smear, label this slide 'Air Dried', and fix the second one with cytofix spray. Wash any fluid remaining in syringe/needle into green cyto fixtative in a Universal container. In the case of pathology assisted F.N.A's this collection of specimens is performed by lab staff. For pathologist assisted FNA, please telephone the laboratory to prebook. Ref FNA.  
Turnaround: 80% by 5 working days  
Report: Neoplastic / Non-neoplastic cells

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#### Autoantibody Tests

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Select specific autoantibody test(s) pending clinical picture. Please contact Immunology GUH.  
Turnaround: 1-3 weeks depending on individual autoantibody and whether additional specialized test methods required.

#### **AutoImmune ENA Panel – Profile includes anti-: nRNP, Sm, SS-A, Ro-52, SS-B, Scl-70, PM-Scl, Jo-1, Centromere, PCNA, dsDNA, Nucleosomes, Histones, Ribosome-P protein and AMA-M2**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive / Negative

#### **AutoImmune Inflammatory Myopathy panel includes anti-: Mi-2 alpha, Mi-2 beta, TIF1 gamma, MDA5, NXP2, SAE1, Ku, PM-Scl100 and PM-Scl75, OJ, EJ, Jo-1, PL-7, PL-12, SRP and Ro-52**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive / Negative

#### **Autoimmune Liver Disease Panel – Profile includes anti: AMA-M2 (pyruvate dehydrogenase complex), M2-3E (BPO, fusion protein of the E2 subunits of the alpha-2-oxoacid dehydrogenases of the inner mitochondrial membrane), Sp100, PML, gp210, LKM-1, LC1, SLA/LP and Ro52.**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive / Negative

#### **Autoimmune Systemic Sclerosis Panel – Profile includes anti-Scl-70, Centromere A, Centromere B, RNA Pol III(RP11 and 155), Fibrillarin, NOR 90, Th/To, PM-Scl 100, PM-Scl75, Ku, PDGFR and Ro-52**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 3 weeks  
Report: Positive / Negative

#### **Bartholin's Abscess (see Swab / Pus)**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **BCR-ABL**

Laboratory: Referred to CMD Laboratory, St James Hospital, Dublin 8  
Specimen: 3 x 3.0 mL K<sup>3</sup> EDTA blood . Lab to refrigerate if not sent on same day  
Comment: Test available Monday –Thursday only  
Turnaround: 120 days  
Ref. Range: N/A

#### **Bence - Jones proteins (Urine Free Light Chains)**

Laboratory: Immunology, GUH  
Specimen: Early morning sample preferred. 24h urine for quantification and disease monitoring or minimum 15ml in plain universal container for screening. Plain container, no preservatives. Collect 24hr urine container from lab  
Turnaround: 10 working days  
Report: Positive/Negative: Typing by Immunofixation. Quantification of BJP 24h output or BJP concentration - g/l

#### **Beta-hydroxybutyrate**

See "Ketones"

#### **Beta-2-Microglobulin**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube

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Turnaround: 5 working days  
Ref. Range: 0.8 – 2.2 mg/l

#### **Beta-2-Transferrin**

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube **and** ear/nasal discharge in universal container  
Turnaround: 3 weeks  
Report : on report form

#### **Bicarbonate**

Laboratory: Available on blood gas analyser  
Specimen: Blood in a Li Heparin syringe  
Turnaround: 15 mins  
Ref. Range: On report form

#### **Bile Acids**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 1 working day Mon to Fri  
Ref. Range: On report form

#### **Bilirubin - Conjugated**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1hour. Priority: 3hours. Routine: 2 working days  
Ref. Range: On report form

#### **Bilirubin - Total**

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### **Biopsy**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Blood Culture**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Blood Film**

Laboratory: Haematology RUH  
Specimen: 3.0 mL K<sup>3</sup> EDTA blood  
Comment: Blood films will be made, examined and reported on patients FBC results which satisfy the criteria laid down by this laboratory in the guidelines 'Indications for blood film examination'. If a clinician specifically requests a blood film which falls outside of these guidelines this will also be examined where the request form provides clinical details. Some films require referral to Haematology GUH. These films which satisfy criteria laid down by lab will be referred to Haematology, GUH  
Turnaround: Where clinical details are supplied urgent requests for blood films will receive immediate attention. Routine differentials are reported within 1 day, referrals to GUH variable.  
Report : N/A

#### **Blood Gases (pH, pCO<sub>2</sub>, pO<sub>2</sub>, Bicarbonate, Base Excess, Total CO<sub>2</sub>)**

Laboratory: Available on Blood Gas analyser located in laboratory  
Specimen: Blood in a Li Heparin syringe  
Comment: If delay between sample collection and processing on analyser is greater than 15 minutes put on ice.  
Turnaround: 15 minutes  
Ref. Range: On report form

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### Blood Product for Culture

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

### Body Cavity Fluid Cytology (Pleural, Peritoneal, Pericardial, Abdominal and Ascite Fluid).

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Collect fresh 10 – 20 mL specimens into twist top leak proof 20 mL or 50 mL Universal containers containing Shandon Cytospin Collection Fluid (green fixative solution). Refrigerate overnight if necessary.  
Comment: Indicate type of primary specimen and site and side of origin (e.g. left lobe BAL). Indicate clinical history on test requisition and reason for test.  
Turnaround: 80% by 5 working days  
Report: Detection of neoplastic and non neoplastic cells

### Bone Markers Urine N Telo peptide/GFR, Urine N Ter X links, Urine Creat, Urine Calcium, Urine Phos. Blood : Ionized Ca, PTH, 25OH D, CTX1, P 1NP, Osteocalcin, CTX1, FGF23 (Fibroblast Growth Factor23)

Laboratory: All tests referred to Clinical Chemistry Lab, St. Vincents University Hospital, Elm Park, Dublin 4  
Specimen: x3 5.0 mL blood in a plain gel tube, x2 plain urine sample, X4 3mL k<sup>+</sup>EDTA FBC samples  
Comment: Protocol available from Laboratory.  
Lab staff, give clinician protocol from 'Special Blood Sciences' folder. Send to lab immediately, lab to separate and freeze (lab staff, follow protocol from St.Vincents, in Special Blood Sciences folder)  
Turnaround: 4 weeks.  
Ref Range : On report form

### Bordetella pertussis antibodies

Laboratory: Referred to Atypical Pneumonia Unit, Collindale Avenue, London NW9 5HT  
Specimen: 5 mL blood in a plain gel tube  
Comment: Available only in very specific cases and following prior arrangement with a Consultant Microbiologist.  
Turnaround: 2-3 weeks  
Report: Positive/Negative

### Bordetella Species (Whooping cough / Pertussis)– culture

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

### Borrelia burgdorferi antibodies (Lyme Disease)

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube. (For CSF-PCR see under Cerebrospinal Fluid)  
Turnaround: 1 - 2 weeks (In-house screen). Samples referred for further testing 2-3 weeks.  
Report: Not Detected, if negative. A Provisional report will be issued on any sample giving reactive findings on initial testing. These specimens are referred to the PHE, Rare and Imported Pathogens Laboratory, Porton Down for further testing and a final report.

### BRAF mutation

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Tissue samples already processed by the Histopathology Laboratory, arrange via consultant pathologist.  
Comment; Testing available on request by Pathologist.  
Referrals Contact the Department of Histopathology, Cytopathology and Molecular pathology on 4078  
Turnaround; 5 – 10 working days after request from Pathologist received  
Report: Integral part of Histopathology report issued by Division of Anatomic Pathology, Department of Histopathology, Cytopathology and Molecular Pathology.

### Bronchial Brush Specimen

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Sample can be spread on a glass slide, one slide may be air dried and labelled for Diff quik stain, and one slide spray fixed. Label slides and container to include name, date of birth and sample site.  
Comment: Indicate clinical history on test requisition, and the specific site sampled.  
Turnaround: 80% by 5 working days  
Report: Detection of neoplastic and non neoplastic cells. Detection of infectious organisms.



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#### Bronchial Wash Specimen

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Collect fresh specimens (0.5 – 50.0 mL) into twist top, leak proof 50 – 100 mL specimen cups. Do not add fixative but refrigerate if storage required. Transport to the laboratory, ASAP. Refrigerate or add fixative if delay unavoidable.
Comment:	Indicate clinical history on test requisition, and the reason for test.
Turnaround:	80% by 5 working days
Report:	Detection of neoplastic and non neoplastic cells. Detection of infectious organisms.

#### Broncho Alveolar lavage fluid (BAL) - Culture

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Broncho Alveolar lavage fluid - Cytology

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Collect fresh 0.5 – 50 mL BAL (indicate if RUL, RLL, LUL, LLL) in a twist top, leak proof 50 – 100 mL specimen container. Submit to laboratory ASAP. Refrigerate or add fixative if delay unavoidable.
Comment:	Indicate clinical history on test requisition form and reason for test.
Turnaround:	80% by 5 working days
Report:	Detection of neoplastic and non neoplastic cells. Detection of infectious organisms.

#### Brucella abortus antibodies

Laboratory:	Referred to Liverpool Clinical Laboratories, Royal Liverpool and Broadgreen University Hospitals Trust
Specimen:	5 mL blood in a plain gel tube
Comment:	Available only in very specific circumstances and with prior approval of a Consultant Microbiologist.
Turnaround:	2-3 weeks
Report:	Negative/Positive.

#### Bursa Fluid

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### CA 125

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5.0 mL blood in a plain gel tube
Turnaround:	Priority : 1 working day. Routine : 2 working days
Ref. Range:	On report form

#### CA 15-3

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5.0 mL blood in a plain gel tube
Turnaround:	Priority: 1 working day. Routine: 2 working days
Ref. Range:	On report form

#### CA 19-9

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5.0 mL blood in a plain gel tube
Turnaround:	Priority: 1 working day. Routine: 2 working days
Ref. Range:	On report form

#### Cadmium

Laboratory:	Referred to Eurofins SCDL
Specimen:	Random urine and/or 2ml whole blood EDTA or Lithium Heparin. Lab to refrigerate
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

#### Calcitonin

Laboratory:	Referred to Endocrinology Laboratory, Mater Misericordiae Hospital, Eccles Street, Dublin 7.
Specimen:	5.0 mL blood in a plain gel tube sent to lab immediately, lab to separate and freeze
Comment:	Send fasting specimen. Must be separated and frozen within 15 minutes of phlebotomy.

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Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Calcium

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Calcium -ionised

Laboratory: Available on Blood Gas analysers located in laboratory  
Specimen: Blood in a balanced heparin syringe  
Comment: Process within 15 minutes of collection  
Turnaround: 15 mins  
Ref. Range: On report form

#### Calcium (Urine)

Laboratory: Biochemistry, RUH  
Specimen: 24 hour acidified (20-30ml acid needed) urine collection or  
Spot sample in plain container to arrive in lab within 2 hours of collection  
Turnaround: 1 working day  
Ref. Range: On report form

#### Calcium Excretion (Calcium :Creat ratio)

Laboratory: Biochemistry, RUH  
Specimen: Fasting urine sample in plain container to arrive in lab within 2 hours of collection, 5.0 mL blood in a plain gel tube. Obtain protocol from laboratory, lab staff to follow protocol in 'Special Bio' folder  
Turnaround: 1 working day  
Ref. Range: On report form

#### Faecal Calprotectin, Calprotectin/Elastase profile

Laboratory: Referred to Eurofins SCDL  
Specimen: Random faeces  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Cannabis

See "Toxicology Screen"

#### Carbamazepine (Tegretol)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Comment: Take specimen immediately before next dose (trough specimen)  
Turnaround: 1 week  
Therapeutic range: On report form

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#### Carbapenemase Producing Enterobacteriaceae Screen

Laboratory : Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Carboxyhaemoglobin

Laboratory: Available on Blood Gas analysers located in UCC  
 Specimen: Blood in a Heparinised syringe  
 Turnaround: 15 minutes  
 Ref. Range: On report form

#### Cardiac biopsy

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
 Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
 Comment: Health & Safety precautions.  
 Report: Histological diagnosis

#### Carotene

See "Vitamin A"

#### Catecholamines/Fractionated Metanephrines (Adrenaline/Noradrenaline/Dopamine/Metanephrine/Normetanphrine/3-methoxytyramine - Urine)

Laboratory: Referred to Eurofins SCDL  
 Specimen: Urine catecholamines : 24 hour urine collection. Collect container from lab  
 Plasma catecholamines : Lithium Heparin sample, send to lab immediately, must be separated and frozen  
 Turnaround: 1 – 3 weeks  
 Ref. Range: On report form

#### Catheter / Intravascular Cannulae / Tips

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Cat Scratch Disease Antibodies

See "Bartonella henselae PCR"

#### CEA

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 5.0 mL blood in a plain gel tube  
 Turnaround: Priority: 1 working day. Routine: 2 working days  
 Ref. Range: On report form

#### Cerebrospinal Fluid (Molecular analysis for Pathogens)

Laboratory: Medical Microbiology GUH: - referred to Irish Meningococcal and Streptococcal Reference Laboratory /National Virus Reference Laboratory when unavailable on site.  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Cerebrospinal Fluid – Culture / Microscopy

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

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#### Cerebrospinal Fluid - Cytology

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	3ml – 20 mL cerebral spinal fluid, lumbar puncture or ventricular tap in a 20 mL universal container. Refrigerate overnight if necessary as the cells are sensitive to temperature and cellular degeneration occurs if left at room temperature for extended periods of time.
Comment:	Indicate clinical history on test requisition and reason for test. Submit immediately to laboratory. Fixative may NOT be added if specimen is to be shared with microbiology for assessment. Please submit to microbiology department directly and request Urgentpersonal delivery directlyfrom Microbiology for subsequent Cytological assessment. Please note there is no on call or emergency out of hours service available in the Diagnostic Cytology laboratory. Specimens must be received by 16:00 h for same day processing. There is no weekend service available in Diagnostic Cytology. Note: Cytology will not be performed on a ?CJD or a CJD sample
Turnaround:	Microscopy 2 hrs once received in GUH, culture 3 days
Report:	Microscopy and culture

#### Cerebrospinal Fluid - Glucose

Laboratory:	Clinical Biochemistry, GUH
Specimen:	1.5 mL CSF specimen
Comment:	Send all CSF samples to Micro for processing, send simultaneous plasma glucose specimen
Turnaround:	1 – 3 hours
Ref. Range:	CSF Glucose level is normal approximately two thirds of the plasma glucose value

#### Cerebrospinal Fluid - Protein

Laboratory:	Clinical Biochemistry, GUH
Specimen:	1.5 mL CSF specimen
Comment:	Send all CSF samples to Micro for processing
Turnaround:	1 – 3 hours
Ref. Range:	On report form

#### Cerebrospinal Fluid – Oligoclonal bands and CSF IgG Index

Laboratory:	Immunology, GUH
Specimen:	Minimum of 0.5mL of CSF specimen <b>and</b> 5.0 mL blood in plain gel tube
Turnaround:	3 weeks
Report:	See report form including interpretative comment

#### Cerebrospinal Fluid Shunt

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Ceruloplasmin

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	5 working days
Ref. Range:	Male : 0.15-0.3 g/l Female : 0.16-0.45 g/L

#### Cervical Swab

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Chlamydia pneumoniae Serology

Laboratory:	Referred to The National Virus Reference Laboratory, Dublin.
Specimen:	5.0 mL blood in a plain gel tube
Comment:	By prior arrangement with Microbiology Medical Staff, GUH
Turnaround:	1 – 3 weeks
Report:	Positive/Negative

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#### Chlamydia psittaci Antibodies

Laboratory: Referred to Health Protection Agency, Bristol BS2 8EL  
Specimen: 5.0 mL blood in a plain gel tube  
Comment: Available only in very specific circumstances and with prior approval of a Consultant Microbiologist.  
Turnaround: 2 – 5 working days  
Report: Detected / Not Detected

#### Chlamydia trachomatis (PCR)

Laboratory: Virology, GUH  
Specimen: Abbott Multicollect swab preferably delivered to the laboratory within 24 h of collection.  
Comment: If delay refrigerate @ 2-8°C.  
Turnaround: 10 working days  
Report: Detected / Not Detected

#### Chloride

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 2 hour. Routine 4 hours.  
Ref. Range: On report form

#### Chloride (Urine)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 24hr urine collection, plain. Collect container from lab  
Turnaround: 1 working day  
Ref. Range : On report form

#### Cholesterol

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Comment: Ideally a patient should fast for 12 hours.  
Turnaround: Urgent: 1hour. Priority: 3hours. Routine: 2 working days  
ESCG Target Value: Standard <5.0mmol/L High-Risk <4.0mmol/L

#### Cholesterol/HDL Ratio

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Comment : Calculated parameter  
Turnaround: Urgent: 1hour. Priority: 3hours. Routine: 2 working days  
Interpretation: High risk >5.0, desirable <3.5.

#### Chromogranin A

Laboratory: Referred to Eurofins SCDL  
Specimen: Red top sample, no gel separator, available from lab  
Turnaround: 1-3 weeks  
Ref. Range: On report form

#### Chromosomal Analysis

Refer to Cytogenetics

#### Clostridium difficile Toxin B gene detection

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

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#### **Clozapine (Clozaril)**

Laboratory: Referred directly from Psychiatry dept to external laboratory  
Specimen: 6 mL K<sup>+</sup> EDTA blood (x2 FBC)  
Turnaround: 1 – 3 weeks  
Therapeutic Range: On report form

#### **Coagulation Factor Assays (incl Factors – II, V, VIII, VIII:C, IX, XI, XII, and FX)**

Laboratory: Haematology , GUH  
Specimen: 2 x 2.7 mL blood specimens in 0.109m Sodium Citrate tubes  
Comment: Prior arrangement with the coagulation laboratory GUH contact 091 544995. It is important that the specimen container is filled to the mark.  
Turnaround: 1 day for routine specimens. Telephoned requests (to GUH) for faster turnaround time can be accommodated when specifically requested.  
Ref. Range: See individual assay

#### **Coagulation Screen**

Laboratory: Haematology, RUH  
Specimen: 2.7 mL blood specimens in 0.109m Sodium Citrate tubes. Do not refrigerate specimen.  
Comment: Profile includes, PT, INR, Fibrinogen and APTT. Details of anticoagulant therapy required. Must fill bottle to mark.  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: Refer to report

#### **Cocaine**

See “Toxicology”

#### **Coeliac Screen**

See ‘Anti-Tissue TransGlutaminase (tTG) Antibodies’

#### **Cold Agglutinins**

Laboratory: Blood & Tissue Establishment, GUH  
Specimen: 6.0 mL EDTA K<sup>2</sup>E blood  
Comment: Specimen needs to be transported to the Blood & Tissue Establishment, GUH in a flask at 37°C before 15.30  
Turnaround: Within 12 h  
Ref. Range: N/A

#### **Complement: C1 Esterase Inhibitor**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0.15 – 0.43 g/L

#### **Complement: C1 Esterase Inhibitor Functional Assay**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube.  
Comment: Must arrive in Immunology on the same day it was taken . Time and date of collection must be stated on request form.  
Turnaround: 5 weeks  
Ref. Range: 70-130%

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#### Complement: C1q

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Comment : Specimen referred for testing if CH100 functional activity is abnormal.  
Turnaround: 11 weeks  
Ref. Range: Refer to Report

#### Complement: C2/C5/C6/C7/C8/C9

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Only if abnormal CH100 or CH100A Functional Activity  
Turnaround: 6 weeks  
Ref. Range: On report form including interpretative comment

#### Complement: C3/C4

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: C3: 0.75 – 1.86 g/L  
C4: 0.13 – 0.49 g/L

#### Complement: C3 Nephritic Factor

Laboratory: Referred to Immunology Dept, Northern General Hospital, Sheffield  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Complement: CH100 (Total Haemolytic Complement) Functional Activity CH100 (Total) and CH100A (Alternate Pathway)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Must arrive in Immunology on the same day it was taken . Time and date of collection must be stated on the request form.  
Turnaround: 5 weeks  
Ref.range: Refer to report form

#### Conjunctivitis (Bacterial Culture)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Conjunctivitis (Chlamydia trachomatis)

Laboratory: Virology, GUH  
Specimen: Swab of conjunctiva in Abbott Multicollect tube.  
Comment: If delay refrigerate @ 2-8°C.  
Turnaround: 10 working days  
Report: Detected / Not Detected

#### Connective Tissue Disease screening

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Report: On report form

#### Copper

Laboratory: Referred to Eurofins SCDL  
Specimen: 5.0mL blood in royal blue trace element tube , available from laboratory. Lab to refrigerate  
Turnaround: 5 days  
Ref. Range: On report form

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#### **Copper (Urine)**

Laboratory: Referred to Eurofins SCDL  
Specimen: 24 hour urine sample (plain). Lab to refrigerate  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Cortisol (Synacthen Test)**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form

#### **Cortisol (Urine)**

Laboratory: Referred to Eurofins SCDL  
Specimen: 24 hour urine collection, plain  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **COVID-19 see SARS**

See “SARS CoV-2 (PCR)”

#### **Coxiella burnetii IgM Antibodies (Q fever)**

Laboratory: Referred to the Health Protection Agency, South West Laboratory, Bristol  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: 2-3 weeks.  
Report: See report form including interpretative comment.

#### **Coxsackie B Virus**

See “Enterovirus”

#### **C Peptide**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0mL fasting blood in a plain tube delivered immediately to the laboratory. Lab must separate and freeze  
Turnaround: 1 week.  
Ref. Range: On report form

#### **Creatine Kinase (CK)**

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### **Creatinine**

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### **Creatinine (Urine)**

Laboratory: Biochemistry, RUH  
Specimen: 24 hour urine sample, plain  
Turnaround: 1 working day  
Ref. Range: On report form

#### **Creatinine Clearance**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 24 hour urine in plain container and 5mL blood in plain gel tube taken at some point during the urine collection. It is important that the blood and urine are received in the laboratory as a matched pair.  
Turnaround: 1 working day  
Ref. Range: On report form  
Interpretation: Creatinine clearance may be higher during normal pregnancy due to glomerular hyperfiltration.



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#### Creutzfeld-Jakob Disease (CJD, 14-3-3 Protein)

Laboratory: Medical Microbiology, GUH: Referred to Beaumont Hospital and then onwards to Edinburgh  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### CRP (C Reactive Protein)

Laboratory: Biochemistry, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Cryoglobulins

Laboratory: Immunology, GUH  
Specimen: 10mL blood in plain tube (provided by Immunology lab), 10.0 mL EDTA blood, transported immediately at 37°C. Contact laboratory who will provide suitable flask for transport of sample at 37°C.  
Comment: Requests accepted Mon – Thurs 8h-16h. Friday 8h -13h. May not be possible to transfer sample from RUH, clinician must contact Immunology GUH for advice  
Turnaround: 8 working days  
Report: Positive/Negative.  
If positive then quantified by Cryocrit and typed by Immunofixation.

#### Cryptococcal Antigen

Laboratory: Virology, GUH  
Specimen: 5.0 mL blood in a plain gel tube  
Comment: Available only in very specific circumstances and with prior approval of a Consultant Microbiologist.  
Turnaround: 1 week  
Report: Detected/Not Detected

#### Cryptosporidium spp

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Crystals for Uric acid assessment

See Joint Aspirates Department of Histopathology, Cytopathology and Molecular Pathology

#### CSF – Culture & Microscopy / Glucose / Protein / Lactate

See “Cerebrospinal Fluid – Culture & Microscopy / Protein / Glucose / Lactate”

#### CSF – Oligoclonal bands and CSF IgG Index

See “Cerebrospinal Fluid – Oligoclonal bands and CSF IgG Index”

#### CSU – Catheter Urine

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Curettings

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### CV2/ CRMP5

Laboratory: Referred to Immunology Department, Churchill Hospital, Oxford OX3 7LJ  
Specimen: 5.0 mL blood in plain gel tube. CSF analysis also available.  
Turnaround: 6 weeks  
Report: Positive/Negative

#### Cyclosporin (Neoral)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 4.0 mL K<sup>+</sup> EDTA whole blood (x2 EDTA FBC samples)  
Comment: Collect sample pre-dose. State date/time of sample collection clearly on request form.  
Turnaround: 1 week  
Ref. Range: Patient specific

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### Cystic Fibrosis – Genetic Test

Laboratory:	Referred to Department of Clinical Genetics, CHI, Crumlin, Dublin.
Specimen:	5.0 mL EDTA whole blood. (x2 EDTA FBC samples)
Comment :	It is <u>mandatory</u> for all requests to be accompanied by a fully completed CHI Genetic request form. It is critical the informed consent section is completed. Testing will not be carried out if forms are not completed fully. A CF patient information request form (CF PID), may be submitted, CHI request forms can be download from <a href="http://www.olchc.ie">www.olchc.ie</a>
Turnaround:	Up to 10 weeks
Report:	Refer to report- including interpretative comment

### Cyst Fluid

Department of Histopathology, Cytopathology and Molecular Pathology. Please refer to Aspirates/ effusions

### Cytogenetics: Chromosome Analysis / Karyotyping Adults (age >5 years)

Laboratory:	Referred to Eurofins SCDL (Mon – Thurs service). .
Specimen:	5.0 mL of blood in Lithium Heparin tube (to be kept at room temperature only)
Comment:	MedLab request form to be submitted with samples for testing (available at <a href="http://www.sonichealthcare.ie">www.sonichealthcare.ie</a> ) Clinical details must be provided.
Turnaround:	15 working days (MedLab)
Report:	Refer to report- including interpretative comment

### Cytogenetics: Microarray / aCGH

Laboratory:	Referred to Department of Clinical Genetics, OLCH, Crumlin
Specimen:	5.0 mL of blood EDTA (x2 EDTA FBC samples)
Comment :	It is <u>mandatory</u> for all requests to be accompanied by a fully completed CHI Genetic request form. It is critical the informed consent section is completed. Testing will not be carried out if forms are not completed fully. CHI request forms can be download from <a href="http://www.olchc.ie">www.olchc.ie</a>
Turnaround:	up to 5 weeks
Report:	Refer to report- including interpretative comment

### Cytomegalovirus (CMV-DEAFF)

Laboratory:	Referred by RUH Laboratory to the National Virus Reference Laboratory, Dublin.
Specimen:	Freshly voided urine
Turnaround:	1-3 weeks
Report:	Positive/Negative

### Cytomegalovirus (CMV – PCR)

Laboratory:	Referred to the National Virus Reference Laboratory, Dublin
Specimen:	8ml K2EDTA Greiner tube
Comment:	Specimens must be delivered directly to lab for immediate dispatch to National Virus Reference Laboratory, Dublin .Request must be approved by the Microbiology Medical Staff, GUH.
Turnaround:	1 – 3 weeks
Report:	Detected/Not Detected

### Cytomegalovirus (CMV) IgG / IgM Antibodies

Laboratory:	Virology, GUH
Specimen:	5.0 ml blood in a plain gel tube
Turnaround:	1-2 days
Report:	Detected / Not Detected

### Cytomegalovirus (CMV – PP65 Antigenaemia)

Laboratory:	Referred to the National Virus Reference Laboratory, Dublin
Specimen:	5.0 mL blood in an EDTA tube
Comment:	Available only in very specific circumstances and with prior approval of a Consultant Microbiologist. Please call Microbiologist GUH to discuss if this test is required.
Turnaround:	1-3 weeks
Report:	Positive/Negative

### Cytotoxic Antibodies (solid organ transplantation)

Laboratory:	Referred to Tissue Typing Laboratory, Immunology, Beaumont Hospital, Dublin.
Comment:	Discuss with tissue typing lab in Beaumont

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Specimen: 5 ml blood in plain gel tube  
 Turnaround: 4 weeks  
 Ref range: Refer to report form

#### **D-Dimers**

Laboratory: Haematology, RUH  
 Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube. Specimen must be tested within 2 hours of draw. One specimen sufficient for D-Dimer and Coagulation screen.  
 Turnaround: Urgent: 1 hour. Routine 4 hours.  
 Ref. Range: Refer to report

#### **Dengue fever Antibodies**

Laboratory: Referred to the National Virus Reference Laboratory, Dublin.  
 Specimen: 5.0 mL blood in a plain gel tube.  
 Comment: Available only in very specific circumstances and with prior approval of a Consultant Microbiologist.  
 Turnaround: 1 – 3 weeks  
 Report: Positive/Negative

#### **Dermatophytosis**

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **DHEA Sulphate**

Laboratory: Referred to Eurofins SCDL  
 Specimen: 5.0 mL blood in a plain tube. Lab to refrigerate  
 Turnaround: 3 weeks  
 Ref. Range: On report form

#### **Digoxin**

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 7.0 mL blood in a plain gel tube  
 Comment: Take specimen six hours post dose, Hypokalaemia is associated with an enhanced response to digoxin. Potassium should always be measured when digoxin toxicity is suspected.  
 Turnaround: Urgent: 1hour. All other requests: same day  
 Therapeutic Range: On report form

#### **Dihydropyrimidine Dehydrogenase (DPD) Activity**

Laboratory: Referred to Purine Laboratory, 4th Floor, North Wing, St. Thomas's Hospital, Lambeth Place Road, London SE1 7EH, England  
 Specimen: x2 FBC blood, and a urine specimen  
 Turnaround: 1 – 3 weeks  
 Report: See report form

#### **Diphtheria (Culture of Throat swab)**

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Direct Coombs Test**

Laboratory: Blood & Tissue Establishment GUH  
 Specimen: 6.0 mL EDTA K<sup>2</sup>E blood  
 Turnaround: 1 day  
 Ref. Range: N/A

#### **Dopamine**

See "Catecholamines/Fractionated Metanephrines"

#### **Duodenal Aspirate**

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Duodenal Smear for *Giardia intestinalis* trophozoites.**

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

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#### Ear Swab

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Echinococcus (Hydatid cyst) antibodies

Laboratory: Referred to Hospital for Tropical Diseases, London WC1E 6AU  
Specimen: 7.0 mL blood in a plain gel tube  
Comment: Available only in very specific circumstances and with prior approval of a Consultant Microbiologist.  
Turnaround: 2 – 3 weeks  
Report: Positive/Negative

#### Ecstasy

See “Toxicology Screen”

#### Effusions

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Collect 10-20 ml fresh specimen into a twist top leak proof 20ml or 50 ml sample bottle containing Shandon Cytospin collection fluid (green fixative solution available from Laboratory). Refrigerate overnight if necessary  
Comment: Indicate clinical history on test requisition, and reason for test. Do not submit drainage bags or large volumes of fluid for disposal in Laboratory  
Turnaround: 80% by 5 working days.  
Report: Detection of neoplastic and non neoplastic cells

#### eGFR

Laboratory: Biochemistry, RUH  
Specimen: 7.0 mL blood in plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Comment : Calculated parameter  
Interpretation: On report form

#### EGFR Mutation analysis

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Tissue samples already processed by the Histopathology Laboratory, arrange via consultant pathologist.  
Comment: Testing available on request by Pathologist.  
Referrals: Contact the Department of Histopathology, Cytopathology and Molecular pathology on 091 544078  
Turnaround: 5 – 10 working days after request by Pathologist received.  
Report: Integral part of Histopathology report issued by Division of Anatomic Pathology, Department of Histopathology, Cytopathology and Molecular Pathology.

#### Electron Microscopy

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Tissue  
Comment: Discuss with appropriate Consultant Histopathologist at least 24 hours in advance of surgery.  
Report: Histological diagnosis

#### Endocervical Swab

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

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#### ***Enterobius vermicularis* (Sellotape slide for Pinworms)**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Enterovirus (PCR)**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Epstein – Barr Virus (EBV) Antibodies**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1 – 2 days  
Report: Detected/Not Detected

#### **Erythropoietin**

Laboratory: Referred to Eurofins SCDL.  
Specimen: 5 mL blood in a plain gel tube, lab to separate and freeze  
Turnaround: 2 weeks  
Ref. Range: Refer to report

#### **Erythrovirus B19 IgM + IgG antibodies**

Laboratory: Referred to GUH  
Specimen: 5 mL blood in a plain gel tube. Available only in specific circumstances, contact Virology GUH.  
Turnaround: 7 days  
Report: Postive/Negative

#### **ESR (Erythrocyte Sedimentation Rate)**

Laboratory: Haematology, RUH.  
Specimen: Minimum 2mls blood in EDTA purple top tube for ESR and FBC..  
Turnaround: 1 day routine specimens. Telephoned requests for faster turnaround time can be accommodated on particularly urgent specimens  
Ref. Range: Refer to report

#### **Extended Spectrum Beta Lactamase (ESBL) culture**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Eye Swab**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Factor Inhibitor Studies**

Laboratory: Haematology, GUH  
Specimen: 3 x 2.7 mL blood in a 0.109m Sodium Citrate tube  
Comment: Prior arrangement with coagulation laboratory, GUH necessary. Must fill bottle to mark.  
Turnaround: 1 week  
Ref. Range: N/A

#### **Factor V Leiden Mutation**

Laboratory : Referred to NCHCD, St James' Hospital, Dublin  
Specimen : 5.0 ml blood in EDTA tube (x2 FBC)  
Comment : APCR <2 or positive lupus only will be sent to SJH for testing. This must be written on the Haematology request form. A signed patient consent form for genetic testing is required by the laboratory before analysis can be processed.  
Turnaround : 4 weeks  
Ref Range : N/A

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#### **Faecal Elastase, Faecal Calprotectin Elastase profile**

Laboratory: Referred to Eurofins SCDL  
Specimen: Random faeces  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Faecal Occult Blood**

Laboratory: Laboratory, RUH  
Specimen: Random faeces  
Turnaround: 1 day  
Ref. Range: On report form

#### **Faeces – Molecular analysis, Microscopy, Culture and Antigen Detection**

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Farmers Lung Antibodies (Micropolyspora Faenii)**

Laboratory: Referred to PHL, Cumberland Infirmary, Carlisle CAZ 7HY  
Specimen: 7.0 mL blood in a plain gel tube  
Comment: Available only in specific circumstances and with prior approval of a Consultant Microbiologist, GUH  
Turnaround: 2 – 3 weeks  
Report: Positive/Negative

#### **FDP's (Fibrinogen degradation products)**

Laboratory: Haematology, GUH  
Specimen: 2.0 mL blood in special FDP bottle supplied on request by coagulation laboratory, GUH  
Comment: Must fill bottle to mark  
Turnaround: 1 day  
Ref. Range: Refer to report

#### **Ferritin**

Laboratory: Haematology, RUH  
Specimen: 5.0 mL blood in a plain gel tube..  
Turnaround: 1 day  
Ref. Range: Refer to report

#### **Filaria Antibodies**

Laboratory: Referred to Hospital for Tropical Diseases, London WC1E 6AU  
Specimen: 7.0 mL blood in a plain gel tube  
Comment: Available only in specific circumstances and with prior approval of a Consultant Microbiologist, GUH  
Turnaround: 2 – 3 weeks  
Report: Positive/Negative

#### **Fine Needle Aspiration Biopsy - FNAB**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen to laboratory in 10% Neutral Buffered Formalin.  
Turnaround : 80% by 5 working days  
Report: Histological diagnosis

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#### **Fine Needle Aspirates (FNAS) of breast, thyroid, axilla, parotid, submandular, lymph node and cysts.**

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Superficial and deep seated lesions. Deep seated lesions that need ultrasonic, CT or fluoroscopic guidance may be required. Use a 22 – 25 gauge fine needle and a 10 – 20 mL syringe for collection of specimen. Clearly label two frosted glass slides with patients name, DOB, and /or BN. Prepare thin even smears. For optimal diagnosis, air dry one slide for diff quick stain, please label as 'Air Dried. Immediately after preparation, spray a complete even coating of Cell-Fixx onto the other slide(s) from a distance of 25 – 30 cm (10 – 12 inches). Fixed slides should be labelled in pencil with patient Name DOB and or BN. Labelling should be carried out before spray fixing. Fixed and air dried slides should be placed in slide mailers clearly labelled on the outside with patient's addressograph. Needle wash may be collected into Shandon Cytospin Collection Fluid in a Universal container green fixative solution and submitted to the laboratory for processing. Please indicate exact location of sample site on request form and specimen container. Pathologist assisted FNAs must be prebooked by contacting the laboratory office 091 544078 / 4492 or Cytology laboratory Prep 091 544883. Contact with Pathologist rostered on Cytology may also be made via GUH switchboard.
Comment:	Additional Sample may be taken for Flow cytometry if clinically indicated
Turnaround:	80% by 5 working days
Report:	Correlated with clinical presentation. Allow on site evaluation, rapid turn a round time.

#### **Flow Cytometry (Immunotyping of Leukaemias and Lymphomas)**

Laboratory:	Haematology , GUH
Specimen:	3.0 mL K <sup>3</sup> EDTA blood or Bone Marrow aspirate in EDTA or Lymph Node Biopsy in RPMI
Comment:	Prior arrangement with consultant Haematologist or SPR
Turnaround:	3 - 5 days
Report:	Contact Consultant Haematologist.

#### **FLT3 – Mutation**

Laboratory:	Referred to CMD Laboratory, St James Hospital, Dublin 8.
Specimen:	3.0 mL K <sup>3</sup> EDTA blood, or Bone Marrow in RPMI.
Comment:	Arrange through Haematology Registrar, or Consultant Haematologist, GUH
Turnaround:	1 Month
Report:	See report form.

#### **FISH, HER-2 Status Evaluation**

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Tissue samples already processed by the Histopathology Laboratory, on Request from Consultant Pathologist only.
Comment:	Testing available on request by Pathologist.
Turnaround;	5 – 7 working days after request from Pathologist received
Report:	Integral part of Histopathology report issued by Division of Anatomic Pathology

#### **Folate (Serum)**

Laboratory:	Haematology, RUH
Specimen:	5.0 mL blood in a plain gel tube.
Turnaround:	1 day
Ref. Range:	Refer to report

#### **Fragile X Chromosome**

Laboratory:	Referred to Department of Clinical Genetics, CHI, Crumlin
Specimen:	5.0 mL blood in EDTA tube ( x2 FBC)
Comment :	It is <u>mandatory</u> for all requests to be accompanied by a fully completed CHI Genetic request form. It is critical the informed consent section is completed. Testing will not be carried out if forms are not completed fully. CHI request forms can be download from <a href="http://www.olchc.ie">www.olchc.ie</a> Turnaround: up to 26 weeks
Ref Range :	See report- including interpretative comment

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### Fructosamine

Laboratory: Referred to Eurofins SCDL  
Specimen: 5.0 mL blood in a plain gel tube. Lab to refrigerate  
Turnaround: 1 day  
Ref. Range: Refer to report

### Free light chains

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 10 working days  
Ref. Range: Kappa light chains 3.3 – 19.4 mg/L  
Lambda light chains 5.7 – 26.3 mg/L  
Kappa / Lambda Ratio 0.26 – 1.65  
Kappa / Lambda Ratio 0.37-3.1 applies for patients with stage 3 CKD or above

### Fresh Tissue

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory UNFIXED.  
Comment: Lymph nodes for query lymphoma, Frozen section and Muscle biopsy to be confirmed with Consultant Histopathologist on frozens at least 24 hours in advance. Skin biopsies and renal biopsies for DIF to be confirmed with Histopathology laboratory staff at least 24 hours in advance. Health & Safety precautions  
Report: Histological diagnosis

### Free T4

See “Thyroxine”

### Frozen Sections

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Fresh tissue  
Turnaround: Same day  
Comment: Avoid if there is a danger of infection e.g if tuberculosis is strongly suspected. Frozen sections will not be done where there is a danger of infection. Alternative approaches to rapid diagnosis can be discussed with the Consultant rostered on ‘frozens’.  
Prior Arrangement: Please book frozen section 24 hours in advance with the Consultant Histopathologist rostered for ‘frozens’ (091 544589). If possible put the operation at the beginning of the operation list. If the operation is delayed or if it is subsequently found that the frozen section is not required, please notify the Histopathology Department without delay at 091 544589. The unfixed tissue sample is transported directly to the laboratory by portering staff in a fully labelled container accompanied by a fully completed request form. Include contact details for immediate call back of frozen section result. Tissue for frozen section must be handed directly to a Medical Scientist, NCHD or Consultant Histopathologist.  
Unbooked Frozen Sections: Frozen sections that are required but not booked during the ‘normal working hours’ (09:00-17:00 h) must be discussed with the Consultant Histopathologist rostered for ‘frozens’ before any samples are taken.  
Report: Histological diagnosis

### FSH

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form



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#### Full Blood Count

Laboratory:	Haematology, RUH
Specimen:	3.0 mL K3 EDTA blood, (1.0 mL Paediatric tubes are available).
Comment:	After 24 hours, WBC differential and red cell indices are affected by EDTA changes. Ensure samples are not taken from a drip site as this results in dilution of the sample. In cases of platelet clumping special sample bottles (thrombo exact) are available upon request. For use in platelet counting only.
Turnaround:	Urgent: 1 hour. Routine 4 hours.
Ref. Range:	Refer to report

#### Fungal Microscopy and Culture

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### G6PD Quantitation

Laboratory:	Referred to Special Haematology, St James Hospital, Dublin 8
Specimen:	3.0 mL K <sup>3</sup> EDTA blood
Turnaround:	2 weeks
Ref. Range:	See report form

#### Galactomannan antibodies

Laboratory:	Referred to the Department of Microbiology, St. James' Hospital, James Street, Dublin 8
Specimen:	5 mL blood in plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	1 – 2 weeks
Report:	Positive/Negative

#### Gamma-glutamyl-transferase (γ-GT)

Laboratory:	Biochemistry, RUH
Specimen:	5 mL blood in a plain gel tube
Turnaround:	Urgent: 1 hour. Routine 4 hours.
Ref. Range:	On report form

#### Gastrin

Laboratory:	Referred to Eurofins SCDL
Specimen:	Fasting for a minimum of 10-12 hrs. 5 mL blood in a plain gel tube sent to the lab immediately, lab must separate and freeze
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

#### Gastrointestinal Tract Hormones (GIT Hormones): incl. Pancreatic Polypep, C-Term Glucagon, Vasoactive Polypep, Somatostatin and CART

Laboratory:	Clinical Biochemistry: - referred to external laboratory for analysis
Specimen:	x2 3ml K <sup>+</sup> EDTA blood per hormone assay, send to lab immediately, lab must separate and freeze. <i>Lab staff: see 'special Blood Sciences' folder</i>
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

#### Genital Swab

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Gentamicin/Genticin

Laboratory :	Clinical Biochemistry, GUH
Specimen :	5 mL blood in a plain gel tube. Delay >2h refrigerate @2-8°C.
Comment :	State time collected and if Peak or Trough specimen
Turnaound :	Analysed during routine working hours only.
Therapeutic Range :	On report form

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### Glucagon

See "Gastrointestinal Tract Hormones"

### Glucose

Laboratory: Biochemistry, RUH  
 Specimen: 4.0 mL Fluoride Oxalate blood  
 Comment : Fasting : Ideally a patient should fast for 12 hours. However, if a patient is unable or unwilling to fast for 12 hours a specimen taken after a 9 hour fast is acceptable.  
 Turnaround: Urgent: 1 hour. Routine 4 hours.  
 Ref. Range: On report form

### Group and Crossmatch

Laboratory: Blood Transfusion Laboratory RUH  
 Specimen: EDTA K<sup>2</sup>E 6.0 mL blood  
 Turnaround: 1 Hour (for an urgent crossmatch) 2 Hours (routine crossmatch)  
 Ref. Range: N/A

### Group and Hold

Laboratory: Blood Transfusion Laboratory RUH  
 Specimen: EDTA K<sup>2</sup>E 6.0 mL blood  
 Turnaround: 1 hour (for an urgent Group and Hold) 2 Hours (routine)  
 Ref. Range: N/A

### Growth Hormone

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 5 mL blood in a plain gel tube, must arrive in lab before 12pm for referral to GUH. It should only be requested as part of a dynamic function test. In general, a random growth hormone measurement has very little diagnostic value.  
 Turnaround: 3 weeks  
 Interpretation: On report form

### Gut Hormone Profile

See "Gastrointestinal Tract Hormones"

### Haemochromatosis – C282Y and H63D Genetic Mutations

Laboratory: Immunology, GUH:- referred from GUH to Molecular Genetics  
 Specimen: x2 3ml blood in EDTA tube. RUH send to GUH for onward referral  
 Comment: Must specify genetic test on request form. The patient must be >16 years old and the EDTA sample must be fresh and not used for other testing.  
 Turnaround: 10 days  
 Ref range: On report form including interpretative comment. Paper report ONLY.

### HbA<sub>1c</sub>

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 4 mL EDTA blood  
 Turnaround: 2 working days  
 Ref. Range: On report form

### Haemoglobin A<sub>2</sub>

Laboratory: Referred to St James Hospital.  
 Specimen: 3.0 mL K<sup>3</sup> EDTA blood  
 Comment : Request form must give clinical details, transfusion history and ethnic origin of patient. Levels of HbA<sub>2</sub> will be affected by the presence of iron deficiency.  
 Turnaround: 4 weeks  
 Ref. Range: On report form

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#### Haemoglobin F

Laboratory: Referred to St James Hospital  
Specimen: 3.0 mL K<sup>3</sup> EDTA blood  
Comment: Request form must give clinical details, transfusion history and ethnic origin of patient.  
Turnaround: 4 weeks  
Ref. Range: On report form

#### Haemoglobin S

Laboratory: Referred to St James Hospital  
Specimen: 3.0 mL K<sup>3</sup> EDTA blood  
Comment: Request form must give clinical details, transfusion history and ethnic origin of patient.  
Turnaround: 4 weeks  
Ref. Range: On report form

#### Haemoglobinopathy Screens

Laboratory: Referred to St James Hospital  
Specimen: x3 3.0 mL K<sup>3</sup> EDTA sample required  
Comment: Request form must give clinical details, transfusion history and ethnic origin of patient. Levels of HbA<sub>2</sub> will be affected by the presence of iron deficiency. Thalassaemia cannot be excluded in the presence of iron deficiency.  
Turnaround: 4 weeks  
Ref. Range: On report form

#### Haemophilus influenzae B Antibodies (IgG)

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 weeks  
Ref. Range: Minimum Protective Level >0.15 mg/L  
Optimum Protective Level >1.00 mg/L

#### Haemosiderin (Urine)

Laboratory: Haematology, GUH  
Specimen: First morning urine specimen in a plain universal container.  
Turnaround: 3 - 5 days  
Ref. Range: N/A

#### Hantavirus Antibodies - Serum

Laboratory: Referred to HPA, Special Pathogens Reference Unit, Wiltshire SP4 OJG  
Specimen: 5 mL blood in plain gel tube  
Comment: Only available in very specific cases and following approval by a Consultant Microbiologist  
Turnaround: 1-3 weeks  
Report: Positive / Negative

#### Haptoglobin

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 working days  
Ref. Range: 0.3-2.0 g/l

#### HCG, Total

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent requests: 1hour. Priority : 3 hours. Routine : same day  
Ref. Range: On report form

#### Helicobacter pylori Faecal Antigen Test

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Heinz Bodies

Laboratory: Haematology, GUH

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Specimen: 3.0 mL K<sup>3</sup>EDTA blood  
Comment: Prior authorization by Consultant Haematologist or SPR. Arrange with Haematology laboratory before taking specimen.  
Turnaround: 2 days.  
Ref. Range: N/A

#### **Hepatitis A IgM Antibody**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1 week  
Report: Detected / Not Detected

#### **Hepatitis A Virus Total Antibody**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in plain gel tube  
Turnaround: 1 week  
Report: Detected / Not Detected

#### **Hepatitis B Surface Antigen**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Requests for testing post “Needlestick” injury should be notified to the laboratory in advance of sending the specimen, as these samples are processed urgently.  
Turnaround: 2 working days  
Report: Detected / Not Detected.

#### **Hepatitis B Antibody**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Requests for testing post “Needlestick” injury should be notified to the laboratory in advance of sending the specimen.  
Turnaround: 2 working days  
Report: Levels reported as mIU/ml with relevant comment regarding protective levels and advice on further vaccination

#### **Hepatitis B Core Antibody (anti-HBc)**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 2 working days  
Report: Detected / Not Detected

#### **Hepatitis C Antibody**

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Requests for testing post “Needlestick” injury should be notified to the laboratory in advance of sending the specimen.  
Turnaround: 2 working days. Samples referred for further testing 1-2 weeks.  
Report: Not Detected, if negative. A Provisional report will be issued on any sample giving reactive findings on initial testing. These specimens are referred to the NVRL for further testing and a final report.

#### **Hepatitis C Antigen**

Laboratory : Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment : Only available in very specific cases and following approval by a Consultant Microbiologist  
Turnaround : 3-5 working days  
Report : Not Detected/Detected

#### **Hepatitis C PCR / Viral Load / Genotype**

Laboratory: Virology, GUH  
Specimen: x2 6ml K2EDTA Greiner tube. Two tubes if genotype is also required.  
Comment: Specimen must be delivered to a Virology staff member within 3 hours of phlebotomy and before 4pm.  
Turnaround: 1 – 3 weeks  
Report: Viral Load reported in IU/ml with comment where relevant

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#### Hepatitis D Antibody

Laboratory: Referred to referred to the National Viral Reference Laboratory, Dublin  
Specimen: 5 mL blood in a plain gel tube  
Comment: Request must be approved by Consultant Microbiologist  
Turnaround: 2-4 weeks  
Report: Positive/Negative

#### Hepatitis E Antibody

Laboratory: Referred to the National Viral Reference Laboratory, Dublin  
Specimen: 5 mL blood in a plain gel tube  
Comment: Request must be approved by Consultant Microbiologist  
Turnaround: 2 – 4 weeks  
Report: Positive/Negative

#### Herpes Zoster (shingles)

Laboratory: NVRL Dublin  
Specimen: PCR Copna swab , ensure date and time is noted on form and specimen  
Turnaround: 2 days  
Ref. Range: on report form

#### Hereditary Spherocytosis Screen (Flow Cytometry)

Laboratory: Referred to Crumlin Hospital  
Specimen: 3.0 mL K<sup>3</sup>EDTA blood, at room temperature.  
Comment: Samples must be received within 24 hours. Full clinical information and reason for request must accompany specimen. Consult with haematologist GUH  
Turnaround: 4 weeks  
Ref. Range: Interpretation by Consultant Haematologist on report form.

#### Herpes simplex virus antibody

Laboratory: Referred to HPA, Sexually Transmitted + Blood Borne Virus Laboratory, Colindale.  
Specimen: 5 mL blood in a plain gel tube  
Comment: Only referred to Reference Laboratory in exceptional circumstances and with prior approval of a Consultant Microbiologist  
Turnaround: 1 – 3 weeks  
Report: Positive/Negative

#### Herpes simplex virus - PCR

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### 5-HIAA (Urine)

Laboratory: Referred to Eurofins SCDL  
Specimen: 24 hour urine collection, lab to send 30ml frozen aliquot to Eurofins SCDL (state volume on request form)  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### High Density Lipoprotein (HDL)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Ideally a patient should fast for 12 hours. However, if a patient is unable or unwilling to fast for 12 hours a specimen taken after a 9 hour fast is acceptable".  
Turnaround: Urgent 2 hours. Routine 4 working days  
Ref. Range: On report form

#### High Vaginal Swab (HVS)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Histoplasma Antibodies

Laboratory: Referred to The Health protection Agency, Mycology Reference Laboratory Bristol BS2 8EL

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Specimen: 5 mL blood in a plain gel tube  
Comment: Only available in very specific cases and following approval by a Consultant Microbiologist  
Turnaround: 1 – 3 weeks  
Report: Positive/Negative

#### **Histology Tissue Specimen**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **HITS (Heparin Induced Thrombophilia testing)**

Laboratory: , Coagulation lab, St. James'  
Specimen: 5 mL blood in a plain gel tube.  
Comment: Arrange with Haematology team, GUH  
Turnaround: 3 working days (Mon – Fri)  
Ref. Range: On report form

#### **HLA B27 Typing**

Laboratory: Referred to Eurofins SCDL  
Specimen: x2 3 mL EDTA blood  
Comment : Restricted test-restricted to the following disciplines Rheumatology, Ophthalmology & Orthopaedics. Please phone laboraotory if there are exceptional reasons why this test is essential  
Turnaround: 3 weeks  
Report: On report form

#### **HLA Typing**

Laboratory: Referred to Eurofins SCDL  
Specimen: x3 3ml EDTA blood  
Comment : Restricted test, consult with Haematologist, GUH  
Turnaround: 3 weeks  
Report: On report form

#### **Homocysteine**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 4ml EDTA blood delivered to the laboratory immediately, lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

#### **Human Immunodeficiency Virus antigen/antibody**

Laboratory: Virology, GUH  
Specimen: 5 mL x2 blood in a plain gel tube.  
Turnaround: 2 working days. Samples referred for further testing 1-2 weeks.  
Report: Not Detected, if negative. A Provisional report will be issued on any sample giving reactive findings on initial testing. These specimens are referred to the NVRL for further testing and a final report.

#### **Human Immunodeficiency (HIV) PCR / Viral Load / Genotype**

Laboratory: Virology, GUH  
Specimen: One 8 ml Greiner K<sub>2</sub>EDTA Vacuette tube (Ref: 455040) for viral load testing. Need to obtain from Virology GUH, contact lab. Two tubes if Genotype is also required.  
Comment: Specimen must be delivered to a Virology staff member within 3 hours of phlebotomy, send to lab for immedaite dispatch to GUH. Greiner tubes should be used to collect both adult and paediatric samples. Only samples collected in these tubes are suitable for processing.  
Turnaround: 1 – 3 weeks  
Report: Detected/Not detected

#### **Human T-Lymphocyte Virus**

Laboratory: Referred to National Viral Reference Laboratory, Dublin.  
Specimen: 5 mL blood in a plain gel tube  
Comment: Only available in specific cases and following approval by the Microbiology Medical staff  
Turnaround: 2 – 4 weeks  
Report: Reported in IU/ml

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#### Huntington's Disease

Laboratory:	Referred to Department of Clinical Genetics, OLCH, Crumlin, Dublin.
Specimen:	x2 3ml blood in EDTA tube
Comment :	It is <u>mandatory</u> for all requests to be accompanied by a fully completed CHI Genetic request form. It is critical the informed consent section is completed. Testing will not be carried out if forms are not completed fully. CHI request forms can be download from <a href="http://www.olchc.ie">www.olchc.ie</a>
Turnaround:	Up to 12 weeks
Ref range:	Refer to report- including interpretative comment

#### Hydatid antibodies

Laboratory:	Referred to the Hospital for Tropical Diseases, London WC1E 6AU
Specimen:	5 mL blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	2 – 3 weeks
Report:	Positive/Negative

#### Hydatid Cyst

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Immunoglobulins IgG / IgA / IgM and Serum Protein Electrophoresis

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	10 working days
Ref. Range:	On report form

#### IgD

Laboratory:	Referred to Immunology dept, Northern General hospital, Sheffield
Specimen:	5 mL blood in plain gel tube
Turnaround:	6 weeks
Ref. Range:	Refer to report

#### IgE (Total)

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	7 working days
Ref. Range:	On report

#### IgG Subclasses (IgG1, IgG2, IgG3)

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	10 working days
Ref. Range:	On report form

#### IgG Subclasses (IgG4)

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	10 working days
Ref. Range:	IgG4 g/L
Adult	0-1.29

#### IGRA : See Quantiferon Test

#### IL28B genotyping

Laboratory:	Referred to National Virus Reference Laboratory, UCD.
Specimen:	x3 3mL EDTA blood
Turnaround:	4 weeks
Ref. Range:	Refer to report- including interpretative comment

#### Immunofluorescence Biopsies - Renal

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Laboratory: Please notify the Histopathology Department, GUH (ext. 4589) at least 24 hours in advance.  
Specimen: Place the biopsy in normal saline to maintain hydration and deliver to the laboratory immediately. Include contact details on request form.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Immunofluorescence Biopsies - Skin**

Laboratory: Please notify the Histopathology Department, GUH (ext. 4589) at least 24 hours in advance.  
Specimen: Deliver to the laboratory immediately. Include contact details on request form.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Immunophenotyping (Flow Cytometry)**

Laboratory: Haematology, GUH  
Specimen: 3.0 mL K<sup>3</sup> EDTA blood or Bone Marrow aspirate in EDTA or Lymph Node Biopsy in RPMI. GUH Lab will accept from Mon-Thurs 9am-5pm only  
Comment: Prior arrangement with Consultant Haematologist or SPR.  
Turnaround: 2 – 5 days  
Report: Contact Consultant Haematologist

#### **Infectious Mononucleosis (Monospot)**

Laboratory: Haematology RUH  
Specimen: 3.0 mL K3 EDTA blood  
Comment: Can be processed on FBC sample if requested. Add on requests require an additional sample.  
Turnaround: Urgent: 1 hour. Routine 4 hours  
Ref. Range: N/A

#### **Influenza A virus**

Laboratory: Virology, GUH  
Specimen: Combined nasal/throat swab in viral transport medium  
Comment: Seasonal availability only  
Turnaround: 2-3 working days  
Report: Detected/Not Detected

#### **Influenza B virus**

Laboratory: Virology, GUH  
Specimen: Combined nasal/throat swab in viral transport medium.  
Comment: Seasonal availability only  
Turnaround: 2 - 3 working days  
Report: Detected/Not Detected

#### **INR (International Normalised Ratio)**

Laboratory: Haematology RUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube.  
Comment: Fill bottle to mark. Details of anticoagulant therapy required. Do not refrigerate specimens for INR  
Turnaround: 1 day  
Ref. Range: See report form



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#### Insulin

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5ml fasting blood in a plain gel tube delivered immediately to the laboratory, lab to separate and freeze  
Turnaround: 1 week  
Ref. Range: On report form

#### Insulin Like Growth Factor 1

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL fasting blood in a plain gel tube, delivered to laboratory immediately, lab to separate and freeze  
Turnaround: 3 weeks  
Ref. Range: See report form

#### Interleukin 6

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Specimen must be received in the laboratory on the day of venepuncture.  
Turnaround: Urgent: 1hour. Priority: 3hours. Routine: 2 working days  
Ref. Range: See report form

#### Intraocular Fluids / Corneal Scrapings

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Intra – Uterine Contraceptive Device (IUCD)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Intravascular Cannulae - Culture

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Iron

Laboratory: Clinical Biochemistry, GUH  
Specimen: Fasting sample required. 5 mL blood in a plain gel tube  
Turnaround: Urgent: 2hour. Priority: 3hours. Routine: 4 working days  
Ref. Range : On report form

#### Iron Stain (Perla Prussian Blue – Cytochemical Stain)

Laboratory: Haematology, GUH  
Specimen: Bone marrow spread on a glass slide  
Comment: As for Bone Marrow testing  
Turnaround: 2 weeks  
Ref. Range: N/A

#### JAK -2 Mutation

Laboratory: Referred to CMD Laboratory, St James Hospital, Dublin 8  
Specimen: 3 x 3.0 mL K<sup>3</sup> EDTA blood  
Comment: Test available Monday-Thursday only  
Turnaround: 120 days  
Ref. Range: N/A

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#### Joint Aspirates – Uric Acid Crystals

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology
Specimen:	5-10 mls fresh specimen in a universal container. Do not use fixative. Specify if cytology or crystal analysis is required. Please do not inject any material into joint before obtaining joint fluid sample. Submit sample to laboratory ASAP. Refrigerate if delay in dispatch to lab >2hrs. Please use powder free gloves to avoid contamination of sample by powder.
Comment:	Indicate clinical history on test requisition and reason for test.
Turnaround:	80% by 5 working days
Report:	Detection of inflammatory conditions

#### Joint Fluid

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Joint Fluid – Uric Acid Crystals

Please refer to Joint Aspirates

#### Karyotyping

See Cytogenetics

#### Ketones

Laboratory:	Available on point of care glucose meters, call lab for further information
Turnaround:	1 day (Mon – Fri) – not available on weekends.
Ref. Range:	N/A

#### KRAS Mutation analysis

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Tissue samples already processed by the Histopathology Laboratory,
Request from:	Arrange via consultant pathologist.
Comment :	Testing available on request from consultant Pathologist.
Referrals:	Contact the Department of Histopathology, Cytopathology and Molecular pathology on 091 544078
Turnaround :	5 – 10 working days after request from Pathologist received
Report:	Integral part of Histopathology report issued by Division of Anatomic Pathology

#### Lactate

Laboratory:	Available on Blood Gas analyser in laboratory
Specimen:	Blood in a balanced heparin syringe, process within 15 mins of collection
Turnaround:	15 mins
Ref. Range:	On report form

#### Lactate Dehydrogenase (LDH)

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5 mL blood in a plain gel tube, do not re-refrigerate
Turnaround:	Urgent: 1hour. Priority : 3 hrs. Routine: same day.
Ref. Range:	On report form

#### Lead

Laboratory:	Referred to Eurofins SCDL
Specimen:	Blood in Lithium heparin tube . Lab to refrigerateIf urine sample required, random urine
Turnaround:	1 month
Ref. Range:	On report form

#### Legionella culture

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

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#### **Legionella pneumophila Urinary Antigen**

Laboratory:	Virology, GUH
Specimen:	Plain random urine specimen in a sterile Universal container or yellow vacuette
Comment:	Specimen to arrive in laboratory within 24 hours of collection
Turnaround:	1 working day
Report:	Detected / Not Detected

#### **Leishmania antibody**

Laboratory:	Referred to The Hospital for Tropical Diseases, London WC1E 6AU
Specimen:	5 mL blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	2 – 3 weeks
Report:	Positive/Negative

#### **Leptospira antibody**

Laboratory:	Referred to National Virus Reference Laboratory
Specimen:	5 mL blood in a plain gel tube.
Turnaround:	2-3 weeks.
Report:	Positive/Negative

#### **Leucocyte Alkaline Phosphatase (LAP) Cytochemical Stain**

Laboratory:	Haematology, GUH
Specimen:	6.0 mL Li Heparin blood, contact lab for bottle
Comment:	Prior authorization by Haematology SPR.
Turnaround:	2 days
Ref. Range:	Refer to report

#### **Leucocyte Mixed-Esterase Stain (Cytochemical Stain)**

Laboratory:	Haematology, GUH
Specimen:	Bone marrow slides
Comment:	Prior authorization by Haematology SPR.
Turnaround:	2 days
Ref. Range:	N/A

#### **Leucocyte Esterase Stain (Cytochemical Stain)**

Laboratory:	Haematology, GUH
Specimen:	3.0 mL K <sup>3</sup> EDTA blood
Comment:	Prior authorization by Haematology SPR.
Turnaround:	2 days
Ref. Range:	N/A

#### **LH**

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5ml blood in a plain gel tube
Turnaround:	Priority : 1 working day. Routine : 2 working days
Ref. Range:	On report form

#### **Lipoprotein (a)**

Laboratory:	Referred to Eurofins SCDL
Specimen:	5 mL blood in a plain gel tube. Lab to refrigerate
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

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### Lithium

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5ml blood in a plain gel tube  
Comment: Sample 12 hours post dose  
Turnaround: Urgent: 1hour. All other requests: 3hours  
Therapeutic Range: On report form

### Liver core biopsy- (Hep C, Primary tumour or metastases)

Laboratory: Histopathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions.  
Report: Histological diagnosis

### Lletz

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions.  
Report: Histological diagnosis

### Low Density Lipoprotein (LDL)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Calculated parameter  
Turnaround: Urgent: 1hour. Priority: 3hours. Routine: 2 working days  
Ref. Range: On report form

### Lupus Anticoagulant Screen

Laboratory: Haematology, GUH  
Specimen: 2 x 2.7 mL blood in 0.109m Sodium Citrate tubes  
Comment: Details of anticoagulant therapy required. Must fill bottle to mark. Samples must submitted within 6 hours of draw. Otherwise RUH must separate and freeze  
Turnaround: 5 Weeks.  
Ref. Range: Qualitative Positive/Negative

### Lyme Disease Antibodies

See "Borrelia burgdorferi"

### Lymph Nodes for Query Lymphoma

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Fresh Tissue. Submit specimen intact to laboratory UNFIXED  
Comment: To be confirmed with Consultant Histopathologist at least 24 hours in advance. Immediately Dispatch to the lab.  
Report: Histological diagnosis.

### Lymphocyte subsets CD3 (T cell) CD4 (T helper) CD8 (T cytotoxic) CD19 (B cell) CD16/56 (NK cell)

Laboratory: Immunology, GUH  
Specimen: x2 3ml blood in EDTA bottle. Do not refrigerate.  
Comment: Record time and date of collection on form. Samples must be kept at room temperature, deliver to Immunology within 48 hours.  
Turnaround: 3 working days  
Ref. Range: Refer to report

### Lymphogranuloma venereum antibodies

Laboratory: Referred to the Health Protection Agency, South West Lab. Bristol BS" 8EL  
Specimen: 5 mL blood in a plain gel tube  
Comment: Only available in very specific cases and following approval by a Consultant Microbiologist  
Turnaround: 2 – 4 weeks  
Report: Positive/Negative

### Magnesium

Laboratory: Biochemistry, RUH

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Specimen: 5 mL blood in a plain gel tube  
 Turnaround: Urgent: 1 hour. Routine 4 hours.  
 Ref. Range: On report form

#### **Magnesium (Urine)**

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 24 h collection, plain  
 Turnaround: 1 working day  
 Ref. Range: On report form

#### **Malaria Screen**

Laboratory: Haematology, GUH  
 Specimen: 3.0 mL K<sup>3</sup> EDTA blood. Fresh sample required.  
 Comment: Blood film is examined microscopically. The blood is tested for the presence of parasite associated enzyme. Positive specimen forwarded to Microbiology Laboratory. Travel history and clinical details essential. When submitting malarial requests please alert the Laboratory.  
 Turnaround: 1 day (Mon – Fri). Results of this test done out of hours or on weekends are confirmed by second scientist as soon as possible on the next working day.  
 Report: Positive / Negative. Where clinically indicated a negative specimen may be referred to a reference centre for analysis by PCR.

#### **Malignancy**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
 Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
 Comment: Health & Safety precautions  
 Report: Histological diagnosis

#### **Manganese**

Laboratory: Referred to Eurofins SCDL  
 Specimen: 5.0 mL blood in a plain gel tube. Lab to refrigerate  
 Turnaround: 5 days  
 Ref. Range: See report form

#### **Measles IgG antibody**

Laboratory: Virology, GUH  
 Specimen: 5 mL blood in a plain gel tube  
 Turnaround: 1 – 2 weeks  
 Report: Detected / Not Detected

#### **Measles IgM antibody**

Laboratory: Referred to National Virus Reference Laboratory  
 Specimen: 5 mL blood in a plain gel tube  
 Turnaround: 2-3 weeks.  
 Report: Detected / Not Detected

#### **Meningococcal C vaccine antibodies - Serum**

Laboratory: Referred to Immunology Dept, Meningococcal Reference Unit, Manchester Medical Microbiology Partnership  
 Specimen: 5.0 mL blood in plain gel tube  
 Turnaround: 6 weeks  
 Ref range: Refer to report

#### **Meningococcal PCR**

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Mercury - Urine**

Laboratory: Referred to Eurofins SCDL  
 Specimen: Random urine  
 Turnaround: 1 – 3 weeks  
 Ref. Range: See report form

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#### **Metabolic Profile SMAC, lipid profile, Glucose, HbA1c, Insulin, CRP, adiponectin**

Laboratory: Clinical Biochemistry: - RUH, GUH. Eurofins SCDL  
Specimen: x3 5ml blood in a plain gel tube, x1 3 ml k<sup>+</sup>EDTA  
Comment: Full clinical details must accompany request  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Metabolic Screen (Amino Acid Chromatography)**

Laboratory: Refer to Biochemistry, Temple street  
Specimen: Li Heparin blood sample and random urine,  
Comment: Full clinical details must accompany request  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Metabolic Screen (Urine Amino Acid Chromatography)**

Laboratory: Refer to Biochemistry, Temple street  
Specimen: Plain random urine specimen  
Comment: Full clinical details must accompany request  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Metanephrines (Metanephrine/Normetanephrine/3-methoxytyramine - Plasma)**

Laboratory: Referred to Eurofins SCDL  
Specimen: Blood in Lithium heparin tube  
Comment: Delivered to laboratory immediately. Lab to separate and freeze  
Specimen must be delivered immediately to the lab post phlebotomy.  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

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

See “Catecholamines/Fractionated Metanephrines”

#### **Methadone**

See “Toxicology Screen”

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

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Methotrexate (Maxtrex)**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0mL blood in a non-gel tube, contact lab for sample bottle  
Comment: State date/time of sample collection clearly on request form. Measured on patients on high-dose Methotrexate. Contact Lab in advance and state time of infusion on request form.  
Turnaround: 1 – 2 hours  
Ref. Range: Guidance on report form

#### **Methylmalonic Acid -serum**

Laboratory: Referred to Eurofins SCDL  
Specimen: Blood in Lithium heparin tube  
Comment: Delivered to laboratory immediately. Lab to separate and freeze  
Turnaround: 5 weeks  
Ref. Range: On report form

#### **Methylmalonic Acid (Urine)**

Laboratory: Referred to Eurofins SCDL  
Specimen: 15ml early morning urine. Lab to freeze  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

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#### Microalbumin / Creatinine Ratio

See 'Albumin (Urine) / Microalbumin'

#### Microarray/aCGH

See Cytogenetics: Microarray/aCGH

#### Micropolyspora faenii (Farmer's Lung)

See: "Farmer's Lung antibodies"

#### Morphine (Opiates)

See "Toxicology Screen"

#### Morphology

Refer to "Blood Film"

#### Mouth Swab

Laboratory: Medical Microbiology, GUH

Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### MRD-CLL (Minimum Residual Disease detection of Chronic Lymphocytic Leukaemia)

Laboratory: Haematology, GUH

Specimen: 3.0ml K<sup>3</sup>EDTA

Comment: Samples must be received within 24 hours. Full clinical information and reason for request must accompany specimen.

Turnaround: 3 -5 working days.

Report: Interpretation by Consultant Haematologist on report form.

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

Laboratory: Medical Microbiology, GUH

Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### MSU – Midstream Urine

Laboratory: Medical Microbiology, GUH

Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Mumps IgG antibody

Laboratory: Virology, GUH

Specimen: 5 mL blood in a plain gel tube

Turnaround: 1-2 weeks

Report: Detected / Not Detected

Comment: A Provisional report will be issued on any sample giving reactive findings on initial testing. These specimens are referred to the NVRL for further testing and a final report.

#### Mumps IgM antibody

Laboratory: Virology, GUH

Specimen: 5 mL blood in a plain gel tube

Turnaround: 1 -2 weeks.

Report: Detected / Not Detected

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### Muscle Biopsies

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Fresh tissue
Comment:	Immediate dispatch to laboratory where tissue pieces are frozen / formalin fixed. Fresh tissue samples to be confirmed with the Consultant Pathologist (on frozens) at least 24 hours in advance.
Report:	Histological diagnosis

### Mycobacteria Testing

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

### Mycology

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

### Mycoplasma pneumoniae antibody

Laboratory:	Referred to National Virus Reference Laboratory, Dublin
Specimen:	5 mL blood in a plain gel tube
Comment:	Available only in very specific cases and following prior arrangement with a Consultant Microbiologist
Turnaround:	2-3 weeks
Report:	Positive/Negative

### Myoglobin

Laboratory:	Referred to Eurofins SCDL
Specimen:	5 mL blood in a plain gel tube or random urine. Lab to freeze
Turnaround:	1 – 2 weeks
Ref. Range:	On report form

### Neoplasm

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.
Comment:	Health & Safety precautions
Report:	Histological diagnosis

### Neutrophil Function Test – Dihydrorhodamine Flow Cytometry Assay of Respiratory Burst Activity

Laboratory:	Immunology, GUH
Specimen:	x2 3ml blood in EDTA must be kept at room temperature. Do not refrigerate. Control sample must also be taken. Samples must be delivered to lab within 24 hours.
Comment:	Testing must be first discussed with immunology medical/scientific staff
Turnaround:	2 days
Report:	Normal/Abnormal

### N. meningitidis PCR

See “Meningococcal PCR”

### Neisseria gonorrhoeae PCR

Laboratory:	Virology, GUH
Specimen:	Abbott Multicollect swab delivered to the laboratory within 24 h of collection.
Comment:	If delay refrigerate @ 2-8°C.
Turnaround:	10 working days
Report:	Detected / Not Detected

### Noradrenaline (Adrenaline/Dopamine)

See “Catecholamines”

### Norovirus detection

Laboratory:	Medical Microbiology , GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

### Nose Swab

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>



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#### NRAS

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen :	Tissue samples already processed by the Histopathology laboratory, arrange via Consultant Pathologist
Comment :	Testing available on request by Pathologist
Referrals :	Contact the Department of Histopathology, Cytopathology and Molecular Pathology on 091 544078
Turnaround :	5-10 working days after request from Pathologist received
Report :	Integral part of Histopathology report issued by the Division of Anatomic Pathology, Department of Histopathology, Cytopathology and Molecular Pathology

#### Oestradiol

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5.0mL blood in a plain gel tube
Turnaround:	Urgent: 1hour. Priority: 1 working day. Routine : 2 working days
Ref. Range:	On report form

#### Opiates

See "Toxicology Screen"

#### Organic Acids

Laboratory:	Clinical Biochemistry:- lab staff, see 'Special Blood Sciences' folder
Specimen:	Plain urine specimen
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

#### Osmolality

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5ml blood in a plain gel tube
Turnaround:	Urgent: 1hour. Priority: same day. Routine: 2 working days
Ref. Range:	On report form

#### Osmolality (Urine)

Laboratory:	Clinical Biochemistry, GUH
Specimen:	Plain random urine specimen
Turnaround:	Urgent : 1hour. Priority : same day. Routine : 2 working days
Ref. Range:	On report form

#### Osmotic Fragility

Laboratory:	Haematology , GUH
Specimen:	5.0 mL Li fresh Heparin blood and a normal control specimen in 5.0 mL Li Heparin
Comment:	Authorisation by Haematology SPR and arrangement with laboratory. The specimen must reach the laboratory before 11:00 on day of analysis.
Turnaround:	2 days
Ref. Range:	See report form.

#### Ova / Cysts / Parasites

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Ovarian Cyst Fluid, Neoplastic/Non-Neoplastic Cells

See Effusions/ FNA

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#### Paracetamol

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1hour. All other requests: 3hours.  
Interpretation: On report form

#### Paraneoplastic Antibodies

See "Autoantibodies: Anti-Neuronal Antibodies"

#### Parvovirus / B 19 IgM Antibodies

See "Erythrovirus B19"

#### Pelvic Cavity Wash (Diaphragm, Gutter or Cul de sac Wash)

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH Specimen: Collect 10 - 20 mL fresh specimen into a twist top leak proof 20 mL or 50 mL universal sample bottle containing Shandon Cytospin Collection Fluid (green fixative solution). Refrigerate overnight if necessary.  
Comment: Indicate clinical history on test requisition and reason for test.  
Turnaround: 80% in 5 working days  
Report: Detection of neoplastic and non neoplastic cells

#### Penile Swab

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Pericardial Fluid – Pleural Fluid - Cytology

See "Effusions"

#### Pericardial Fluid / Peritoneal Fluid / Pleural Fluid

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Peritoneal Fluid - Cytology

See "Effusions"

#### Pernasal Swab / Pertussis

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Phenytoin (Epanutin)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 7.0 mL blood in a plain gel tube  
Comment: Take specimen immediately before next dose (trough specimen)  
Turnaround: 1 week  
Therapeutic Range: On report form

#### Phosphate -inorganic

Laboratory: Clinical Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Phosphate (Urine)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 24 hour urine collection.  
Lab staff RUH: refer to Bone marker section if part of 'Bone Marker' request  
Comment: Used in conjunction with serum inorganic phosphate to calculate IPEGFR  
Turnaround: 1 working day  
Ref. Range: On report form

#### Pippelle Biopsy

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology GUH  
Specimen: Submit specimen to laboratory in 10% Neutral Buffered Formalin.

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Comment: Health & Safety precautions  
Report: Histological diagnosis

#### Pinworm

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Placenta

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### Plasma Viscosity

Laboratory: Haematology, GUH  
Specimen: 3 x 3.0 mL K<sup>3</sup> EDTA blood  
Comment: Must be received in laboratory within 2 hours of phlebotomy so this test must not be taken in RUH as it can not be guaranteed to arrive in GUH within 2 hrs  
Turnaround: 1 day  
Ref. Range: Refer to report

#### Platelet Aggregation Studies

Laboratory: Haematology, GUH  
Specimen: 6 x 2.7 mL blood specimens in 0.109m Sodium Citrate tubes. Please supply samples from a normal control in conjunction with the test specimens.  
Comment: Prior authorization by Consultant Haematologist or SPR. Arrange with Coagulation laboratory before taking specimen. Patient must not take any anti-platelet medications for 1 week prior to test (incl. aspirin, NSAIDs, Clopidogrel/plavix, cough suppressants). Discard the first specimen when obtaining blood from patient as there may be some platelet activation present which will influence the test results. Specimens must reach the Coagulation laboratory no later than 11:00 on the day of analysis. Must fill bottles to mark.  
Turnaround: Assay performed on day of appointment  
Ref. Range: N/A

#### Pleural Fluid - Cytology

See "Effusions"

#### Pleural Fluid Microscopy & Culture

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Pneumococcal PCR

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Pneumococcus IgG/ IgG2 antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0mL blood in plain gel tube  
Turnaround: 5 weeks  
Ref range: Pneumococcus IgG: 11.0 - 320.8 mg/L  
Pneumococcus IgG2: 1.2 – 107.1 mg/L

#### Pneumocystis jiroveci investigation

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### PNH Screening (Paroxysmal Nocturnal Haemoglobinuria) by Flow Cytometry

Laboratory: Haematology, GUH  
Specimen: 3.0 mL K3 EDTA blood  
Comment: Samples must be received in GUH Mon-Thurs from 9-5pm only and within 24 hours of collection unless otherwise arranged with Flow Cytometry. Full clinical information and reason for request must accompany specimen.

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Turnaround: 3-5 working days  
Ref Range: Interpretation by Haematologist

#### POC – Products of Conception

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology , GUH  
Specimen: Submit specimen to laboratory in 10% Neutral Buffered Formalin.  
Comment: See also Foetus. Health & Safety precautions  
Report: Histological diagnosis

#### Porphyrin Screen

Laboratory: Referred to St. James' Clinical Biochemistry  
Specimen: x4 3mL k<sup>+</sup>EDTA FBC samples, 10.0 mL Li Heparin blood, 5g fresh faeces and a 24 hour urine collection  
Comment: All specimens must be protected from light.  
RUH lab staff, see Special Blood Sciences folder for further information  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Post-Vasectomy Analysis

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Semen  
Comment: Available Monday to Friday 09:00 to 16:00 h. Refrigerate overnight if necessary. Indicate clinical history on test requisition. Include the collection time and date.  
Report: Histological diagnosis

#### Potassium

Laboratory: Biochemistry, RUH  
Specimen: 5 mL fresh blood in a plain gel tube  
Comment: GP specimens **MUST** be received in the laboratory within 4 hours of phlebotomy  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Potassium (Urine)

Laboratory: Biochemistry RUH  
Specimen: 24 hour urine collection  
Turnaround: 1 working day  
Ref. Range: On report form

#### Pregnancy Test

See "HCG Total"

#### Pregnancy Test (Urine)

Laboratory: Biochemistry RUH and Point of Care testing available in St. Bridget's Ward and Endoscopy Unit.  
Specimen: Urine in plain vacutainer  
Turnaround: N/A  
Ref. Range: N/A

#### Primidone/Mysoline

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Take specimen immediately before next dose (trough specimen)  
Turnaround: 1 week  
Therapeutic Range: On report form

#### ProBNP

Laboratory: Biochemistry RUH  
Specimen: 5ml blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Procalcitonin

Laboratory: Referred to Eurofins SCDL  
Specimen: 5 mL blood in a plain gel tube, send to lab before 12pm Mon-Fri for dispatch

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Turnaround: 2 working days  
Ref. Range: See report form

#### **Procollagen 1 Peptide N-terminal**

See 'Bone markers'

#### **Progesterone**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Interpretation: On report form

#### **Prograf**

See "Tacrolimus"

#### **Proinsulin**

Laboratory: Referred to Eurofins SCDL  
Specimen: x1 3ml EDTA, send to lab immediately, lab to separate and freeze  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### **Prolactin**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5ml blood in a plain gel tube  
Turnaround: Priority : 1 working day. Routine : 2 working days  
Ref. Range: On report form

#### **Prostatic Core Biopsy**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin. Ensure each container clearly indicates site and information matches details given on form.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Protein**

Laboratory: Biochemistry RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### **Protein (Urine)**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 24 hour urine collection and random urine  
Turnaround: 1 working day  
Ref. Range: On report form

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#### Protein C

Laboratory: Haematology, GUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube  
Comment: Send to lab immediately, lab to separate and freeze  
Details of anticoagulant therapy required. Must fill bottle to mark.  
Turnaround: 5 weeks  
Ref. Range: Refer to report

#### Protein S and Free Protein S

Laboratory: Haematology, GUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube  
Comment: Send to lab immediately, lab to separate and freeze. Must fill bottle to mark. Details of anticoagulant therapy required.  
Turnaround: 5 Weeks  
Ref. Range: Refer to report

#### Prothrombin Gene Mutation

Laboratory: Referred to NCHCD, SJH, Dublin  
Specimen: x2 3ml blood in EDTA tube  
Comment: Consent form for genetic analysis must accompany each request for this test and reason for request. Contact haematologist GUH  
Turnaround: 4 weeks  
Ref range: N/A

#### Prothrombin Time (PT)

Laboratory: Haematology, RUH  
Specimen: 2.7 mL blood in a 0.109m Sodium Citrate tube.  
Comment: Details of anticoagulant therapy required. Do not refrigerate specimens for PT. Must fill bottle to mark.  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: Refer to report

#### PSA Total

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form

#### PTH

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5ml blood in a plain gel tube delivered to the laboratory for same day dispatch to GUH, otherwise RUH to separate and freeze  
Turnaround: 1 working day  
Ref. Range: On report form

#### Punch Biopsy

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions. Where specimen is for DIF do not use fixative. See Immunofluorescence.  
Report: Histological diagnosis

#### Pyruvate Kinase Screening (PK)

Laboratory: Referred to Special Haematology, St James Hospital, Dublin 8.  
Specimen: 1 x 3.0 mL K<sup>3</sup> EDTA blood  
Turnaround: 2 weeks  
Report: Positive / Negative

#### Q Fever

See "Coxiella burnetii"

#### Quantiferon Test

Laboratory : Referred to the Immunology GUH

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Specimen : Set of 4 specific Quantiferon tubes and Quantiferon request form – available only from lab  
Comment : The 4 samples must reach the laboratory within 4hrs of collection, Monday – Thursday only before 5pm.  
NO Friday samples accepted  
Lab staff, follow instructions on request form  
Turnaround: 10 working days  
Report: Positive/Negative

#### **RCD 11 Refractory Coeliac Disease Type 11 Detection by Flow Cytometry**

Laboratory: Haematology, GUH  
Specimen: Duodenal biopsies in RPMI.  
Comment: Requires prior arrangement with flowcytometry. RPMI is supplied by flowcytometry lab. Scientist collects sample directly from ward.  
Turnaround: 3-5 working days  
Ref. Range: Interpretation by Consultant Haematologist on report form

#### **Renal Biopsy for Direct Immunofluorescence (DIF)**

Laboratory: Please notify Histopathology staff, GUH at least 24 hours in advance.  
Specimen: Place the biopsy in normal saline to maintain hydration and deliver to the laboratory immediately. Include contact details on request form.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Renal Biopsy for Electron Microscopy**

Laboratory: Please notify Histopathology Staff, GUH at least 24 hours in advance  
Specimen: Place the biopsy in normal saline to maintain hydration and deliver to the laboratory immediately. Include contact details on request form.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### **Renin**

Laboratory: Clinical Biochemistry, GUH  
Specimen: 4.0 mL K<sup>+</sup> EDTA blood, send to lab immediately, lab to separate and freeze  
Comment: Please provide clinical/antihypertensive medication details.  
Turnaround: 3 weeks  
Ref. Range: On report form

#### **Respiratory Syncytial Virus**

Laboratory: Virology, GUH  
Specimen: Combined nasal/throat swab in viral transport medium  
Comment: Seasonal availability only  
Turnaround: 2- 3 working days  
Report: Detected/Not Detected

#### **Reticulocyte Count**

Laboratory: Haematology, RUH  
Specimen: 3.0 mL K<sup>3</sup> EDTA blood,  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: Refer to report

#### **Rheumatoid Factor IgM**

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Comment: Requests for Rheumatoid Factor will also be tested for Anti-CCP  
Turnaround: 5 working days  
Ref. Range: 0 – 14 IU/ml

#### **Rickettsia sp. antibodies**

See “Coxiella”

#### **Ristocetin CoFactor (RiCof) (VW F : RiCof)**

Laboratory: Haematology, GUH  
Specimen: 2 x 2.7 mL blood in a 0.109m Sodium Citrate tube.

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Comment: Prior authorization by Consultant Haematologist or SPR. Arrange with coagulation laboratory before taking specimen. Must fill bottles to mark.

Turnaround: 4 weeks

Ref. Range: Refer to report

#### **ROS-1**

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH

Specimen: Tissue samples already processed by the Histopathology laboratory, arrange via Consultant Pathologist

Comment: Test available on request by Pathologist

Referrals: Contact the Department of Histopathology, Cytopathology and Molecular Pathology on 091 544078

Turnaround: 5-10 working days after request from Pathologist received

Report: Integral part of Histopathology report issued by the Division of Anatomic Pathology, Department of Histopathology, Cytopathology and Molecular Pathology

#### **Rotavirus / Adenovirus Faecal Antigen**

Laboratory: Medical Microbiology, GUH

Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### **Rubella IgG Antibody**

Laboratory: Virology, GUH

Specimen: 5.0 mL blood in a plain gel tube

Turnaround: 2 working days

Report: Reported in IU/ml with relevant comment

#### **Rubella IgM Antibody - Serology**

Laboratory: Virology, GUH

Specimen: 5.0 mL blood in a plain gel tube

Turnaround: 1 week

Report: Detected / Not Detected

#### **Salicylate**

Laboratory: Clinical Biochemistry, GUH

Specimen: 5.0 mL blood in a plain gel tube

Turnaround: Urgent: 1hour. All other requests: 3hours.

Interpretation: On report form

#### **SARS CoV – 2 (PCR)**

Laboratory: Virology, GUH

Specimen: Combined nasal/throat /nasopharyngeal swab in viral transport medium

Comment: If delay refrigerate @ 2-8°C.

Turnaround: 1 - 2working days

Report: Detected / Not Detected / Indeterminate

#### **Schistosoma haematobium**

Laboratory: Medical Microbiology, GUH

Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>



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#### Schistosomal haematobium antibodies

Laboratory:	Referred to the Hospital for Tropical Diseases, London WC1E 6AU
Specimen:	5.0 mL blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	2 – 3 weeks
Report:	Positive/Negative

#### Selenium

Laboratory:	Referred to Eurofins SCDL
Specimen:	Royal blue trace element tube
Turnaround:	5 days
Ref. Range:	On report form

#### Semen Analysis

See “Post-Vasectomy analysis”

#### Serum Amyloid A (SAA)

Laboratory:	Referred to Immunology dept, Northern General hospital, Sheffield
Specimen:	5.0 mL blood in plain gel tube
Turnaround:	3 weeks
Ref. Range:	refer to report

#### Serum Protein Electrophoresis (SPE)

Refer to Immunoglobulins.

#### SHBG

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5 mL blood in a plain gel tube
Comment:	Female – only analysed where testosterone >1.2nmol/L.
Turnaround:	Priority : 1 working day. Routine : 2 working days
Ref. Range:	On report form

#### Sickle Screen (Sickledex)

Laboratory:	Haematology, GUH
Specimen:	3.0 mL K <sup>3</sup> EDTA blood
Comment:	Must give clinical details, transfusion history and ethnic origin of patient. Test not valid on children under six months of age. All sickledex requests are referred for further confirmation of results by HPLC.
Turnaround:	1 day for screen. 4 weeks for confirmation by HPLC
Report:	Positive / Negative

#### Sirolimus

Laboratory:	Referred to Biochemistry, Mater Hospital
Specimen:	x2 3ml EDTA blood
Turnaround:	1 – 3 weeks
Ref. Range:	Patient specific

#### Skin Punch Biopsy for Direct Immunofluorescence (DIF)

Laboratory:	Please notify Histopathology staff GUH at least 24 hours in advance.
Specimen:	Place the biopsy in a fully labelled suitable sized container without any preservative and deliver to the laboratory immediately, with completed request form. Include contact details. If the biopsy is from outside University Hospital, Galway, the sample may be sent in a suitable transport medium (e.g Michel's or Zeuss medium).
Comment:	Health & Safety precautions
Report:	Histological diagnosis

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#### Skin Swab

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Sodium

Laboratory: Biochemistry RUH  
 Specimen: 5 mL blood in a plain gel tube  
 Turnaround: Urgent: 1 hour. Routine 4 hours.  
 Ref. Range: On report form

#### Sodium (Urine)

Laboratory: Biochemistry, RUH  
 Specimen: Random urine sample  
 Turnaround: 1 working day  
 Ref. Range: On report form

#### Sodium Valproate (Epilim)

Laboratory: Clinical Biochemistry, GUH  
 Specimen: 5 mL blood in a plain gel tube  
 Comment : Take specimen immediately before next dose (trough specimen)  
 Turnaround: 1 week.  
 Therapeutic Range: On report form

#### Somatomedin (IGF1)

See "Insulin Like Growth Factor 1"

#### Sputum Culture

Laboratory: Medical Microbiology, GUH  
 Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Sputum - Cytology

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
 Specimen: 0.5 ml to 20 mL spontaneous or induced fresh specimen collected into a 20 mL or 50 mL twist top leak proof universal container.  
 Comment: Indicate clinical history on test requisition and reason for test. Sputum must be deeply coughed from lungs. Avoid oral contamination and saliva. Early morning upon rising is the preferred collection time. Refrigerate if necessary.  
 Turnaround: 80% by 5 working days  
 Report: Detection of neoplastic and non neoplastic cells. Detection of infectious organisms.

#### Stem Cell Quantification

Laboratory: Haematology, GUH  
 Specimen: 3.0 mL K<sup>3</sup> EDTA blood or specimen from aphaeresis collection.  
 Comment: All Stem Cell quantifications must be preauthorized by Consultant Haematologist or SPR and prearranged with both laboratory and point of clinical activity. Specimen must be accompanied by special request form available from the Haematology laboratory and signed on receipt in the laboratory.  
 Turnaround: 1 day  
 Ref. Range: N/A

#### Steroid profile (Urine 24 hour)

Laboratory: Dept. Of Clinical Biochemistry, Kings College Hospital, London. SE59RS. Phone 00442032994131  
 Specimen: 24hr urine plain urine container  
 Comment: Lab to send 20ml aliquot. State volume on request form  
 Turnaround: 3 weeks  
 Ref. Range: on report

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#### Strongyloides antibodies

Laboratory:	Referred to the Hospital for Tropical Diseases, London WC1E 6AU
Specimen:	5 mL blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	2 – 3 weeks
Report:	Positive/Negative
Ref. Range:	N/A

#### Sural Nerve Biopsies

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Fresh tissue
Comment:	Immediate dispatch to laboratory where tissue pieces are osmicated/formalin fixed.
Report:	Histological diagnosis

#### Surgical Specimens for Histological Examination

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Formalin fixed tissue
Comment:	Health & Safety precautions
Report:	Histological diagnosis

#### Swab - Culture

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Synovial Fluid

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Synovial Fluid – Cytopathology

See “Joint aspirate”

#### Syphilis (Treponema pallidum) antibodies

Laboratory:	Virology, GUH
Specimen:	5 mL blood in a plain gel tube
Turnaround:	2-3 working days
Report:	Detected/Not Detected

#### T3 (Total)

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5 mL blood in a plain gel tube
Turnaround:	1 week
Comment:	Assay only available by request from Endocrine Team or by prior agreement with Dr. Damian Griffin
Ref. Range:	On report form

#### Tacrolimus (Prograf/Advagraf)

Laboratory:	Clinical Biochemistry, GUH
Specimen:	4ml K <sup>+</sup> EDTA blood
Comment:	Collect sample pre-dose. State date/time of sample collections clearly on request form.
Turnaround:	1 week
Ref. Range:	Patient specific

#### Tartrate Resistant Acid Phosphatase (TRAP) Cytochemical Stain

Laboratory:	Haematology, GUH
Specimen:	3.0 mL K <sup>3</sup> EDTA blood/Bone marrow slides
Comment:	Prior authorization by Haematology SPR. To reach lab within 8 hours of phlebotomy.
Turnaround:	2 days Ref. Range:N/A

#### Tear Duct - Culture

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

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#### Testosterone

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5mL blood in a plain gel tube collected between 8 -10 am  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form

#### Tetanus Toxoid IgG Antibodies

Laboratory: Immunology, GUH  
Specimen: 5.0 mL blood in plain gel tube  
Turnaround: 5 weeks  
Ref. Range: Minimum Protective Level > 0.01 IU/mL  
Optimum Protective Level > 0.10 IU/mL

#### Theophylline (Aminophylline)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Take specimen immediately before next dose (trough specimen)  
Turnaround: 1 week  
Therapeutic Range: On report form

#### Thiopurine methyl transferase (TPMT)

Laboratory: Referred to Eurofins SCDL  
Specimen: Lithium heparin tube. Lab to refrigerate  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Throat Swab

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Thrombophilia Screen (incl: PT/INR, APTT, Fibrinogen (derived), Antithrombin, Protein C, Free Protein S, APCResistance, Lupus inhibitor)

Laboratory: Haematology, GUH  
Specimen: 4 x 2.7 mL blood in a 0.109m Sodium Citrate tube.  
Comment: Requests should be received in the laboratory within 4 hours of phlebotomy Mon – Fri during routine working hours. Clinical details and relevant patient and family history are required. Testing should not be done during thrombotic period or while the patient is on anticoagulant therapy. Must fill bottles to mark. Please send to RUH before 12pm for dispatch at 1pm, otherwise lab to separate and freeze  
Turnaround: 5 weeks  
Ref. Range: Refer to report

#### Thyroglobulin and Thyroglobulin Antibodies

Laboratory: Referred to Biochemistry Lab, St. James' Hospital, Dublin  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1 – 3 weeks  
Ref. Range: On report form

#### Thyroxine Free (Free T4), Thyroid Function test (Free T4, TSH)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Priority: 1 working day. Routine: 2 working days  
Ref. Range: On report form

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#### Total Iron Binding Capacity (TIBC)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube. Fasting specimen required.  
Turnaround: Urgent: 1hour. Priority: 3 hours. Routine : 2 working days  
Ref. Range: On report form

#### Tissue

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.  
Comment: Health & Safety precautions  
Report: Histological diagnosis

#### Tissue / Biopsy

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Tobramycin

Laboratory: Medical Microbiology, GUH.  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Toxicology / Drug Screen Urine (Benzodiazepines, barbiturates, opiates, cocaine, propoxyphene, cannabis, amphetamine, methadone, phencyclidine, phenothiazine, alcohol)

Laboratory: Referred to Eurofins SCDL  
Specimen: Random plain urine  
Turnaround: 1 – 3 weeks  
Comment: Parental consent required in patients <18 years old  
Report: On report form

#### Toxocara Antibodies

Laboratory: Referred to the Hospital for Tropical Diseases, London WC1E 6AU  
Specimen: 5 mL Blood in a plain gel tube  
Comment: Only available in specific cases and following approval by the Microbiology Medical Staff.  
Turnaround: 2 – 3 weeks  
Report: Positive/Negative

#### Toxoplasma gondii IgG antibodies

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1-2 working days  
Report: Detected/Not Detected.

#### Toxoplasma gondii IgM antibodies

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 1-2 working days  
Report: Not Detected, if negative. A Provisional report will be issued on any sample giving reactive findings on initial testing. These specimens are referred to the Health Protection Agency, Singleton Hospital Swansea SA2 8QA for further testing and a final report.

#### Toxoplasma gondii antibody /avidity/dye test

Laboratory: Referred to the Health Protection Agency, Singleton Hospital, Swansea SA2 8QA  
Specimen: 5 mL blood in plain gel tube  
Comment: Available only in specific cases and approval of a Consultant Microbiologist  
Turnaround: 1 – 2 weeks  
Report: Detailed report with relevant comment.

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### Transferrin

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5ml blood in plain gel tube. Fasting specimen required.  
Turnaround: Urgent: 1hour. Priority: 3 hours. Routine : 2 working days  
Ref. Range: On report form

### % Transferrin Saturation

Laboratory: Clinical Biochemistry  
Specimen: 5mL blood in a plain gel tube. Fasting specimen required.  
Comment: Calculated Parameter  
Turnaround: Urgent: 1hour. Priority: 3 hours. Routine : 2 working days  
Ref. Range: On report form

### Transfusion Reaction Investigation (also see Transfusion pack (blood product) for culture below)

Laboratory: Blood Transfusion Laboratory RUH and Blood & Tissue Establishment GUH  
Specimen: Refer to Transfusion Prescription & Administration Document for Blood & Blood Components  
RCH/HVIG/CF 009 document for list of samples required  
Comment: Ensure labeling as per Haemovigilance procedure. Urine haemosiderin and DCT referred to GUH with  
turnaround times stated under individual tests in this document  
Turnaround: 1 day (excluding haemisiderin and culture)  
Report: Positive or Negative

### Transfusion Pack (Blood product) for culture

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

### Trichomonas vaginalis

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

### Triglycerides

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube  
Comment: Ideally a patient should fast for 12 hours. However, if a patient is unable or unwilling to fast for 12 hours a specimen taken after a 9 hour fast is acceptable".  
Turnaround: Urgent: 1hour. Priority: 3 hours. Routine : 2 working days  
Ref. Range: On report form

### Troponin T

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

### Trypanosoma cruzi Antibodies

Laboratory: Referred to the Hospital for Tropical Diseases, London WC1E 6AU  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 2 – 3 weeks  
Report: Positive/Negative

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#### **Tryptase (Mast Cell)**

Laboratory:	Immunology, GUH
Specimen:	5.0 mL blood in plain gel tube
Comment:	For investigation of anaphylaxis serial samples are required and the timing must be specified. Timing of samples: Immediately after resuscitation (record time) ; At 1-2 hours post reaction (record time) and at 24 hours post reaction (baseline)
Turnaround:	3 weeks
Ref. Range:	0-14 units

#### **TSH (Thyroid Stimulating Hormone)**

Laboratory:	Clinical Biochemistry, GUH
Specimen:	5.0 mL blood in a plain gel tube
Turnaround:	Priority: 1 working day. Routine: 2 working days
Ref. Range:	On report form

#### **TSH Receptor Antibodies**

Laboratory:	Immunology, GUH
Specimen:	5 mL blood in a plain gel tube
Turnaround:	1 – 3 weeks
Ref. Range:	On report form

#### **Tuberculosis Testing**

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### **Tumour**

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Submit specimen intact to laboratory in 10% Neutral Buffered Formalin.
Comment:	Health & Safety precautions.
Report:	Histological diagnosis

#### **TURP**

Laboratory:	Department of Histopathology, Cytopathology and Molecular Pathology, GUH
Specimen:	Submit specimen to laboratory in 10% Neutral Buffered Formalin.
Comment:	Health & Safety precautions
Report:	Histological diagnosis

#### **Ulcer Swab**

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### **Urea**

Laboratory:	Biochemistry, RUH
Specimen:	5 mL blood in a plain gel tube
Turnaround:	Urgent: 1 hour. Routine 4 hours.
Ref. Range:	On report form

#### **Urea (Urine)**

Laboratory:	Biochemistry, GUH
Specimen:	24 hour urine collection, plain
Turnaround:	1 working day
Ref. Range:	On report form

#### **Urethral Swab**

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

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#### Uric Acid

Laboratory: Biochemistry, RUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: Urgent: 1 hour. Routine 4 hours.  
Ref. Range: On report form

#### Uric Acid (Urine)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 24 hour urine collection, plain  
Turnaround: 1 working day  
Ref. Range: On report form

#### Urine Culture – Midstream Urine

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Urine - Diagnostic Cytology

Laboratory: Department of Histopathology, Cytopathology and Molecular Pathology, GUH  
Specimen: Immediate fixation is necessary. Collect 10 – 20 mL fresh voided or catheterized urine or bladder wash specimen into a universal bottle containing Shandon Cytospin Collection Fluid (greenfixative solution) available from the Diagnostic Cytology laboratory.  
Comment: Indicate clinical history on test requisition and reason for test. Patients must be well hydrated before collecting urine. Any instrumentation must be noted on the requisition form. For routine urine collection, emphasize the need for a clean catch specimen. Random mid-day collection is preferred. First morning specimen is not suitable for Cytological analysis. Refrigerate specimens overnight if necessary.  
Turnaround: 80% by 5 working days  
Report: Detection of neoplastic and non neoplastic cells

#### Urine Protein Electrophoresis

Refer to 'Bence Jones Protein'

#### Urine Protein Creatinine Ratio (PCR)

Laboratory: Biochemistry RUH  
Specimen: Urine: *Early morning* sample preferred  
Turnaround: 1 working day  
Ref. Range: on report form

#### Urine Schistosomiasis (see *Schistosoma haematobium*)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Vaginal Swab

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Vancomycin

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5 mL blood in a plain gel tube. Delay > 2 h refrigerate @ 2-8°C.  
Comment: State time collected and if Peak or Trough specimen  
Turnaround: Analysed during routine working hours only.  
Ref. Range: On report form

#### Vancomycin Resistant Enterococci (VRE)

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>



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#### Varicella-zoster Virus IgG antibodies

Laboratory: Virology, GUH  
Specimen: 5 mL blood in a plain gel tube.  
Turnaround: 5 working days. Samples from pregnant patients who have been in contact with chickenpox are processed urgently if received before 2pm Monday to Friday. The request must be marked as Urgent with clinical details, and the requesting clinician's contact number, clearly stated. The laboratory should be contacted (091 544398) to alert staff that the sample is in transit.  
Report: Reported as Detected/Not detected with relevant comment.

#### Varicella-zoster Virus IgM PCR

Laboratory: Referred to National Virus Reference Laboratory  
Specimen: Vesicular fluid or skin scrapings in a Viral Transport Medium swab  
Turnaround: 2 - 3 weeks.  
Report: Detected / Not Detected

#### Vasculitic Screen

Laboratory: Immunology, GUH  
Specimen: 5 mL blood in a plain gel tube  
Turnaround: 5 days  
Ref. Range: On report form

#### Vincent's Angina

Laboratory: Medical Microbiology, GUH  
Details: Refer to <https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf>

#### Vitamin B12

Laboratory: Haematology, RUH  
Specimen: 5.0 mL blood in a plain gel tube  
Comment: Specimen to be received within 24hrs of phlebotomy  
Turnaround: 1 day  
Ref. Range: Refer to report

#### Vitamin D (25 Hydroxy Vitamine D3 / Hydroxycholecalciferol)

Laboratory: Clinical Biochemistry, GUH  
Specimen: 5.0mL blood in a plain gel tube  
Turnaround: 2 – 3 weeks  
Ref. Range: On report form

#### VMA

See "Catecholamines"

#### Von Willebrands Factor Antigen (vWF:Ag)

Laboratory: Haematology, GUH  
Specimen: 2 x 2.7 mL blood in 0.109m Sodium Citrate tubes  
Comment: Requests should be received in GUH laboratory within 8 hours of phlebotomy. Must fill bottle to mark.  
Turnaround: 4 weeks  
Ref. Range: Refer to report

#### VRE

See "Vancomycin Resistant Enterococci"

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#### White Blood Cell & Differential White Cell Count

Laboratory:	Haematology, RUH
Specimen:	3.0 mL K <sup>3</sup> EDTA blood
Comment:	White Cell Differential will be done automatically on all fresh FBC specimens. As EDTA artifacts can appear within 2 hours of phlebotomy it is important that films (where necessary) are made from fresh blood (less than one day old).
Turnaround:	Urgent: 1 hour. Routine 4 hours.
Ref. Range:	See report form.

#### Whooping Cough

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Whooping Cough antibodies

See "Bordetella pertussis."

#### Wound Swab

Laboratory:	Medical Microbiology, GUH
Details:	Refer to <a href="https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf">https://www.saolta.ie/sites/default/files/publications/LM%20MDOC%200009%203%2013.pdf</a>

#### Yellow fever antibodies

Laboratory:	Referred to the Health Protection Agency, Special Pathogens Reference Unit, Porton Down, Salisbury SP4 OJG.
Specimen:	5.0 mL blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	1 – 3 weeks
Report:	Positive /Negative

#### Yersinia Antibodies

Laboratory:	Referred to the Health Protection Agency, Laboratory of Enteric Pathogens, Colindale, London NW9 5EQ
Specimen:	5.0 ml blood in a plain gel tube
Comment:	Only available in very specific cases and following approval by a Consultant Microbiologist
Turnaround:	2 – 3 weeks
Report:	Detected/Not Detected

#### Zinc

Laboratory:	Referred to Eurofins SCDL
Specimen:	Navy top trace element tube
Turnaround:	3 weeks
Ref. Range:	On report form