**BLOOD TRANSFUSION**

### Blood Transfusion Test Repertoire and TAT

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test** | **Sample Type** | **Minimum**  **Volume** | **TAT** | **Comment** | **Mnemonic** |
| Group & Screen | 4.9ml EDTA Specimen bottle labelled: “EDTA - FOR BLOOD BANK” (PalePink top tube) | 2.5ml | **Routine:**  Same day if received before cut off time of 17:00 during routine hours.  **Emergency:** 1 hour | GS specimens should be taken using the Bridge Medical devices/Powerchart for OPD either desktop or PDA. Equipment must be brought to patient bedside.  When the Bridge medical device is not available the patient details must be handwritten on the specimen bottle.  Unavoidable delays in the provision of results can occur when a patient has a positive antibody screen and/ or when a specimen is referred to the IBTS. | Group and Antibody screen |
| Direct Antiglobulin Test | EDTA Specimen (2.7 ml) | 2.5ml | **Routine:**  Same day if received before cut off time of 17:00 during routine hours.  **Emergency:** 1 hour | DAT specimens should be taken using the Bridge Medical devices either desktop or PDA/Powerchart for OPD. Equipment must be brought to patient bedside.  When the Bridge medical device is not available the patient details must be handwritten on the specimen bottle. | DAT |
| Transfusion Reaction Investigation | 4.9ml EDTA Specimen + 7.5ml clotted serum specimen | 2.5ml | Depends on the complexity of investigation. | Should be sent to the hospital Blood Bank as soon as possible after taking the specimens. | TRX |
| ABO Antibody titration | 4.9ml EDTA Specimen. | 4.0ml | **Routine:**  24 hours from time of receipt during routine hours  **Urgent:**  Same day if received before 1400. | This test is requested only under the instruction of the Nephrology team.  Specimens should be taken using the Bridge Medical devices either desktop or PDA/Powerchart for OPD. Equipment must be brought to patient bedside.  When the Bridge medical device is not available the patient details must be handwritten on the specimen bottle. | Anitbody TITR |
| Cold Agglutinins | 2 X 4.9ml EDTA specimen bottle. | 4.9ml. | 5 working days from sample receipt by NHSBT  As per Specimen User Manual IBTS | Referred to IBTS  Specimens should be taken using the Bridge Medical devices either desktop or PDA/Powerchart for OPD. Equipment must be brought to patient bedside.  When the Bridge medical device is not available the patient details must be handwritten on the specimen bottle. | COLDAGGS |
| ABO Rh D grouping for Living donor and H&I | 4.9ml EDTA Specimen. | 2.5ml. | **Routine:**  Same day if received before cut off time of 17:00 during routine hours.  **Emergency:** 1 hour |  | Ext Blood Group |

### Blood Components/Products Available

|  |  |  |
| --- | --- | --- |
| **Power chart Mnemonic** | **Turnaround Time** | **Comment** |
| Red Blood Cells | With valid TS: 15 mins to 3hours \*  From receipt of TS: up to 4 hours\*  Emergency   * Uncrossmatched RC: <10 mins * Crossmatched RC: 60 min from receipt of GS\* |  |
| Frozen Plasma | 40min to 3 hours |  |
| Platelete Concentrate | 15mins to 12hours \*\* | The blood bank strives to maintain 2 stock platelets at all times for emergency issue. However this depends on demand and supply.  Non-emergency orders should be placed prior to 14:00 hrs during routine working hours and will be available from 16:30 hrs the same day and before 22:00 hrs for approx. 11am next day delivery. |
| Fibrinogen Product | 15min to 60mins |  |
| Albumin 5%  Albumin 20% | 15min to 60mins |  |
| Factor Concentrates   * Novoseven * Factor VIII (Altuvoct and Elocta) * vWF * Factor IX * Prpthrombin Concentrate * Factor XIII | 15 mins to 60 mins | Discussion with Haematology Medical Team required |
| Other  Anti-D  Anti-Thromin  Granulocytes | 60min to 4 hours | Discussion with Haematology Medical Team required |

\*Turnaround Time provided the patient has no Antibodies or blood group discrepancies. \*\*Availability is dependent on national supply

Specimens referred to the IBTS for antibody investigation, serological crossmatch or/and Cold Agglutinins, the results of these tests are not covered by the scope of Beaumont Hospital Blood Bank Department ISO15189 accreditation

* + 1. ***Specialised Tests Referred to the National Histocompatibility and Immunogenetics Reference Laboratory (NHIRL)***

|  |  |  |
| --- | --- | --- |
| **Test Referred** | **Power chart Mnemonic** | **Specimen Required** |
| Human Leucocyte Antigen (HLA Typing) for Matcheded platelets | Ref Lab HLA typing for matched platetes | 5-10mls EDTA |
| Screening for Platelet Allo-antibodies | Ref lab platelet allo Ab investigation | 5-10mls clotted |
| Human Platelet Antigen Typing (HPA) (Genotyping) | Ref Lab HPA genotyping | 5mls EDTA |
| Platelet Refractoriness | Ref Lab platelet refractoriness | 5-10mls EDTA and Citrate |
| HLA Class 1&11 typing of transplant patients and family for BMT | Not on Powerchart | 5-10mls EDTA |

**These samaples must be accompanied by form BT255-6 for reference lab send out.**

**HAEMATOLOGY**

**MICROBIOLOGY**

**Table 1:** Approved urine, faeces and respiratory sample containers for microbiology investigations

|  |  |  |
| --- | --- | --- |
| **Department** | **Test** | **Container** |
| **Microbiology** | **Non-Urine Samples**  Eg:  -Faeces samples  -Sputum/Respiratory samples  -Sterile fluids  -Tips  -Theatre samples/miscellaneous  Ref. 75.9922.745 |  |
| **Microbiology** | -Urine culture & sensitivity  -Urine hCG (pregnancy test)  -Urinary Legionella/ Streptococcal Antigen  Sarstedt Product reference 10.252) |  |
| **Microbiology** | -Urine culture and sensitivity  Catheter Stream Urines (CSU) only |  |

Table 2: Specimen acceptance criteria

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Label** | **Test ordered** | **Container** | **Volume** | **Stability** | **Comments** |
| **Urine** | | | | | |
| C Urine | Urine culture with microscopy | 10 ml Monovette tube, 60 ml sterile container with red sticker on the lid | 2 mls | 4 hours at room temperature48 hours at 4 ̊C | **Exception:**Nephrostomy and Theatre urines always processed |
| C HCG | HCG Pregnancy | 10 ml Monovette tube60 ml sterile container | 2 mls | 4 hours at room temperature48 hours at 4 ̊C |  |
| Leg Ur Ag | Legionella urinary antigen | 10 ml Monovette tube, 60 ml sterile container | 2 mls | 4 hours at room temperature, 48 hours at 4 ̊C |  |
| S pneum Ag | Streptococcus pneumoniae antigen | 10 ml Monovette tube, 60 ml sterile container | 2 mls | 4 hours at room temperature, 48 hours at 4 ̊C |  |
| C TB | TB culture | 60 ml sterile container | 10 mls | 24 hours at room temperature, If delay store at 4 ℃ |  |
| C O&P | Ova and Parasites | 60 ml sterile container | 10 mls | 1 hour without the addition of undiluted formalin |  |
| **Faeces** | | | | | |
| C diff toxin & Enteric Path | C diff and Enteric Path | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ̊C | Liquid or semi-formed samples only processed |
| C diff toxin PCR | C diff toxin PCR | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ̊C | Liquid or semi-formed samples only processed |
| EntericPath | Enteric Path | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ̊C | Liquid or semi-formed samples only processed |
| ROT/ADV | Rotavirus/Adenovirus combi test | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ̊C |  |
| C O&P | Ova and Parasites | 60 ml sterile container | 1-2 ml/g | 24 hours at room temperature  48 hours at 4℃ without addition of 10% formalin-water | Travel details essential or CMT Request |
| H. pylori Ag | Helicobacter pylori antigen | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ℃ |  |
| Norovirus RNA | Norovirus | 60 ml sterile container | 1-2 ml/g | 48 hours at 4 ℃ | Dispatched to NVRL |
| **Respiratory** | | | | | |
| C BAL/C Respiratory/C Sputum/C CF Resp | Respiratory culture  BAL/Sputum/TASP/EBUS | 60 ml sterile container | 15 mls | 48 hours at 4 ̊C | CF specimens can be processed >48 hours after collection |
| GALAGB | Galactomannan-BAL | 60 ml sterile container | 1 ml | 5 days at 4℃  14 days at -20 ̊C |  |
| C TB | TB culture | 60 ml sterile container | 1 ml | 24 hours at room temperature, If delay store at 4 ℃ |  |
| COVID 19/FLU | SARS-CoV-2/Influenza A/B | VTM/UTM viral swab containing one swab or PrimeStore® Lysis MTM swabs | N/A | 48 hours at room temperature  > 48 hours at -70 ℃ | Copan viral swabs (pink) can be sent to NVRL for processing |
| COVID TRANS | SARS-CoV-2 Transplant | VTM/UTM viral swab containing one swab or PrimeStore® Lysis MTM swabs | N/A | 48 hours at room temperature  > 48 hours at -70 ℃ | Processed immediately on receipt |
| **Fungal** | | | | | |
| C Fungal | Fungal culture  (Skin scrapings/Nail clippings/Hair) | Dermapak  60 ml sterile container | As much as possible | Several months stored at room temperature | Any hair specimens must contain root of the hair |
| C GALAGS | Galactomanna-Blood | White Topped Serum Tube | 7.5 ml | 5 days at 4℃  14 days at  -20 ̊C |  |
| **Screens** | | | | | |
| C MRSA | MRSA Screen Culture | Charcoal Transswab  (Nasal, Groin or Wound site) | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| C VRE | VRE Screen | Charcoal Transswab (Rectal swab) | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| C CPE | CPE Screen | Charcoal Transswab  (Rectal swab) | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| CPE Mol. Scrn | CPE Molecular Screen | Liquid Amies eSwab (Rectal swab)  Charcoal Transswab  (Rectal swab) | N/A | 24 hours at room temperature  72 hours at 4 ℃ | Charcoal Transswab with CPE Mol. Scrn orders can be accepted. In GenLab result as “See Culture” |
| **Swabs** | | | | | |
| C Swab/C Wound/C Eye/C Ear/C Throat/C Mouth/C Nasal/C Pus | Swab/Wound/Eye/Ear/Throat/Mouth/Nasal/Pus culture | Charcoal Transswab  (Wound, Eye, Ear, Throat, Mouth, Nasal, Pus),NT swab (orange)For ear, nose, throat only | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| C Genital | Genital culture | Charcoal Transswab  (Cervical/Endocervical/Urethral/ Throat/Rectal/Pus or Discharge from penis | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| C GC | GC Direct plate culture | VCAT plate already inoculated | N/A | N/A |  |
| C HVS | HVS Culture | Charcoal Transswab  (HVS) | N/A | 24 hours at room temperature  72 hours at 4 ℃ |  |
| **Fluids** | | | | | |
| C Abd Fl,C Ascitic fl,C Bile fl,C Drainage fl,Pancreatic fl,C Peritoneal fl,C Pleural fl,C Perf/Ves. Perf. Fl,C Pericardial fl,C Joint fl,C Fl/Asp | Abdominal fluid culture,Ascitic fluid cultureBile fluid culture,Drainage fluid culture,Pancreatic fluid culture,Peritoneal fluid culture,Pleural fluid culture,Perfusion fluid,Pericardial fluid culture,Joint fluid culture,Fluid/Aspirate culture | 60 ml sterile container  Aerobic and Anaerobic blood culture bottles | Minimum of 1 ml in 60 ml sterile container  Minimum of 2 mls in blood culture bottles | 24 hours at room temperature  48 hours at 4 ℃ for 60 ml sterile container  ≤ 4 hours at room temperature for blood culture bottles | > 4 hours for blood culture bottles are processed with “BC DELAY” comment |
| C PD fl | PD fluid culture | Aerobic and Anaerobic blood culture bottles  Rocket tube | Minimum of 2 mls | ≤ 4 hours at room temperature | > 4 hours for blood culture bottles are processed with “BC DELAY” comment |
| Fluid Cell Ct | Fluid microscopy (cell count) | EDTA tube (pink top) | 1 ml | 24 hours |  |
| C TB | TB culture | 60 ml sterile container | 1 ml | 24 hours at room temperature,If delay store at 4 ℃ |  |
| **Theatre** | | | | | |
| C Theatre | Theatre culture | 60 ml sterile container | As much as possible | 24 hours at room temperature  If delay store at 4 ℃ | Perfusion fluids from theatre can be processed with C Perf/Ves. Perf. Fl orders |
| C TB | TB culture | 60 ml sterile container | 1 ml | 24 hours at room temperature,If delay store at 4 ℃ |  |
| **Pus** | | | | | |
| C Pus | Pus culture | 60 ml sterile container | 1 ml | 24 hours at room temperature  If delay store at 4 ℃ |  |
| **Tip** | | | | | |
| C Cath Tip | Catheter Tip Culture | 60 ml sterile container | 4-5 cm length | 24 hours at room temperature  If delay store at 4 ℃ |  |
| **CSF** | | | | | |
| C CSF BH | CSF culture & microscopy | Clear sterile universal container | Minumum of 600 µl | 2 hours | Comment “Order of collection not indicated” if received in the lab >2 hours after collection |
| C TB | TB culture | Clear sterile universal container | 500 µl | 24 hours at room temperature  If delay store at 4 ℃ |  |
| **Blood culture** | | | | | |
| C Blood | Blood culture | Aerobic and Anaerobic blood culture bottles | 8-10 mls | 4 hours | Comment “BC DELAY” if received in the lab >4 hours after collection  Comment if incomplete/incorrect BC set received.  See 2.4.2 above |
| C TB Blood | TB Blood culture | Mycobacterium blood culture bottle | 1-5 mls | 4 hours | Comment “BC DELAY” if received in the lab >4 hours after collection |
| **Quantiferon** | | | | | |
| Quantiferon TB | Quantiferon | QuantiFERON®-TB Gold blood collection tubes | 1 ml x 4 tubes (fill to black line on tube) | 16 hours at room temperature | MF-MIC-55 request form must be filled out with MedLIS sticker and Date & time bloods taken |
| **Cryptococcal antigen** | | | | | |
| Crypto Ag | Cryptococcal antigen | CSF | 100 µl | 72 hours at 4 ℃  Longer at -20 ℃ |  |
| Crypto Ag | Cryptococcal antigen | White Topped Serum Tube | 7.5 ml | 72 hours at 4 ℃,Longer at -20 ℃ |  |
| **Virology (External laboratories)** | | | | | |
| AmikR | Amikacin levels | White Topped Serum Tube | 7.5 ml | Separated at 4 ℃ within 48 hours | Dispatched to Biochemistry MMUH |
| ADVADNA VRL  ADVDNAL VRL | Adenovirus PCR | EDTA tube (pink top) | 2.6 ml | Separated at -20 ℃ within 24 hours | Dispatched to NVRL  State clearly on label Serum or Plasma |
| CMVDNA VRL | CMV PCR | EDTA tube (pink top) | 2.6 ml | Separated at -20 ℃ within 24 hours |
| EBV DNA VRL | EBV Serology | EDTA tube (pink top) | 2.6 ml | Separated at -20 ℃ within 24 hours |
| HBVL VRL  HBGER VRL | Hep B Viral Load/PCR/DNA | White Topped Serum Tube | 7.5 ml | Separated at -20 ℃ within 24 hours |
| HCVGE VRL  HCVVL VRL | Hep C PCR/Genotype/DNA/Viral Load | White Topped Serum Tube | 7.5 ml | Separated at -20 ℃ within 24 hours |
| HIVGER VRL | HIV Viral Load/PCR | White Topped Serum Tube | 7.5 ml | Separated at -20 ℃ within 24 hours |
| HIV1VL VRL | HIV Viral Load/PCR | EDTA tube (pink top) | 2.6 ml | Separated at -20 ℃ within 24 hours |
| B-D GLUCAN | Beta-D-glucan | White Topped Serum Tube | 7.5 ml | Separated at 4 ℃ for 15 days  Separated at -20 ℃ for 27 days | Dispatched to Southmead, Bristol |
| NORXPERT VRL | Norovirus | 60 ml sterile container | 1-2 ml/g | 48 hours stored at 4 ̊C |  |
| PARVDNA VRL | Parvovirus PCR | White Topped Serum Tube | 7.5 ml | Separated at -20 ℃ within 24 hours | Dispatched to NVRL,State clearly on label Serum or Plasma |
| Teicoplanin Level | Teicoplanin levels | White Topped Serum Tube | 7.5 ml | Separated at 4 ℃ within 48 hours | Dispatched to Eurofins Biomnis |
| Tobra Trough | Tobramycin levels | White Topped Serum Tube | 7.5 ml | Separated at 4 ℃ within 48 hours | Dispatched to Biochemistry SVUH |
| Voriconazole | Voriconazole levels | White Topped Serum Tube | 7.5 ml | Separated at -20 ℃ within 24 hours | Dispatched to MMUH |

Table 3: Specimen rejection criteria

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Specimen** | **Label** | **Test ordered** | **Container** | **Volume** | **Stability** | **Comments** |
| **Urine** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen | C Urine | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Sarstedt “Urine NFT” primary sample container  60 ml sterile container without red sticker on lid | < 2 ml (manual microscopy & culture will be performed) | > 4 hours at room temperature  > 48 hours at 4 ℃ | e  **Exception:** Nephrostomy and Theatre urines always processed |
| C HCG | < 2 ml | 24 hours at RT  > 48 hours at 4 ℃ |  |
| Leg Ur Ag | < 2 ml |  |
| S pneum Ag | < 2 ml |  |
| C TB, | < 10 mls |  |
| C O&P | < 10 mls |  |
| **Faeces** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen | C diff toxin & Enteric Path | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order | Sarstedt “Urine NFT” primary sample container  10 ml Monovette tube | < 1 ml/g | >48 hours at 4℃ | Formed samples & < 2 years old for C.diff |
| C diff toxin PCR | Sarstedt “Urine NFT” primary sample container  10 ml Monovette tube | < 1 ml/g | >48 hours at 4℃ |  |
| EntericPath | < 1 ml/g |  |
| ROT/ADV | < 1 ml/g |  |
| C O&P | < 1 ml/g | > 48 hours at 4℃ without addition of 10% formalin-water | Will only be processed for Crypto/Giardia if no travel details have been received or no request from CMT |
|  | H. pylori Ag |  | < 1 ml/g | > 48 hours unless stored at – 20 ℃ |  |
| **Respiratory** | | | | | | |
| ecimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen  (If possible clean & process leaking BALs from endoscopy) | C BAL/C Respiratory/C Sputum/C CF Resp | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Sarstedt “Urine NFT” primary sample container | < 15 mls | > 48 hours stored at 4 ̊C except CF specimens | Salivary samples (except CF) are rejected. |
| GALAGB | Sarstedt “Urine NFT” primary sample container | < 1 ml | > 5 days at 4 ℃  >14 days at -20 ℃ |  |
| C TB | Sarstedt “Urine ,FT” primary sample container | < 1 ml  (Culture only) | > 24 hours at room temperature |  |
| Specimen unlabeled with MedLIS label  Specimen mislabeled with incorrect patient  Leaking specimen | COVID 19/FLU | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Swabs other than VTM/UTM viral swab containing one swab or PrimeStore® Lysis MTM swabs | N/A | > 48 hours at room temperture | Copan viral swabs (pink) can be sent to NVRL for processing |
| COVID TRANS | Swabs other than VTM/UTM viral swab containing one swab or PrimeStore® Lysis MTM swabs | N/A | > 48 hours at room temperture |  |
| **Fungal** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen | C Fungal | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Non sterile container | No visible sample present  Culture only performed on insufficient sample | Stored at 4 ℃  > Several months |  |
| C GALAGS | Any blood sample other that serum | < 7.5 ml | > 5 days at 4 ℃ |  |
| **Screens** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details | C MRSA | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Viral swab (pink)ENT swab (orange)Pertussis swab (blue)Liquid Amies eSwab | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ |  |
| C VRE | N/A | > 24 hours at room temperature,> 72 hours at 4 ℃ |  |
| C CPE | Viral swab (pink)  ENT swab (orange)  Pertussis swab (blue) | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ |  |
| CPE Mol. Scrn | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ | If charcoal Transswab received process and enter “See Culture” in GenLab |
| **Swabs** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details | C Swab/C Wound/C Eye/C Ear/C Throat/C Mouth/C Nasal/C Pus | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Viral swab (pink)  Pertussis swab (blue)  Liquid Amies eSwab  ENT swab (orange) for any site other than ear, nose, throat | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ |  |
| C Genital | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ |  |
| C GC | Agar plate other than VCAT | N/A | N/A |  |
| C HVS | Viral swab (pink),ENT swab (orange),Pertussis swab (blue),Liquid Amies eSwab | N/A | > 24 hours at room temperature  > 72 hours at 4 ℃ |  |
| **Fluids** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen  (If possible clean & process) | C Bile fl  C Drainage fl  C Pancreatic fl  C Peritoneal fl  C Pleural fl  C Perf/Ves. Perf. fl  C Pericardial fl  C Joint fl  C Fl/Asp | Incorrect MedLIS order on label,Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Non sterile container | < 1 ml in 60 sterile container  Visibly no sample inoculated for blood culture bottles | > 24 hours at room temperature  > 48 hours at 4 ℃ for 60 ml sterile container  ≥ 4 hours for blood culture bottles samples processed with “BC DELAY” comment. |  |
| C PD fl | 60 ml sterile container  Non sterile container | ≥ 4 hours for blood culture bottles samples processed with “BC DELAY” comment. |  |
|  | Fluid Cell Ct |  | Any blood bottle other than EDTA | < 1 ml | > 24 hours at room temperature |  |
| C TB | Non sterile container | <1 ml  (Culture only performed on insufficient volume) | > 24 hours at room temperature  If delay store at 4 ℃ |  |
| **Theatre** | | | | | | |
| Specimen unlabelled with MedLIS label (Send back to theatre to label)  Specimen mislabelled with incorrect patient  (Contact theatre to fill out MF-MIC-Change Patient Details)  Leaking specimen’(If possible clean in safety cabinet & process with comment) | C Theatre | Incorrect MedLIS order on label  (Send back to theatre to re order)  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only (Send back to theatre to order) | Non sterile container  (Process with comment. | No visible specimen | > 48 hours at 4 ℃ process with “DELAY” comment | Perfusion fluids from theatre can be processed with C Perf/Ves. Perf. Fl orders |
| C TB | Non sterile container  (Process with comment. | < 1 ml | > 24 hours at room temperature process with “DELAY” comment |  |
| **Pus** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen,(If possible clean & process) | C Pus | Incorrect MedLIS order on label | Non sterile container | < 1 ml | > 24 hours at room temperature  > 48 hours at 4 ℃ | If < 1 ml charcoal swab can be processed |
| **Tips** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details | C Cath Tip | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Non sterile container | > 4-5 cm length | > 24 hours at room temperature  > 48 hours at 4℃ | Urinary catheter tips not processed for culture |
| **CSF** | | | | | | |
| Specimen unlabelled with MedLIS label  (Contact clinician to order in lab)  Specimen mislabelled with incorrect patient  (Clinician to come to lab and fill out MF-MIC- Change Patient Details)  Leaking specimen  (If possible Clean in safety cabinet & process with comment for sample rejection) | C CSF BH | Incorrect MedLIS order on label  (Clinician to re order in lab)  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order (Clinician to order) | Non sterile container  (Process with comment. See LI-MIC-Barcodes for sample rejection) | Insufficient volume: Liase with CMT to prioritise tests | > 2 hours  (Comment added ‘The white cell count on a CSF rec’d in lab 2hrs or more after collection may not be accurate due to cell lysiswith |  |
| C TB | Non sterile container  (Prcess with comment. See LI-MIC-Barcodes for sample rejection) | < 500 µl | > 24 hours at room temperature process with “DELAY” comment |  |
| **Blood Cultures** | | | | | | |
| Specimen unlabelled with MedLIS label  (Contact clinician to order in lab)  Specimen mislabelled with incorrect patient  (Clinician to fill out MF-MIC-Change Patient Details)  Leaking specimen  (Clean in safety cabinet & process with comment. | C Blood | Incorrect MedLIS order on label  (Clinician to re order)  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only to order) | Incorrect blood culture bottles (Contact clinician to reorder if needed, otherwise not processed) | Visibly no blood inoculated | > 4 hours (Process with “BC DELAY” comment) |  |
| C TB Blood | Incorrect blood culture bottles (Contact clinician to reorder if needed, otherwise not processed) | Visibly no blood inoculated | > 4 hours (Process with “BC DELAY” comment) |  |
| **Quantiferon** | | | | | | |
| Specimen unlabelled with MedLIS label  (Send back with clinician to order)  Specimen mislabelled with incorrect patient  Leaking specimen | Quantiferon TB | Incorrect MedLIS order on label  (Clinician to re order)  No MF-MIC-55 request form (Clinician to fill out)  No Date & Time filled out on MF-MIC-55 request form (Clinician to fill out) | Any blood bottles other than QuantiFERON®-TB Gold blood collection tubes | Insufficient volume are sent to MMUH and rejected by testing hospital | > 16 hours at room temperature |  |
| **Cryptococcal antigen** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen | Crypto Ag | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only | Fluid other than CSF | < 100 µl | > 72 hours at 4 ℃ |  |
| Crypto Ag | Blood bottle other than white topped serum tube | < 7.5 ml | > 72 hours at 4 ℃ |  |
| **Virology (External laboratories)** | | | | | | |
| Specimen unlabelled with MedLIS label or mislabelled with incorrect patient details  Leaking specimen | AmikR | Incorrect MedLIS order on label  Specimen with request form, not ordered on MedLIS except during downtime or any test that is lab order only (See LI-MIC-Laboratory Only Microbiology Orders) | Blood bottle other than white topped serum tube | Visibly no blood in bottle | Not separated at 4 ℃ within 48 hours |  |
| ADVADNA VRL  ADVDNAL VRL | Blood bottle other than EDTA tube (pink top) |  |
| CMVDNA VRL |  |
| EBV DNA VRL |  |
| HBVL VRL  HBGER VRL | Blood bottle other than white topped serum tube |  |
| HCVGE VRL  HCVVL VRL |  |
| HIVGER VRL |  |
| HIV1VL VRL | Blood bottle other than EDTA tube (pink top) | Visibly no blood in bottle | Not separated at 4 ℃ within 24 hours |  |
| B-D GLUCAN | Blood bottle other than white topped serum tube | Visibly no blood in bottle | Not separated at 4 ℃ for 15 days,not separated at -20 ℃ for 27 days |  |
| NORXPERT VRL | Non sterile container | Visibly no faeces | > 48 hours at 4 ℃ |  |
| PARVDNA VRL | Blood bottle other than white topped serum tube | Visibly no blood in bottle | Not separated at 4 ℃ within 24 hours |  |
| Teicoplanin Level |  |
| Tobra Trough |  |  |
| Voriconazole |  |

### Serological Investigations

HIV- Viral loads and hepatitis C PCR

* Samples for routine viral investigations are referred to the NVRL and transported to the NVRL three times daily by courier: 10.30am, 12.30pm and 2.30pm. For HIV viral load, blood should be collected in an EDTA blood collection tube.
* For hepatitis C PCR, a serum sample is required
* Hepatitis C PCR and HIV viral load investigations should be sent to the laboratory immediately for processing. **The serum must be frozen within 6 hours of taking the patient’s blood.**
* Specimens are transported at -20˚C by courier each Friday to the NVRL.

Viral screening

* Samples for routine viral investigations are referred to the NVRL and transported to the NVRL three times daily by courier: 10.30am, 12.30pm and 2.30pm.
* Clotted blood is the specimen of choice for most other external investigations.
* Please include relevant clinical details, complete demographics and inform laboratory if urgent.

Galactomannan

Serum or BAL samples can be tested for Galactomannan in house as an aid in the diagnosis of Invasive Aspergillosis.

Meningococcal/pneumococcal PCR

* Specimens for PCR are referred to the Children’s Hospital, Temple St.
* An EDTA blood specimen or CSF or both should be sent. All the relevant patient details must accompany the specimen.
* Please phone ext. 2647 to alert the laboratory to the imminent arrival of the specimens

Antibody Detection.

* Samples for antibody investigations are referred to the NVRL and transported to the NVRL three times daily by courier: 10.30am, 12.30pm and 2.30pm
* In order to establish a diagnosis of acute or recent viral infection by serology, viral specific IgM needs to be detected.
* Before laboratory investigations are performed, paired sera must be submitted. The first should be taken as early as possible in the illness, and the second 14-21 days later and a four-fold rise in titre is required to confirm recent infection.
* A single specimen of serum is required to determine immune status or past infection.

**Important –** **These investigations are requested on Powerchart by the dialysis and hepatology units, using agreed algorithms. All others must also order on Powerchart (**[**www.nrvl.ie**](http://www.nrvl.ie/)**).**

* Please ensure that the specimens and Powerchart requests are completed correctly
* For serological investigations, a serum specimen of more than 1ml is required. One container of clotted blood should be sent to the NVRL.
* For results enquiries, please phone the NVRL 01- 7161354.
* Printed reports are are available on Powerchart.

Quantiferon for TB

* This test is referred to the Mater Misericordiae University Hospital
* TB Quantiferon is ordered on Powerchart
* Kits must be collected directly from the microbiology Laboratory.
* The person collecting the TB kit must sign the Quantiferon Issue Log when collecting and returning the kit- this will be facilitated by the microbiology laboratory staff.
* Due to the large volume of kits used by Phlebotomy, they are exempt from this rule and can use porters to collect and return kits to the lab without signing the issue log.
* When the Quantiferon kits are being issued, a request form (Quantiferon TB request form) is provided. Multiple use drawing needle and a safety tube holder are also provided if required.
* There are 4 blood tubes in the kit and it is imperative that they are taken in the colour order Grey, Green, Yellow, and Purple. (The Quantiferon TB request form also provides this information). If they are not taken in this order an accurate result cannot be guaranteed. There is a black ‘fill line’ (1ml) on each tube, and each tube must be filled to this line.
* When the kits are returned ensure that the blood tubes are labelled and the patient detail section on the request form (part1) is completed fully, including the time and date the specimen was taken at.

Quantiferon kits and request forms must be returned to the Microbiology Laboratory within 16 hours of sampling.

### Repertoire of Haematology Tests

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Specimen Container** | **Minimum/ Container**  **Volume** | **Adult Reference Range**  **(Refer to Report for Paediatric Ranges)** | **TAT** | **Comment** | **Test Method** | **Mnemonic/ display name** |
| Full  Blood count | EDTA (pink capped) | 2.6ml standard | |  |  |  | | --- | --- | --- | | *Parameter*  *Tested* | *Male* | *Female* | | Hb | 13-17.5 g/dL | 11.5-16.5 g/l  11.7-16.0\* | | PCV | 0.37-0.54 L/L | 0.335-0.54 L/L  0.355-0.52\* | | RCC | 4-6.5 x1012/L | 3.8-5.8 x1012/L  3.8-5.6\* | | RDW | 11-15 % | | | MCV | 79 -96 fL | | | MCH | 27 -32 pg | | | PLTS | 140 -400 x109/L | | | WBC | 4.0 -11 x109/L | | | Neut | 2.0 -7.5 x109/L | | | Lymph | 1.0 -4.0 x109/L | | | Mono | 0.2- 1.0 x109/L | | | Eosin | 0.04- 0.4 x109/L | | | Baso | 0.01- 0.1 x109/L | | | In-house: 4 Hours  Urgent: 1 hour | 7.5ml and 10ml EDTA samples are incompatable with the analysers and will be rejected.  \*women > 50 years | Sysmex XN   * Sodium Lauryl Sulphate (SLS) Haemoglobin Method * Calculated Parameters * Impedance Technology * Fluorescence Flow Cytometry | **FBC** |
| Platelet Clumping Check\* | 0.82mgMg2+/mL  (Red) | 2.6mL | 140 -400 x109/L | In-house: 4 Hours  Urgent: 1.5 hour | Arrange in advance with laboratory to obtain sample tube. | Sysmex XN   * Impedance Technology * Fluorescence Flow Cytometry | Plt Exact |
| ESR | Trisodium citrate  4NC /3.5 (purple) | 3.5 ml **must** be filled to the line | |  |  | | --- | --- | | *Male* | *Female* | | 1- 12 mm/hr | 1-20 mm/hr | | 1 Working Day  Urgent for Temporal Arthritis: 90 minutes | Theclinical Haematology team have listed the following conditions as the only times an ESR is indicated  *1.Giant cell arteritis, Temporal arteritis*  *2. Polymyalgia rheumatica.*  *3.‘Suspected myeloma’*  *4. Hodgkins Lymphoma*  *5.Prosthetic joint infection*  *6. Osteomyelitis*  *7. Rheumatoid Arthritis*  Stat samples -  Must contact the Laboratory to request sample to be prioritised. | Sarstedt Desaga S2000  Sedimentation of RBC's | **ESR** |
| Reticulocyte  Count | EDTA (pink capped) | 2.6mL standard | Retic: 0.4-1.9 %Male  0.4-1.8% Female  Retic (Abs) 14-100 x109/L | In-house: 4 Hours  Urgent: 1 hour | 7.5ml and 10ml EDTA samples not acceptable | Sysmex XN  FFluorescence Flow Cytometry | **Retics** |
| Infectious mononucleosis  Screen | EDTA (pink capped) | 2.6mL standard | Negative | 1 Working Day  Urgent: 1 hour |  | Manual Immunoassay | **IM** |
| Blood film examination | EDTA(pink capped) | 2.6mL standard | N/A | Routine: 5 working days  Urgent: 24 hours | Sample must be <8 hrs old.  Clinical details and reason for blood film must be on the form. | Sysmex sp50,Staining/Microscopy | **Must be requested by phoning the Laboratory directly** |
| Referral Blood Film | EDTA(pink capped) | 2.6mL standard | N/A | Routine: 9 working days  Urgent: 24 hours | Blood film sent to Haematology Team for review. Report will follow within 7 days. | Sysmex sp50, Staining/Microscopy | **HBFC**Only ordered by Haematology staff |
| Malaria: Rapid Diagnostic Tests (RDT’s) and Blood Film | EDTA(pink capped) | 2.6mL standard | Negative | 3 hrs for RDT. 4-72 hours depending on RDT results for Blood films. RDT neg – film processed next working day | Samples must be < 2 hours old. | Manual/ Immuno-chromatographic test  Manual Staining/microscopy | Mal Scr  Mal film |
| Sickle solubility Screen | EDTA (pink capped) | 2.6mL standard | Negative | Urgent: 2 hours.  If non-urgent, sample is Referred to SJH for full HB-EL screen:  A verbal report is available 7 days after dispatch.  Phone No.’s:01-4162394 (SJH)  A printed report is available 5 weeks after dispatch. | This test is performed for urgent pre-op anaesthetic screening only. If urgent, please contact the laboratory. In all other instances, order Haemoglobin Electrophoresis Complete the SJH request form available as a link on Powerchart  The Sickle solubility test is a screening method and as such is subject to false positives and negatives. All sickle solubility tests must be confirmed by HPLC/Electrophoresis. This test is performed in St James Hospital. | Manual Solubility Test for HbS | Sickle  Hb'opathy Scr (SO) |
| Bone marrow aspirate | Bone marrow  aspirate on glass slides. Needles and slides available in CKB (2150) | A minimum of 5 slides. | N/A | Processed during Routine working hours  Stained for next Working Day. Await Consultant reporting:  Reporting TAT:  Written report is available on Powerchart within 3 weeks | Slides must be labelled in pencil with the patients’ Surname and second unique identifier either D.O.B or unique hospital number.  Order the Bone Marrow Aspirate (Haem) | Staining/  Microscopy | **BMA** |

### Repertoire of Flow Cytometry Tests

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Specimen Container** | **Minimum/ Container**  **Volume** | **Reference Range** | **TAT** | **Comment** | **Test Method** | **Mnemonic/ Display name** |
| CD4 | EDTA (pink capped) | 2.6mL standard | 502-1749 Cells/ul | 3 Working days | Samples must be <48 hours old.  Only processed Monday to Friday. Must be Received in Laboratory before 3pm on a Friday | Flow Cytometry | **CD4** |
| TBNK | EDTA (pink capped) | 2.6mL standard | CD3#797-2996Cells/ul  CD3/4#502-1749Cells/ul  CD3/8#263-1137Cells/ul  CD19#99-618Cells/ul  CD56#72-577Cells/ul | 3 Working days | Samples must be <48 hours old.  Only processed Monday to Friday. Must be Received in Laboratory before 3pm on a Friday | Flow Cytometry | **TBNK** |
| Lymphoid Screening Tube | EDTA (pink capped  Sodium Heparin  (orange capped - BMA)(white c apped, RPMI, –cytogenetics bottle Lymph Node Aspirate) | 2.6mL standard | N/A | Written report: 10 working days  Verbal report: 24 hours | All samples must be <48 hours old.  Must be Received in Laboratory before 3pm on a Friday | Flow Cytometry | **LST** |
| Lymphoproliferative Panel | EDTA (pink capped)  Sodium Heparin  (orange capped - BMA)  with 1ml RPMI | 2.6mL standard | N/A | Written report: 10 working days  Verbal report: 24 hours | All samples must be <48 hours old. | Flow Cytometry | B NHL Panel |
| Acute Leukaemia Screen  Acute Leukaemia Panel  Blast count | EDTA (pink capped)  Sodium Heparin  (orange capped- BMA)  with 1ml RPMI. | 2.6mL standard | N/A | Written report: 10 working days  Verbal report: 24 hours | Must be arranged in advance with prior consultation with the lab. Containers are only obtained from the lab. | Flow Cytometry | **BLAST**   |  | | --- | | Acute  Panel | | Acute  Scr | |
| EDTA Samples must be <24 hours old. |  |
| Sodium Heparin  (orange capped - BMA)  with 1ml RPMI must be < 48 hours old |  |
| Paroxysmal Nocturnal Haemoglobinuria | Fresh EDTA  (pink capped) | 2.6mL standard | N/A | Written report: 10 working days  Verbal report: 24 hours | Arrange in advance with Laboratory personnel. Sample may be stored in fridge for <72 hours if not for immediate testing | Flow Cytometry | **PNH** |
| T-Cell Panel | EDTA (pink capped) Sodium Heparin  (orange capped)  with 1ml RPMI | 2.6mL standard | N/A | Written report: 10 working days  Verbal report: 24 hours | EDTA Samples must be <24 hours old. | Flow Cytometry | T NHL Panel |
| Sodium Heparin  (orange capped - BMA)  with 1ml RPMI must be < 48 hours old |  |

### Repertoire of Coagulation Tests

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Specimen Container** | **Number of**  **Samples** | **Minimum**  **Volume** | **Reference Range** | **TAT** | **Comment** | **Test Method** | **Mnemonic/ Display name** |
| Coag Screen includes PT, INR, APTT and APTT  Ratio (APTTR)  Coag GP – is the same as above without the APTTR | Trisodium citrate 9 NC/2.9/1.8 mL  (green capped) | 1 | **Must** be filled to the line | PT: 10-13.2 seconds  INR- The INR should only be used for monitoring Warfarin therapy. Refer to local treatment algorithmAPTT: 24 – 36 seconds  APTTR 1.5 -2.5 ratio  APTTR: The APTT ratio should only be used for monitoring the anticoagulant effect of an Unfractionated Heparin Infusion. | In-house: 4 Hours  Urgent: 1.5 hour | Sample must be <4 hours old | Coagulometric(turbidimetric)  Calculated Parameters | Coag Scr  Coag GP |
| INR | Trisodium citrate 9 NC/2.9/1.8 mL  (green capped) | 1 | **Must** be filled to the line | The INR should only be used for monitoring Warfarin therapy. Refer to local treatment algorithm. | In-house: 4 Hours  Urgent: 1.5 hour | INRs only are stable for 24 hrs Warfarin Office contact no.  01-8092083 | Calculated Parameter | **INR** |
| D-Dimer | Trisodium citrate 9 NC/2.9/1.8 mL  (green capped) | 1 | **Must** be filled to the line | Under 50 yrs<0.5 µg/ml  Then increases in 5 year increments by 0.5. i.e 55-60 (<0.6) and 85-90  ( <0.9) | In-house: 4 Hours  Urgent: 1.5 hour | Sample must be <8 hours old | Immuno-turbidimetric | Dimer |
| Fibrinogen | Trisodium citrate 9 NC/2.9 /1.8 mL  (green capped) | 1 | **Must** be filled to the line | 1.9 – 3.5 g/L | In-house: 4Hours  Urgent: 1.5 hour | Sample must be <4 hours old  For patients on Argatroban a Clauss Fibrinogen test is not appropriate & will be reported as follows: "Fibrinogen result is unavailable as the patient is on Argatroban which may cause a false low fibrinogen result in the Clauss fibrinogen assay. Please discuss with the Haematology team". | Clotting (Clauss) | **Fib-c** |
| Mixing study | Trisodium citrate 9 NC/2.9 mL  (green capped) | 2 | **Must** be filled to the line | Corrected to within the PT and APTT normal ranges | 1 week | Lab criteria for mixing study are prolonged PT or APTT when patient is not on anticoagulant and the liver function is normal. Mixing study requests must be approved by the Haematology team. For urgent requests, contact the laboratory in the morning, may be able to facilitate testing that day. | Coagulometric(turbidimetric)  Calculated Parameter | Mix Stdy |
| Intrinsic Factor assay Screen | Trisodium citrate 9 NC/2.9 mL  (green capped) | 2 | **Must** be filled to the line | See individual assays below | Case dependent, maximum  14 days | Requests must be approved by the Haematology team c/o Coagulation consultant.Tests done in batches. | Coagulometric(turbidimetric) | **IFS** |
| Extrinsic Factor assay Screen | Trisodium citrate 9 NC/2.9 mL  (green capped) | 2 | **Must** be filled to the line | See individual assays below | Requests must be approved by the Haematology team c/o Coagulation consultant.Tests done in batches. | Coagulometric(turbidimetric) | **EFS** |
| Factor Assays  Individual requests | Trisodium citrate 9 NC/2.9 mL  (green capped) | 2 | **Must** be filled to the line | |  |  | | --- | --- | | FII | 0.72-1.31 IU/mL | | FV | 0.63-1.33 IU/mL | | FVII | 0.51-1.54 IU/mL | | FVIII | 0.60-1.36 IU/mL | | FIX | 0.80-1.47 IU/mL | | FX | 0.64-1.50 IU/mL | | FXI | 0.72-1.52 IU/mL | | FXII | 0.52-1.64 IU/mL | | Case dependent, maximum  14 days | Tests done in batches. For urgent requests, contact the laboratory in the morning, may be able to facilitate testing that day. Requests must be approved by the Haematology team c/o Coagulation consultant. | Coagulometric(turbidimetric) | **FII, FV, FVII,**  **FVIII:C,FIX, FX, FXI, FXII** |
| Thrombophilia screen | Trisodium citrate 9 NC/2.9 mL  (green capped) | 4 | **Must** be filled to the line | See individual requests APCR, Prot C, Prot S Act,, Antithrombin | 4 weeks. | Batch tested. Inherited Thrombophilia screen includes the following tests: PT,APTT, Fib-c, AT,Prot C, Prot S Act, APCR  5LEIDEN\*. A Lupus screen is not on this profile.  Hence, these tests do **not** need to be ordered on an individual basis**, Order the thrombophilia careset The coagulation consultant will review and saction all Thrombohpilia orders** | APCR  Coagulometric(turbidimetric)  PC  Antithrombin  Chromogenic  Prot s  Immuno-turbidimetric | Thrombophilia care set conatins the Thrombophilia questionnaire and the screen request (Thr philia) |
| Protein C | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | 0.74 - 1.32 IU/mL | 4 weeks. | Batch tested.  Patient must be off warfarin for a minimum of 2wks to perform this assay. | Chromogenic | Prot C |
| Free Protein S | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | Males: 0.76-1.46 IU/mL  Females:0.65-1.33 IU/mL | 4 weeks. | Batch tested.  Patient must be off warfarin for a minimum of 2wks to perform this assay | Immuno-turbidimetric | Prot S Act |
| Anti Xa (LMWH and UFH) | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | For clinical interpretation please contact the haematology team. | 1 week | Clinical indication & timing of blood samples must be discussed with & sanctioned by the Haematology team. Please contact the laboratory prior to sending samples. Sample must be <2 hours old. | Chromogenic | XA  . |
| Antithrhrombin | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | 0.82 - 1.18 IU/mL | 4 weeks. | Batch tested.  Patient must not be on Direct Thrombin inhibitor anticoagulant. | Chromogenic | Antithrombin |
| Activated protein C resistance (APCR) | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | Negative | 4 weeks. | Batch tested  Patient must not be on A Direct oral anticoagulant. | Coagulometric(turbidimetric) | **APCR** |
| Von Willebrand factor | Trisodium citrate 9 NC/2.9 mL  (green capped) | 2 | **Must** be filled to the line | 0.49 - 1.73 IU/mL | Case dependent, maximum 14 days | “The presence of Rheumatoid Factor may produce an overestimation of the result” | Immuno-turbidimetric | VWF Ag |
| Lupus anticoagulant | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | DRVVS ratio: <1.17  DRVVT-TR ratio: < 1.23  SCT-TR ratio <1.14 | 4 weeks | Batch tested  Patients must not be on any anticoagulation as they interfere with the interpretation of the assayThe coagulation consultant will review and sanction all Lupus orders. | Coagulometric(turbidimetric) | **Order the** Lupus Anticoagulant care set. This contains the Lupus questionnaire and the Lupus screen request (LA Scr). |
| Rivaroxaban | Trisodium citrate 9 NC/2.9 mL  (green capped) | 1 | **Must** be filled to the line | No therapeutic reference range as monitoring not needed | 1 weeks | Clinical indication & timing of blood samples must be discussed with & sanctioned by the Haematology team. Please contact the laboratory prior to sending samples. | Chromogenic | Rivaroxaban |

### Repertoire of Haematology Molecular Tests

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Specimen Container** | **Number of Samples** | **Minimum**  **Volume** | **Reference Range** | **TAT** | **Comment** | **Test Method** | **Mnemonic/ Display name** |
| Factor V Leiden mutation | EDTA sample  (pink) | 1 | 2.6ml Standard | Negative | 6 weeks | Only tested if APCR (Activated Protein C) is positive or family history is indicated on the request form. See previous page for APCR requirements)  The laboratory will no longer take receipt or store the form containing patient genetic consent. It is the responsibility of the ordering clinician to obtain and file a copy of genetic consent in the patient’s record. | **Real time PCR** | **Lab order only**  **FVL** |
| Prothrombin G20210A mutation | EDTA sample  (pink) | 1 | 2.6ml Standard | Not Detected | 6weeks | .  The laboratory will no longer take receipt or store the form containing patient genetic consent. It is the responsibility of the ordering clinician to obtain and file a copy of genetic consent in the patient’s record | **Real time PCR** | PTGA |
| HFE  Haemochromatosis | EDTA sample  (pnk) | 1 | 2.6ml Standard |  | 4weeks | Must be accompanied by completed Haemochromatosis Genetic Screening Request  (HAEMC-LF-077) This form can be obtained from the Beaumont Hospital website, under Haematology Dept. If genetic consent is not obtained the molecular test will be rejected. The laboratory will no longer take receipt or store the form containing patient genetic consent. It is the responsibility of the ordering clinician to obtain and file a copy of genetic consent in the patient’s record. | **Real time PCR** | **HFE** |

### Clinical Advice & Laboratory Test Interpretation

Interpretation of Laboratory Tests / procedures may be obtained by phoning any of the telephone numbers in section Error: Reference source not found and asking for the Chief Medical Scientist or by requesting a senior member of staff 09:00- 17:00 Mon-Fri excluding Bank Holidays

### Clinical Advice & Laboratory Test Interpretation

Interpretation of Laboratory Tests / procedures may be obtained by phoning any of the telephone numbers in section Error: Reference source not found and asking for the Chief Medical Scientist or by requesting a senior member of staff 09:00- 17:00 Mon-Fri excluding Bank Holidays

### Specimens Referred to External Hospitals

If there is an issue with the sample or the required/ correct referral form does not accompany the sample, the sample will be sent back to the requesting area to be ordered correctly. HAEMG-LF-124 Form with reasons for return of BMA/Fluid/CSF to ward, for correction –

Test reports from external referral laboratories are scanned into the patient record when received & are available on Powerchart.

|  |  |  |  |
| --- | --- | --- | --- |
| ADAMTS 13 Assay | 2 fresh coag samples <4hrs  ADAMTS13 request form must have requesting clinician’s name, mobile number and email address. For urgent requests telephone Haemostasis laboratory in Belfast City Hospital. Urgent samples must be in Belfast lab by noon for testing that day. | Belfast City Hospital  Tel: 028 950 40910 | ADAMT  Q pulse form EX-HAEM-1062-  Avavailable in lab and CKB |
| Amyloid | 1 GLASS tube (available in CKB) | National Amyloidosis Centre, London | Amyloid (SO) |
| Apixaban | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, St. James’ Hospital  Tel: 01 4162956 | Apix (SO) |
| **Breast Implant Fluid Flow Cytometry** | 5ml RPMI Heparin | Clinical Cytometry & Haemoglobinopathy, St James’s Hospital | **Breast Implant Fluid FCM (SO)**  **Form required**  Hand written request on St James Hospital Flow Cytometry request form **EX-HAEM-1074** |
| CSF for Flow Cytometry | Get a Transfix tube. CSF sample is stable in Transfix for 3 days at 2-8°C. | MLL Münchner  München | CSF FCM (SO) |
| Cancer Molecular Diagnostics (CMD) | 2 EDTA samples | Cancer Molecular Diagnosis St. James’ Hospital | CMD |
| Cytogenetics | Place sample in RPMI medium with sodium heparin. (Universal Container obtained from fridge in Haem Lab). | Department of Clinical Genetics, Our Lady’s Hospital, Crumlin | Cytogen/FISH CHI |
| Cytogenetics (FISH) | Lithium Heparin sample | MLL Münchner  München | Cytogen/FISH MLL |
| Cytogenetics, ERIC Panel, (TP53-IGHV Mutation), T-cell gene rearrangement studies (TCR) | 2 EDTA samples or BM in RPMI sample if Haematology team requests it. Transported at RT°C | Molecular Haematology ,  Belfast City Hospital | IgHV Rearrangement, P53 Deletion, TCR (SO) |
| Dabigatran Level | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, St. James’ Hospital | Dabigatran (SO) |
| EMA binding assay  Test for Hereditary Spherocytosis | 1 x 2.6mL EDTA sample & Blood film required.  EDTA sample must be < 24hrs old on testing.  Complete clinical details and any family history of HS. (also known as Eosin-5-Maleimide, replaces Osmotic Fragility) | Clinical Cytometry & Haemoglobinopathy,  St James’s Hospital | HS Scr (SO) |
| Factor VIII and FIXinhibitors | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, St. James’ Hospital | FVIII INH (SO)  FIX INH (SO) |
| FXIII antigen | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, St. James’ Hospital | FXIII Ag (SO) |
| Fanconi Anaemia Screen | 2 x 4 ml Lithium Heparin (peripheral blood) | MLL  München | FS (SO) |
| Fluid Flow Cytometry   * **Ascitic fluid** * **Pleural fluid** | 5ml RPMI Heparin | Clinical Cytometry & Haemoglobinopathy, St James’s Hospital. | Fluid FCM (SO)**Form required**  Hand written request on St James Hospital Flow Cytometry request form **EX-HAEM-1074** |
| G6PD  G6PD\_Q  (The latter Will be referred by SJH to Guys if deficient) | 1 EDTA sample and marked as urgent  Note: SJH require that all sections of the form are completed, in particular the clinical details and Haematology indices sections | Clinical Cytometry & Haemoglobinopathy,  St James’s Hospital | G6PD Scr  G6PD Assay (SO) |
| Haemoglobin  Electrophoresis & Sickle Cell confirmation | 1 EDTA sample < 7 days old. 1 serum sample for Ferritin measurement to be done in-house if not already done. All sections of the form must be completed, in particular the clinical details and Haematology indices sections | Clinical Cytometry & Haemoglobinopathy,  St James’s Hospital | Hb'opathy Scr (SO) |
| Haptoglobin | 1 serum sample- | MMUH , Eccles St, | Hapto (SO) |
|  |  |  |  |
| High Molecular weight Kininogen/ Prekallikrein | 2 fresh Coag samples, | Eurofins | HMWK careset |
| HIT Screen | 2 serum samples. Samples received in lab after 14.00 will be sent to SJH the following day. | National Coagulation Laboratory,  St. James’ Hospital | HIT (SO) |
|  |  |  |  |
| Minimal Residual Disease (MRD) | Performed by PCR  4 EDTA samples  Complete a CMD request form | Cancer Molecular Diagnostics,  St James Hospital | B ALL MRD (SO)  CLL MRD (SO)  T ALL MRD (SO) |
| Myeloid Gene panel | 2 EDTA samples | King’s College Hospital, London | Myeloid Gene Panel |
| MPN panel | Assay includes JAK2 V617F, JAK2 exon 12, CALR & MPL mutations.  Peripheral blood or Bone marrow, 9ml in RPMI | Cancer Molecular  Diagnostics, St James Hospital, | MPN panel |
| MRD NPM1 | EDTA PB or BMA  Samples should reach the laboratory within 24 hours of collection. Storage and transport: Room temperature. | Guys | NPM1 Quant |
| Plasma cell screen (SO) |  | MLL | MM Panel (SO) |
| Plasma  Viscosity | 1 or 2 EDTA samples less than 48 hours old.  All sections of the form must be completed, in particular the clinical details and Haematology indices sections | Clinical Cytometry & Haemoglobinopathy  St James’s Hospital | PV (SO) |
| Plasminogen Activator Inhibitor | 1 Coag sample required  This test is extremely sensitive to pre analytical conditions. A freshly drawn coag sample must be mixed immediately by gentle inversion at least six times following collection. | Eurofins/Biomnis, | PAI-1 |
| Pyruvate  Kinase | EDTA sample x 2.  NB: keep sample at RT do not put in the fridge  Order a RETFBC & a PK,  Avoid sending on Thursdays and Fridays. | Chris Lambert, Red Cell Protein Laboratory, King’s College Hospital, London | PK (SO) |
| Red Cell Gene Panel/ Neutropenia panel | 5 mls EDTA blood adults (2 samples)  For red cell panel - please provide FBC, HPLC screening results, iron levels and markers of haemolysis plus a blood film, if available.Stored in the fridge where possible. | Viapath Analytics Molecular Pathology Laboratory, King’s College Hospital, | RC/Neutropenia Panel |
| Ristocetin Co-Factor (RICOF) | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, St. James’ Hospital | VWF RCo (SO) |
| Vaccine Induced Thrombotic Thrombocytopenia (VITT) | 2 x serum samples.  Confirm that the case has been discussed with Haematology. If not, contact Dr Karl Ewins Coagulation consultant or bleep registrar (#870) or the Haematology registrar / consultant on call if out of hours. Positive tests will have PF4 induced Plt activation assay (PIPA) referred to external laboratory. | National Coagulation Laboratory, CPLM building, St. James’ Hospital | VITT |
| Von Willebrand Study send out | 2 fresh Coag samples, relevant clinical details, anticoagulant therapy, must be supplied with each request. Must be cleared by requesting Dr with Coagulation in SJH | National Coagulation Laboratory, CPLM building, St. James’ Hospital | VWFS (SO) |
| Warfarin (drug) Level | Separated serum is optimal sample type.  Complete a Coagulation request form. Store and transport at room temp. | Viapath, St Thomas Hospital, Lambeth Palace Road, London | Warfarin Level |

**Note:** if a CKB patient is being referred to SJH for a stem-cell transplant and if Bone marrow aspirate slides are referred, the following form must be completed and sent with the BMA slides. Clink on the link: [GP & External Request Forms | St James's Hospital](https://www.stjames.ie/labmedinformation/gpexternalrequestforms/) and then download the ‘Bone Marrow Aspirate Request Form’

### Requests for Additional Analysis

**Provided a suitable sample is available verbal requests will be accepted for tests. Refe**r to table below for test cut-off times when requested to add a test to a sample already received in the Laboratory. Ensure that the correct sample requirements are met when taking an add-on request i.e. the sample has been received/ correct anti-coagulant/ the sample is not too old for analysis.

#### Test Cut-Off Times

|  |  |
| --- | --- |
| **Test** | **Test Cut-off Times** |
| FBC | <24 hours |
| Blood Film preparation | <8 hours |
| Platelet Exact for platelet clumping | <24 hours |
| Reticulocyte | < 24 hours |
| ESR | < 6 hours |
| Haptoglobin | < 8 days once stored @ 2-8C |
| Malaria | < 2 hours |
| IM | <24 hours. |
| Sickle Screen | < 45 days if stored @ 2-8C |
| PNH | < 72 hours if stored at @ 2-8C |
| LST, TBNK & CD4 | <48 hours |
| Flow Cytometry: Lymphoproliferative Panel | <48 hours (All samples) |
| Flow Cytometry: Acute Leukaemia Panel | <48 hours (Bone marrow) |
| < 24 hours (EDTA samples) |
| Flow Cytometry: T Cell Panel | <24 hours (All samples) |
| Coagulation Samples(PT, APTT, Fibn) | < 4 hours |
| D-dimer | < 8 hours |
| INR | <24 hours |
| Factor V Leiden, , Prothrombin G20210A mutation and HFE | <28 days once stored at 2-8C |
|  |  |

#### Process for additional analysis is by placing the order through powerchart and selecting the priority as add on. Then the requestor must call the lab to inform them of this add on request and to see whether there is a suitable sample or not.

As a blood film request is not available on powerchart ( only for the Haematology consultants ) this must be ordered directly by calling the lab , given the clinicians name , bleep number , whether it is a bld film or for consultant review and the reason for the request.

**CHEMICAL PATHOLOGY**

### Routine Test Profiles and their Components

|  |  |  |
| --- | --- | --- |
| **Description** | **Mnemonic** | **Tests** |
| Renal Profile | Renal | Urea, Na, K, Cl, Creatinine, eGFR |
| Liver Profile | Liver | Bilirubin, ALT, ALK, γGT, AST, ALB, TP, Globulin |
| Lipid Profile - Fasting  Lipid Profile - Non-fasting | FHDL  HDL | Cholesterol, Triglyceride, HDL, Calculated LDL, non-HDL Cholesterol |
| Bone Profile | Bone | Ca, ALB, Phosphate, Ca Adjusted, ALK |
| Thyroid Function Test | TFT | FreeT4 and TSH |

Blood, CSF & Fluid Tests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Sample  Required | Specimen Container | Minimum  Volume | Reference Range | TAT |
| ACTH | EDTA Plasma | Potasium EDTA  (Blue Top) | 4.9ml | 7.2 – 63.3 pg/ml | 10days  STAT: Contact laboratory |
| Alanine Transaminase ALT | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M < 41 I.U/L  F < 33 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Albumin | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 35 - 52 g/L | Routine: 4hrs  STAT: 2hrs |
| Alcohol (ETOH) Plasma | Plasma | Fluoride Oxalate (Yellow Top) | 2.7ml | Units: mg% | Routine: 4hrs  STAT: 2hrs |
| Aldosterone | EDTA plasma  (patient must be seated for 10mins prior to sample draw) | Potasium EDTA  (Blue Top) | 4.9ml | Female: 0 – 1179pmol/L  Male: 0 - 670pmol/L | 20 days |
| Alkaline Phosphatase | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M 40 - 129I.U/L  F 35 – 104 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Alpha Fetoprotein (blood) | Serum | Brown top (Serum) | 4.9ml | 0 – 5.8 (kU/L) | 3days |
| Alpha-1-Antitrypsin | Plasma | Lithium  Heparin  (Orange Top) | 4.9ml | 0.9-2.0 g/L | 72 hours |
| Adrenal Vein Sampling  (Aldosterone and Cortisol) | See labels | See labels | See labels | See individual tests | See individual tests |
| Amylase | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 28 - 100 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Amylase (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs  STAT: 2hrs |
| Aspartate Transaminase | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M < 40 I.U/L  F < 32 I.U/L | Routine: 4hrs  STAT: 2hrs |
| B2 Microglobulin Serum | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | <60yrs: 0.8 – 2.4mg/L  >60yrs: ≤ 3.0mg/L | 72 hours |
| Beta Human Chorionic Gonadotrophin | Serum | Serum  (Brown Top) | 4.9ml | IU/L  Non-pregnant, pre-menopausal women: <1  Postmenopausal women: <7  Men: <2 | Routine: 3days  STAT:2hrs |
| Beta Natriuretic Peptide  (NT proBNP II) | Lithium Heparin or Serum | Plain  (White Top) or Lithium Heparin (Orange Top) | 4.9ml | 35y-45y M 0-115pg/mL  35y-45y F 0-237 pg/mL  45y-55y M 0-173 pg/mL  45y-55y F 0-284 pg/mL  55y-65y M 0-386 pg/mL  55y-65y F 0-352 pg/mL  65y-75y M 0-879 pg/mL  65y-75y F 0-623 pg/mL | 24hours |
| Beta 2 Transferrin | Fluid collection (otorrhoea / rhinorrhea) plus  Paired serum sample | Fluid - Plain  Serum (white top) | As much as possible  4.9ml | See Interpretive Comment | 196 hrs |
| Bilirubin | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | < 21 μmol/L | Routine: 4hrs  STAT: 2hrs |
| Bilirubin (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs  STAT: 2hrs |
| Bilirubin Direct | Lithium Heparin  Protected from light. | Lithium Heparin (Orange Top) | 4.9ml | < 5.0μmol/L | 72 hours |
| C-Peptide | Serum | Plain  (White Top) | 4.9ml | 1.1 – 4.4µmol/L | 10days |
| C Reactive Protein | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 0 – 5 mg/L | Routine: 4hrs  STAT: 2hrs |
| CA 12-5 | Serum | Brown top (Serum) | 4.9ml | <35 kU/L | 3days |
| CA 15-3 | Serum | Brown top (Serum) | 4.9ml | <25–kU/L | 3days |
| CA 19-9 | Serum | Brown top (Serum) | 4.9ml | <27 kU/L | 3days |
| Caeruloplasmin | Lithium Heparin | Lithium  Heparin  (Orange top) | 4.9ml | M 0.15 – 0.30 g/L  F 0.16 – 0.45g/L | 72 hours |
| Calcium | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 18-60yrs: 2.15 – 2.50mmol/L  60-90yrs: 2.20 – 2.55mmol/L  >90yrs: 2.05 – 2.40mmol/L | Routine: 4hrs  STAT: 2hrs |
| Calcium Adjusted | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 2.21 – 2.52 mmol/L  (Locally derived equation) | Routine: 4hrs  STAT: 2hrs |
| Carbamazepine | Serum | Plain  (White Top) | 4.9ml | 4.0 - 12.0 mg/L | Routine: 4hrs  STAT: 2hrs |
| Carcinoembryonic Antigen | Serum | Brown top (Serum) | 4.9ml | <5.2 ng/ml | 3days |
| Chloride Plasma | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 95 - 108 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Cholesterol | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | < 5.0mmol/L | Routine: 4hrs |
| Cholesterol – Fluid | Fluid | Plain  (White Top) | 4.9ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Cortisol A.M. | Serum | Brown Top (Serum) | 4.9ml | 166 - 507 nmol/L | 24hrs |
| Cortisol Day Curve (Hydrocortisone)10 timed samples for Cortisol | See Labels | See Labels | 7.5ml | N/A  Dynamic Function Test | 24hrs |
| Cortisol Day Curve (Cushings)  6 timed samples for Cortisol | Serum | Brown Top (Serum) | 4.9ml | N/A  Dynamic Function Test | 24hrs |
| Cortisol M/N | Serum | Brown Top (Serum) | 4.9ml | See Interpretive Comment | 24hrs |
| Cortisol Random | Serum | Brown Top (Serum) | 4.9ml | See Interpretive Comment | Routine: 24hrs  STAT: 2hrs |
| Creatine Kinase Total | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M 39 – 308 I.U/L  F 26 - 192 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Creatinine (fluid) | Fluid | Plain  (White Top) | 4.9ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Creatinine (plasma) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M 59 – 104 μmol/L  F 45 - 84 μmol/L | Routine: 4hrs  STAT: 2hrs |
| Creatinine Clearance  2 labels print – 24 hr Urine and Blood | Lithium Heparin/24HU | Lithium Heparin (Orange Top)/24HU | 4.9ml & 24HU | 80 - 125 ml/min | Routine: 48hrs |
| CRF  Timed samples for Cortisol and ACTH | See Labels | See Labels | 4.9ml | N/A  Dynamic Function Test | STAT: Contact laboratory |
| Cryoglobulins (CRYOS, SPE, IGG)  Sample must be clotted @ 37°C | Serum & EDTA plasma  8 hour Fasting Samples Required | Serum Plain  (White Top)  Plasma Pink EDTA | 7.5ml filled  2.6ml filled | Qualitative  See individual tests | 840 hours |
| CSF Protein / Glucose | CSF | Plain | 300ul | See individual tests | Routine: 4hrs  STAT: 2hrs |
| CSF Xanthochromia | CSF Brown | Brown plastic | 1ml | N/A  See Interpretive Comment | 24hours |
| Cyclosporin A | Whole Blood | Potassium EDTA  (Pink Top) | 2.6ml | N/A  See Interpretive Comment | 10 days |
| Cystatin C | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 0.61mg/L – 0.95mg/L | 10 days |
| Dehydroepiandrostenesulphate (DHEAS) | Serum | Plain  (White Top) | 4.9ml | (µmol/L)   |  |  |  | | --- | --- | --- | | Years | Females | Males | | 15-20y | 1.8-10.0 | 1.9-13.4 | | 20-25y | 4.0-11.0 | 5.7-13.4 | | 25-35y | 2.7-9.2 | 4.3-12.2 | | 35-45y | 1.7-9.2 | 2.4-11.6 | | 45-55y | 1.0-7.0 | 1.2-9.0 | | 55-65y | 0.5-5.6 | 1.4-8.0 | | 65-75y | 0.3-6.7 | 0.9-6.8 | | ≥ 75y | 0.3-4.2 | 0.4-3.3 | | 3days |
| Dexamethasone Supression.  High Dose Long  3 Timed Cortisol Samples | Serum | Brown Top (Serum) | 4.9ml | N/A  Dynamic Function Test | 24hrs |
| Dexamethasone Supression.  Low Dose Long  3 Timed Cortisol Samples | Serum | Brown Top (Serum) | 4.9ml | N/A  Dynamic Function Test | 24hrs |
| Dexamethazone Overnight Supression.  Single Timed Cortisol Sample | Serum | Brown Top (Serum) | 4.9ml | N/A  Dynamic Function Test | Routine: 24hrs  STAT: 2hrs |
| Dexamethazone Suppression Test 8mg | Serum | Brown Top (Serum) | 4.9ml | N/A  Dynamic Function Test | 24hrs |
| Digoxin | Serum | Plain  (White Top) | 4.9ml | 0.6 – 1.2 μg/L | Routine: 4hrs  STAT: 2hrs |
| Estimated Glomerular Filtration Rate (eGFR) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | >90ml/min/1.72m2 | Routine: 4hrs  STAT: 2hrs |
| Ethanol | Plasma | Fluoride oxalate  (YELLOW cap) | 2.7ml | Unit: mg % | 2 hours for STAT samples |
| Ferritin | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | Female 17-60yr: 13 – 150 ng/mL  Male 20-60yr: 30 – 400 ng/mL  No reference range for >60yr old. | 3days |
| Folate/Folic Acid | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 3.9-26.8 µg/L | 3days |
| Follicle Stimulating Hormone | Serum | Brown Top (Serum) | 4.9ml | Male :1.5 – 12.4 U/L  Female:  Follicular: 3.5-12.5 U/L  Mid Cycle: 4.7 – 21.5 U/L  Luteal 1.7-7.7 U/L  Post Menopausal : 25.8-134.8 U/L | 3days |
| Free T3 | Lithium Heparin | Lithium  Heparin  (Orange Top) | 4.9ml | 3.1 – 6.8 | 3days |
| Free Thyroxine (FT4) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 11.9 -21.6 pmol/L | 3days |
| G-Glutamyl Transferase | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M < 59 I.U/L  F< 39 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Globulin (calculated value includes Protein & Albumin) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See individual tests | Routine: 2.5hrs  STAT: 2hrs |
| Glucagon Test | See Labels | See Labels | 4.9ml | N/A  Dynamic Function Test | See individual tests |
| Glucose (fluid) | Fluid | Fluoride Oxalate (Yellow Top) | 2.7ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Glucose 120 minutes (2 HR PP) | Plasma | Fluoride Oxalate (Yellow Top) | 2.7ml | Units: mmol/L | Routine: 4hrs  STAT: 2hrs |
| Glucose Random Sample | Plasma | Fluoride Oxalate (Yellow Top) | 2.7ml | Units: mmol/L | Routine: 4hrs  STAT: 2hrs |
| Glucose Tolerance Test | See Labels | Fluoride Oxalate (Yellow Top) | 2.7ml | Units: mmol/L | Routine: 4hrs  STAT: 2hrs |
| Glucose Tolerance Test (Short) | See Labels | See Labels | See Labels | See individual tests | See individual tests |
| Glucose Tolerance Test for HGH | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | 20 days |
| Glucose Tolerance with Rels. Factors | See Labels | See Labels | See Labels | See individual tests | See individual tests |
| Glucose Zero Time (Fasting) | Plasma | Fluoride Oxalate (Yellow Top) | 2.7ml | 3.6 – 6.0mmol/L | Routine: 4hrs  STAT: 2hrs |
| Gonadotrophins (FSH & LH) | Serum | Brown Top (Serum) | See Labels | See individual tests | 3days |
| GTT Prolonged | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | See individual tests |
| GTT with Insulin | See Labels | See Labels | 4.9ml | N/A  Dynamic Function Test | 10 days |
| Haemoglobin A1C | Whole Blood | Potassium EDTA  (Pink Top) | 2.6ml | 20 – 42 mmol/mol  In normal subjects | 96hours |
| HGH day Curve  5 Timed GH samples | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | 20days |
| Hirsute Synacthen Stimulation | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | See individual tests |
| Human Growth Hormone | Serum | Brown Top (Serum) | 4.9ml | (ng/ml)  See Interpretive Comment | 20days |
| Hypoglycaemia Screen  glucose, insulin, c-peptide, proinsulin, beta-hydroxybutyrate  serum Sulphonylureas | See Labels | See Labels | See Labels | See Individual Tests | See individual tests |
| Interleukin 6 | Serum | Brown Top (Serum) | 4.9ml | < 7.0pg/mL | 10 days |
| Immunoglobulins G,A,M | Serum | Brown Top (Serum) | 4.9ml | IgG: 7.0 – 16.0g/L  IgA: 0.7-4.0 g/L  IgM: 0.4-2.3 g/L | 72 hours |
| Insulin & C-Peptide | See Labels | See Labels | See labels | See individual tests | 10days |
| Insulin Stress Test  Timed samples for Insulin, Growth Hormone & Glucose | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | 10days |
| Insulin Stress Test+ Release Factors | See Labels | See Labels | See Labels | N/A  Dynamic Function Test | 10days |
| Insulin Fasting | Serum | Plain  (White Top) | See Labels | Fasting: 2.6-24.9 mU/L  (provided fasting glucose is within normal/ reference range) | 10days |
| Insulin-Like Growth Factors-1 | Serum | Plain  (White Top) | 4.9ml | (ng/ml)   |  |  |  | | --- | --- | --- | | Years | Female | Male | | 0-1y | 17.9-125.6 | 27.0-157.0 | | 1-2y | 19.5-132.3 | 29.7-166.8 | | 2-3y | 22.2-145.4 | 33.9-183.9 | | 3-4y | 25.9-164.2 | 39.0-204.5 | | 4-5y | 30.7-187.8 | 44.3-225.0 | | 5-6y | 26.2-214.4 | 50.0-245.5 | | 6-7y | 42.0-240.4 | 56.2-267.1 | | 7-8y | 48.6-269.6 | 63.4-291.9 | | 8-9y | 56.9-305.3 | 72.4-323.1 | | 9-10y | 67.2-349.4 | 83.6-361.6 | | 10-11y | 79.5-400.3 | 96.9-406.6 | | 11-12y | 92.6-452.6 | 111.6-454.4 | | 12-13y | 105.3-499.1 | 126.1-498.7 | | 13-14y | 115.9-533.4 | 138.6-532.5 | | 14-15y | 123.4-552.0 | 147.5-551.2 | | 15-16y | 127.4-554.2 | 152.2-553.5 | | 16-17y | 127.9-541.5 | 152.9-541.8 | | 17-18y | 125.3-517.3 | 150.6-520.6 | | 18-19y | 120.5-485.8 | 146.2-493.6 | | 19-20y | 114.4-450.8 | 140.2-462.7 | | 20-21y | 107.8-416.0 | 133.1-430.0 | | 26-31y | 78.4-270.0 | 97.9-281.6 | | 31-36y | 73.1-243.0 | 88.3-246.0 | | 36-41y | 69.0-227.0 | 83.4-232.7 | | 41-46y | 61.5-204.4 | 74.9-216.4 | | 46-51y | 56.8-194.5 | 66.9-205.1 | | 51-56y | 53.0-189.6 | 60.6-200.3 | | 56-61y | 45.6-172.4 | 54.3-194.2 | | 61-66y | 42.2-169.0 | 48.8-187.7 | | 66-71y | 38.3-162.5 | 46.5-191.9 | | 71-76y | 36.6-164.7 | 40.9-179.2 | | 76-81y | 34.7-164.8 | 37.1-172.0 | | 81-86y | 34.4-172.4 | 33.8-165.4 | | 86-91y | 33.6-177.8 | 32.2-166.1 | | 20days |
| Intravenous Petrosal Sampling  16 site specific labels for ACTH | EDTA Plasma | BLUE | 4.9ml | N/A  Dynamic Function Test | 10days |
| Iron (FE) & Transferrin Saturation | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 5.8 – 34.5µmol/L  A Fasting Transferrin Saturation > 55% in Males or  > 50% in Females indicates Iron accumulation. | Routine: 4hrs |
| Lactate | CSF | Plain | 300ul | 1.01 – 2.09 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Lactate Dehydrogenase | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M 135 – 225 I.U/L  F 135 – 214 I.U/L  Please note: LDH test results may be increased by up to 14% by sending the sample to the laboratory using the pneumatic chute transport system. Interpret results with caution. | Routine: 4hrs |
| LDH (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Lithium Serum | Serum | Plain  (White Top) | 4.9ml | 0.6 – 1.2 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Lipid Profile (Fasting) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | Cholesterol ≤ 5.0mmol/L  LDL (calculated) ≤ 3.0mmol/L  HDL Cholesterol ≥ 1.0mmol/L  Triglycrides ≤ 1.7mmol/L  Non HDL cholesterol ≤ 3.8mmol/L | Routine: 4hrs |
| Lipid Profile (Non Fasting) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | Cholesterol ≤ 5.0mmol/L  LDL (calculated) ≤ 3.0mmol/L  HDL Cholesterol ≥ 1.0mmol/L  Triglycrides ≤ 2.0mmol/L  Non HDL cholesterol ≤ 3.8mmol/L | Routine: 4hrs |
| Liver Function | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See individual tests | Routine: 4hrs  STAT: 2hrs |
| Lutenising Hormone | Serum | Brown Top (Serum) | 4.9ml | Follicular: 2.4 - 12.6 U/L  Ovulation: 14.0 - 95.6 U/L  Luteal: 1.0 - 11.4 U/L  Post Menopausal: 7.7 - 58.5 U/L  Male : 1.7 - 8.6 U/L | 3days |
| Lutenising Hormone Releasing F. | See Labels | See Labels | 4.9ml | See individual tests | See individual tests |
| Magnesium | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 0.66 – 1.07mmol/L | Routine: 4hrs  STAT: 2hrs |
| Oestradiol | Serum | Brown Top (Serum) | 4.9ml | Male: 41.4 – 159 pmol/L  Female:  Follicular: –114-332 pmol/L  Ovulation: 222-1959 pmol/L  Luteal: 222-854 pmol/L  Post Menopausal: 18.4 - 505 pmol/L | 3days |
| Osmolality Plasma | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 275 – 295 mOsm/Kg | Routine: 4hrs  STAT: 4hrs |
| Paracetamol - Serum | Serum | Plain  (White Top) | 4.9ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs  STAT: 2hrs |
| Parathyroid Hormone | Plasma | Potasium EDTA  (Blue Top) | 4.9ml | 17 - 74pg/mL | 3days |
| Phenobarb | Serum | Plain  (White Top) | 4.9ml | 10.0 - 40.0 mg/L | Routine: 4hrs  STAT: 2hrs |
| Phenytoin | Serum | Plain  (White Top) | 4.9ml | 5.0-20.0 mg/L | Routine: 4hrs  STAT: 2hrs |
| Phosphate | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 0.81 - 1.45 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Pituitary Screen | See Labels | See Labels | See labels | See Individual Tests | 20days |
| Plasma Metanephrines | EDTA Plasma on Ice (Sample must arrive in the Lab within 1 hour of collection) | REDL | 7.5ml | Reference ranges are based on  a fasting adult patient in a  seated position:  Normetanephrine <1180 pmol/L  Metanephrine <510 pmol/L  3-Methoxytyramine <180 pmol/L  For samples taken in a supine  Posture (post 30 mins rest),  supine reference ranges  are recommended:  Normetanephrine <730 pmol/L  Metanephrine <450 pmol/L  3-Methoxytyramine <180 pmol/L | 12 days |
| Post Transplant GTT(Timed GLUC and INS) | See Labels | See Labels | See Labels |  | See individual tests |
| Potassium | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 3.5 – 5.3 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Potassium (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Procalcitonin | Serum | Brown Top (Serum) | 4.9ml | See Interpretive Comment | 1 batch run daily |
| Progesterone | Serum | Brown Top (Serum) | 4.9ml | Male: 0.159 - 0.474 nmol/L  Female:  Follicular: 0.159 – 0.616 nmol/L  Ovulation: 0.175 – 13.2 nmol/L  Luteal: 13.1 – 46.3 nmol/L  Post Menopasal: 0.159-0.401 nmol/L | 3days |
| Prolactin | Serum | Brown Top (Serum) | 4.9ml | Total Prolactin  Female: 102-496 mIU/L  Male: 86-324 mIU/L  Bioactive Prolactin:  Female: 75-381mIU/L  Male: 63-245 mIU/L  Bioactive prolactin is the biologically active form of prolactin. | Routine: 3days  STAT: Discuss with laboratory |
| Prostate Specific Antigen | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | Age related PSA Levels  (non-suspicious DRE)  <50 = <2ug/L  50 – 59 = <3ug/L  60 – 69 = <4ug/L  70+ = <5ug/L | Routine: 3days |
| Protein & Albumin | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See individual tests | Routine: 4hrs  STAT: 2hrs |
| Protein & Albumin (fluid) | Fluid | Plain MSU | 5ml | See individual tests | Routine: 4hrs |
| Protein Total | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 60 - 80 g/L | Routine: 4hrs  STAT: 2hrs |
| Renal Profile (UREA/NA/K/CL/CREAT) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See individual tests | Routine: 4hrs  STAT: 2hrs |
| Renin | EDTA plasma | Potasium EDTA  (Blue Top) | 4.9ml | Female: 6.1 – 62.7mIU/L  Male: 9.0 – 103.5mIU/L | 20days |
| Salicylate - serum | Serum | Plain  (White Top) | 4.9ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs  STAT: 2hrs |
| Saline Suppression Test | See Labels | See Labels | 4.9ml | N/A  Dynamic Function Test | See individual tests |
| Serum Free Light Chains | Serum | White Top (Serum) | 4.9ml | Free Kappa 3.30 – 19.40 mg/L  Free Lamda 5.71 – 26.30 mg/L  Kappa / Lambda ratio 0.26 – 1.65  Modified Kappa / Lambda ratio of 0.82 – 3.6 where eGFR ≤55Ml/min//1.73m2 | 14 days |
| Serum Protein Electrophoresis  (Protein Total, SPE, IGGs) | Serum | Brown Top (Serum) | 4.9ml | Protein Total 60 - 80 g/L  IgG: 7.0 – 16.0g/L  IgA: 0.7-4.0 g/L  IgM: 0.4-2.3 g/L  And Interpretative Comment | 840 hours |
| Sex Hormone Binding Globulin | Serum | Plain  (White Top) | 4.9ml | M: 20-49yr: 18.3-54.1 nmol/L  M: ≥ 50yr: 20.6-76.7 nmol/L  F: 20-49yr: 32.4-128 nmol/L  F: ≥ 50yr: 27.1-128 nmol/L  No SHBG reference intervals for <20yr old. | 3days |
| Sodium | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 133 - 146 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Sodium (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Synacthen Stimulation Test | See Labels | See Labels | 4.9ml | N/A  Dynamic Function Test | Routine: 24hrs  STAT: 2hrs |
| Tacrolimus (FK506) | Whole Blood | Potassium EDTA  (Pink Top) | 2.6ml | N/A  See Interpretive Comment | 72hrs. Cut off for receipt of samples for same day analysis is 11am |
| Testosterone | Serum | Plain  (White Top) | 4.9ml | Male: (19 - 50y): 8.6 - 29.0 nmol/L  (≥50y): 6.7 - 25.7 nmol/L  Female:  (19 - 50y): 0.3 - 1.7 nmol/L  (≥50y): 0.1 –1.4 nmol/L | 3days |
| Theophylline | Serum | Plain  (White Top) | 4.9ml | 10.0 - 20.0 mg/L | Routine: 4hrs  STAT: 2hrs |
| Thyroid Function Tests | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See TSH & FT4 reference ranges. | Routine: 3days |
| Thyroid Stimulating Hormone | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 0.27-4.20 mU/L | Routine: 3days |
| Thyrotropin Releasing Factor | See Labels | See Labels | 7.5ml | N/A  Dynamic Function Test | See individual tests |
| Total CO2 / Bicarbonate | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 22 - 29 mmol/L | Routine: 4hrs  STAT: 2hrs |
| Total Thyroxine (TT4) | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 66 – 181nmol/L | 3days |
| Triglyceride | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | Fasting 0.5 – 1.7mmol/L  Non Fasting 0.5 – 2.0mmol/L | Routine: 4hrs |
| Triglyceride (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs |
| Troponin T  Must have a dedicated sample | Lithium Heparin | Lithium Heparin (Orange Top) | 2.7ml | < 14 ng/L | 1.5 hours |
| Urate/Uric Acid | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | M 202 - 416μmol/L  F 143 - 340μmol/L | Routine: 4hrs  STAT: 2hrs |
| Urea | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 2.8 – 8.1mmol/L | Routine: 4hrs  STAT: 2hrs |
| Urea (fluid) | Fluid | Plain  (White Top) | 5ml | N/A  Interpret in conjunction with clinical findings. | Routine: 4hrs  STAT: 2hrs |
| UREA/NA/K/CL/CREAT/TCO2 | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | See individual tests | Routine: 4hrs  STAT: 2hrs |
| Valproic Acid | Serum | Plain  (White Top) | 4.9ml | 50 – 100 mg/L | Routine: 4hrs  STAT: 2hrs |
| Vit.B12 / Folic Acid | Lithium Heparin | Lithium Heparin (Orange Cap) | 4.9ml | See individual tests | 3days |
| Vitamin B12 | Lithium Heparin | Lithium Heparin (Orange Top) | 4.9ml | 197-771ng/L | 3days |
| Vitamin D | Serum | Serum Gel | 4.9ml | Deficient: < or = 50nmol/L | 10 days |
| Water Deprivation Test  10 Timed Samples plasma & urine osmolality | See Labels | See Labels | 4.9ml plasma  5ml urine | N/A  Dynamic Function Test | 24 hours |

Urine Tests

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Sample  Required | Specimen Container | Minimum  Volume | Reference Range | TAT |
| 5-HIAA Urine | 24 Hour Urine | Pre-Acidified Container | N/A | <50 umol/24hours | 288 hours |
| Albumin Creatinine Ratio(Urine) | MSU | Plain MSU | 5ml | M 0.0 – 2.5mg/mmol  F 0.0 – 3.5mg/mmol | Routine: 96hrs |
| Alcohol (ETOH) urine | MSU | Plain MSU | 5ml | Qualitative | Temporarily outsourced. 5 days |
| Amylase - Spot Urine Sample | MSU | Plain MSU | 5ml | M: 16 – 491 I.U/L  F: 21 – 447 I.U/L | Routine: 4hrs  STAT: 2hrs |
| Calcium - 24 Hour Urine | 24 Hour Urine | 24hr. No Preservative | N/A | 2.5 - 7.5 mmol/24Hr | Routine: 48hrs  STAT: 2.5hrs |
| Chloride - Spot Urine Sample | MSU | Plain MSU | 5ml | Units: mmol/L | Routine: 4hrs |
| Creatinine - Spot Urine Sample | MSU | Plain MSU | 5ml | Units µmol/L | Routine: 4hrs |
| Creatinine – 24 Hour Urine | 24 Hour Urine | 24hr. No Preservative | N/A | M 9000 – 19000 µmol/24Hrs  F 6000 - 13000 µmol/24Hrs | Routine: 4hrs |
| Magnesium - 24 Hour Urine | 24 Hour Urine | 24hr Collection. No Preservative | N/A | 3.0 – 5.0 mmol/24Hr | Routine: 24hrs |
| Osmolality Urine | MSU | Plain MSU | 5ml | 400-1000 mOsm/Kg | Routine: 24hrs  STAT: 4hrs |
| Phosphate - 24 Hour Urine | 24 Hour Urine | 24hr Collection. No Preservative | N/A | 13.00 – 42.00 mmol/24Hrs | Routine: 24hrs |
| Potassium – Spot Urine Sample | MSU | Plain MSU | 5ml | Units: mmol/L | Routine: 4hrs |
| Potassium - 24 Hour Urine | 24 Hour Urine | 24hr Collection. No Preservative | N/A | 30.0 – 100.0mmo/24Hrs | Routine: 24hrs  STAT: 2.5hrs |
| Protein-Creatinine Ratio | MSU | Plain MSU | 5ml | 3 - 14 mg/mmol | Routine: 96hrs |
| Sodium - 24 Hour Urine | 24 Hour Urine | Plain Container | N/A | 40.0 – 220.0mmol/24Hrs | Routine: 24hrs  STAT: 2.5hrs |
| Sodium - Spot Urine Sample | MSU | Plain MSU | 5ml | Units: mmol/L | Routine: 4hrs |
| Total Urinary Proteins | 24 Hour Urine | Plain Container | N/A | 0.05 - 0.14 g/24HR | Routine: 24hrs  STAT: 2.5hrs |
| Urate - 24 Hour Urine | 24 Hour Urine | Plain Container | N/A | 1.20 – 5.90mmol/24Hr | Routine: 24hrs |
| Urea - 24 Hour Urine | 24 Hour Urine | Plain Container | N/A | 428.0 – 714.0mmol/24Hr | Routine: 24hrs |
| Urea - Spot Urine Sample | MSU | Plain MSU | 5ml | Units: mmol/L | Routine: 4hrs |
| Urinary Catecholamines | 24 Hour Urine | Pre-Acidified Container | N/A | Reference Ranges quoted in Section above this table | Routine: 576hrs |
| Urinary Total Fractionated Metanephrines (Total Metanephrine & Total Normetanephrine) | 24 Hour Urine | Pre-Acidified Container | N/A | Reference Ranges quoted in Section above this table | Routine:  576hrs |
| Urine Protein Electrophoresis:  (BJP) or Myeloma Screen  Known Myeloma Patient | EMU (early morning urine)  24 Hour Urine | Plain Container | N/A | Qualitative | 35 days |
| Urine Stone Screen. | See Labels | See Labels | See Labels | See individual tests | See individual tests |

the Immunology laboratory.

Tests Referred to External Laboratories

Please note dispatch of samples to our referral labs is done weekly however urgent referral is available pending discussion.  
Note: Due to a lack of courier service to UK/Europe the turnaround times for referral tests during the Christmas/New Year period is increased by on average 7-10 days.

Test reports from external referral laboratories are scanned into the patient record when received & are available on Powerchart.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test | Mnemonic | Sample Requirements | Notes | Referral Lab | Ref Range | Turn-Around Time |
| Adalimumab (both levels & IgG antibodies) | ADALIM & ADALIMIGG | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield |  | 2-4 Weeks |
| Anti-Acetylcholine Receptor Antibodies | ACRA | Serum Gel Tube 4.9mls |  | Glasgow Neuroimmunology Laboratory | <0.5 nmol/L | 1 Month |
| Anti-Aquaporin 4 Antibodies (NMO) | AQUA4 | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | Negative | 4 Weeks |
| Anti-Aquaporin 4 Antibodies (NMO) CSF | AQUA4CSF | CSF |  | Neurosciences Group, Oxford | Negative | 4 Weeks |
| Anti-C1Q Antibodies | ANTIC1Q | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | 0-15 u/mL | 2-4 Weeks |
| Anti-Cardiac and Striated Muscle Abs | MUSCLEABSO | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | Negative | 24 days |
| Anti- Diphtheria antibodies | DIPH | Serum Gel Tube 4.9mls |  | Manchester Medical Microbiology Partnership | 0.1IU/mL protective level | Up to 3 Months |
| Anti-Gangleoside Antibodies | GANG AB | Serum Gel Tube 4.9mls |  | Glasgow Neuroimmunology Laboratory | Negative | 18 days |
| Anti-Ganglioside Antibodies (CSF) | GANG ABCSF | CSF |  | Neurosciences Group, Oxford | Negative | 18 days |
| Anti-Glutamic Acid Decarboxylase Antibody | GAD | Serum Gel Tube 4.9mls |  | Immunology Dept, Mater Hospital | <9 IU/mL | 5 Weeks |
| Anti-Haemophilus influenzae B Antibodies (HIB) | HIB | Serum Gel Tube 4.9mls |  | Immunology Black Country Pathology Services New Cross Hospital | 0.15 mg/L Minimum protective level | Up to 2 Months |
| Anti-Insulin Antibody | INAB | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | <5 mg/L | 19 days |
| Anti-Islet Antigen Type 2 Antibodies | IA2 | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | <10 IU/mL | 4 Weeks |
| Anti-Islet Cell Antibodies | ICA | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | Negative | 24 days |
| Anti-Musk Antibodies | MUSK | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | Negative | 4-6 Weeks |
| Anti-MAG antibodies | MAGA | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | 0-1000 BTU | 3-4 Weeks |
| Anti-MOG Antibodies | MOG | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | Negative | 5 Weeks |
| Anti-Myelin Oligodendrocyte Antibodies (CSF) | MOGCSF | CSF |  | Neurosciences Group, Oxford | Negative | 5 Weeks |
| Anti-Ovarian Antibodies | OVA | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | Negative | 1 Month |
| Anti-PLA2R Antibodies | PLA2R | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | 0-13 RU/mL | 4 weeks |
| Anti-Tetanus Antibodies | TET | Serum Gel Tube 4.9mls |  | Immunology Black Country Pathology Services New Cross Hospital | 0.01-0.09 IU/mL Basic protection | Up to 2 Months |
| Anti-Thyroid Receptor Antibodies | TRAB | Serum Gel Tube 4.9mls |  | Dept. of Endocrinology, St. James Hospital | <1.8 IU/L | 24 days |
| Anti-Voltage Gated Ca Channel Antibodies | VGCC | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | 0-45 PM/L | 4-6 Weeks |
| Anti-Voltage Gated Ca Channel Abs CSF | VGCCCSF | CSF |  | Neurosciences Group, Oxford |  | 4-6 Weeks |
| Anti-Voltage Gated K+ Channel Antibodies | VGKC | Serum Gel Tube 4.9mls |  | Neurosciences Group, Oxford | 70-130 PM/L Equivocal  >130 PM/L Positive | 4-6 Weeks |
| Anti-Zinc Transporter Antibodies | ZNT8 | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | <10 U/mL | 24 Days |
| Biologics (except Infliximab, Adalimumab & Rituximab) serum levels & IgG antibodies) | BIOLOGIC & BIOLOGICIGG | Serum Gel Tube 4.9mls | Requesting Clinician to complete Biologics Request Form (LF-IMM-GEN0055) Please contact lab for details. | Sanquin Diagnostic Services, Amsterdam |  | 2-4 Weeks |
| C3 Nephritic Factor | C3NF | Fresh frozen Serum Gel Tube 4.9mls | Only done on C3 reduced samples | Dept of Immunology, Sheffield | Negative | By Arrangement |
| Complement C1q Level | C1QLEVEL | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | 50-250 mg/L | 4-6 Weeks |
| Complement C2 | C2 | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | 10-30 mg/L | 4-6 Weeks |
| Complement Function | COMPFSO | Serum Gel Tube 4.9mls | Serum must be separated & frozen maximum of 3 hours after venepuncture | Dept. of Immunology, St James Hospital | Normal | 3 months |
| Functional C1 Inhibitor | C1INHFXN | Serum Gel Tube 4.9mls |  | Dept. of Immunology, St James Hospital |  | 35 days |
| IgG Subclass 4 | IGG4 | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield | Age Related. Adult 0-1.3 g/L | 19 days |
| Infliximab (both levels & IgG antibodies) | INFLIXIGG & INFLIX | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield |  | 2-4 Weeks |
| Mannose Binding Lectin | MBL | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield |  | 24 days |
| Meningococcal Serology (Serotype Specific Antibodies) | MENINGO | Serum Gel Tube 4.9mls |  | Manchester Medical Microbiology Partnership | Serogroups A,C,Y,W >=8 rSBA Titre protective | Up to 3 Months |
| Neutrophil Oxidative Burst | OXBURSTSO | Fresh EDTA  4mls plus travel control |  | Dept. of Immunology, St James Hospital | Normal | By Arrangement/12 days |
| Rituximab (both levels & IgG antibodies) | RITUX & RITUXIGG | Serum Gel Tube 4.9mls | Requesting Clinician to complete Biologics Request Form (LF-IMM-GEN0055) Please contact lab for details. | Sanquin Diagnostic Services, Amsterdam |  | 2-4 Weeks |
| Specific IgE Referral | SIGEREFERRAL | Serum Gel Tube 4.9mls |  | Dept of Immunology, Sheffield |  | 24 days |
| Serotype Specific Anti-Pneumococcal Antibodies | SSPNEUM | Serum Gel Tube 4.9mls |  | Immunology Addenbrooks Hospital, Cambridge | 0.35g/mL Protective | 4-6 Weeks |
| Urinary Soluble CD163 | UCD163 | Urine |  | Dept. of Immunology, St James Hospital |  | 28 days |

Contact Details of External Laboratories

Neurosciences Group, Headington, Oxford Tel:00 44 186 522 5995

Glasgow Neuroimmunology Laboratory. Tel:00 44 141 354 9010

Dept of Immunology, Northern General Hospital, Sheffield. Tel:00 44 114 271 5552

Dept. of Immunology, St James Hospital, Dublin 8. Tel:01 416 2924/2925

Immunology Black Country Pathology Services New Cross Hospital. Tel: 00 44 01902 695279

Immunology Department, Mater Misericordiae University Hospital, Dublin 7. Tel: 01 803 2398/2119

Manchester Medical Microbiology Partnership Tel: 0044 161 276 8854

Immunology Addenbrooks Hospital, Cambridge University Hospitals NHS Foundation Trust.   
Tel: 0044 122 321 6729

IMD Berlin, Nicolaistraße 22, Berlin, 12247, Germany Tel: +49 30 77001-220

Sanquin Diagnostic Services, Dept UDC, Plesmanlaan 125, 1066 CX Amsterdam, The Netherlands

Tel: 0031 20 512 3449

Repertoire of Tests & Test Profiles

All tests are performed on serum samples. Up to 5 tests can be performed on a 10 mL sample. However separate samples are required for some tests to facilitate optimum handling.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Specimen | Minimum  Volume | Method | Reference Range | TAT | Urgent  Service | Comment | Mnemonic | Frequency  of Retesting |
| Anti-Adrenal Antibodies | Serum Gel Tube | 4.9mls | Indirect immunofluorescence | Negative | 4 weeks |  |  | ADRA | 6 months |
| Anti-Beta2Glycoprotein 1 (IgG and IgM) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | <10 U/ml | 8 days |  |  | APS | 12 weeks |
| Anti-Cardiolipin Antibodies (IgG and IgM) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | IgG: 0-10 GPLU/mL  IgM: 0-10 MPLU/mL | 8 days |  |  | APS | 12 weeks |
| Anti-CCP | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | < 7 U/ml | 8 days |  |  | CCP | 3 Months |
| Anti-dsDNA Antibodies | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) & IIF by DNA crithidia | EliA:<10 IU/mL  IIF: Negative | EliA:<3-5 days IIF: 8 days | On Request |  | DNA | >3 weeks (unless plasma-apheresis/ discussion) |
| Anti-ENA (Extractable Nuclear Antigen) Antibodies – includes anti-Ro, La, RNP, Sm, Jo-1 & Scl-70) | Serum Gel Tube | 4.9mls | EliA with confirmation by EliA/Immunoblot | Negative for all 6 components | 2-3 weeks |  | ENA Typing is carried out on all Equivocal and Positive ENA Screens by EliA & conformed with Immunoblot | ENA | >1 year unless patient is pregnant |
| Anti-Endomysial (IgA) Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative | 8 days |  |  | EMA | >3 months |
| Anti-Endomysial (IgG) Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative | 8 days |  | Only performed when IgA deficiency | EMAG |  |
| Anti-Gastric-Parietal Cell antibodies (Anti-GPC) | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative | 3-5 days |  |  | GPC | >3 months |
| Anti-Glomerular Basement Membrane antibodies (Anti-GBM) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | Negative: <7U/ml  Equivocal: 7- 10U/ml  Positive: >10 Uml | 1-3 days | On Request |  | GBM | As requested & discussed |
| Anti-Histone Antibodies | Serum Gel Tube | 4.9mls | Immunoblot | Negative | 4-6 weeks |  |  | HIST | Once Off |
| Anti-Intrinsic Factor Antibodies | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | Negative: <7 U/ml  Equivocal: 7-10 U/mL  Positive: > 10 U/ml | 8 days |  |  | IF | >6 months |
| Anti-Liver-Kidney Microsomal (LKM and or LC1) Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence + Immunoblot if IIF positive | Negative | 3-5 days |  |  | LKM | >1 month |
| Anti-Mitochondrial Antibody (including M2 subtyping) | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence + ELISA if positive | Negative  M2 ELISA <10 IU/ml | 3-5 days (1 month if IIF positive) |  |  | AMA | >3 months  M2 performed only once |
| Anti-Myeloperoxidase antibodies (Anti-MPO) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | <3.5IU/mL | 3-5 days, or as required | On request | Follow-up of patients with know MPO-ANCA positive disease | MPO | 3 Weeks, unless discussed |
| Anti-Myeloperoxidase antibodies (Anti-MPO) & Anti-Proteinase 3 antibodies (Anti-PR3) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | <3.5IU/mL MPO  <2IU/mL PR3 | 3-5 days, or as required | On request |  | MPR3 | 3 Weeks, unless discussed |
| Anti-Neuronal Antibodies incorporating Anti-Hu, Anti-Yo, Anti-Ri, Anti-PNMA2, Anti- Amphiphysin, Anti-Cv2/CRMP5, Anti-Recoverin, Anti-SOX1, Anti-Zic4, Anti-Titin, Anti-GAD65, Anti-Tr | Serum Gel Tube  & CSF | 4.9mls | Indirect Immunofluorescence & Immunoblot | Negative | 15 days |  | Paired Serum/CSF samples will be accepted. Results of both must be interpreted in the clinical context. | Serum: NEURONAL/ NEUROBLOT  CSF: NEURONALCSF / NEUROBLOTCSF | >6 months |
| Anti-Neutrophil Cytoplasm Antibodies (ANCA) (IIF) | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative | 8 days |  |  | ANCA | 3 Weeks, unless discussed |
| Anti-NMDA Antibodies Serum | Serum Gel Tube | 4.9mls | Indirect Immunoflourescence | Negative | 8 days | Upon request |  | NMDA | Discuss with Clinical Team |
| Anti-NMDA Antibodies CSF | CSF |  | Indirect Immunflourescence | Negative | 8 days | Upon request |  | NMDACSF | Discuss with Clinical Team |
| Anti-Nuclear Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative.  Weak positive (1:80 ) are commonly seen particularly in healthy older women. | 3-5 days |  | Investigating Autoimmune Liver Disease, otherwise order CTD | ANA | No more than 3 monthly |
| Anti-Nucleosome Antibodies | Serum Gel Tube | 4.9mls | Immunoblot | Negative | 4-6 weeks |  | Strong clinical suspicion of lupus with negative routine serology. Must discuss with Consultant Immunologist. | NUCSOME | Once Off |
| Anti-Proteinase 3 antibodies (Anti-PR3) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | <2IU/mL | 3-5 days, or as required | On request | Follow-up of patients with known PR3-ANCA positive disease. | PR3 | 3 Weeks, unless discussed |
| Anti-Ribosomal-P Antibodies | Serum Gel Tube | 4.9mls | Immunoblot | Negative | 4-6 weeks |  | Strong clinical suspicion of lupus with negative routine serology. Must discuss with Consultant Immunologist. | RIBOP | Once Off |
| Anti- SARS-CoV-2 Antibodies | Serum Gel Tube | 4.9mls | Immunoassay | Nucleocapsid: Not Detected  Anti-Spike: <0.8 U/ml Not Detected | 16 days |  | Nucleocapsid and Spike Antibody | ANTICV19 |  |
| Anti-Scleroderma Antibodies/ Systemic Sclerosis Panel | Serum Gel Tube | 4.9mls | Immunoblot | Negative | 4-6 weeks |  |  | SCLRDERM |  |
| Anti-Skin Antibodies | Serum Gel Tube | 4.9mls | Indirect immunofluorescence | Negative | 8 days |  |  | SKIN | 6 months but Positive ICS as requested |
| Anti-Smooth Muscle Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunofluorescence | Negative | 3-5 days |  |  | SMA | >3 months |
| Anti-Streptolysin-O Titre (ASOT) | Serum Gel Tube | 4.9mls | Immunoturbidimetry | <200IU/ml | 3-5 days |  |  | ASOT | 3 weeks |
| Anti-Thyroid Peroxidase Antibodies (anti-TPO) | Serum Gel Tube | 4.9mls | Immunoassay | Negative: <=34 IU/mL  Positive: > 34 IU/mL | 8 days |  |  | TPO | >6 months; if equivocal >3 months |
| Anti-Tissue Transglutaminase Antibodies (anti-tTG) | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | Negative: < 4 U/ml  Equivocal: 4-10 U/ml  Positive: 10 U/ml | 8 days |  |  | tTG | >3 months |
| Autoimmune Encephalitis Panel (AIEPANEL) incorporating anti-NMDA, anti-AMPA 1/2 , anti-GABAb, anti-DPPX, anti-LGI1, anti-CASPR2 Antibodies | Serum Gel Tube  CSF | 4.9mls | Indirect Immunoflourescence | Negative | 8 days | Upon request | Paired Serum/ CSF samples required particularly during initial work up. | AIE & AAIECSF | Discuss with Clinical Team |
| Autoimmune Encephalitis Screen Serum (AIESERUM) incorporating anti-NMDA, anti-AMPA 1/2 , anti-GABAb, anti-DPPX, anti-LGI1, anti-CASPR2 Antibodies | Serum Gel Tube | 4.9mls | Indirect Immunoflourescence | Negative | 8 days | Upon request | Paired Serum/CSF samples preferred, particularly during initial workup. Plasma can be accepted following discussion with Lab/Clinical staff | AIE | Discuss with Clinical Team |
| Autoimmune Encephalitis Screen CSF (AIECSF) incorporating anti-NMDA, anti-AMPA 1/2 , anti-GABAb, anti-DPPX, anti-LGI1, anti-CASPR2 Antibodies | CSF |  | Indirect Immunoflourescence | Negative | 8 days | Upon request | Paired Serum/CSF samples preferred, particularly during initial workup. | AIECSF | Discuss with Clinical Team |
| C1 Esterase Inhibitor (C1INH) | Serum Gel Tube | 4.9mls | Turbidimetry | 0.21-0.38 g/L | 4-6 weeks |  |  | C1INH | Once off if normal. As required if low |
| C3 | Serum Gel Tube | 4.9mls | Immunoturbidimetry | 0.9-1.8 g/L | 1-5 days | On request |  | C3 | As Requested |
| C4 | Serum Gel Tube | 4.9mls | Immunoturbidimetry | 0.1-0.4 g/L | 1-5 days | On request |  | C4 | As Requested |
| CTD Screen | Serum Gel Tube | 4.9mls | EliA (IMMUNOCAP) | Negative | 2-5 days |  |  | CTD | No more than 3 monthly |
| Direct Immunofluorescence (DIF) on Skin Biopsies | Fresh skin biopsy, transported on damp gauze to the laboratory |  | Direct Immunofluorescence |  | 4 weeks |  | Unless special arrangements have been agreed specimen MUST reach the immunology laboratory by 4pm |  |  |
| IgG Subclasses | Serum Gel Tube | 4.9mls | Turbidimetry | IgG 7 - 16 g/L  IgG1 3.824 - 9.286 g/L  IgG2 2.418 - 7.003 g/L  IgG3 0.218 - 1.761 g/L  Note: These are adult specific reference ranges | 8 weeks |  |  | IGGSub | Annually |
| Tryptase | Serum Gel Tube | 4.9mls | FEIA (IMMUNOCAP) | 2-14 μg/L (Anti-mortem specimens only) | 1 month |  |  | TRYPTRAND/TRYPT1HR/TRYPT24HR/TRYPT3HR | As requested/discussed |
| Myositis Screen /Panel | Serum Gel Tube | 4.9mls | Immunoblot, correlated with ANA apperance | Negative | 4-6 weeks |  |  | MYOSITIS | Once off |
| Immunology Consult | Serum Gel Tube | 4.9mls | Consultant, SPR or Chief Medical Scientist will select appropriate tests | As appropriate | As per assay |  | Full clinical details and contact bleep number required | IMMCON |  |
| Rheumatoid Factor | Serum Gel Tube | 4.9mls | Immunoturbidimetry | <14 IU/mL | 3-6 days |  |  | RF | >3 Months |
| Specific IgE | Serum Gel Tube | 4.9mls | FEIA (IMMUNOCAP) | <0.35 Units Class 0 Negative  0.35-0.7 Class 1 Weakly Positive  0.7-3.5 Class 2 Positive  3.5-17.5 Class 3 Positive  17.5-52.5 Class 4 Strongly positive  52.5-100 Class 5 Strongly positive  >100 Class 6 Strongly positive | 15 days  21 days for sIgE to Drugs |  |  | See section on page 129 | 1 year for same allergens |
| Specific IgGs  sIgG Aspergillus  sIgG M. Faeni  sIgG Budgie  sIgG Pigeon | Serum Gel Tube | 4.9mls | FEIA (IMMUNOCAP) | <40 mgA/l  <22 mgA/l  <30 mgA/l  <38 mgA/l | 30 days |  |  |  | >6 months |
| Total IgE | Serum Gel Tube | 4.9mls | FEIA (IMMUNOCAP) | Range is age related.  Adult reference range 0-100 kU/L | 15 days |  |  | IGE | 1 year |

Any of these guidelines may be overruled in a particular clinical situation, if the case is discussed with staff in the immunology laboratory and/or the Consultant Immunologist. If you are uncertain of how best to investigate the patient, you are welcome to contact the Chief Medical Scientist, the Specialist Registrar or Prof. Keogan/Dr Khalib/Dr Cox, Consultant Immunologists to discuss the individual case.

Current available Specific IgE (sIgE) Allergens

|  |  |  |  |
| --- | --- | --- | --- |
| Allergen | Code | Allergen | Code |
| Asthma Panel | ASTHMA | Grape | f259 |
| CF-ABPA Panel | Careset | Grass Pollen Mix | gx1 |
| Acarus siro (Flour mite) | d70 | Hake | f307 |
| Almond | f20 | Hazel nut | f17 |
| Alternaria alternata | m6 | Hazel nut components | CORA9A14 |
| Amoxicilloyl | c6 | Honey bee | i1 |
| Ampicilloyl | c5 | Horse dander | e3 |
| Animal Panel | ANIMAL | House dust mite (d1) | d1 |
| Apple | f49 | House dust mite (D. Farinae) | d2 |
| Aspergillus fumigatus | m3 | Kiwi | f84 |
| Banana | f92 | Latex | k82 |
| Barley | f6 | Lentil | f235 |
| Blue mussel | f37 | Lobster | f80 |
| Brazil nut | f18 | Macadamia nut | f345 |
| Cagebird Feather Mix | ex72 | Mackerel | f206 |
| Candida albicans | m5 | Maize, Corn | f8 |
| Cashew nut | f202 | Milk | f2 |
| Cat dander | e1 | Morphine | c260 |
| Cefaclor | c7 | Mushroom | f212 |
| Chick pea | f309 | nCor a 9, Hazel nut | f440 |
| Chicken | f83 | Nut Mix | fx1 |
| Chilipepper | f279 | Oat | f7 |
| Chlorhexidine | c8 | Orange | f33 |
| Citrus Fruit Mix | fx29 | Oyster | f290 |
| Cladosporium herbarum | m2 | Pea | f12 |
| Coconut | f36 | Peach | f95 |
| Cod | f3 | Peanut | f13 |
| Common silver birch | t3 | Peanut Panel | PEANUT |
| Common wasp (Yellow jacket) | i3 | Pecan nut | f201 |
| Crab | f23 | Penicillin Panel | PENICILLIN |
| Dog dander | e5 | P. chrysogenum (notatum) | m1 |
| Egg | f245 | Penicilloyl G | c1 |
| Egg white | f1 | Penicilloyl V | c2 |
| Fish Mix | fx2 | Pine nut, pignoles | f253 |
| Fruit Mix | fx21 | Pistachio | f203 |
| Pollen Panel | POLLEN | Salmon | f41 |
| Pork | f26 | Sesame seed | f10 |
| Potato | f35 | Shellfish Panel | SHELLFISH |
| rAra h 2 Peanut | f423 | Shrimp | f24 |
| rAra h 8 PR-10, Peanut | f352 | Soybean | f14 |
| rAra h 9 LTP, Peanut | f427 | Spice Mix | fx71 |
| rAsp f 2 Aspergillus | m219 | Strawberry | f44 |
| Allergen | Code | Allergen | Code |
| rBet v 1 PR-10, Birch | t215 | Suxamethonium | c202 |
| rCor a 1 PR-10, Hazel nut | f428 | Timothy grass | g6 |
| rCor a 14, Hazel nut | f439 | Tomato | f25 |
| rCor a 8 LTP, Hazel nut | f425 | Tree Pollen Mix | tx8 |
| Rhinitis Panel | RHINITIS | Tuna | f40 |
| Rice | f9 | Walnut | f256 |
| rMal d 1 PR-10, Apple | f434 | Wheat | f4 |
| rMal d 3 LTP, Apple | f435 | Yeast | f45 |
| Rocuronium | U254 | Total IgE | IgE |
| rPru p 3 LTP, Peach | f420 | Tryptase (Random) | TRYPTRAND |
| rPru p 4 Profilin, Peach | f421 | Tryptase <1 HR | TRYPT1HR |
| rTri a 19 Omega-5 Gliadin, Wheat | f416 | Tryptase 24 HR | TRYPT24HR |
| Rye | f5 | Tryptase 3 HR | TRYPT3HR |

\*Details of Panel & Mix contents are given below

|  |  |
| --- | --- |
| ALLERGENS | Panel & Mix Details |
| ANIMAL PANEL | Cat, Dog |
| ASTHMA PANEL | HDM, Aspergillus fumigatus, Cat |
| CAGEBIRD FEATHER MIX | Budgerigar, Canary bird, Parakeet, Parrot & Finch feathers |
| CITRUS FRUIT MIX | Orange, Lemon, Grapefruit, Mandarin |
| FISH MIX\*\* | Fish, Shrimp, Blue mussel, Tuna, Salmon |
| FRUIT MIX | Kiwi, Melon, Banana, Peach, Pineapple |
| GRASS POLLEN MIX | Cock's-foot or orchard grass, Meadow fescue, Ryegrass, Timothy-grass, Common Meadow-grass (Dactylis glomerata, Festuca elatior, Lolium perenne, Phleum pratense, Poa pratensis) |
| Hazel Nut Components | nCor a 9 & rCor a 14, Hazel nut |
| NUT MIX\*\* | Peanut, Hazel nut, Brazil nut, Almond, Coconut |
| PEANUT PANEL | Peanut & Arah2 |
| PENICILLIN PANEL | Penicillin G, Penicillin V, Amoxicillin, Ampicillin, Cefaclor |
| POLLEN PANEL | Trees, Grass |
| RHINITIS PANEL | HDM, Cat, Trees, Grass |
| SHELLFISH PANEL | Lobster, Crab, Shrimp, Mussel |
| SPICE MIX | Caraway, Mace, Cardamom, Clove; |
| TREE MIX | Box-elder, Common silver birch, Hazel, Oak & Maple leaf sycamore (Acer negundo, Betula verrucosa, Corylus avellana, Quercus alba, Platanus acerifolia) |

\*\*For nut mix & fish mix, if we get a positive result, we would automatically do the individual allergens included in the relevant mix.

Please request SIGEREFERRAL, and state name of allergen, for anything not on the above list. If the history indicates an unusual allergen, the appropriate test will be sent to the UK.

Test Profiles

To make test ordering more efficient we have set up a range of disease specific test profiles, for investigations of common potentially immunological disorders. Where screening tests are included in test batteries, positive screening tests lead to reflex ordering of appropriate follow-up tests, as detailed in Section 8.

|  |  |  |  |
| --- | --- | --- | --- |
| Profile | Tests Included | Indication | Comment |
| Acute Renal Failure Screen | CTD  Anti-MPO and PR3 Antibodies  GBM  C3/C4  ASOT | Acute or acute –on-chronic renal failure. | Please discuss all pulmonary-renal syndrome or ? rapidly progressive GN, as urgent service available. |
| Inflammatory Arthritis Antibodies | RF  CCP  CTD | Isolated inflammatory arthritis, in the absence of systemic features. | ANCA should be added if urinalysis is abnormal. NB: 2 separate samples are required for INFL ABS. |
| Liver Disease Associated Autoantibodies | ANA  Anti-Smooth Muscle  Anti-Mitochondrial  Anti-LKM | Suspected chronic liver disease. | If MITO pos, M2 subtyping will be performed, on the first occasion only. |
| Vasculitis Screen | CTD  Anti-MPO and PR3 Antibodies RF  C3/C4 | Suspected vasculitis or connective tissue disease. | This battery is intended for diagnosis only.  More selective tests should be used for monitoring once diagnosis established. |
| Asthma sIgE | sIgE - House dust mite  sIgE – Aspergillus  sIgE – Cat | Allergic asthma. |  |
| Rhinitis sIgE | sIgE – House dust mite  sIgE – Cat  sIgE – Trees  sIgE - Grass | Perennial Rhinitis, thought to be allergic. |  |
| Shellfish sIgE | sIgE – Lobster  sIgE - Crab  sIgE - Shrimp  sIgE - Mussel | Suspected allergy to shellfish. | Negative result does not rule out shellfish allergy. If this is suspected clinically referral to a Clinical Immunologist is advised. |
| Pollen sIgE | sIgE – Mixed gras  sIgE–Mixed trees |  |  |
| Coeliac Screen | Anti-tTG  Anti-EmA (if tTG is Equivocal or Positive) | Suspected Coeliac Disease.  Malabsorption.  Anaemia.  Gastrointestinal symptoms. |  |
| Autoimmune Encephalitis Panel AIEPANEL | Anti-NMDA, Anti-AMPA 1/2, Anti-DPPX, Anti-GABAb, Anti-LGI1, Anti-CASPR2 Antibodies | Suspected Autoimmune Encephalitis, Myotonia, seizures, Neuropsychiatric symptoms. | Paired Serum/CSF samples preferred, (particularly in the initial diagnostic phase), due to the known incidence of false negatives on serum documented in the literature. |

Immunological Tests performed in other Laboratories in Beaumont Hospital

|  |  |  |  |
| --- | --- | --- | --- |
| Test | Mnemonic | Specimen | Contact |
| Immunoglobulins | IGGS | Serum Gel | Proteins (809) 2305 |
| C Reactive Protein | CRP | Heparin | Clin Chem (809) 2668 |
| Protein electrophoresis | SPE | Serum Gel | Proteins (809) 2305 |
| Urine electrophoresis (Bence Jones Protein) | UPE | 24 hour urine collection | Proteins (809) 2305 |
| 2 Microglobulin | B2M | Serum Gel | Proteins (809) 2305 |
| Cryoglobulins | CRYOS | Special instructions on computer  8 hour Fasting Samples Required | Proteins (809) 2305 |
| Lymphocyte subsets | LY-SUB | EDTA | Haematology (809)2763 |

**HISTOPATHOLOGY**

### Specimen Requirements For Histopathology

The following is a guideline on the requirements of the various specimen types and the appropriate manner in which they should be delivered to the laboratory. This ensures the integrity of the specimen for laboratory investigations.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tissue Type** | **Fixative Required** | **Comment** |  |
| Specimen for Frozen Section. | Send fresh to the laboratory -  immediately. | 24 hours notice of Frozen sections should be given where possible. Contact the Histopathology Lab Ext 2353.  Details supplied with the specimen must include a bleep number or theatre intercom to deliver report to. |  |
| Renal biopsies | Send in saline (Dublin Hospitals)  Send in Formalin/Zeus (Regional Centres) (full details in section Error: Reference source not found) | Please inform Renal Office Ext. 2765 of specimen. The Main Histology Lab can be contacted @ 2353. The EM lab on 8633. |  |
| Lymph nodes  (for lymphoma diagnostics) | Send fresh to the laboratory -immediately. | Please supply all relevant clinical details. |  |
| Solid Tumours  (Colon, Breast, Lung etc.) | Send fresh to the laboratory -  immediately. | Please supply all relevant clinical details. |  |
| Liver biopsies\* | Where possible, send two specimens – one in 10% Neutral Buffered Formalin and one wrapped in saline moistened gauze. | Please supply relevant clinical details. |  |
| Oncotyping\* | Paraffin Block | Referred to Genomic HealthCare (US) for Onctotpyping |  |
| Mitochondrial Studies\* | Send fresh to the laboratory -  Immediately | Referred to Mitochondrial Research Group in Newcastle University for analysis/St James Hospital (CMD) |  |
| CSF for RT-QuIC Analysis | CSF frozen at -70°C within 30 minutes of aspiration and transported to the Neuropathology Dept, Beaumont Hospital on dry ice. | Volume CSF: 1 - 2ml.  Sample must be clear and colourless (not blood stained) with a white cell count of <10x10^6/L and have a total protein concentration of <1 g/L1. Red blood cells (>1250 x 10^6/L) inhibit the RT-QuIC response resulting in false negatives. High CSF total protein concentrations of >1.0 g/L and raised white blood cell counts can result in false positives. |  |
| Primary Ciliary Dyskinesia\* | Nasal Scraping | Referred to Southhampton General Hospital for analysis |  |
| Flow Cytometry\* | CSF  Or  Lymph Node | Referred to Haematology in St. James’s Hospital Dublin for Analysis |  |
| Amyloidosis\* | Paraffin Block | National Amyloidosis Centre, London, University College London |  |
| PDL1\* non-breast (NCCP recommendation) | Paraffin Block | Referred to Poundbury Cancer Institute, Dorchester, London &  HSL-Advanced Diagnostics  HEALTH SERVICES LABORATORIES  (A Sonic Healthcare UK laboratory) for metastatic oesophageal SCC. | |
| Molecular Studies – MY88 | Paraffin Block | Referred to Royal Victora Hospital Belfast |  |
| All other tissue | Send in 10% Neutral Buffered Formalin. | An adequate volume of formalin in a specimen container of suitable size is essential for proper fixation. The volume of formalin used should be at least twice the volume of the tissue to be fixed. Small specimens should be placed in biohazard bags. |  |
| Histology Blocks\* |  | outsourcing of blocks for cutting & staining to HTS |  |

### Cytopathology Specimen Requirements

|  |  |
| --- | --- |
| **Specimen** | **Specimen requirements** |
| **Bronchial brushings** | * Place material in a sterile container labelled with   patient and specimen details, including the time  of specimen collection. |
|  |  |
| **Fluids**  **(Pleural, Ascitic etc.)** | * Place material in a sterile container labelled with patient and specimen details, including the time of specimen collection. * At least 20 mls of fluid is required for diagnosis. |
| **Urine** | - Total voided specimen is required for cytology.   * The first morning specimen is not suitable. * Place in a container labelled with patient and specimen details. |
| **Fine Needle Aspiration Cytology/EUS/EBUS** | Sample from EUS/EBUS is sent to the cytology lab in cytolyt (available in the lab – Ext 2640) |
| **Cerebrospinal Fluid for Cytology.** | * Specimen must be collected in a sterile container labelled with patient and specimen details and delivered to the Neuropathology laboratory. |
| **Flow Cytometry\*** | * ***Cytometry placed directly into RPMI are viable for up to 18Hrs****. (Contact Cytology on Ext. 2640)* |

\* Specimens referred out from Beaumont Hospital - the results of these tests are not covered by the scope of Beaumont Hospital Histopathology Department ISO15189 accreditation

### Reports issued/Expected Turn Around Times (TAT)

#### Turn Around Times

The following table lists the turn-around-times for H&I reports:

|  |  |
| --- | --- |
| **TESTS** | **TURN AROUND TIMES** |
| HLA typing for Solid Organ Transplant | 3 weeks – *Urgent service available* |
| HLA Antibody Screening | 2-4 weeks – *Urgent service available* |
| HLA Antibody Screening HLA typing requests for emergency transplantation | Same day service if requested |
| NHISSOT Patient report for the transplant clinic | 4 weeks from request to issuing a report |
| Transplant pool work-up | 2-6 weeks |
| Deceased donor work-up | 6 hours |
| Potential donor recipient list | 8 hours |
| Crossmatching for renal transplants | 6 hours |
| Crossmatching for pancreatic/cardiothoracic transplants. Time taken from receipt of bloods in H&I laboratory and potential names for crossmatch given to the on-call scientist | 6.5 hours for processing a single donor with a standard workup of a maximum 4 names. This time may change due to additional names or for technical issues. Users will be informed |
| Living donor work-up | 1st work-up 4 weeks  2nd work-up 3 weeks  Final work-up 48 hours |
| Autocrossmatch | 2-3 days |
| Post Transplant Monitoring  Non Urgent.  *If contacted by the referring clinician for a more timely report the sample can be set on the next screen*.  Further testing/ typing | 2 weeks.  3 weeks |
| Post Transplant monitoring - Urgent antibody screening request for possible graft rejection  *Requires discussion with Antibody Screening Senior. The level of urgency must be stated by the referring clinician*. | Same day service available if required, otherwise the sample is set on the next screen. |
| HLA typing for disease association | 4 weeks |
| HLA typing for BMT/HSCT | 2 weeks (unless awaiting further potential donors from overseas) |
| HLA typing for B57 | 4 weeks |
| HLA typing for partners | 3 weeks |
| ABO Blood Grouping | 2-3 hours |

### Reference Ranges

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Sample required** | **Speimen container** | **Min sample volume** | **Reference ranges** | **TAT** | **Comments** | **Mnemonic** |
| Arterial Blood Gas NPT | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | pH: 7.35-7.45  pCO2: 4.3-6.4 kPa  pO2: 11.0-14.4 kPa  sO2: 94.0-98.0%  HCO3-(P,)c: 21-28 mmol/L  HCO3-(P,st)c: 22-26 mmol/L  SBEc: -2.0 to 3.0 mmol/L  tHb: 11.7-17.4 g/dL  FO2Hb: 90.0-95.0%  Na+: 136-145mmol/L  K+ : 3.5-5.1 mmol/L  Cl- : 98-107 mmol/L  Ca2+ :1.15-1.33 mmol/L  Glu: 3.6-5.3 mmol/L  Lac: 0.4-0.8 mmol/L  Hctc: N/A | 2mins | Test profile for ABG samples processed at the **point of care**. Reference ranges quoted are specific for arterial blood sample types and are not gender specific.  Never transfuse a patient based on a blood gas tHb result. | ABGPOCT |
| Arterial Blood Gas Lab | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | pH: 7.35-7.45  pCO2: 4.3-6.4 kPa  pO2: 11.0-14.4 kPa  sO2: 94.0-98.0%  HCO3-(P,)c: 21.0-28.0 mmol/L  HCO3-(P,st)c: 22-26 mmol/L  SBEc: -2.0 to 3.0 mmol/L | 0.5Hrs | Test profile for ABG samples processed in the **Chem Path Lab**. Reference ranges quoted are specific for arterial blood sample types and are not gender specific.  Never transfuse a patient based on a blood gas tHb result. | ABG |
| Lactate, Arterial Sample | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | 0.4-0.8 mmol/L | 0.5Hrs | Processed in Lab only | ALACT |
| Lactate, Venous Sample | Arterial Syringe or Lithium Heparin | Lithium Heparin (Orange Top) | 1mL (syringe)  2.7ml (Li-Hep tube) | 0.6-1.4 mmol/L | 0.5Hrs | Processed in Lab only | VLACT |
| pH (fluid) | Arterial syringe | Lithium Heparin | 1mL | N/A | 0.5Hrs | Processed in Lab only | FLPH |
| Carboxyhaemoglobin | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | FCOHb: 0.5- 3.0% | 2mins | No specific ranges reported on analyser for smoker/non/smoker | COHB |
| Methaemoglobin | Arterial Syringe | Lithium Heparin | 1 mL | 0.0 – 1.5 % | 0.5 hours |  |  |
| Methanol | Serum | Plain  (White Top) | 4.9ml | Units: mg% | 24 hours | Processed in Lab only | METHB |
| SARS-CoV-2 & Influenza A/B | Nasopharyngeal Swab | VTM/UTM viral swab containing one swab | N/A | N/A | 30mins | TAT from time sample loaded on to Liat device | CV19POCT |
| Glucose NPT | Capillary | Fingerprick |  | 4-7mmol/L | 10s | Confirm any abnormal result with a venous sample sent to lab | N/A |
| Ketone NPT | Capillary | Fingerprick | 1.0 µL | 0.1-0.6 mmol/L | 10s |  | N/A |
| INR NPT | Capillary | Fingerprick | 8µL | INR target ranges depend on the presenting condition that requires the patient to be on anticoagulant therapy. Results >4.5 must be followed up with an urgent sample to the lab | 10s | Confirm result >4.5 with a venous sample sent to lab | N/A |
| HbA1c NPT | Capillary | Fingerprick |  | <48mmol/mol (6.5%) in normal subjects | 5mins | For new patients always send first sample for HbA1c analysis to the Chem path lab to check for any existing variants prior to ever using NPT devices. | N/A |

### Specimen Requirements for Neuropathology

|  |  |  |
| --- | --- | --- |
| **Tissue Type** | **Means of Delivery to Neuropathology** | **Comment** |
| Specimen for urgent frozen section | Send fresh. Hand deliver immediately. | The Neuropathology consultation form must include a bleep number or intercom number to deliver the report |
| Muscle Biopsy\* | Send on gauze that is barely dampened in saline. Do not fix in formalin. Hand deliver immediately.  See Section Error: Reference source not found for requirements from external centres. | Must be received during normal working hours unless previously arranged. |
| Nerve Biopsy | Send on gauze that is barely dampened in saline.  Do not fix in formalin. Hand deliver immediately. See Section Error: Reference source not found for requirements from external centres. | Must be received during normal working hours unless previously arranged. |
| Hippocampus & Amygdala | Send fresh. Hand deliver immediately to the laboratory. |  |
| Temporal Lobe (Epilepsy) | Send fresh. Hand deliver immediately to the laboratory. |  |
| Temporal Artery | Send in 10% Neutral Buffered Formalin. | Send Immediately/ASAP |
| Laminectomy/Disc | Send in 10% Neutral Buffered Formalin. |  |
| Tumour fluid for cytology | Hand delivery immediately. | Must be received during normal working hours. |
| CSF for cytology | Hand delivery immediately. | Must be received during normal working hours. |
| CSF for RT-QuIC Analysis | CSF frozen at -70°C within 30 minutes of aspiration and transported to the Neuropathology Dept, Beaumont Hospital on dry ice. | Must be received during normal working hours unless previously arranged.  CJD Questionnaire must accompany specimen. |
| Autopsy & Biopsy tissue (e.g/ Brain / Tonsil) for Prion Protein Analysis | Hand delivery immediately. | Must be received during normal working hours. Contact Rachel Howley 017977766 |
| All other tissue | Sent in 10% neutral buffered formalin indicating volume. | Must be received during normal working hours. |

\* Specimens referred out from Beaumont Hospital - the results of these tests are not covered by the scope of Beaumont Hospital Histopathology Department ISO15189 accreditation.

## NHISSOT

### How to Order Tests

As per the EFI standard for sample acceptance, all samples received and accepted into the laboratory **must** have the patient’s name, date of birth and sample date. Samples that do not comply with this EFI standard will be rejected and repeat samples will be required.

* HLA Typing: The Histocompatibility Testing Request and Consent Form [H&I-Form-509] **must** be completed and must include the patient name, date of birth, requesting clinician/consultant, centre and sample date. This form should accompany the blood samples
* It is the responsibility of the requestor to ensure that the patient has read and understood the permission statement on the consent form. This must be signed by the consenting individual.
* HLA antibody screening: A HLA antibody screening request form must be completed [H&I-Form-236]. This form may be E-mailed to [crossmatch@beaumont.ie](mailto:crossmatch@beaumont.ie) or posted with the samples to the H&I Department.
* Forms for HLA typing and HLA antibody screening are available from the H&I department. Please phone or email [crossmatch@beaumont.ie](mailto:crossmatch@beaumont.ie) if a request form is required.

### Repertoire of Tests

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | | **Blood Container** | **Minimum**  **Volume** |
| HLA Typing of patients for solid organ transplant | | Sodium Citrate | 2.9ml |
| HLA Antibody Screening for solid organ transplant  Pre transplant / Post transplant / Antibody Mediated Rejection query | | Clotted | Paeds: 3ml  Adult: 5ml |
| ABO blood grouping of patients for solid organ transplant | | EDTA | 5ml |
| HLA Disease Association Testing [B\*27 / B\*57:01/ HLA-DQ] | | Sodium Citrate | 2.9ml |
| Potential deceased donor work-up | | Sodium Citrate  Clotted  EDTA | 60ml  5ml  5ml |
| Living donor work-up : Potential Donors | 1st Workup | Sodium Citrate  EDTA | 2.9ml  5ml |
| 2A Workup  2B Workup | Sodium Citrate  EDTA  Sodium Citrate  EDTA | 2.9ml  5ml  50ml  5ml |
| 3rd and Final Workup | Sodium Citrate  Clotted | 40ml  5ml |
| Living donor work-up : Potential Recipients | 2B Workup | Sodium Citrate  Clotted | 40ml  5ml |
| 3rd and FinalWorkup  Clotted blood should be within 7 days of the proposed transplant date | Sodium Citrate  Clotted | 40ml  5ml |
| Autocrossmatch | | Sodium Citrate  Clotted | 40ml  5ml |
| HLA typing for partners | | Sodium Citrate | 2.9ml |

### Reference Ranges

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Sample required** | **Speimen container** | **Min sample volume** | **Reference ranges** | **TAT** | **Comments** | **Mnemonic** |
| Arterial Blood Gas NPT | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | pH: 7.35-7.45  pCO2: 4.3-6.4 kPa  pO2: 11.0-14.4 kPa  sO2: 94.0-98.0%  HCO3-(P,)c: 21-28 mmol/L  HCO3-(P,st)c: 22-26 mmol/L  SBEc: -2.0 to 3.0 mmol/L  tHb: 11.7-17.4 g/dL  FO2Hb: 90.0-95.0%  Na+: 136-145mmol/L  K+ : 3.5-5.1 mmol/L  Cl- : 98-107 mmol/L  Ca2+ :1.15-1.33 mmol/L  Glu: 3.6-5.3 mmol/L  Lac: 0.4-0.8 mmol/L  Hctc: N/A | 2mins | Test profile for ABG samples processed at the **point of care**. Reference ranges quoted are specific for arterial blood sample types and are not gender specific.  Never transfuse a patient based on a blood gas tHb result. | ABGPOCT |
| Arterial Blood Gas Lab | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | pH: 7.35-7.45  pCO2: 4.3-6.4 kPa  pO2: 11.0-14.4 kPa  sO2: 94.0-98.0%  HCO3-(P,)c: 21.0-28.0 mmol/L  HCO3-(P,st)c: 22-26 mmol/L  SBEc: -2.0 to 3.0 mmol/L | 0.5Hrs | Test profile for ABG samples processed in the **Chem Path Lab**. Reference ranges quoted are specific for arterial blood sample types and are not gender specific.  Never transfuse a patient based on a blood gas tHb result. | ABG |
| Lactate, Arterial Sample | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | 0.4-0.8 mmol/L | 0.5Hrs | Processed in Lab only | ALACT |
| Lactate, Venous Sample | Arterial Syringe or Lithium Heparin | Lithium Heparin (Orange Top) | 1mL (syringe)  2.7ml (Li-Hep tube) | 0.6-1.4 mmol/L | 0.5Hrs | Processed in Lab only | VLACT |
| pH (fluid) | Arterial syringe | Lithium Heparin | 1mL | N/A | 0.5Hrs | Processed in Lab only | FLPH |
| Carboxyhaemoglobin | Arterial sample | Lithium Heparin Arterial Syringe | 1mL | FCOHb: 0.5- 3.0% | 2mins | No specific ranges reported on analyser for smoker/non/smoker | COHB |
| Methaemoglobin | Arterial Syringe | Lithium Heparin | 1 mL | 0.0 – 1.5 % | 0.5 hours |  |  |
| Methanol | Serum | Plain  (White Top) | 4.9ml | Units: mg% | 24 hours | Processed in Lab only | METHB |
| SARS-CoV-2 & Influenza A/B | Nasopharyngeal Swab | VTM/UTM viral swab containing one swab | N/A | N/A | 30mins | TAT from time sample loaded on to Liat device | CV19POCT |
| Glucose NPT | Capillary | Fingerprick |  | 4-7mmol/L | 10s | Confirm any abnormal result with a venous sample sent to lab | N/A |
| Ketone NPT | Capillary | Fingerprick | 1.0 µL | 0.1-0.6 mmol/L | 10s |  | N/A |
| INR NPT | Capillary | Fingerprick | 8µL | INR target ranges depend on the presenting condition that requires the patient to be on anticoagulant therapy. Results >4.5 must be followed up with an urgent sample to the lab | 10s | Confirm result >4.5 with a venous sample sent to lab | N/A |
| HbA1c NPT | Capillary | Fingerprick |  | <48mmol/mol (6.5%) in normal subjects | 5mins | For new patients always send first sample for HbA1c analysis to the Chem path lab to check for any existing variants prior to ever using NPT devices. | N/A |