SUNWAY
MEDICAL CENTRE
Velocity Kuala Lumpur

LABORATORY SERVICE GUIDE

VERSION 1, 2026

EDITORIAL COMMITTEE

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INTRODUCTION

INTRODUCTION

1. CORPORATE PROFILE

Sunway Medical Centre Velocity's Laboratory Department has been an integral component of the hospital's diagnostic and clinical services since its establishment in September 2019. Offering a comprehensive range of routine and specialised laboratory tests, the laboratory plays a crucial role in supporting our medical practitioners with accurate diagnostic information, enabling timely and effective patient care. All laboratory testing is conducted using advanced instrumentation and technology, operated by competent and qualified laboratory personnel.

Located on Level 1, Tower B, the laboratory supports a broad spectrum of services including inpatient and outpatient diagnostics, health screenings, phlebotomy services and specialist consultations. Through the adoption of modern automation systems and active participation in quality assurance programs, the laboratory upholds a commitment to high standards of diagnostic excellence.

2. VISION, MISSION AND CORPORATE VALUES

VISION

To be the top multi-disciplinary hospital, major "spoke" for SMC and established as a regional-hub within KL region

MISSION

Service with a SMILE

Satisfactory return to stakeholders

Modern, comprehensive & safe facility and environment

Inspired, engaged and driven team

Leading-edge clinical practices and technologies

Exceed customer' expectation

CORPORATE VALUES

COMPASSION

We are always sensitive to our patients' needs

HUMILITY

We believe in being humble, polite and respectful

EXCELLENCE

We strive for excellence and take pride in all that we do

RESPECT

We respect every individual and are always professional in our conduct and behaviour

INTEGRITY

We believe in doing the right thing at all times

3. LABORATORY GOALS & OBJECTIVES

GOALS	**To provide high quality clinical laboratory and diagnostic services, ensuring the highest standard of patient care while optimising cost efficiency.** **To provide efficient routine and STAT services.** **To provide timely completion of examinations and results within the stipulated turnaround times.** **Ensure transfusion safety by providing adequate and safe blood at all times.**

OBJECTIVES	**Promote high quality and reliable results by maintaining monthly Specimen Rejection Rate of < 1% of laboratory test requests.** **Advocate quality patient care by ensuring 100% of Laboratory Critical Results are communicated to the patient's primary healthcare providers within 30 minutes.** **Ensure Crossmatch-to-Transfusion Ratio of ≤ 2.0 to prevent blood component wastage.** **Ensure a monthly 100% compliance on STAT Full Blood Count Turnaround Time (STAT FBC TAT) of 45 minutes.** **Ensure Laboratory Turnaround Time (LTAT) achieves the monthly average target of 92%.** **Maintain zero transfusion errors and near misses.**

4. LOCATION, CONTACT NUMBERS AND OPERATION HOURS

LOCATION
Level 1, Tower B Sunway Medical Centre Velocity Pusat Perubatan Sunway Velocity Lingkaran SV, Sunway Velocity 55100 Kuala Lumpur

CONTACT NUMBERS	
General Inquiries	Ext. 9291
Core Laboratory Services	Ext. 8754, 8755
Cytopathology Services	Ext. 8753
Microbiology Services	Ext. 8750
Laboratory Admin Room	Ext. 8751
Laboratory Manager	Ext. 9290
Phlebotomy Room Level 3, Outpatient Department, Tower A	Ext. 9108
Phlebotomy Room Level 2, Health Screening Centre, Tower A	Ext. 9109
Phlebotomy Room Level 2, Outpatient Department, Tower B	Ext. 8414
Phlebotomy Room Level 3, Outpatient Department, Tower B	Ext. 9438
Phlebotomy Room Level 7, Outpatient Department, Tower B	Ext. 8109

EMAIL
smcv_lab@sunway.com.my

OPERATION HOURS		
Core Laboratory Services	**Everyday**	24 hours
Satellite Laboratory Services (Outpatient Department, Level 3, Tower B)	**Weekday**	8.30 am - 5.00 pm
	Saturday	8.30 am - 1.00 pm
Microbiology Services	**Weekday**	7.30 am - 8.30 pm
	Weekend & Public Holiday	8.30 am - 1.00 pm
Cytopathology Services	**Weekday**	8.00 am - 6.00 pm
	Saturday	8.30 am - 1.00 pm

5. LABORATORY SERVICES

The Laboratory Department provides the following services:

SERVICE	SCOPE OF SERVICE
Chemical Pathology	Provide both routine and specialised chemistry testing such as lipid, liver, renal function, tumour and cardiac markers, metabolic and hormones evaluations. We also provide testing for urine and other bodily fluids.
Haematology and Transfusion Services	Tests encompass full blood count, blood film, bone marrow & trephine biopsy, coagulation, blood grouping, antibody screening and transfusion of a wide range of blood and blood products.
Medical Microbiology and Serology	Provide testing services including culture and sensitivity on clinical specimens, as well as rapid tests for Dengue Serology, Influenza A&B, and Rotavirus. Additionally, we conduct serological and virology testing for infectious diseases.
Molecular Diagnostics	Provide rapid molecular Polymerase Chain Reaction (PCR) testing such as COVID-19, meningitis panel, respiratory panel, etc., which allows accurate results within a quick turn-around time.
Cytopathology	Provide comprehensive Cytopathology services, which include gynaecology, non-gynaecology and Fine Needle Aspirate Cytology.

6. ADVISORY SERVICES

The ordering medical practitioner may request clinical advice and interpretation of results from the pathologist in the relevant field, particularly in relation to the findings of laboratory tests. The advisory services ensure a comprehensive understanding of the test results and facilitate informed decision-making regarding patient care.

Dr. Tang Yee Loong

Laboratory Director cum Consultant Haematologist

MD(UKM), DrPath(UKM), AM(Mal)

Associate Professor Dr. Ding Chuan Hun

Consultant Medical Microbiologist

MBBS(IMU), DrPath(UKM), FAMM(Mal)

Associate Professor Dr. Subashini A/P Chellappah Thambiah

Consultant Chemical Pathologist

MBBS(UWA), MPath(UKM), Fellowship in Metabolic Medicine (London, UK), FAMM(Mal)

7. REFERRAL LABORATORY SERVICES

For laboratory tests which are unavailable in-house with reasons of great complexity or esoteric in nature, the laboratory will outsource them to selected referral government or private laboratories with consideration of quality, efficiency of service as well as cost-effectiveness.

8. DECENTRALISED PHLEBOTOMY

SMCV Laboratory provides phlebotomy services for both inpatients and outpatients, with the operational hours outlined below. For STAT/ time-sensitive test orders outside operation hours, the specimen shall be collected and dispatched to the laboratory by the ward nurses.

Inpatient

Wards	Operation Hours	
M 8A 8B 9A 9B	Monday to Friday	6.30 am - 8.00 am 2.00 pm - 3.00 pm
	Saturday	6.30 am - 8.00 am

Outpatient Clinic

Phlebotomy Sites	Operation Hours	
Level 2, Health Screening Centre, Tower A	Monday to Saturday	8.00 am - 1.00 pm
Level 3, Outpatient Department, Tower A	Monday to Saturday	8.00 am - 1.00 pm
Level 2, Outpatient Department, Tower B	Monday to Saturday	8.00 am - 1.00 pm
Level 3, Outpatient Department, Tower B	Monday to Friday Saturday	8.30 am - 5.00 pm 8.30 am - 1.00 pm
Level 7, Outpatient Department, Tower B	Monday to Saturday	8.30 am - 1.00 pm

9. LABORATORY CONSUMABLE SUPPLIES

SMCV Laboratory is responsible for supplying all consumables required for specimen collection. All consumables must be requested and collected according to the schedule outlined below. Any delays in the collection of laboratory items will not be accommodated, and items prepared for collection will be returned to the lab store on the next working day.

Urgent requests for laboratory consumables will only be accepted for rare items, such as MRSA PCR swabs and Monkeypox PCR swabs. For urgent requests, please contact the laboratory for preparation. All consumables should be utilised before their expiry date, and any expired consumables must be informed and returned to the laboratory for exchange with non-expired consumables. For the routine laboratory items requisition and collection schedule, please refer to the table below:

Laboratory Consumable Requisition and Collection Schedule

Requisition Form Submission Day	Laboratory Consumables Collection Day (2.00pm – 5.00pm)	Location
Monday	Tuesday	Ward 8A & 8B
		Ward 9A & 9B
		Ward 10A & 10B
		Radiology
Tuesday	Wednesday	Operating Theatre (OT)
		Intensive Care Unit (ICU) / High Dependency Unit (HDU)
		Nursery/ Neonatal Intensive Care Unit (NICU)
		Endoscopy / Day Ward
Wednesday	Thursday	Fertility Centre
		Delivery Suite
		Ward 5A & 4A
		Ward M
Thursday	Friday	Outpatient Department (OPD)
		Health Screening Centre
		Dialysis
		Accident and Emergency (A&E)

10. SUGESSTION AND FEEDBACK

In order to effectively meet the needs of our users, we invite inquiries, comments, and feedback regarding our services. We welcome any suggestions for improvement. Please use the Quick Response (QR) code below to share your feedback on our laboratory services. Your input is highly valued and plays a crucial role in enhancing the quality of our services.

QR code:

Online customer feedback link:

https://forms.office.com/Pages/ResponsePage.aspx?id=lmAIeHHUoUqrVhaFWj0zRFbutaAIhitKikYwJVKrd_RUM1VDWjJNSzNGR0xGNURORzQxOVlFTkpZUy4u

CHAPTER 2

LABORATORY TEST REQUISITIONS

LABORATORY TEST REQUISITIONS

1. TEST REQUISITION

All laboratory tests must be requested through the Hospital Information System (HIS) or via written requests using physical laboratory test request forms if necessary, completed by authorised medical practitioners. Nurses may order the laboratory tests on behalf of the ordering medical practitioner (except for blood transfusion tests) after receiving the medical practitioner's instruction. Later, the medical practitioner is required to authorise the test order in the HIS. Verbal laboratory test requests will not be entertained.

Each examination request accepted by the laboratory constitutes an agreement. This agreement encompasses the provision of medical laboratory services, including processing the request, issuing laboratory reports, and offering clinical or technical advice when necessary.

Patient information that is captured upon HIS requisition or test authorisation includes:

a) Patient's full name
b) Medical Record Number (MRN)
c) Location
d) Room number
e) Name of authorised requesting medical practitioner
f) The test(s) to be performed
g) The date and time of the test(s) requisition

2. REQUEST FORM

Test requests must be submitted through the HIS and accompanied by a written laboratory request form for the following tests:

a) Cytopathology Tests
b) Histopathology Tests
c) Molecular Diagnostic Test
d) Urea Breath Test
e) Tests outsourced to referral laboratories

Written laboratory request forms are only accepted without HIS entry during Code White situations.

2.1 Cytopathology and Histopathology Tests

All Cytopathology and Histopathology test request forms shall be filled up by the ordering medical practitioner. The request form must be packed in the outer pocket of a biohazard bag with the specimen packed in the inner pocket of the biohazard bag. The information stated below must be provided in the test request form by the ordering medical practitioner:

a) Patient identification, including patient's full name, Identity Card number (IC No.), MRN, Date of Birth (DOB), gender
b) Clinical history/ diagnosis related to specimen
c) Name and signature of ordering medical practitioner
d) Stamp of ordering medical practitioner/ clinic/ department in-charge
e) Type and/or site of specimen
f) Date and time of specimen collection
g) Laboratory test(s) to be performed

2.2 Written Request Forms During Code White

If the HIS is offline (Code White), test requests shall be made manually. A written test request form is required during Code White. In the usage of request forms during the activation of Code White, each request form should come in a set of three copies.

a) The white copy is for the laboratory
b) The pink copy is for manual billing/ records
c) The blue copy is for the clinical site/in-patient folder (e.g. ward, clinic, day-care, OT, etc.)

All laboratory test requests must be made using the appropriate physical laboratory test request forms, with the medical practitioner's signature, name and stamp on the forms. The list of laboratory request forms is as follows:

a) SMCV-AH-LAB-FORM003 Laboratory Request Form: General
b) SMCV-AH-LAB-FORM004 Laboratory Request Form: Microbiology
c) SMCV-AH-LAB-FORM005 Laboratory Request Form: Profile
d) SMCV-AH-LAB-FORM006 Laboratory Request Form: STAT
e) SMCV-AH-LAB-FORM007 Transfusion Medicine Request Form
f) SMCV-AH-LAB-FORM015 Laboratory Request Form: Corporate Profiles
g) SMCV-AH-LAB-FORM016 Laboratory Request Form: Cytopathology
h) SMCV-AH-LAB-FORM018 Immunohistochemistry Requisition Form
i) SMCV-AH-LAB-FORM020 13C Urea Breath Test Request Form

2.3 Test Outsourced to Referral Laboratories

If the test is outsourced to a referral laboratory, the test must be ordered in the HIS and accompanied by a separate referral laboratory request form. The test requested should be clearly and correctly ticked in the appropriate boxes on the appropriate form. For tests that are not listed on the forms, the full name of the test needs to be handwritten on the "Other Tests" column of the appropriate form.

3. URGENT TEST

All urgent test requests shall be ordered by ticking the 'STAT' checkbox in the HIS when performing test ordering, which makes the STAT order appear in red in both the HIS and Laboratory Information System (LIS). These specimens are to be accorded the highest priority for receiving, processing, analysis and verification by laboratory personnel. Clinical staff stationed at the clinical site will need to contact the laboratory's extension numbers 9291/ 8754/ 8755 to notify the laboratory personnel of the urgency of the specimen.

If the STAT specimen is transported by hand (usually for precious and irretrievable specimens), the transporter must notify the laboratory about the urgency of testing for the specimen being delivered.

4. ADD-ON TEST

The addition of a test to an existing specimen depends on its availability, adequacy, stability, and nature. Specimen stability is a key factor in determining the acceptability of add-on test requests, as outlined in Appendix 1 – In-house Test Stability.

The process of incorporating an additional test for an existing specimen starts with:

a) The requesting medical practitioner submitting a formal request through the HIS. Timely communication of all add-on test requests to the Laboratory Department via a phone call is imperative.
b) Upon receipt of the request, the Medical Laboratory Scientist (MLS) verifies the availability and suitability of the specimen for the add-on test. In instances where clarification is warranted, the MLS engages in consultation with the requesting medical practitioner to validate the necessity and suitability of the additional test.
c) Upon confirmation, the MLS proceeds with the specimen collection, dispatch, and receipt in HIS.
d) The specimen is then labelled using the patient's new add-on test barcode sticker and acknowledged in LIS prior to the analysis. The updated information is tracked in the LIS and middleware.

e) The specimen undergoes processing for the additional test according to standard procedures.
f) The results of the add-on test are analysed and reported accordingly.

5. ESOTERIC/ SPECIAL/ RARE TESTS

Esoteric, special or rare tests are sent to the referral laboratories of the clinical laboratory's choice unless it has been specified by the medical practitioner and is not available at our dedicated referral laboratories. If esoteric/ special/ rare tests are requested by the medical practitioner:

a) The MLS should advise the requesting medical practitioners on:
    i. the price of the test
    ii. the result's turnaround time
    iii. specimen types
    iv. specimen collection requirements
    v. referral laboratory that performed the test
b) Specimens are only sent out to referral laboratories upon agreement by the requesting medical practitioner and the patient's consent.
c) The requesting medical practitioner should order the test as a Miscellaneous test according to the nature of the test in HIS:
    i. Misc - Chemistry
    ii. Misc - Fluid & Excretion
    iii. Misc - Haematology
    iv. Misc - Cytopathology
    v. Misc - Immunology & Serology
    vi. Misc - Histopathology
    vii. Misc - Microbiology
    viii. Misc - Molecular & Genetics
d) Charges for the test will be raised by laboratory personnel and specimens will be collected accordingly.

6. CONSENT FORM

The requirements for the consent form are:

a) For routine laboratory procedures, such as blood and urine collection, consent is considered implied if the patient voluntarily agrees to submit to the specimen collection procedure.

b) Informed written consent is obtained for specific tests such as molecular genetic tests involving human Deoxyribonucleic Acid (DNA), HIV tests and blood transfusions.
c) The ordering medical practitioner is responsible for ensuring that complete written consent is obtained from the patient.
d) Special procedures, particularly those deemed more invasive or associated with an elevated risk of complications, necessitate a more comprehensive explanation and written consent by the ordering medical practitioner and patient.
e) All consent forms are uploaded into HIS, for record purposes. All completed in-house consents (e.g., HIV and blood component transfusion tests) obtained by the ordering medical practitioner will be accessible in the HIS.
f) For molecular genetic tests involving human DNA, the patient's consent will be included in the test request form, with a digital copy of the consent saved in the laboratory's shared folder.
g) The hospital has a Patient Chart Review Committee, which reviews patients' electronic folders to ensure all relevant documents, investigations and consent are captured in HIS.
h) HIV test results will only be verified in the LIS after the MLS has received the completed consent form.
i) In emergency situations where obtaining consent is impractical, the healthcare worker may proceed with the specimen collection procedures after obtaining approval from the ordering medical practitioner.

CHAPTER 3

SPECIMEN COLLECTION AND HANDLING

SPECIMENS COLLECTION AND HANDLING

1. TYPES OF CONTAINERS AND ANTICOAGULANTS

The accurate and timely acquisition of valid laboratory test results depends on the proper collection and handling of specimens. Specimens must be obtained using appropriate phlebotomy techniques and placed in the appropriate containers to ensure the integrity of the specimen and the accuracy of test results.

All specimens should be handled in accordance with universal precautions, and treated as potentially hazardous and infectious, to ensure the safety of personnel.

Certain tests require special specimen containers provided by the referral laboratory. Please contact the laboratory to confirm the availability of these containers after the doctor has confirmed to proceed the test, preferably at least three days before the collection procedure.

a) Blood collection tubes

Type of Tubes	Tubes Description	Test (Examples)
	**Blood Culture Bottles** • Yellow Cap - Paediatric • Green Cap - Aerobic • Orange Cap - Anaerobic	Blood Culture
	**Serum Separator Tube (SST)** (Yellow Cap)	**<u>Chemical Pathology</u>** Endocrinology General Chemistry Specific Proteins Tumour Markers **<u>Immunology</u>** Autoimmune Diseases **<u>Infectious Diseases</u>** HIV Syphilis Viral Markers

Type of Tubes	Tubes Description	Test (Examples)
	**K2 EDTA Tube** (Purple Cap) Left: 2 mL EDTA Tube Right: EDTA Tube for Paediatric	**<u>Chemical Pathology</u>** HbA1c **<u>Haematology</u>** Full Blood Count ESR **<u>Molecular Testing</u>** BCR-ABL HBV DNA HCV DNA HIV Viral Load
	**K2 EDTA Tube (6 mL)** (Purple Cap) from the mother **+** **K2 EDTA Tube (0.5 mL)** (Purple Cap) from the baby **4-month-old and below only*	**<u>Blood Transfusion</u>** GXM
	**K2 EDTA Tube (6 mL)** (Purple Cap) **13-year-old and above*	**<u>Blood Transfusion</u>** Antibody Screening Antibody Identification GSH GXM

Type of Tubes	Tubes Description	Test (Examples)
	**Lithium Heparin Tube** (Green Cap)	**<u>Chemical Pathology</u>** Troponin T **<u>Coagulation</u>** D-Dimer
	**PST Tube with Gel** (Green Cap) For Paediatric Use Only	**<u>Chemical Pathology</u>** Endocrinology General Chemistry Specific Proteins Tumour Markers **<u>Immunology</u>** Autoimmune Diseases **<u>Infectious Diseases</u>** HIV Syphilis Viral Markers
	**3.2% Sodium Citrate Tube** (Blue Cap) Left: Adult Tube Right: Paediatric Tube	**<u>Coagulation</u>** APTT Coagulation Factors Fibrinogen PT & INR Remarks: • *Must be filled to the clear fill line marked on the tube* • *Send to the laboratory immediately after collection*

Type of Tubes	Tubes Description	Test (Examples)
	**Sodium Fluoride Tube** (Grey Cap)	**<u>Chemical Pathology</u>** Glucose (Glucose Tolerance Test)
	**Clot Activator Tube** (Red Cap)	**<u>Drug Monitoring Test</u>** Posaconazole Voriconazole *(Please call laboratory to request)*
	**STRECK Cell Free DNA Tube** (Mottled Cap)	**<u>Genetic</u>** NIPT Liquid Tumour *(Please call laboratory to request)*
	**Trace Elements Tube** (Royal Blue Cap)	Heavy Metal Tests *(Please call laboratory to request)*

Type of Tubes	Tubes Description	Test (Examples)
	**ACD Tube** (Pale Yellow Cap)	**<u>Haematology</u>** For Pseudo-thrombocytopenia Investigation *(Please call laboratory to request)*
	**PAXgene Blood ccfDNA Tube**	**<u>Genetic</u>** NIPT (Specific) *(Please call laboratory to request)*
	**PAXgene Blood DNA Tube**	**<u>Genetic</u>** NIPT (Specific) *(Please call laboratory to request)*
	**TEMPUS Blood RNA**	**<u>Genetic</u>** Liquid Tumour *(Please call laboratory to request)*

b) Specimen Containers

Type of Containers	Specimens	Test (Examples)
 **Urine Container**	Body Fluid Sputum Urine	Urine FEME Culture and Sensitivity for Urine Culture and Sensitivity for Wound/ Pus/ Tissue/ Fluid
 **Stool Container**	Stool	All tests associated with stool specimen
Bijou Bottle	Cerebrospinal fluid (CSF)	All tests associated with CSF specimen
 **24 Hours Urine Collection Bottle**	24 Hours Urine	All 24 Hours Urine Tests (With Specific Preservative) *(Please call laboratory to request)*
 **Viral Transport Medium**	Swab specimen for PCR test	All PCR Tests

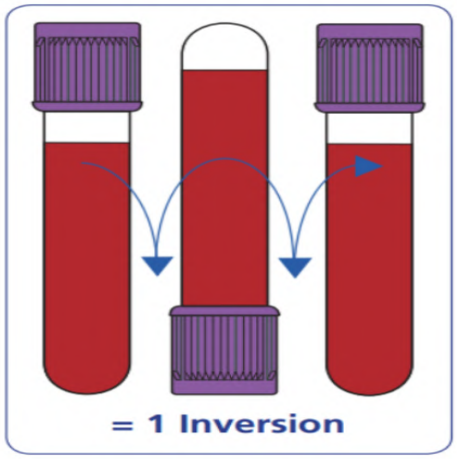
Type of Containers	Specimens	Test (Examples)
 **Histopot** Available sizes: 60 mL, 250 mL, 500 mL, 1.0 L, 2.5 L, 5.0 L > 5.0 L: placed in sharp bin	Histopathology Specimen	All Histopathological Tests
 **Michel's Transport Medium**	Renal Biopsy	Immunofluorescence Test
 **Liquid Base Cytology Vial**	Gynaecology Specimen	Liquid Base Cytology
 **Glass Slide**	Bone Marrow Aspirate Gynaecology Specimen	Bone Marrow Slide Convensional PAP Smear

c) Microbiology Swabs

Amies Charcoal Swab	Fecal Swab & Cary-Blair Transport Medium	Panel STI/ Herpes Simplex Virus Swab	E-Swab	Dacron Swab	Nasopharyngeal Swab	Oropharyngeal Swab	Nasopharyngeal Swab + Oropharyngeal Swab
		 Thick dry swab coated with Nylon fibres	 White: Nasal Swab Pink: Groin/Axilla Swab		 Thin dry swab	 Transportation inside VTM	 Transportation inside VTM
• General C&S • MRSA Screening Test	• Gastrointestinal Panel	• Panel STI Test • Herpes Simplex Virus	• GeneXpert MRSA PCR Test	• Monkeypox PCR test (Lesion/ vesicular fluid specimen collection)	• Covid-19 Antigen Test • Respiratory Virus Antigen Screen (RVAS) • FLU/ RSV PCR	• Measles PCR	• Covid-19 Rapid PCR Test • Full Respiratory Panel Test

2. ORDER OF DRAW FOR BLOOD SPECIMENS

Blood collection tubes must be drawn in a specific order to avoid cross-contamination of additives between tubes. The recommended order of draw for blood collection tubes refer to the order of blood tube collection. Tubes with additives must be thoroughly mixed. Mix tubes by inverting the recommended number of times.



3. COLLECTION OF LABORATORY SPECIMENS

Prior to specimen collection, the clinical personnel (doctor, nurse or phlebotomist) shall verify the identity of the patient by asking the patient to state at least three (3) unique identifiers: patient's full name (compulsory), MRN, IC No., passport number or DOB.

The clinical personnel should ensure that the patient fulfils all relevant pre-examination requirements, including but not limited to:

i. Fasting Status: confirm whether the patient has adhered to the prescribed fasting requirements or guidelines.
ii. Medication Status: verify the time of the patient's last dose and determine if cessation or adjustments to medication are necessary prior to the examination.

All specimens shall be collected at the appropriate time or according to specified time intervals, for example, glucose tolerance test, 24-hour urine collection and etc.

The personnel who collected the blood and/or other specimens is responsible to perform specimen collection in the HIS by clicking on the "collected" checkbox provided. Information such as when was the specimen collected, by whom, type of specimen and number of specimen container collected will be automatically captured in the HIS.

Order of Blood Tube Collection

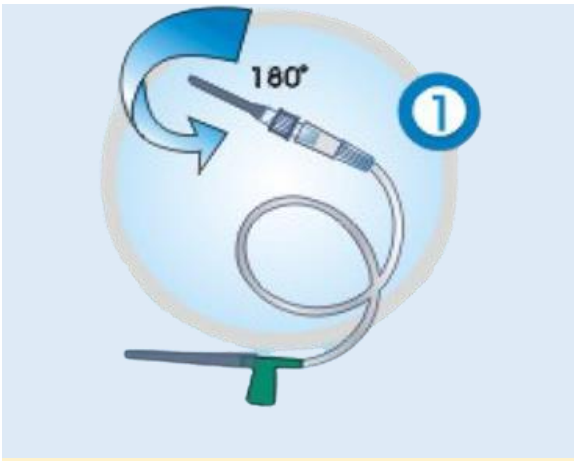
Blood Collection Tube		Mix by Inverting
	**<u>Method of collection</u>** Syringe: Anaerobic > Aerobic Butterfly: Aerobic > Anaerobic	**N/A**
	**Sodium Citrate** (Must Prime with Sodium Citrate tube ONLY)	**3 - 4**
	**Clot Activator**	**5 - 6**
	**SST with gel**	**5 - 8**
	**Lithium or Sodium Heparin**	**8 - 10**
	**PST Tube with gel**	**8 - 10**
	**EDTA**	**5 - 8**
	**PAXgene Blood DNA**	**8 - 10**
	**STRECK Cell Free DNA BCT**	**8 - 10**
	**TEMPUS Blood RNA**	**10 - 15 secs** (Shake vigorously)
	**Sodium Fluoride**	**5 - 8**
	**ACD**	**8 - 10**
	**Trace Element with Clot Activator**	**8 - 10**
	**PAXgene Blood ccfDNA**	**8**

a) Location of Specimen Collection

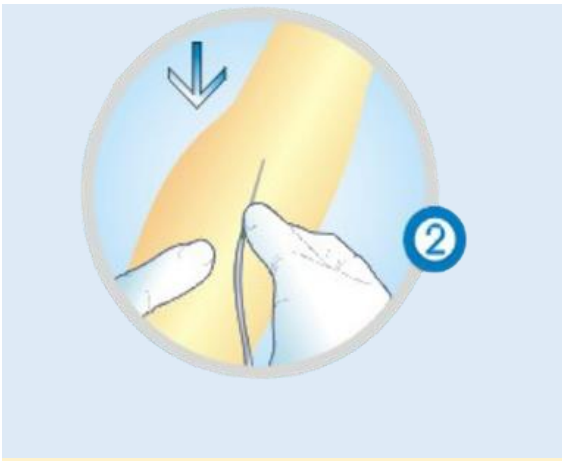
Location	Description
Outpatient clinics	• Outpatients are required to register at the Business Office (BOFF) registration counters at the respective Outpatient Departments. • Once the tests are ordered by the specialist consultants or nurses, the test requisitions are captured in HIS. • Clinic assistants or nurses will then guide the patients to the decentralised venesection rooms to deliver their patient journey slips for blood collection. • Blood collection is carried out by a phlebotomist or a trained nurse in these venesection rooms, which are readily equipped with all necessary supplies.
Ward	• For inpatients, blood specimen can be collected by phlebotomists, medical officers, specialist consultants or trained nurses at the patient's bedside in the ward. • During inpatient ward rounds, the phlebotomist is responsible for preparing and transporting all the equipment and supplies necessary for blood specimen collection in the ward. • The ward nurse must provide the phlebotomist with an adequate number of patient's stickers for the laboratory tests ordered for the patients in their respective wards. • All clinical personnel shall follow the standard infection control and safety protocols during blood collection in the ward, in compliance with any infectious disease notices posted outside the patient's room.
A&E, ICU, HDU, Nursery, NICU, Endoscopy, Day Care, OT and Haemodialysis Departments	• Blood specimens shall be collected by a nurse or a medical doctor.
Other specimens	• Other specimens such as urine, stool, swabs, etc., are collected by nurses or doctors in appropriate containers provided by the laboratory.

b) Specimen Collection Procedure

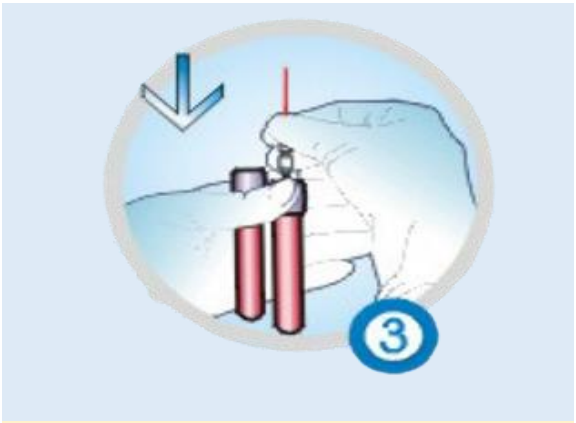
Venepuncture Techniques



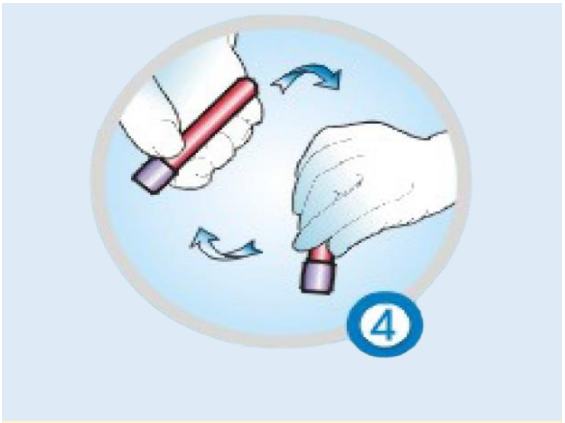
Twist the luer connector into the adapter firmly.



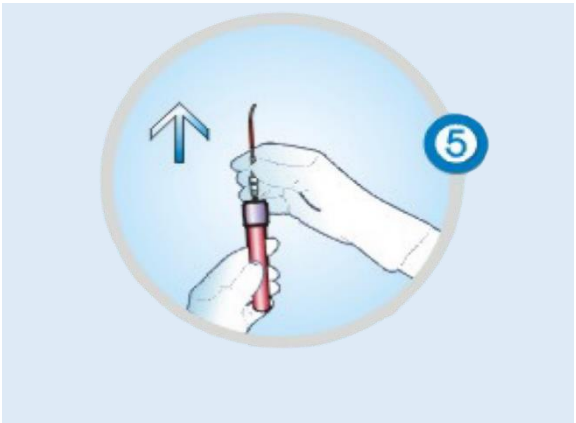
Remove protective cover of patient needle then perform venepuncture.



Perform venepuncture and closure penetration.



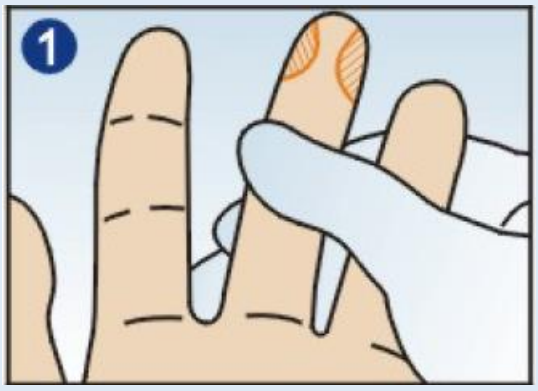
Gently invert the tube accordingly.



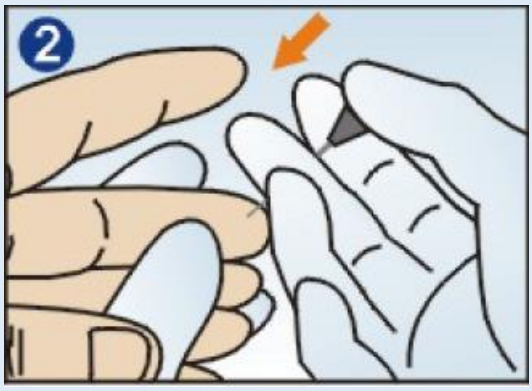
Remove tube from needle.

Dispose the used needle and holder.

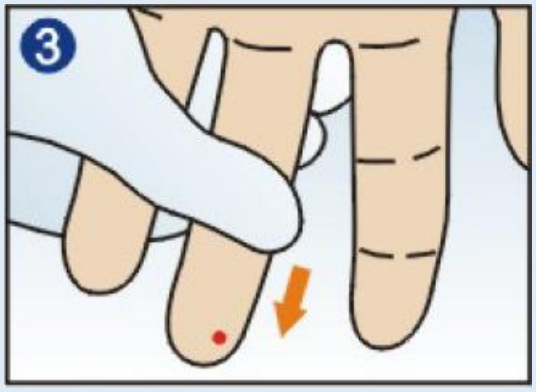
Venepuncture Techniques (Finger Prick)



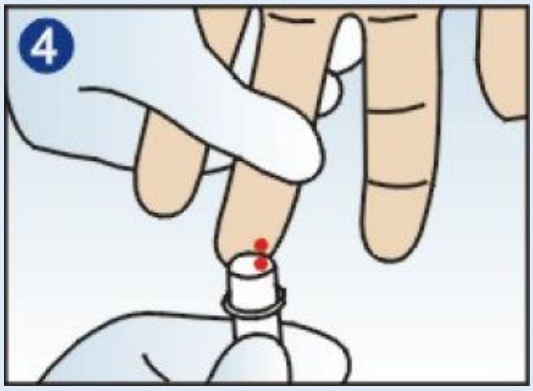
Select appropriate puncture site and cleanse site thoroughly with alcohol swab. Puncture skin with proper lancet and gently wipe away the first drop of blood with sterile gauze or cotton ball.



Apply gentle pressure with the thumb and ease intermittently as blood drops, while holding blood collection tube and touching its collector end drops of blood to allow a free flow of blood to bottom of tube. Avoid scraping skin surface to collect blood specimen.

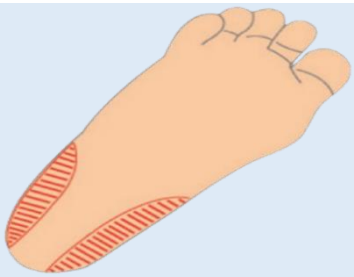


Gently massage the finger downward toward the fingertip (as indicated by the orange arrow) to promote blood flow.

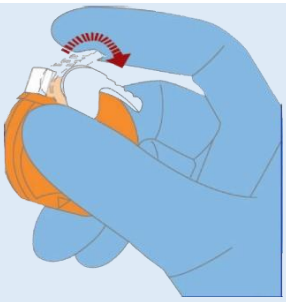


Fill blood tubes with the required volume and replace the color-coded cap, then mix by inverting according to the suggested number of times. If multiple specimens are required, collect them in the recommended order.

Venepuncture Techniques (Heel Prick)

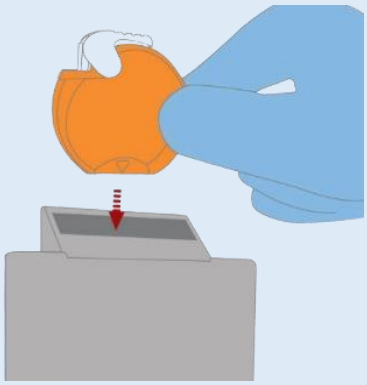


Ensure the heel is clean. Choose the appropriate site for sampling. Gently compress the heel.

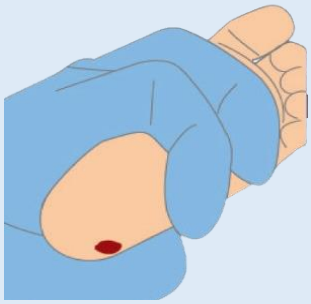


Remove protective cover of lancet then perform venepuncture.

Gently compress the heel and maintain tension. Place the device on the heel, then press the button to activate the device and puncture the skin.



Dispose of the device by in a sharp's disposal container.



While maintaining a grip, hold the heel so that the droplet of blood is allowed to hang downwards Touch the droplet with the capillary tube, or collect the droplets in a blood bottle or on a blood spot screening card.

After each drop is produced, slightly release the heel to allow it to fall. Do not squeeze. Apply pressure to the puncture site with sterile gauze to stop bleeding.

4. LABELING OF LABORATORY SPECIMEN

The specimen labelling requirements are as follows:

a) Specimens must be clearly labelled with the patient's sticker or HIS barcode labels containing details such as:
   i. Patient's full name
   ii. MRN
   iii. IC No./ passport number
   iv. Laboratory Accession Number (Lab No.)
   v. Date and time of specimen collection
   vi. Test(s) ordered
b) The specimen container must be labelled immediately after specimen collection, in the patient's presence, and the labelling should be verified with the patient.
c) Specimens that do not fulfil the patient identification criteria above will be rejected.
d) In the event that stickers or barcodes are not available, the required information may be handwritten. A minimum of two (2) patient identifiers are required to be written on the specimen label:
   i. Patient's full name (compulsory)
   ii. MRN
   iii. IC No./ passport number
e) For all specimens except for blood, urine and stool, details of specimen type (source and site if applicable) should be labelled on the specimen container clearly using water-proof ink.

5. HANDLING OF LABORATORY SPECIMENS

5.1 Routine Specimens

Specimens must be delivered to the laboratory immediately, preferably within an hour of specimen collection and not beyond the test stability period as outlined in the Appendix 1 – Test Stability. Specimens received after the test stability period are unsuitable for testing and will be rejected. Specimens must be treated as potentially infectious. Universal safety precautions must be adhered.

5.2 Specimens Requiring Special Handling

Specimen that requires special handling shall be notified to the laboratory personnel prior to specimen collection. The specimen that requires special handling shall be collected during working weekdays' office hours only. Examples of a specimen requiring special handling:

a) Bone Marrow Aspirates
b) Cytogenetic Tests
c) Fine Needle Aspiration Cytology (FNAC)
d) Frozen Section

6. PACKING & TRANSPORTATION OF LABORATORY SPECIMEN

All specimens shall be packed in individual transparent specimen biohazard bags prior to transportation.

Routine blood, urine, stool, Microbiology swabs and other retrievable or reproducible specimens can be transported via pneumatic tube or by hand. Specimens requiring special care and handling shall be delivered to the laboratory by hand, for example:

a) All Cytopathology and Histopathology specimens
b) Specimen with fragile container (e.g. Acid citrate dextrose (ACD) tube, streck tube, slide)
c) Irretrievable specimens
d) Highly infectious specimens
e) Special or rare specimens

Pneumatic System
Retrievable / reproducible specimens

1. Blood tube specimens
2. Blood culture bottles
3. Urine specimens
4. Sputum
5. Stool
6. Microbiology swabs

Send direct to the laboratory
(Staff Nurse / Clinic Assistant)

1. All Cytopathology and Histopathology specimens
2. Specimen with fragile container (e.g. Acid citrate dextrose (ACD) tube, streck tube, slide)
3. Irretrievable specimens
4. Highly infectious specimens
   Special or rare specimens

The specimen must be transported within the time frame appropriate to the nature of the requested specimen and test to be performed:

a) Within the temperature interval specified.
b) In the designated tubes and preservatives (e.g. anticoagulants) to ensure specimen integrity.
c) In a manner that ensures safety for the laboratory personnel, dispatch staff, and public.

Universal safety precautions must be adhered to for all specimens defined as potentially infectious, e.g. Monkeypox PCR specimen, to ensure safety for the laboratory personnel, dispatch staff, and public.

The personnel who will be dispatching the specimen is responsible to key in the action into the HIS ‘dispatched’ checkbox provided.

In the event of any incident during specimen transportation that may affect the integrity of the specimen and pose a health risk, an e-incident report will be submitted by the laboratory personnel to notify the dispatch in-charge.

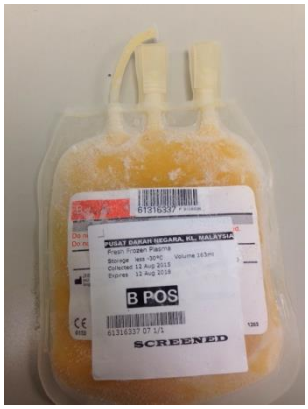
CHAPTER 4

BLOOD COMPONENT PREPARATION

BLOOD COMPONENT PREPARATION

TYPES OF BLOOD COMPONENT

TYPES OF BLOOD COMPONENT	DESCRIPTION	SPECIAL REQUIREMENT	TEST ORDERING
PACKED RED CELLS			
	• Contain RBC • Purpose: To increase the oxygen-carrying capacity of the blood • Stored at 2 - 6°C • Transport temperature should be maintained at 2 -10°C • Infuse within 30 minutes after collection from the laboratory and complete transfusion within 4 hours	Nil	CROSSMATCH PACKED CELL
		Irradiated	CROSSMATCH PACKED CELL [IRRADIATED]
		Leucodepleted	CROSSMATCH PACKED CELLS [LEUCODEPLETED]
PLATELETS			
	• Contain platelets • Purpose: Treatment of patients with bleeding due to severely decreased or dysfunctional platelets • Stored at 20 - 24°C	Nil	PLATELET CONCENTRATE
			SINGLE DONOR PLATELET
		Irradiated	PLATELET CONCENTRATE [IRRADIATED]

TYPES OF BLOOD COMPONENT	DESCRIPTION	SPECIAL REQUIREMENT	TEST ORDERING
<u>Two types:</u> A) Random donor platelet B) Platelets Apheresis	with agitation • Infuse within 30 minutes after collection from the laboratory and complete transfusion as soon as possible		SINGLE DONOR PLATELET [IRRADIATED]
		Crossmatch and Irradiated *(only order when patient has antibody toward platelets)*	CROSSMATCH PLATELET CONCENTRATES (IRRADIATED)
FRESH FROZEN PLASMA (FFP)			
	• Contain all coagulation factors • Purpose: Treatment or prevention of clinically significant bleeding due to a deficiency of one or more coagulation factors • Stored frozen at - 30°C • After thaw, store at 2 - 6°C • Once thawed, the product must be used within 24 hours (keep at 2 - 6°C) • Infuse as soon as possible (not more than 4 hours)	Nil	FRESH FROZEN PLASMA [FFP]

TYPES OF BLOOD COMPONENT	DESCRIPTION	SPECIAL REQUIREMENT	TEST ORDERING
CRYOPRECIPITATE			
	• Contain coagulation FVIII, fibrinogen, VWF • Purpose: Fibrinogen replacement in acquired hypofibrinogenemia in a bleeding patient • Stored frozen at - 30°C • After thaw, store at 2 - 6°C • Once thawed, the product must be used within 6 hours (keep at 2 - 6°C) • Infuse as soon as possible (not more than 4 hours)	Nil	CRYOPRECIPITATE
PEDI-PACKED CELLS			
	• The description is same as Packed Red Cells (Adults) • However, it is supplied to paediatric patient who required smaller volume	Leucodepleted and irradiated	CROSSMATCH PEDI-PACK [IRRADIATED AND LEUCODEPLETED]

If the transfusion of the blood component is not be initiated promptly after the unit is removed from the blood bank storage, it should be returned to inventory immediately to prevent wastage.

******Irradiation*** *is to prevent transfusion-associated graft-versus-host disease (TA-GvHD) by damaging the DNA of donor lymphocytes. It is a crucial preventive measure for patients at high risk of TA-GvHD, including individuals with severe immunodeficiencies.*

******Leucodepletion*** *is a process by which leucocytes are removed from donated blood. It is used to prevent alloimmunisation to HLA antigens in patients who repeatedly require transfusion of blood or blood components.*

STAT/ EMERGENCY BLOOD COMPONENT OPTIONS

Others option STAT/ Emergency that has been offer in Transfusion Medicine Unit is:

TESTING	EXPECTED TAT	TEST ORDERING
Immediate-spin crossmatch (ISXM)	30 minutes	IMMEDIATE SPIN CROSSMATCH PACKED CELL [ISXM]
Uncrossmatched Group O Positive Packed Cell (UCO+)	15 minutes	UNCROSSMATCHED O POSITIVE PACKED CELL [UCO]
Massive Transfusion Protocol (MTP)	According to blood component supply	MASSIVE TRANSFUSION PROTOCOL CYCLE 1&2 [MTP CYCLE 1&2]
		MASSIVE TRANSFUSION PROTOCOL EXTENDED [MTP EXTENDED]

BLOOD COMPONENT TRANSPORTATION

Blood components that REQUIRE ICE PACKS: Packed Red Cells, FFP and Cryoprecipitate

Ensure Ice Pack Inside Ice Box

Put Cardboard / Pile of Papers Onto The Ice Pack

Finally, Put the Respective Blood Product Into The Ice Box

Blood components that DO NOT REQUIRE ICE PACKS: Platelets Concentrate / Platelets Apheresis

Ice Box without Ice Pack

Put the Platelet into the Ice Box

CHAPTER 5

SPECIMEN ACCEPTANCE AND REJECTION

SPECIMEN ACCEPTANCE AND REJECTION

The laboratory has established procedures for receipt and inspection of specimens including acceptance and rejection criteria and demonstrates evidence of adherence in order to ensure specimen identification, adequacy, and integrity of the specimen. The specimen inspection process involves verification of the specimen container label information with the request put up by a medical practitioner or nurse (on behalf of the medical practitioner) in HIS. Specimen evaluation also involves checking for the volume and quality of the specimens (including but not limited to factors such as haemolysis, lipemia, and icterus). Refer to SMCV-HOP-AH-LAB-001 Specimen Rejection Criteria for more details.

1. LABORATORY SPECIMEN RECEIVING PROCEDURE

a) Specimens can be sent to the lab via a pneumatic tube system or by hand, depending on the types and requirements. Upon receipt of the patient specimen and/or test request form (if applicable), the MLS will check the quantity and type of specimen received.

b) Patient's full name, lab ascension number and MRN are unique identifiers used for specimen identification in the laboratory, in order to accurately identify and track specimens throughout the laboratory processes.

c) The MLS will perform the following upon receiving the specimen:

   i. Verify that the patient identification of the specimen received matches the identification of the test request in HIS.
   ii. Examine the specimen visually to evaluate its acceptability.
   iii. Review and evaluate the test request for suitability of the type of specimen and correct number of specimen tubes collected for the required test.
   iv. Determine the suitability, with respect to the test ordered, of the transport conditions, including the following:

      - Transport medium or preservative for the specimen
      - Temperature of specimen upon receipt
      - Length of time between specimen collection and receipt
      - Transport container intact to ensure no leakage or cracks
      - Transportation mode

2. SPECIMENS ACCEPTANCE AND REJECTION CRITERIA

The MLS will evaluate the specimen received according to the acceptance and rejection criteria. All the acceptance and rejection criteria by sections are listed in Specimen Acceptance and Rejection Criteria. Specimens that meet the acceptance criteria will be processed accordingly.

2.1 General

Detail	Acceptance Criteria	Rejection Criteria
Specimen Labelling	The specimen container is labelled with patient details.	The specimen container is not labelled with patient details.
	Specimens are labelled with clear, adequate details and correct patient identification.	Specimens labelled improperly, with incorrect patient details or inadequate patient information.
	Patient identification on specimen matches the electronic form in HIS and/or manual request form.	Patient identification on specimens does not match the patient information in the electronic form in HIS and/or manual request form.
Collection and Transportation	Specimens are collected in the correct tube or container with appropriate preservatives or anticoagulants.	Specimens collected in wrong tube, wrong tube cap, container, or incorrect preservative or anticoagulant for the test requested.
	Sufficient specimen quantity or volume for testing.	Insufficient specimen quantity or volume.
	Specimen containers are not broken or leaking.	Broken or leaked specimen containers, which are obviously or subsequently proved to be contaminated.
	Specimens are collected in non-expired containers.	Specimens collected in expired or faulty specimen containers.
	Specimens transported at proper temperature.	Specimens transported at incorrect temperature.
	Irretrievable specimens are	Irretrievable specimens are delivered to

Detail	Acceptance Criteria	Rejection Criteria
	delivered directly to the laboratory by hand.	the lab via a pneumatic tube instead of by hand.
	Specimens are transported promptly and within the test stability period.	Delay in specimen transportation to the lab after collection which is beyond the test stability period.
	Appropriate specimens are collected from proper sources and techniques.	Inappropriate or unsuitable specimens collected from proper sources and techniques. (e.g. blood collected from intravenous tubing or heparin locks).
	Add on test order notified and requested within test stability period.	Add on test order notified and requested beyond test stability period.
Consent Form	The consent form required for ordered tests is taken and completed by the ordering medical practitioner	Incomplete consent form.
Specimen for Referred Testing	Appropriate specimens which fulfil patient and specimen requirements.	Inappropriate/ unsuitable specimens which fail to meet patient and/or specimen requirements.

2.2 Clinical Chemistry, Immunoassay, and Serology

Acceptance Criteria	Rejection Criteria
Specimens free from haemolysis and contaminants.	Specimens which are haemolysed, or contain contaminant that results in testing interference or inaccurate results.

2.3 Fluid and Excretion (Urinalysis)

Acceptance Criteria	Rejection Criteria
Urinalysis specimens are received within 2 hours after collection.	Urinalysis specimen received more than 2 hours after collection.
24-hour urine is collected with appropriate preservatives and received within 48 hours.	24-hour urine collections without the appropriate preservative for the test requested or received more than 48 hours.

2.4 Haematology & Transfusion Medicine

Acceptance Criteria	Rejection Criteria
Tube filled to correct level to maintain proper blood-to-anticoagulant ratio.	Inadequate or overfilled specimen e.g. incorrect blood-to-anticoagulant ratio.
Specimen not clotted.	Clotted specimen.
Citrate tubes are filled to the appropriate volume and processed within 4 hours.	Citrate tube specimen volume which is less or more than ± 10% of the stated draw volume (incorrect blood-to-anticoagulant ratio).
Peripheral Blood Film (PBF) add-ons within 4 hours of collection.	Add-on PBF test using EDTA tubes collected more than 4 hours ago.
Blood specimen without recent transfusion (3 months) for Hb Analysis tests.	Blood specimen with recent transfusion (3 months) for Hb Analysis tests.
Specimen for transfusion is separate from other tests.	Sharing of specimens for transfusion with other tests.
6 mL EDTA tube for GSH and GXM for 13-year-old and above.	Incorrect blood collection tube or volume.

2.5 Medical Microbiology

Acceptance Criteria	Rejection Criteria
Specimens are collected in sterile containers using an aseptic technique.	Non-sterile specimens for tests requiring sterile collection techniques.
Swabs for culture are moist and sterile.	Swabs for culture dry and not sterile.
Genital culture swabs are received within 8 hours.	Genital culture swabs are received more than 8 hours after collection.
Stool specimens are received within 24 hours.	Stool specimens are received more than 24 hours after collection.
Clear labelling with specimen type and source on the specimen container.	Specimen type or source not indicated on the specimen container.

2.6 Histopathology

Acceptance Criteria	Rejection Criteria
Specimens are labelled properly and correctly with patient information on Histopathology Request Form and specimen container.	Absence or incorrect patient identification on Histopathology Request Form and specimen container.
Clinical history/ diagnosis, medical practitioner's signature, and name are completed on the request form.	Absence of clinical history/ diagnosis, medical practitioner's signature or name on request form.
The type of specimen indicated on the specimen container matches the information on the request form.	The type of specimen indicated on the specimen container does not match the information on the request form
Correct specimen type and site labelled on both specimen container and request form	Incorrect specimen type and site (e.g., right or left, front or back, etc.) not written on specimen container or request form
Each specimen is in an individual container and not shared with other specimens.	Different specimen types are placed in the same container (e.g., lipoma with hernia sac, polyp with curetting).

Acceptance Criteria	Rejection Criteria
Specimens are properly preserved and fixed in formalin. All Histopathological Examination (HPE) specimens must be fixed with 10% neutral buffered formalin, except frozen and IF specimens.	Specimen not properly preserved with sufficient formalin.
Specimen present in the specimen container.	Absence or insufficient quantity of specimen in the specimen container.

2.7 Cytopathology

Acceptance Criteria	Rejection Criteria
Specimens are labelled properly and correctly with patient information on the Cytopathology Request Form and specimen container.	Absence or incorrect patient identification on Histopathology Request Form and specimen container.
Clinical history/ diagnosis and the medical practitioner's signature and name are included on the request form.	Absence of clinical history/ diagnosis, medical practitioner's signature and name on request form.
Specimen type is clearly written on the form.	Specimen type not written on the form.
Correct specimen type sent for analysis.	Incorrect specimen type sent.
Slides in good condition.	Broken slides.
Slides labelled with full patient name and MRN.	Unlabelled slide (without patient's full name and MRN).
Non-Gynae slides labelled as air dry smear or alcohol-fixed smear.	Non-Gynae slides unlabelled as air dry smear/ alcohol-fixed smear.

3. MANAGEMENT OF REJECTED LABORATORY SPECIMEN

The MLS will inform the ordering medical practitioner, nurse in-charge or clinic assistant on the specimen rejection, including the reason for rejection and the need for recollection. Specimens that fail to meet the acceptance criteria will be kept in the laboratory.

If the ordering medical practitioner requests to proceed the testing using compromised specimen that may impact result interpretation, the MLS will consult the laboratory pathologist from the related test discipline. If the specimen is approved for processing, the MLS will document the issue in the final report in the LIS.

4. HANDLING OF SPECIMENS WITH INCORRECT PATIENT IDENTIFICATION

For specimens with incorrect patient identification, the following action is required:

a) The MLS will notify the ordering medical practitioner, nurse in-charge or clinic assistance, who collected the specimen.
b) For retrievable specimens, specimen will be rejected and specimen recollection is required.
c) For precious or irretrievable specimens, the person who collected the specimen is required to come to the laboratory to:
    i. Identify and verify the specimen.
    ii. Correctly label the specimen or the request form (if applicable) in the case of mislabelling.
    iii. Complete the SMCV-LAB-GE-FORM001 Specimen Rejection Form and sign in acknowledgement.
d) The MLS will raise an e-incident for rejections related to patient identification error within 24 hours of the incident. All e-incident reports must include a description of the incident and the persons involved.
e) If the ordering medical practitioner requests to proceed with the testing using a compromised specimen that may impact result interpretation, the MLS must consult the laboratory pathologist of the related test discipline. If the specimen is approved for processing, the MLS will clearly document the issue in the final report in LIS.

5. SPECIMENS ACCEPTANCE EXCEPTIONS

Specimen acceptance exceptions apply to the management of irretrievable or precious specimen rejections. The list of precious or irretrievable specimens as below:

- Amniotic fluid
- Bone marrow

- Cerebrospinal Fluid (CSF)
- Cord blood
- Cytopathological specimens
- Fetal tissue
- Histopathological specimens
- Placental tissue
- Semen specimens
- Serous fluid (pericardial, peritoneal, pleural etc)
- Specimen from newborn, neonate or paediatric
- Synovial fluid
- Any other specimens that is either difficult or impossible to recollect
- Any other specimens that requires invasive procedures for collection

If an irretrievable specimen or precious specimen is compromised, the MLS will proceed with the following actions:

a) Notify the ordering medical practitioner of the issue with the specimen and confirm whether to proceed with testing.
b) If the ordering medical practitioner decides to cancel or discontinue the test, the MLS will cancel the test appropriately in HIS.
c) If the ordering medical practitioner decides to proceed, the MLS will document the decision in LIS and process the test accordingly.
d) The MLS will inform the person who collected the rejected specimen, and the person must come to the laboratory to complete the SMCV-LAB-GE-FORM001 Specimen Rejection Form.
e) If the ordering medical practitioner requests to proceed with testing using a compromised specimen that may impact result interpretation, the MLS will consult the laboratory pathologist of the related test discipline. If the specimen is approved for processing, the MLS will document the information in the final report in LIS.

CHAPTER 6

SPECIMEN COLLECTION & PREPARATION

SPECIMEN COLLECTION & PREPARATION

General Specimen

Blood Specimen Collection - Venepuncture

Specimen	Blood
Container	Blood Collection Tube
Procedure	• Position the patient's arm comfortably with the arm extended. • Apply the tourniquet to the patient's arm about 3-4 inches above the venepuncture site. • Locate the vein and ask the patient to hold his/ her fist. • Clean the venepuncture site in a circular motion with an alcohol swab. Allow it to air dry. • Perform venepuncture by inserting the needle, bevel side up, at a 15 - 30-degree angle, parallel to the vein. • Withdraw the patient's blood into the test tubes according to the blood collection order of draw. Mix by gentle inversion. • Once a sufficient blood specimen is collected, remove the last tube and release the tourniquet. • Place a dry cotton ball over the venepuncture site and slowly withdraw the needle from the patient's arm. • Apply a bandage and continue applying mild pressure. pressure. The patient's arm comfortably with arm extended.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Blood Specimen for Glucose Tolerance Test

Specimen	Blood
Container	Sodium Fluoride Blood Collection Tube
Procedure	**Patient Preparation** • The patient must fast for at least 8 - 10 hours before the test. • The patient should be normally active and not bedridden prior to the test. • The patient should be free of any infectious or acute illness, including the common cold. • An adequate carbohydrate intake (at least 150 g/day) is required for 3 days before the test. • The patient should refrain from smoking or drinking coffee on the morning of the test.

	2-Hour Glucose Tolerance Test • The MLS will obtain a fasting blood specimen in a fluoride tube. • The patient will be instructed to consume a 75 g glucose drink within 5 minutes. • The patient must remain fasting for 2 hours after consuming the glucose drink. • A second blood specimen (in a fluoride tube) will be collected at the 2-hour mark. • The test must be discontinued if the patient vomits during the procedure. **3-Hour Glucose Tolerance Test** • The MLS will obtain a fasting blood specimen in a fluoride tube. • The patient will be instructed to consume a 75 g glucose drink within 5 minutes. • The MLS will collect urine and blood specimens (in fluoride tubes) at the 1st and 2nd hours after consumption of the glucose drink. • The test must be discontinued if the patient vomits during the procedure.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Bone Marrow

Specimen	Bone Marrow Aspirate (BMA)
Container	Glass Slide, 60 mL Histopot and specific specimen container according to the test ordered

Procedure	• An appointment must be made for the bone marrow procedure by ward or clinic with the following details:
	  ○ Additional tests (if required)
	  ○ Location
	  ○ Patient details
	  ○ Time (working hours only)
	• The Consultant Haematologist will complete and email the Haematology Ancillary Tests Request Form for any ancillary tests, if required.
	• During the BMA procedure, MLS will assist the Clinical Haematologist in performing the BMA smears and collect the trephine specimen, including the trephine imprint.
	• If additional tests are required, the Clinical Haematologist will withdraw extra BMA to be collected in specific tubes, and ensure the BMA specimen is collected in good quality. MLS will inform the Clinical Haematologist for specimen recollection if the collected specimen is clotted.
	• Slide folder, test tubes and specimen containers will be labelled with the correct patient sticker immediately after specimen collection at the site where the bone marrow procedure was performed.
	• BMA slides will be labelled with pencil at the frosted end with the patient's name, bone marrow lab number, MRN and date of collection, at the bedside or near the patient.

	• After the procedure, MLS will provide the referral request form to the Clinical Haematologist to fill out, including signature of acknowledgement and test orders. • MLS will proceed with all the tests as well as the corresponding charges accordingly.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Dried Blood Spot

Specimen	Blood
Container	Dried Blood Spot Paper
Procedure	• Perform heel prick or finger prick for patient. • Wipe away the first drop and collect subsequent drops of blood. • Allow one drop to fall onto each circle of the filter paper. • Collect at least three circles or more, if possible. • Ensure that the blood soaks completely through the paper. • Do not hold the filter paper against the puncture site. • Allow the filter paper to dry thoroughly (at least 60 minutes) before enclosing it within an envelope or biohazard bag.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Coagulation Specimen

Specimen	Blood
Container	Sodium Citrate Blood Collection Tube
Procedure	• Collect blood using 3.2% sodium citrate tubes and follow the order of draw. • A discard tube (additional sodium citrate tube) must always be used to prime the winged collection set if the sodium citrate tube is the first tube being collected. This ensures that the blood tube fills to the indicated fill line properly. Inadequate filling or overfilling of the tube will affect the ratio and lead to inaccurate results. • Fill the blood tube up to the indicated fill line on the tube. Gently invert the tube end over end 3 - 4 times immediately after blood collection. Avoid vigorous shaking to prevent haemolysis. • Check three unique identifiers (patient's full name, IC No./ passport number and MRN) on the sticker and label the specimen tube in front of the patient. • Delayed Testing (sent to the referral laboratory for outsourced test): If the specimen is sent to the referral laboratory or testing is delayed due to analyser issues, a double centrifugation is required.

Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Microcapillary Blood Sampling

Specimen	Blood
Container	Blood Collection Tube

Procedure	• For paediatric patients, ensure that patients are correctly identified before taking blood by:
	  ○ Identifying patient via their wrist or foot band.
	  ○ Asking the parent or legal guardian present to identify the patient using three (3) identifiers (i.e. asking for the baby's full name, date of birth and IC No./ passport number or MRN).
	• Positioning the patient in a comfortable manner, and immobilise the patient if needed.
	• Massage the selected puncture site (patient's finger or foot) to increase blood flow.
	• Clean the puncture site with an alcohol swab in a circular motion. Allow it to air dry. Apply Vaseline.
	• Perform a finger-prick or heel-prick by pressing the lancet firmly on the finger/ heel.
	• Continue to massage the patient's finger or foot. Lower the part of the punctured site to increase blood flow.
	• Withdraw the blood into the capillary tube/ microtainer tube according to the blood collection order of draw for skin puncture.
	• Once a sufficient blood specimen is collected, apply a bandage and continue applying mild pressure.

Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Fluid & Excretion Specimen

CSF

Specimen	CSF
Container	Bijou Bottle
Procedure	• Collect 1 - 3 mL directly in a sterile screw-capped container each (or Cryo vial). • Cap the container securely to prevent leakage.
Transportation Requirements	• For virology test: no transport medium is required, preferably transported at 4 - 8°C. • For bacteriology test: transport at ambient temperature without transport media and never refrigerate. • Transport the specimen to the laboratory by hand.

Fluid

Specimen	Fluid specimen (Pleural, Effusion, Synovial, Amniotic, Bronchoalveolar lavage, Semen and etc)
Container	Sterile Container Except for Amniotic Fluid (Conical Tube)
Procedure	• Collect 2 - 5 mL specimens into a sterile screw-capped container. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Urine

Specimen	Urine
Container	Sterile Container
Procedure	• Instruct the patient to wash hands with soap and water before collecting the urine specimen. • For male patients, cleanse the glands penis with soapy water and rinse with clean water. • For female patients, cleanse the area around the urethral opening with clean water. Dry the area and collect the urine with the labia held apart. • Discard the first portion of the urine stream and collect the midstream urine in the sterile container.
Transportation Requirements	Transport the specimen to the laboratory within 2 hours of collection by pneumatic tube system or by hand.

24-Hour Urine

Specimen	24-Hours Urine
Container	24-Hour Urine Container *Inform laboratory personnel at least 15 minutes before collection of the 24-hour urine container. Refer to Appendix 2 for Preservative for 24-Hour Urine Collection.
Procedure	• On the day of collection, record the start time on the bottle label. • After starting, empty the bladder and discard the first urine. • Collect all subsequent urine specimens in a clean container (e.g. plastic cup) and pour inside the container into the 24-hour urine bottle. • Never collect urine using the 24-hour urine bottle directly as the corrosive preservatives inside the bottle may harm the patient. • Record the time of the last 24-hour urine collection.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Microbiology Specimen

Abscess/ Abscess Swab

Specimen	Abscess/ Abscess Swab
Container	Amies Charcoal Swab (Abscess Swab) Sterile container (Abscess)
Procedure	• Disinfect the skin overlying the abscess with 70% alcohol. • Use a sterile needle and syringe to aspirate the fluid from the abscess with appropriate volume. • For swab specimens, rotate the swab on the abscess walls firmly without contact with intact skin. • Transfer the aspirate or swab aseptically into a container.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Axillary Swab

Specimen	Axillary Swab
Container	Amies Charcoal Swab (C&S)
Procedure	• Swipe all sides of the swab tip back and forth five times over the skin surface of the axillary. • Place the swab in the corresponding container.

Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Blood Culture Collection: Winged Set

Specimen	Blood
Container	Blood culture bottles (Aerobic and Anaerobic)

Procedure	• Preparation
	  ○ Check the patient identification and prepare the sterilisation kit and blood culture bottles.
	  ○ The sterilisation kit consists of sterile gloves, antiseptic solution, sterile gauze swabs, blood collection device and a waste disposal bag.
	  ○ Perform hand hygiene and wear gloves.
	• Prepare bottles for inoculation
	  ○ Remove the plastic “flip-cap” from each bottle.
	  ○ Disinfect the bottle septum with an alcohol swab and allow it to air dry.
	• Blood collection procedure
	  ○ Position the patient’s arm comfortably with the arm extended.
	  ○ Apply the tourniquet to the patient’s arm.
	  ○ Locate the vein and ask the patient to hold his/ her fist.
	  ○ Clean the venepuncture site in a circular motion with an antiseptic solution. Allow it to air dry completely.
	  ○ Do not re-palpate the vein after disinfection.
	  ○ Attach the winged collection set to the blood culture bottle.
	  ○ Insert the needle into the prepared vein.
	  ○ Collect the aerobic bottle first, followed by the anaerobic bottle.
	  ○ Ensure each bottle is filled to the fill-to-mark or target fill level.
	  ○ Release the tourniquet once blood flow is observed.
	  ○ Remove the needle and apply pressure to the puncture site with sterile gauze.
	  ○ Record the date and time of collection.
	  ○ Label the bottles in the presence of the patient. Do not cover the bottle barcodes with the patient label.
	Notes:
	• Blood volume requirement: approximately 10 mL per bottle for adults and 1 - 4 mL per bottle for paediatric patients.
	• If additional blood tests are required, collect blood cultures first.
	• Always collect the aerobic bottle first when using a winged set.
	• Ensure bottles are filled to the recommended volume.
	• Do not replace the plastic “flip-cap” after collection.
	• Do not cover bottle barcodes with patient labels.

Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Blood Culture Collection: Syringe Method

Specimen	Blood
Container	Blood culture bottles (Aerobic and Anaerobic)

Procedure	• Preparation
	  ○ Check the patient identification and prepare the sterilisation kit and blood culture bottles.
	  ○ The sterilisation kit consists of sterile gloves, antiseptic solution, sterile gauze swabs, blood collection device and a waste disposal bag.
	  ○ Perform hand hygiene and wear gloves.
	• Prepare bottles for inoculation
	  ○ Remove the plastic “flip-cap” from each bottle.
	  ○ Disinfect the bottle septum with an alcohol swab and allow it to air dry.
	• Blood collection procedure
	  ○ Position the patient’s arm comfortably with the arm extended.
	  ○ Apply the tourniquet to the patient’s arm.
	  ○ Locate the vein and ask the patient to hold his/ her fist.
	  ○ Clean the venepuncture site in a circular motion with an antiseptic solution. Allow it to air dry completely.
	  ○ Insert the needle into the prepared vein.
	  ○ Gently withdraw the required volume of blood using the syringe.
	  ○ Release the tourniquet once steady blood flow is observed.
	  ○ Remove the needle and apply pressure to the puncture site with sterile gauze.
	  ○ Inoculate the anaerobic bottle first, followed by the aerobic bottle.
	  ○ Ensure each bottle is filled to the fill-to-mark or target fill level.
	  ○ Record the date and time of collection.
	  ○ Label the bottles in the presence of the patient. Do not cover the bottle barcodes with the patient label.
	Notes:
	• Blood volume requirement: approximately 10 mL per bottle for adults and 1 - 4 mL per bottle for paediatric patients.
	• If additional blood tests are required, collect blood cultures first.
	• When using the syringe method, inoculate the anaerobic bottle first to prevent air introduction.
	• Ensure bottles are filled to the recommended volume.
	• Do not replace the plastic “flip-cap” after collection.
	• Do not cover bottle barcodes with patient labels.

Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Blood Cultures and Bone Marrow Aspirate for Tuberculosis (TB)

Specimen	Blood Culture/ BMA
Container	Myco F Lytic bottle
Procedure	• Fill 5 - 10 mL of blood into a Myco F Lytic bottle by using an aseptic technique. • Send the specimens to the laboratory as soon as possible or incubate them at 37°C in an incubator if there is a delay in transit. • Do not store in the refrigerator. • For bone marrow aspirate, aspirate 5 - 10 mL and inoculate it directly into the bottles.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Catheter Tip

Specimen	Catheter Tip
Container	Sterile Container
Procedure	• Cleanse the skin around the insertion site with 70% alcohol to reduce contaminating skin flora then allow it to dry. • Remove any residual antimicrobial ointment. • Remove the catheter aseptically. • Clip 2 inches of the distal tip of the catheter directly into a sterile container.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Cutaneous Specimen

Specimen	Skin Scrapping / Nail Clipping/ Hair
Container	Sterile Container
Procedure	• Get cutaneous specimens by scraping skin scales or infected nails into a sterile container. • Cap the container securely.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Ear Swab

Specimen	Ear swab
Container	Amies Charcoal Swab
Procedure	• Do not apply any antibiotic drops within 3 hours prior to specimen collection.

	• Swab the external ear canal by using a sterile swab. • Place the swab in the corresponding container with or without VTM.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Eye, Conjunctiva and Lid Swab

Specimen	Eye, Conjunctiva and Lid Swab
Container	Amies Charcoal Swab
Procedure	• It is preferable that both eyes are swabbed, even if the infection is unilateral. • Swabs should be collected prior to the instillation of topical anaesthetics or antibiotics. • Clean the skin around the eye with a mild antiseptic to prevent contamination. Moisten the swab with sterile saline. • Roll the swab in a circular motion over the conjunctiva. • Occasionally, specimens collected by an ophthalmologist will be inoculated directly onto culture plates at the bedside. • The ophthalmologist will inoculate the plates in a short spiral line. • If lid swabs are also collected, these will be inoculated onto the same culture plates next to the conjunctival inoculation. • Lid swabs will be inoculated in the shape of “"L" or "R" indicating left or right, respectively.
Transportation Requirements	• Transport the specimen to the laboratory by pneumatic tube system or by hand.

Faeces

Specimen	Faeces
Container	Stool Container (Culture and Sensitivity (C&S), Rapid tests, Full Examination of the Microscopic Examination (FEME), *Clostridium difficile* PCR) Cary-Blair Swab (Gastrointestinal Panel) – *For Laboratory Use Only*
Procedure	• For microbiological diagnosis, the specimen is advisable to be collected soon after onset of diarrhoea and preferably before the initiation of antibiotic therapy. • Freshly passed stool should be collected in approximately 5 mL if liquid or 5 g if solid (pea-size), in a stool container. • For culture test, stool specimens are preferably transported at 4 - 8°C within 1-2 hours. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Genital Swab

Specimen	Genital swab
Container	Amies Charcoal Swab
Procedure	**High vaginal swabs** • Roll the swab firmly over the surface of the vaginal vault. **Cervical swabs** • Rotate the swab inside the endocervix. **Urethral swabs** • The patient should avoid urinating for at least one hour before specimen collection. • Contamination with micro-organisms from the vulva or the foreskin should be avoided. • Gently pass the swab through the urethral meatus and rotate. **For males:** If a discharge is not apparent, collect material from about 2 cm inside the urethra or milky exudate at the penis using a swab.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

General Swab Collection Procedure

Specimen	General Swab
Container	Amies Charcoal Swab (for swab/ wound/ pus/ tissue/ fluid)
Procedure	• Open the swab package by grasping the plastic at the opposite end from the soft tip. • Keep the soft tip enclosed in the package to avoid contamination before specimen collection. • Carefully remove the swab tube from its packaging without touching the soft tip. • Remove the cap from the swab collection tube and place the soft end of the collection swab into the tube. • Prevent the cap from touching any material. • Bend the swab against the edge of the transport media to snap off the end at the marked line on the handle. • Secure the tube cap, ensuring the snapped end of the swab fits into the centre of the cap.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Groin

Specimen	Groin swab
Container	Amies Charcoal Swab (C&S) E-swab in VTM (MRSA PCR Test)
Procedure	• Gently wipe all sides of the swab tip over the skin surface of the left groin in a back-and-forth motion at least five times. • Focus on the crease where the arm meets the body. • Repeat the process on the right groin.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Nasal Swab

Specimen	Nasal Swab
Container	Amies Charcoal Swab (C&S) E-swab in VTM (MRSA PCR Test)
Procedure	• Hold back the patient's head slightly. • Insert the swab straight into the nostril. • For adults, insert the swab at least 5 – 6 cm to reach the posterior pharynx. • Leave the swab in place for a few seconds, rotate then withdraw slowly. • Repeat the same procedure on the other nostril using the same swab.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Nasopharyngeal Aspirates (NPA)/ Nasopharyngeal Secretion

Specimen	NPA/ Nasopharyngeal Secretion
Container	Sterile Container
Procedure	• Insert a small catheter through the nares to the back of the nose. • Gently suction while withdrawing the catheter slowly. • Collect the aspirate in the container.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Nasogastric Aspirate

Specimen	Nasogastric Aspirate
Container	Sterile Container
Procedure	• The patient should be fasting for ≥ 4 hours before the procedure, and the specimen should be collected in the early morning.

	• Collect 5 - 10 mL and transfer it into a sterile container. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Per-Nasal and Post-Nasal Swabs (For Suspected Pertussis)

Specimen	Per-nasal and Post-nasal Swabs
Container	Nasopharyngeal Swab/ Dacron Swab with Amies Gel Kindly contact the Microbiology MLS for container preparation.
Procedure	• Seat the patient comfortably, tilt the head back and insert the nasal speculum. • Insert a swab through the speculum parallel to the floor of the nose without pointing upwards. • Alternately, bend the wire and insert it into the throat and move the swab upwards into the nasopharyngeal space. • Rotate the swab on the nasopharyngeal membrane a few times, remove it carefully and insert it into a screw-cap tube containing a transport medium (Amies Gel). • Break off the top part of the stick without touching the tube and tighten the screw cap firmly. • Label the specimen tube.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Product of Conception (POC)

Specimen	POC
Container	Sterile Container
Procedure	• POC should be collected in a 50 mL sterile tube with normal saline. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Rectal Swab

Specimen	Rectal swab
Container	Amies Charcoal Swab

Procedure	• Moisten a swab with sterile saline. • Gently insert the swab through the rectal sphincter to a depth of 2 - 3 cm. • Rotate the swab 360 degrees for at least two rounds. • Gently remove the swab from the anus while turning the swab. • Ensure that the cotton tip is visibly stained with faeces.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Sexually Transmitted Infection (STI) Panel

Specimen	High Vaginal Swab/ Urethra Swab/ Urine
Container	Thick Dry Swab Coated with Nylon Fibres in Viral Transport Medium (VTM) (Swab) Sterile Container (Urine)
Procedure	• Ensure the procedure is performed in a sterile environment. • Using a sterile swab, gently insert it into the appropriate collection site (vaginal or urethral). • Rotate the swab gently to collect the specimen, then carefully remove it. • Immediately place the swab into a screw-cap tube containing VTM. • For urine specimens, collect midstream urine directly into a sterile container. Cap the container securely to prevent leakage. • Label the specimen tube/ container clearly with the patient's details and the specimen type.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Sputum

Specimen	Sputum
Container	Sterile Container
Procedure	• Instruct the patient to take a deep breath and cough up sputum directly into a wide-mouth sterile container. • Collect at least 1 mL of the specimen. • Saliva or postnasal discharge must not be collected. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Throat Swab

Specimen	Throat Swab

Container	Amies Charcoal Swab (C&S) Oropharyngeal Swab in VTM (Measles PCR)
Procedure	• Hold the tongue down with a depressor. • Use a strong light source to locate areas of inflammation. • Swab the posterior pharynx and the tonsillar region of the throat behind the uvula. • Rub the area back and forth with a swab. • Withdraw the swab without touching the cheeks, teeth or gums and insert it into a container.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Vesicle Fluid/ Lesion

Specimen	Vesicle Fluid/ Lesion
Container	Sterile Container (C&S) Amies Charcoal Swab (C&S) Dacron Swab (Monkeypox PCR)
Procedure	• Examine the body part and choose the largest and most representative vesicle. • Clean the skin area around the lesion gently with a normal saline-soaked cotton swab. • Rupture the vesicle carefully using hypodermic needle. • For vesicle swab, swab the vesicular fluid from the ruptured vesicle quickly or use the swab to squeeze out the vesicular fluid. • For lesion swab, rotate the swab on the lesion margin firmly without contact with intact skin. • Transfer the aspirate or swab into the container. • Cap the container securely to prevent leakage.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Wound Swab

Specimen	Wound Swab
Container	Amies Charcoal Swab
Procedure	• Cleanse wound area using normal saline or sterile water. • Remove and/or debride non-viable tissue to obtain access to the deep compartment of the wound. • Apply optimal pressure on the wound to express fluid within the tissue

	• Depress and rotate the swab against around 1 cm^2 area of viable wound tissue for approximately 5 seconds. • Specimens should be kept at room temperature and ideally should reach the lab within 12 hours. • Do not refrigerate.
Transportation Requirements	Transport the specimen to the laboratory by pneumatic tube system or by hand.

Cytopathology Specimen

All specimens are to be collected by the requesting medical practitioner except for urine specimen.

Gynaecology Cytopathology specimen collection can be categorised into two types:

1. Conventional Papanicolaou (PAP) smear: a collection of cervical cells smeared smoothly on a microscopic slide and quickly fixed with Cytospray or 95% alcohol.
2. SurePath (Liquid-based Cytology): a collection of cervical cells using a broom-type device or combination brush/plastic spatula with detachable heads is immersed in a vial containing preservative fluid.

General guidelines for Pap Smear and HPV DNA collection

1. Avoid collection during heavy menstruation.
2. Avoid sexual intercourse for at least 48 hours prior to specimen collection.
3. Do not use vaginal creams, lubricants, or douches before the procedure.
4. Cervical screening should be performed at least 6 weeks postpartum.
5. Any visible cervical lesions should be referred to a gynaecologist for further evaluation.

Conventional Pap Smear

Specimen	Cervical cells
Container	Endocervical brush/ broom
Procedure	• Collect cervical cells using an endocervical brush or broom. • Smear the sample directly onto a properly labelled glass slide. • Immediately fix the slide using a Cytospray or by immersing it in 95% alcohol. • Place the fixed slide into a labelled slide folder with patient identification. • Send the specimen to the laboratory without delay.
Transportation Requirements	Transport the specimen to the laboratory by hand.

SurePath (Liquid-based Cytology) and HPV DNA

Specimen	Cervical cells suspended in preservative solution
Container	Cervical broom or brush/ spatula combination with detachable head
Procedure	• Collect cervical cells using a cervical broom or brush with a detachable head. • After collection, detach the head and immerse it into a vial containing the SurePath preservative solution. • Ensure the vial is properly labelled with patient identification.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Rapid Molecular HPV DNA

Specimen	Cervical cells
Container	SurePath (Liquid-based Cytology container)
Procedure	The Sansure HPV DNA test is an automated test for qualitative detection and differentiation of HPV DNA that use a real-time fluorescence quantitative PCR technology to detect high risk HPV DNA types. A several pair of specific primers and fluorescence probes are designed to target nucleic acid conserved sequences of 15 types of HPV genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 88) in the exfoliated cervical cells. • Collect the cervical specimen using a cervical brush or broom with a detachable head. • Immerse the brush head in a SurePath vial containing preservative solution. • Label the vial with patient identification and send it to the laboratory immediately. • A rapid HPV DNA test will be performed first, followed by liquid-based Pap smear Cytology for further Cytological evaluation.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Non-Gynaecological Cytopathology specimen collection

- Non-gynaecological Cytopathology specimen including all body secretions and fluids (washing, aspiration, sputum, urine, discharge).
- Specimens should be kept refrigerated at 4 - 6˚C if transport is expected to exceed such a time until reach laboratory for processing.
- All non-gynaecological specimens are to be collected by the requesting medical practitioner except for urine specimen.

Specimen Type	Specimen Container	Collection Procedure	Transportation Requirements
Sputum	Sterile Container	• The specimen shall be collected early in the morning via deep cough, and produced prior to consumption of food or drink and prior to teeth cleaning.	Transport the specimen to the laboratory by hand.
Urinary Tract	Sterile Container	• Urine specimens shall be collected at least 10 mL of freshly voided or catheter specimen in a sterile urine container. • The best specimen is the morning's second voiding or specimen collected 3 to 4 hours after the patient has last urinated.	Transport the specimen to the laboratory by hand.
Body Fluid for Cytopathology	Sterile Container	• Including pleural or ascitic effusions, peritoneal washings, pericardial effusion, breast cyst fluid, hydrocele fluid, ovarian cyst fluid, etc, collected in a sterile container and sent to the laboratory immediately. • The optimum volume of fluid shall be collected is 30 mL. • Specimen should be collected in a sterile container and sent to the laboratory immediately.	Transport the specimen to the laboratory by hand.
Bronchial Brushing	Sterile Container	• The specimen shall be obtained via a procedure conducted by a requesting medical practitioner. • Minimum 2 slides of alcohol (95%) fixed or spray-fixed smears are required. • The remaining material is rinsed into a sterile container or BD vial and sent to the laboratory.	Transport the specimen to the laboratory by hand.
Nipple or Eye Discharge	Sterile Container	• The specimen shall be collected by the requesting medical practitioner. • Minimum 2 slides of air-dried smear and alcohol (95%) fixed required. • The remaining material was rinsed into a sterile container or BD vial and sent to the laboratory.	Transport the specimen to the laboratory by hand.
Cerebrospinal Fluid for Cytopathology	Sterile Container	• The specimen shall be obtained via a procedure conducted by the requesting medical practitioner. • About 2-3 mL of CSF fluid collected in a sterile container and sent fresh to the laboratory immediately.	Transport the specimen to the laboratory by hand immediately or within 1 hour.

Histopathology Specimen

- Specimen should be taken by a medical practitioner.
- The size of the specimen container should be selected according to the size of the specimen.
- Ensure the specimen is fully immersed in formalin.
- Specimen type (source, position if applicable) must be labelled on the specimen container and must correspond with the specimen type written on the test request form.

Test	Electron Microscopy
Container	Special Vial with EM Grade Glutaraldehyde Solution
Procedure	• The requesting surgeon must make booking via phone call or request through the official Laboratory WhatsApp group, 2 working days in advance. • Cytopathology MLS will inform referral laboratory to book the slot and request for the special vial (kept at 4 - 6˚C). • The Cytopathology MLS will prepare all materials required for specimen transportation, communicate with the referral lab, and arrange dispatch of the specimen. • After procedure, the surgeon needs to complete the test request form and order the test in HIS. • The special vial and request form shall label accordingly before dispatching to the laboratory. • Cytopathology MLS will pack the specimen accordingly and send the specimen to the referral laboratory.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Test	Frozen Section
Container	Sterile Container
Procedure	**<u>Before procedure</u>** • The requesting surgeon must make booking with the Cytopathology Section team at least two working days before the procedure. • Case details must be provided at the time of the booking. • The Cytopathology Section team will inform the referral laboratory for frozen procedure to book the time slot. • Confirmed booking slot will be notified to the surgeon and the OT personnel via phone call or official Lab WhatsApp group.

	• The Cytopathology MLS will prepare all materials required for specimen transportation, communicate with the referral laboratory, and arrange dispatch of the specimen.
	• The surgeon must pre-fill the referral laboratory request form and order the test in Origin.
	<u>During procedure</u>
	• OT personnel must update the status of the specimen upon collection in WhatsApp group from time to time.
	• Upon specimen arrival at the laboratory, Cytopathology MLS will check for:
	  ○ Specimen temperature
	  ○ Patient details
	  ○ Quantity of specimen
	  ○ Status of specimen (without formalin and saline, gauze is not recommended)
	• Cytopathology MLS will pack the specimen accordingly and send the specimen to the referral laboratory.
	• Status of specimen with detailed timeline will be updated by Cytopathology MLS and dispatch in Lab WhatsApp group**.**
	• A verbal report will be provided by the referral laboratory personnel to the surgeon and communicated to OT personnel via the Lab WhatsApp group.

Transportation Requirements	Transport the specimen immediately to the referral laboratory.

Test	Rapid On-Site Cytological Evaluation (ROSE)
Container	Sterile Container Pre-Filled with Fixative Solution
Procedure	• The appointment should be made by Radiology staff to the Cytopathology Section team. Available timeslot for ROSE procedure: Monday to Friday (after 2.30pm). • Upon specimen collection by radiologist, Cytopathology MLS will perform slide smearing and fix the slides with quick haematoxylin stain. • The specimen slides will then be screened under a microscope by Cytopathology MLS to assess the collection site and specimen sufficiency. • Feedback from slide review will be provided by Cytopathology MLS to radiologist. • The radiologist will determine whether resampling is required or not. • After procedure, the radiologist needs to complete the test request form and order the test in HIS. • The Cytopathology MLS will pack the specimen container, slides and request form to be sent to referral laboratory.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Test	Renal Biopsy & Immunofluorescence
Container	Formalin & Michel's Transport Medium
Procedure	• State Registered Nurse (SRN) must request special container for the procedure prior to the procedure from laboratory. • The special container will be provided by the laboratory on the procedure day. • Collect the specimen and transport it to the laboratory immediately.
Transportation Requirements	Transport the specimen to the laboratory by hand.

Release of Histopathology Slides/ Block to Patient
• The ordering medical practitioner must provide a referral letter to request the release of tissue block or slides release from the referral laboratory. • The TAT for the tissue blocks or slides release is 7 working days. • Laboratory personnel will inform medical practitioner or clinic assistant once the tissue block or slide is ready for collection. • Charges for the tissue block or slides release request must be paid before proceeding. • The block release consent form must be completed by the patient or their representative, including a signature in the corresponding column and a photocopy of the patient's identification card or passport. • Laboratory personnel will act as a witness and complete the witness column. • Laboratory personnel will release the requested tissue block or slides to the patient.

Request Second Opinion
• The ordering medical practitioner needs to fill up Histopathology request form for second opinion. • The referral laboratory pathologist will select the suitable block or slide used for second opinion upon request. • Laboratory personnel will get the block specimen returned from primary referral laboratory and arrange for specimen transportation to the referral laboratory for second opinion. • The laboratory personnel must ensure the referral laboratory to return back the block or slide given for second opinion to the primary laboratory upon completion of reporting.

CHAPTER 7

RESULT REPORTING

RESULTS REPORTING

1. Laboratory Report

Each report includes the following information, unless the laboratory has documented reasons for omitting any items:

a) Unique patient identification, date of primary specimen collection and the date of issue of the report, on each page of the report
b) Identification of the laboratory issuing the report
c) Name of the ordering doctor
d) Type of primary specimen and any specific information necessary to describe the specimen (e.g. source, site of specimen, macroscopic description). At SMCV, all specimen types in the patient's report are considered to be serum unless otherwise specified.
e) Clear, unambiguous identification of the examinations performed
f) Identification of the examination method used where relevant, including, where possible and necessary, harmonised (electronic) identification of the measure and measurement principle. Refer to Appendix 3 for details of the test methodology.
g) Examination results with, where appropriate, the units of measurement, reported in SI, units traceable to Sl units, or other applicable units
h) Biological reference intervals, clinical decision limits, likelihood ratios or diagrams/nomograms supporting clinical decision limits as necessary
i) Identification of examinations undertaken as part of a research or development program and for which no specific claims on measurement performance are available
j) Identification of the person(s) reviewing the results and authorising the release of the report (if not contained in the report, readily available when needed)
k) Identification of any results that need to be considered as preliminary
l) Indications of any critical results
m) Unique identification that all its components are recognised as a portion of a complete report and a clear identification of the end (e.g. page number to total number of pages)

Additional information available on reports are:

a) The time of primary specimen is collected
b) Time of report released

c) Examinations performed by a referral laboratory, including information provided by doctors, without alteration, as well as the name of the laboratory performing the examinations
d) Interpretation of results and comments, where applicable

2. Turnaround Time (TAT)

a) Laboratory reports are generally completed within the designated turnaround time. The details of the laboratory tests' turnaround time are provided in Appendix 4.
b) In certain circumstances, the laboratory may be unable to meet the defined turnaround time for tests routinely performed in-house due to equipment malfunctions, LIS/ HIS server downtime, or the need for a second opinion.
c) In the event that a reporting delay could potentially compromise patient care, the laboratory will promptly notify the ordering medical practitioner.

3. Reporting of Laboratory Results

a) Medical practitioners, clinic assistants and nurses will be able to view or print patients' results via the Electronic Medical Record (EMR) screen in HIS.
b) The laboratory will not provide printed results for all in-house tests in order to observe and comply with the Personal Data Protection Act 2010.
c) Patients should request for hardcopy results and/or reports from their medical practitioners or from the hospital's Medical Reports Department (MRD).
d) The laboratory will notify verified results if:
    i. The request to notify has been included in the test requisition
    ii. The tests are classified as urgent
    iii. The results are abnormal and fall within the critical value range

4. Report from External/ Referral Laboratories

a) The MLS will monitor the status of referred tests and trace for the results according to the TAT.
b) Once received softcopy and / or hardcopy report from referral laboratories, the MLS will verify the information in the result, including:
    i. Patient information (name, gender, IC No./ passport number, date of birth, age)
    ii. Requestor information (name of ordering medical practitioner and hospital)
    iii. Date of specimen collection in SMCV
    iv. Date of reporting
    v. Tests processed by referral laboratories

vi. Results

vii. Completeness of reports

c) If no issues are found upon reviewing the referral test report, the MLS will upload the report, which is accessible in the HIS by doctors, nurses, clinic assistants and Medical Records Department.

d) If any incorrect details are found in the referral test report, the MLS will:

i. Inform the ordering doctor the result if the result has been released.

ii. Inform the ordering doctor there will be a delay in uploading the reports in HIS due to incorrect information in the received reports.

iii. Inform referral laboratory to amend the incorrect information in the reports.

iv. Follow-up with the referral laboratory to ensure that the amended reports will be received.

e) Hardcopy reports will be dispatched to the clinic of the ordering doctors, if provided by referral laboratory.

5. Critical Results

The following test results are classified as critical and require immediate notification:

TEST	SPECIMEN	POPULATION	LOW	HIGH
Chemical Pathology				
Acetaminophen	Serum	All	-	> 200 µmol/L
Bilirubin, Total	Serum	Newborn	-	> 260 µmol/L
Calcium	Serum	Newborn	< 1.7 mmol/L	> 3.0 mmol/L
Creatinine	Serum	All	-	> 330 µmol/L
Creatinine Kinase	Serum	Adult	-	> 5000 U/L
Creatine Kinase-MB (CK-MB)	Serum	All	-	> 15.0 ng/mL
Glucose	Serum/ Plasma	All	< 2.8 mmol/L	> 20.0 mmol/L
Magnesium	Serum	All	< 0.4 mmol/L	> 2.5 mmol/L
Phosphate	Serum	All	< 0.32 mmol/L	> 2.87 mmol/L
Potassium	Serum	Adult	< 2.8 mmol/L	> 6.0 mmol/L
		Newborn	< 2.5 mmol/L	> 7.0 mmol/L
Sodium	Serum	All	< 125 mmol/L	> 155 mmol/L
Troponin-T	Whole Blood	All	-	> 40 ng/L

TEST	SPECIMEN	POPULATION	LOW	HIGH
Troponin I (High Sensitivity)	Serum	Adult Male	-	> 34.2 ng/mL
		Adult Female	-	> 15.6 ng/mL
Thyroid-Stimulating Hormone (TSH)	Serum/ Plasma	Newborn	-	> 20 mIU/mL
Urea	Serum	Paediatrics 3 months - 12 years	-	> 19 mmol/L
Uric Acid	Serum	Paediatrics 3 months - 12 years	-	> 500 µmol/L
Haematology				
Activated Partial Thromboplastin Time (APTT)	Plasma	All	-	> 80 seconds
D-Dimer	Whole Blood	All	-	> 0.5 ng/mL
Fibrinogen	Plasma	All	< 0.8 g/L	> 7.0 g/L
Haemoglobin	Whole Blood	Adult	< 7.0 g/dL	> 19.0 g/dL
		0 - 1 week	< 8.0 g/dL	> 22.0 g/dL
		3 months - 12 years	< 7.0 g/dL	> 20.0 g/dL
Packed Cell Volume (PCV)	Whole Blood	All	< 15 %	-
Prothrombin Time (PT)	Plasma	All	-	> 40 seconds Or INR > 4.0
Platelets	Whole Blood	Adult	< 30 x 10^9/L	> 1,000 x 10^9/L
		Paediatrics	< 50 x 10^9/L	> 1,000 x 10^9/L
White Blood Cell (WBC)	Whole Blood	All	< 2.0 x 10^9/L	> 30.0 x 10^9/L
Transfusion Medicine				
Antibody Screen	Whole Blood	All	Positive and a new alloantibody is suspected, or no previous antibody identification	
Direct Coombs	Cord Blood	Newborn	-	Positive

TEST	SPECIMEN	POPULATION	LOW	HIGH
Microbiology				
Culture	Whole Blood	All	-	Positive
	Stool		-	*Salmonella* spp., *Vibrio* spp., *Shigella* spp.
	CSF/ Effusion Fluid		-	Positive
	All Specimen Types		-	Methicillin-resistant *Staphylococcus aureus* (MRSA)
Culture	All Specimen Types	All	-	Multi-resistant organism (MRO)
			-	Extended spectrum beta-lactamase (ESBL)
			-	*Corynebacterium diphtheria*
			-	*Neisseria meningitides*
			-	*Neisseria gonorrhoeae*
			-	*Brucella* spp. (Presumptive)
Direct Smear	Culture Swab	All	-	*Trichomonas vaginalis* seen
Gram Stain	CSF	All	-	Organism seen
Mycobacterium spp., AFB and *Mycobacterium tuberculosis*	All Specimen Types	All	-	Positive stain/ culture/ PCR
Molecular				
Chlamydia trachomatis/ Neisseria gonorrhoea (CT/NG) PCR	Urine/ Swab	All	-	Detected

TEST	SPECIMEN	POPULATION	LOW	HIGH
Clostridium Difficile Toxin PCR	Stool	All	-	Positive
Influenza A/B PCR	Nasal Swab	All	-	Positive
Mycobacterium spp., AFB and *Mycobacterium tuberculosis* PCR	All Specimen Types	All	-	Positive
Respiratory Full Panel	Nasopharyngeal & Oropharyngeal Swab	All	-	Detected (any parameter)
Respiratory Viruses Antigen Screen (RVAS)	Nasopharyngeal Swab	All		Detected (any parameter)
SARS-CoV-2 (COVID-19) Rapid PCR	Nasopharyngeal & Oropharyngeal Swab	All	-	Detected
SARS-CoV-2 (COVID-19) RT-PCR	Nasopharyngeal & Oropharyngeal Swab	All	-	Detected
Serology/ Infectious Diseases				
Cryptococcus Antigen Test	Serum/ CSF	All	-	Positive
HIV 1/2 Ab/Ag	Serum/ Plasma	All	-	Positive
Malaria Parasite	Whole Blood	All	-	Positive
SARS-CoV-2 (COVID-19) Antigen	Nasopharyngeal Swab	All	-	Positive

5.1 Handling of critical results:

a) The MLS will identify whether the patient is an inpatient or outpatient.
   i. For inpatients, the MLS will notify the ordering doctor and the staff nurse
   ii. For outpatients, the MLS will notify only the ordering doctor.

b) The MLS will communicate the critical result to the appropriate recipient(s) by phone call. The following information will be provided:
   i. Patient's identification
   ii. Test name
   iii. Result, including value and unit (if applicable)
   iv. Any additional relevant information (if applicable)

c) The MLS will request the recipient to read back the result. The recipient will repeat the following details:
    i. Patient's identification
    ii. Test name
    iii. Result, including value and unit (if applicable)
    iv. Any additional relevant information (if applicable)
d) The MLS will listen carefully to the read-back and verify it against the LIS record.
e) If discrepancies are identified, the MLS will re-communicate the result and repeat the read-back process until the recipient confirms the information accurately.
f) If there is no response to the first phone call, the MLS will attempt a second and third call. If the ordering doctor remains unreachable after three attempts, the MLS will send a text message containing the patient's details and critical results. The MLS will confirm acknowledgment of the message by the ordering doctor. If there is still no response:
    i. Inpatient
        - The MLS will contact the nurse in charge or ward nurse to notify the ordering doctor during ward rounds.
        - The MLS will communicate the critical results to the nurse by phone and carry out the read-back procedure as above.
    ii. Outpatient
        - The MLS will notify the clinic assistant (CA), who will inform the ordering doctor to review the critical results in the HIS.
g) The MLS will complete the communication process within 30 minutes of verifying the result.

5.2 Non-critical results with significant abnormality

Certain abnormal test results, while not classified as critical, may still indicate potentially serious clinical conditions. These results require timely review, verification, and appropriate communication with the ordering doctor to support prompt clinical decision-making.

The following test results are classified as non-critical but significantly abnormal:

TEST	SPECIMEN	POPULATION	SIGNIFICANT ABNORMAL	REMARK
Chemical Pathology				
Drug Confirmatory (GCMS) Testing	Urine	All	Any Positive Parameter	-

TEST	SPECIMEN	POPULATION	SIGNIFICANT ABNORMAL	REMARK
Transfusion Medicine				
ABO & Rh(D) grouping	Plasma & Packed Cell	All	Blood Group Discrepancy	Get Pathologist advice
Any Blood Component Order	Plasma & Packed Cell	All	Recall and Lookback of Blood Component	Get Pathologist advice
Any Blood Component Transfusion	Plasma & Packed Cell	All	Near-missed and Incorrect Blood Component Transfusion Error	Get Pathologist advice
Crossmatch	Plasma & Packed Cell	All	Unexplained Incompatible Crossmatch	Get Pathologist advice
Transfusion Reaction Investigation	Plasma & Packed Cell	All	Severe Transfusion Reaction	Get Pathologist advice
Molecular				
BK & JC Viral Load	Whole Blood/ Serum/ CSF/ Urine	All	Detected	-
BKV & (Cytomegalovirus) CMV PCR	Whole Blood	All	Detected	-
Bordetella Pertussis PCR	Respiratory Specimen	All	Detected	-
Brucella PCR	Whole Blood/ CSF	All	Detected	-
Carbapenem Resistant PCR	Rectal Swab/ Positive Agar Isolate	All	Detected	-
Chikungunya PCR	Whole Blood/ Serum	All	Detected	-
Cytomegalovirus (CMV) Viral Load	Any Body Fluid	All	Detected	-
Eye Vitreous Fluid for PCR	Body Fluid	All	Detected	-
Fungal PCR	Any Specimen	All	Any Detected Parameter	-

TEST	SPECIMEN	POPULATION	SIGNIFICANT ABNORMAL	REMARK
Herpes Simplex Virus - PCR	Body Fluid	All	Detected	-
HIV-1 Viral Load	Whole Blood	All	Detected	-
HIV-2 RT-qPCR	Whole Blood	All	Detected	-
Leptospirosis PCR	Whole Blood/ Urine	All	Detected	-
Malaria PCR	Whole Blood	All	Detected	-
Measles PCR	Respiratory Specimen/ Urine	All	Detected	-
Monkeypox (MPOX) PCR	Lesion/ Respiratory Specimen	All	Detected	-
Mycoplasma PCR	Respiratory Specimen	All	Detected	-
Panel STI	Urine/ Genital Specimen	All	Any Detected Parameter	-
Panel STI-14	Urine/ Genital Specimen	All	Any Detected Parameter	-
Panel Zika, Dengue, Chikungunya	Whole Blood	All	Any Detected Parameter	-
RP36	Respiratory Specimen	All	Any Detected Result	-
Varicella Zoster Virus - PCR	Any Body Fluid	All	Detected	-
Genetics				
IEM (Inborn Error of Metabolism) Screen	Whole Blood	All	Any Abnormal Parameter	-
NICC/ NIPT	Whole Blood	All	Any abnormal result	-

5.3 Handling of non-critical results with significant abnormality

a) The MLS will review significant abnormal results listed above.
b) For significant abnormal results that do not require consultation with a Consultant Haematologist, the MLS will verify the result and notify the ordering doctor.
c) For significant abnormal results related to Transfusion Medicine, the MLS will seek advice from the Consultant Haematologist.
d) Once the final result is available, the MLS or Consultant Haematologist will inform the ordering doctor, if necessary.
e) The MLS will complete the communication process within 1 working day of result verification.

APPENDIX 1

IN-HOUSE TEST STABILITY

Appendix 1: Test Stability

Haematology

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
APT Downey test	• Vaginal blood from pregnant woman • Blood in diapers (liquid form, not dry) from neonate • Blood in vomitus / gastric content/ nasogastric aspirate from neonate • Blood in faeces from neonate	2 - 6 hours	-
Bone Marrow Slide	Bone Marrow Aspirate	2 - 6 hours	-
Coagulation test (PT, APTT, Fibrinogen)	Plasma (Sodium citrate)	4 hours	-
ESR	Whole Blood (EDTA)	4 - 6 hours	24 hours
FBC	Whole Blood (EDTA)	24 hours	2 days
G6PD Screen	Cord blood / venous blood (EDTA)	-	3 days
Hb (Carestart)	Cord blood (EDTA)	-	3 days (cord blood)
Hb Analysis	Whole Blood (EDTA)	4 hours	-
Heinz Bodies	Whole Blood (EDTA)	4 hours	-
Kleihaur Betke Elusion Test	Maternal Whole Blood (EDTA)	24 hours	4 days
Malaria Parasite	Whole Blood (EDTA)	2 - 4 hours	-
Peripheral Blood Firm (PBF)	Whole Blood (EDTA)	4 hours	-
Reticulocyte Count	Whole Blood (EDTA)	24 hours	2 days

Transfusion Medicine

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
ABO & Rh(D) typing (Gel card)	Plasma & Packed Cell (EDTA)	4 hours	2 days
Cord blood ABO	Whole Blood (EDTA)	4 hours	2 days
Crossmatch order	Plasma & Packed Cell (EDTA)	4 hours	2 days
DAT	Plasma & Packed Cell (EDTA)	4 hours	2 days
IDAT	Plasma & Packed Cell (EDTA)	4 hours	2 days

Biochemistry & Immunology

Test	Specimen	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Albumin BCG	Serum	7 days	7 days
AlkP	Serum	7 days	7 days
ALT	Serum	3 days	7 days
Amylase	Serum	24 hours	7 days
AST	Serum	4 days	7 days
Bilirubin Total	Serum	24 hours	7 days
C3	Serum	3 days	7 days
C4	Serum	2 days	2 days
Calcium Total	Serum	7 days	7 days
Chloride (Cl)	Serum	7 days	7 days
Cholesterol, HDL	Serum	2 days	7 days
CK	Serum	2 days	7 days
Creatinine	Serum	7 days	7 days
CRP	Serum	7 days	7 days
D-dimer	Plasma (Lithium heparin)	8 hours	-
Direct Bilirubin (Conjugated)	Serum	2 days	7 days
GGT	Serum	7 days	7 days
Glucose	Serum	2 days	7 days

Test	Specimen	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Hba1c	Whole Blood (EDTA)	8 hours	7 days
HS CRP	Serum	7 days	7 days
Iron	Serum	10 hours	7 days
LDH	Serum	3 days	3 days
Magnesium	Serum	7 days	7 days
Paracetamol	Serum	24 hours	7 days
Phosphate Inorganic	Serum	24 hours	3 days
Potassium (K)	Serum	7 days	7 days
Rheumatic Factor (RF)	Serum	-	2 days
Sodium (Na)	Serum	7 days	7 days
Total Cholesterol	Serum	7 days	7 days
Total Protein	Serum	7 days	7 days
Transferrin	Serum	-	24 hours
Triglyceride	Serum	2 days	7 days
Troponin T	Whole Blood (Lithium heparin)	8 hours	-
UIBC	Serum	7 days	7 days
Urea	Serum	7 days	7 days
Uric acid	Serum	8 hours	3 days

Immunology, Hormone & Tumour Markers

Test	Specimen	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
AFP	Serum	3 days	7 days
Anti-Thyroglobulin (Anti-Tg)	Serum	8 hours	3 days
Anti-Thyroid Peroxidase (Anti-TPO)	Serum	8 hours	3 days
Beta HCG	Serum	-	7 days
CA 125	Serum	-	7 days
CA 153	Serum	-	7 days
CA 199	Serum	-	7 days
CEA	Serum	-	7 days
CMKB	Serum	8 hours	3 days
Cortisol	Serum	-	7 days

Test	Specimen	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Estradiol	Serum	-	7 days
Ferritin	Serum	-	7 days
Folate	Serum	-	7 days
Folic acid	Serum	-	3 days
Free T3	Serum	-	6 days
Free T4	Serum	-	6 days
FSH	Serum	-	7 days
HAVAB IgG	Serum	-	7 days
HAVAB lgM	Serum	-	7 days
HBE AB	Serum	-	7 days
HBE AG	Serum	-	7 days
HBs AB	Serum	-	7 days
HBs AG	Serum	24 hours	6 days
HCV Ab	Serum	3 days	7 days
High Sensitivity Trop I	Serum	8 hours	24 hours
HIV Ab/Ag	Serum	3 days	7 days
iPTH	Plasma (EDTA)	-	2 days
LH	Serum	7 days	7 days
NT PRO BNP	Serum	3 days	6 days
Procalcitonin	Serum	8 hours	24 hours
Progesterone	Serum	-	7 days
Prolactin	Serum	-	7 days
Rubella lgG	Serum	-	7 days
Syphilis	Serum	3 days	7 days
Testosterone	Serum	8 hours	7 days
Thyroglobulin (Tg)	Serum	8 hours	3 days
Thyroid Stimulating Hormone Receptor Antibodies (TSH Receptor Ab)	Serum	24 hours	3 days
Total PSA	Serum	-	24 hours
TSH	Serum	-	7 days
Vitamin B12	Serum	3 days	7 days
Vitamin D	Serum	3 days	7 days

Urine Biochemistry

Test	Specimen	Test Stability	
		Room Temperature	Fridge (2 - 8 °C)
Urine Amylase	Urine	24 hours	3 days
Urine Calcium	Urine	2 days	4 days
Urine Chloride	Urine	7 days	7 days
Urine Cortisol	Urine	-	7 days
Urine Creatinine	Urine	2 days	6 days
Urine Glucose	Urine	2 hours	2 hours
Urine Magnesium	Urine	3 days	3 days
Urine Microalbumin	Urine	-	6 days
Urine Osmolarity	Urine	-	7 days
Urine Phosphate Inorganic	Urine	4 days	7 days
Urine Potassium	Urine	7 days	7 days
Urine Protein	Urine	24 hours	7 days
Urine Sodium	Urine	7 days	7 days
Urine Urea	Urine	2 days	7 days
Urine Uric Acid	Urine	2 days	2 days

Serology

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Allergy Comprehensive Panel (51 Allergen)	Serum	24 hours	7 days
ASOT	Serum	2 days	2 days
Chikungunya Serology	Whole Blood (EDTA)	-	2 days
Dengue lgG & lgM	Whole Blood (EDTA)	-	2 days
Dengue NS1	Whole Blood (EDTA)	-	2 days
H.Pylori Ab	Serum	Immediately	3 days
HIV 1/2 Ab (kit)	Serum	-	7 days
HIV p24 Ab/Ag (kit)	Serum	-	7 days
Influenza Rapid Test	Serum	24 hours	2 days
Leptospirosis IgM	Serum	immediately	3 days

Momospot	Serum	2 days	2 days
Mycoplasma Antibody	Serum	-	2 days
Mycoplasma lgM	Serum	-	7 days
RPR	Serum	-	7 days
TPPA	Serum	-	7 days
Typhoid lgG & lgM	Serum	-	3 days
WWF	Serum	-	7 days

Fluid & Excretion

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8 °C)
LH Ovulation Rapid Test	Urine	2 days	-
Urine Amphetamine	Urine	2 days	-
Urine Barbiturate	Urine	2 days	-
Urine Benzodiazepine	Urine	2 days	-
Urine Cannabinoids	Urine	2 days	-
Urine Cocaine	Urine	2 days	7 days
Urine Opiate	Urine	2 days	-
Urine Phencyclidine	Urine	2 days	-
Urine Pregnancy Test	Urine	2 days	-

Fluid FEME & Biochemistry

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8 °C)
Urine FEME	Urine	2 hours	-
Fluid FEME	Fluids	2 hours	-
Synovial Fluid	Synovial Fluid	24 - 48 hours	-
Glucose	Pleural Fluid	6 hours	-
	Peritoneal Fluid	6 hours	-
	Synovial Fluid	< 1 hour	-
	CSF	5 hours	3 days
LDH	Pleural Fluid	6 hours	-
	Peritoneal Fluid	6 hours	-
Total protein	Pleural Fluid	6 hours	-
	Peritoneal Fluid	6 hours	-
	CSF	1 day	6 days

Amylase	Pleural Fluid	6 hours	-
	Peritoneal Fluid	6 hours	-
Creatinine	Pleural Fluid	6 hours	-
	Peritoneal Fluid	6 hours	-
Bilirubin	Fluid	24 hours	7 days

Immunology

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8 °C)
ANA	Serum	-	7 days
ANCA	Serum	-	7 days
Anti-dsDNA	Serum	-	7 days
EBV VCA lgA (NPC screen)	Serum	-	7 days
ENA	Serum	-	7 days

Molecular & Microbiology Manual Test

Test	Specimen Source	Test Stability		Remarks
		Room Temperature	Fridge (2 - 8 °C)	
COVID-19 Antigen	Nasal/ Nasopharyngeal Swab	1 hour	4 hours	-
COVID-19 Rapid PCR	Nasal/ Nasopharyngeal Swab	8 hours	3 days	-
RVAS	Nasopharyngeal Swab/ Aspirate	-	8 hours	-
FOB	Stool	-	3 days	-
Rotavirus	Stool	-	3 days	-
MRSA PCR	Nasal & Groin Swab	-	<2 days	-
MTB/RIF	Sputum Sediment	-	7 days	-
	Raw Sputum	3 days	7 days	-
C.difficile Toxin PCR	Stool	24 hours	5 days	-
Flu/RSV PCR	Nasal / Nasopharyngeal Swab	24 hours	7 days	Specimen should be immediately placed in up to 3 mL of VTM
HBV DNA Viral Load	Plasma	24 hours	7 days	-
Gastrointestinal Panel	Stool	4 days	4 days	-

Meningitis Panel	CSF	1 day	7 days	-
Respiratory Panel	Nasopharyngeal/ Osopharyngeal Swab	4 hours	3 days	Specimen should be immediately placed in up to 3 mL of VTM
Stool FEME	Stool	24 hours	2 days	-
Stool Culture	Stool	24 hours	2 days	-

Culture and Sensitivity Test

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8 °C)
Blood	Blood culture	<24 hours	-
Fluid	Fluid or Pus in Sterile container	4 hours	-
Genital swab	Charcoal swab	8 hours	-
Others	Sterile container	4 hours	-
Swab / Wound / Pus / Tissue / Fluid	Charcoal swab	4 hours	-
Tissue	Saline / Sterile container	4 hours	-
Urine	Urine	2 hours	-

Cytopathology

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Ascites Cytology	Fluid	24 hours	72 hours
Bladder Wash	Fluid	24 hours	72 hours
Breast Cyst Fluid	Fluid	24 hours	72 hours
Bronchial Brush Cytology	Brushing	24 hours	48 hours
Bronchoalveolar Lavage Cytology	Fluid	24 hours	72 hours
Brushing - Bladder	Brushing	24 hours	48 hours
Brushing - Common Bile Duct	Brushing	24 hours	48 hours
Brushing - Lung	Brushing	24 hours	48 hours
Brushing - Renal Pelvis	Brushing	24 hours	48 hours
Brushing - Ureter	Brushing	24 hours	48 hours
Brushing (Others)	Brushing	24 hours	48 hours
Cell Block (fluid)	Fluid	24 hours	72 hours

CSF	Fluid	2 hours	24 hours (Refrigerated immediately)
Cytology (Others)	Fluid	24 hours	72 hours
Urine	Fluid	2 hours	48 hours
FNAC - Breast	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Liver	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Lymph Node	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Pancreas (Body/Head/Tail)	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Salivary Gland (Parotid)	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Salivary Gland (Submandibular)	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Thyroid (Left/Right)	Aspiration (Fluid/Slides)	24 hours	48 hours
FNAC - Other Sites	Aspiration (Fluid/Slides)	24 hours	48 hours
Fluids (Others)	Fluid	24 hours	72 hours
Hydrocele Fluid	Fluid	24 hours	72 hours
HPV DNA	Fluid	7 days	4 weeks
Nipple Discharge	Fluid	24 hours	48 hours
Ovarian Cyst Fluid	Fluid	24 hours	72 hours
Pap Smear (Conventional – Fixed Slide)	Slide	Stable once fixed	Not required
Liquid-Based Cytology (LBC)	Fluid	4 weeks	6 months
Pericardial Fluid	Fluid	24 hours	72 hours
Pleural Effusion (Left/Right)	Fluid	24 hours	72 hours
Sputum Cytology	Fluid	24 hours	48 hours
Synovial Fluid Cytology	Fluid	24 hours	72 hours
Urine Cytology (Catheter, conduit, ileal)	Fluid	24 hours	72 hours

Histopathology

Test	Specimen Type	Test Stability	
		Room Temperature	Fridge (2 - 8°C)
Small surgical specimen (HPE)	Formalin-Fixed Tissue	72 hours	-
Medium surgical specimen (HPE)	Formalin-Fixed Tissue	72 hours	-
Large surgical specimen (HPE)	Formalin-Fixed Tissue	5 - 7 days (Adequate fixation)	-
Michel's solution	Tissue for Immunofluorescence	5 Days	-
FFPE Blocks	Tissue Block	10 - 20 years	-
HPE Slides	Slides	7 years	-

APPENDIX 2

PRESERVATIVE FOR 24-HOUR URINE COLLECTION

Appendix 2 - Preservative for 24-Hour Urine Collection

No	Test	Preservative Used	Remarks
1	24 Hours Urine Creatinine Clearance	20 mL HCl	-
2	24 Hour Urine Cortisol	Plain	-
3	24 Hours Urine Calcium	20 mL HCl	-
4	24 Hours Urine Phosphate Inorganic	20 mL HCl	-
5	24 Hours Urine Protein	Plain	Avoid collection of specimens within 24hours of intense exercise since this can falsely elevate protein excretion
6	24 Hours Urine Urea	Plain	-
7	24 Hours Urine Uric Acid	Plain	-
8	24 Hours Urine Oxalate	20 mL HCl	-
9	Urine Protein Electrophoresis	Plain	-
10	Vanillylmandelic Acid	20 mL HCl	-
11	Catecholamines	20 mL HCl	-
12	Urine Lead	Plain	-
13	24 Hours Urine Oxalate	20 mL HCl	-
14	Urine Copper	Plain	-
15	Urine Free Cortisol	Plain	Send to the laboratory immediately
16	Urine Metanephrine	20 mL HCl	-

HCl: Hydrochloric Acid

APPENDIX 3

TEST METHODOLOGY

Appendix 3 – Test Methodology

Chemical Pathology

No.	Test	Methodology	Analyser
1	Albumin	Colorimetric (Bromocresol Green)	Abbott Alinity ci
2	Alkaline Phosphate (ALP)	Para-Nitrophenyl phosphate	Abbott Alinity ci
3	Alanine Aminotransferase (ALT)	Enzymatic, NADH (without P-5'-P)	Abbott Alinity ci
4	Amylase	Enzymatic, CNPG3 Substrate	Abbott Alinity ci
5	Aspartate Transaminase (AST)	NADH Oxidation	Abbott Alinity ci
6	Bilirubin Conjugated (Direct Bilirubin)	Diazo reaction	Abbott Alinity ci
7	Bilirubin Total	Diazonium Salt	Abbott Alinity ci
8	Calcium	Arsenazo III as	Abbott Alinity ci
9	Adjusted Calcium	Calculated automatically by LIS	Calculated
10	Chloride	Ion Selective Electrode Indirect	Abbott Alinity ci
11	Cholesterol Total	Enzymatic	Abbott Alinity ci
12	Cholesterol HDL	Accelerator Selective Detergent	Abbott Alinity ci
13	Cholesterol LDL	Calculated automatically by LIS	Calculated
14	Complement 3 (C3)	Immunoturbidimetric	Abbott Alinity ci
15	Complement 4 (C4)	Immunoturbidimetric	Abbott Alinity ci
16	Creatinine	Enzymatic	Abbott Alinity ci
17	Creatinine Clearance	Enzymatic	Abbott Alinity ci
18	Creatinine Kinase (CK)	N-acetyl-L-cysteine (NAC) activated	Abbott Alinity ci
19	C-Reactive Protein (CRP)	Turbidimetric	Abbott Alinity ci
20	High Sensitivity CRP (hsCRP)	Immunoturbidimetric	Abbott Alinity ci
21	Gamma-Glutamyl Transferase (GGT)	L-Gamma-glutamyl-3-carboxy-4-nitoanilide Substrate	Abbott Alinity ci
22	Glucose	Enzyme (Hexokinase/G-6-PDH)	Abbott Alinity ci
23	Iron	Colorimetric-Ferene method	Abbott Alinity ci
24	Lactate Dehydrogenase	Lactate to Pyruvate	Abbott Alinity ci
25	Magnesium	Enzymatic	Abbott Alinity ci
26	Phosphate	Phosphomolybdate	Abbott Alinity ci
27	Potassium	Ion Selective Electrode Indirect	Abbott Alinity ci
28	Sodium	Ion Selective Electrode Indirect	Abbott Alinity ci
29	Total Protein	Biuret	Abbott Alinity ci
30	Triglycerides	Glycerol phosphate oxidase	Abbott Alinity ci

No.	Test	Methodology	Analyser
31	Unsaturated Iron-Binding Capacity (UIBC)	Ferene	Abbott Alinity ci
32	Total Iron-Binding Capacity (TIBC)	Calculated automatically by LIS	Calculated
33	Urea	Urease	Abbott Alinity ci
34	Uric Acid	Uricase	Abbott Alinity ci
35	Bilirubin, Indirect	Calculated automatically by LIS	Abbott Alinity ci
36	Alpha-fetoprotein (AFP)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
37	Beta Human Chorionic Gonadotropin (BHCG)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
38	CA125	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
39	CA153	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
40	CA199	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
41	Carcinoembryonic Antigen (CEA)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
42	Creatine Kinase-Myocardial Band (Mass Assay) (CKMB)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
43	Cortisol	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
44	Estradiol	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
45	Ferritin	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
46	Folate	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
47	Tri-Iodothyronine (Free T3)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
48	Thyroxine (Free T4)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
49	Follicle-Stimulating Hormone (FSH)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
50	Luteinizing hormone (LH)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
51	N-terminal pro b-type natriuretic peptide (NT-proBNP)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
52	Procalcitonin (PCT)	Chemiluminescence Microparticle	Abbott Alinity ci

No.	Test	Methodology	Analyser
		Immunoassay	
53	Progesterone (P4)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
54	Prolactin	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
55	Prostate-specific Antigen (PSA)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
56	Testosterone	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
57	High Sensitivity Troponin-I (hsTnI)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
58	Vitamin B12	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
59	Vitamin D	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
60	Estimated Glomerular Filtration Rate (e-GFR)	Calculated automatically by LIS	Abbott Alinity ci
61	Rheumatoid Factor	Immunoturbidimetric	Abbott Alinity ci
62	Thyroid-stimulating hormone (TSH)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
63	Intact Parathyroid Hormone (IPTH)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
64	Glycated Haemoglobin (HbA1c)	Enzymatic	Abbott Alinity ci

Serology

No.	Test	Methodology	Analyser
1	Dengue Immunoglobulin M	Fluorescent Immunoassay	SD Biosensor F2400/F200
2	Dengue Non-structural Protein 1 (NS1) Antigen	Fluorescent Immunoassay	SD Biosensor F2400/F201
3	Hepatitis A Immunoglobulin M (HAV IgM)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
4	Hepatitis A Immunoglobulin G (HAV IgG)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
5	Hepatitis B Envelope Antibody (Anti-HBe)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
6	Hepatitis B Surface Antibody (Anti-HBs)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
7	Hepatitis B Envelope Antigen	Chemiluminescence Microparticle	Abbott Alinity ci

No.	Test	Methodology	Analyser
	(HBeAg)	Immunoassay	
8	Hepatitis B Surface Antigen (HBsAg)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
9	Hepatitis B Surface Antigen (HBsAg) Confirmatory	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
10	Hepatitis C Antibody (Anti-HCV)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
11	Human Immunodeficiency Virus Combined Antigen/ Antibody (Combo) (HIV 1/2 Ag/Ab)	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
12	Human Immunodeficiency Virus 1 & 2 (Anti HIV-1/2) Antibody	Chromatography	Manual
13	Mycoplasma Antibody	Particle Agglutination	Manual
14	Mycoplasma Immunoglobulin M	Immunochromatography	Manual
15	Rapid Plasma Reagin (RPR)	Latex Agglutination	Manual
16	Rubella IgG	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
17	Syphilis	Chemiluminescence Microparticle Immunoassay	Abbott Alinity ci
18	Treponema pallidum Particle Agglutination (TPPA) Test	Particle Agglutination	Manual

Haematology

No.	Test	Methodology	Analyser
1	Activated Partial Thromboplastin Time (APTT)	Viscosity based Detection	STA Satellite Coagulation
2	Bone Marrow & Trephine Staining Technique	Microscopy (May Grunwald-Giemsa & Perl's stain)	Manual
3	Erythrocytes Sedimentation Rate (ESR)	Quantitative Capillary Photometry	Alifax Roller 20PN
4	Fibrinogen	Viscosity based Detection	STA Satellite Coagulation
5	Full Blood Count (FBC) Reticulocyte Count	Absorption Photometry, Optical Counting and Fluorescence Analysis	Alinity Hq/ Abbott CELL - DYN Emerald 22
6	Glucose-6-phosphate Dehydrogenase (G6PD)	Electrochemical	care START S1 Analyser
7	Peripheral Blood Film (PBF)	Manual method read by Haematologist	Microscopy

No.	Test	Methodology	Analyser
8	Prothrombin Time (PT) & INR	Viscosity based Detection	STA Satellite Coagulation

Transfusion Medicine

No.	Test	Methodology	Analyser
1	ABO Blood Grouping and Rhesus Typing (ABO/Rh(D)) Weak D (Du) Test	Tube method and CAT-gel method based on Antigen-Antibody reaction	Manual, Bio-Rad IH-500
2	Antibody Screening	CAT-gel	Manual, Bio-Rad IH-500
3	Cross-match Uncrossmatched Group O RhD Positive (UCO+) Packed Cell Emergency (Immediate spin) Crossmatch Packed Cells	CAT-gel compatibility testing	Manual
4	Direct Antiglobulin Test (DAT)	DAT based on Antigen-Antibody reaction	Manual, Bio-Rad IH-500

Fluid & Excretion

No.	Test	Methodology	Analyser
1	Amphetamine	Rapid Immunochromatography method	Manual
2	Calcium	Arsenazo III	Abbott Alinity ci
3	Cannabinoid (Marijuana)	Rapid Immunochromatography method	Manual
4	Cerebrospinal Fluid (CSF) FEME	Manual method	Manual
5	CSF Protein	Biuret	Abbott Alinity ci
6	CSF Glucose	Enzyme (Hexokinase/ G-6-PDH)	Abbott Alinity ci
7	Creatinine Clearance	Enzymatic	Abbott Alinity ci
8	Diastase (Amylase)	Enzymatic, CNPG3 Substrate	Abbott Alinity ci
9	Microalbumin	Turbidimetric/ Immunoturbidimetric	Abbott Alinity ci
10	Opiates	Rapid Immunochromatography method	Manual
11	Pregnancy Test	Chromatographic Immunoassay test	Chromatographic Immunoassay test
12	Pleural Fluid FEME	Manual method	Manual
13	Pleural Fluid Protein	Biuret	Abbott Alinity ci
14	Pleural Fluid Glucose	Enzyme (Hexokinase/ G-6-PDH)	Abbott Alinity ci

No.	Test	Methodology	Analyser
15	Pleural Fluid Lactate Dehydrogenase	Lactate to Pyruvate	Abbott Alinity ci
16	Synovial Fluid FEME	Manual method	Manual
17	Synovial Fluid Protein	Biuret	Abbott Alinity ci
18	Synovial Fluid Glucose	Enzyme (Hexokinase/ G-6-PDH)	Abbott Alinity ci
19	Synovial Fluid Uric acid	Uricase	Abbott Alinity ci
20	Urine Chloride	Ion Selective Electrode Indirect	Abbott Alinity ci
21	Urine FEME - Macroscopic Examination	Reflective photometry method	Sysmex UC3500
22	Urine FEME - Microscopic Examination	Manual method	Microscopic
23	Urine Glucose	Enzyme (Hexokinase/ G-6-PDH)	Manual
24	Urine Potassium	Ion Selective Electrode Indirect	Abbott Alinity ci
25	Urine Protein	Biuret	Abbott Alinity ci
26	Urine Sodium	Ion Selective Electrode Indirect	Abbott Alinity ci

Medical Microbiology

No.	Test	Methodology	Analyser
1	Acid-fast Bacillus (AFB) Direct Smear *(Respiratory specimens/ Urine/ CSF/ Wound)*	Kinyoun method	Manual
2	Bacteria Identification and sensitivity *(Bacteria/ Yeast isolates)*	Vitex 2 Compact System Operations and Maintenance	VITEK® 2 COMPACT
		Gram Negative Susceptibility Testing	VITEK® 2 COMPACT
		Identification and reporting Neisseria spp.	VITEK® 2 COMPACT
		Identification and reporting M. catarrhalis	VITEK® 2 COMPACT
		Disc Diffusion Susceptibility for *Neisseria* spp.	Manual
		Disc Diffusion Susceptibility for *Haemophilus* spp.	Manual
		Gram Positive Susceptibility Testing	VITEK® 2 COMPACT
		Germ tube	Manual
3	Blood *(Aerobic/ Anaerobic/ Paediatric*	Microscopy, Culture, Identification & Sensitivity & Blood Culture System	BactAlert

No.	Test	Methodology	Analyser
	blood culture bottle)	*(BacTAlert based on Colorimetric method)*	
4	Blood Film for Malaria Parasites	Microscopy *(Thick and Thin method)*	Manual
5	Bronchial Lavage Washings and Aspirates	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
6	Cervical swab	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
7	Ear swab	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
8	Eye, Conjunctival & Lid swab	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
9	Faeces Full Examination Microscopy Examination (FEME)	Macroscopic & Microscopic Examination	Manual, VITEK® 2 COMPACT
10	Fungal Culture *(Corneal/ Hair/ Nail/ Skin)*	Microscopy, Culture, Identification	Manual, VITEK® 2 COMPACT
11	High Vaginal Swab Wet Smear and Gram Stain	Microscopic Examination *(Direct Examination for Trichomonas. Gram stain for clue cells, monilia and organisms associated with bacterial vaginosis)*	Manual
12	Methicillin-resistant Staphylococcus aureus (MRSA) culture *(Nasal/ Groin/ Axilla)*	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
13	Occult blood	Rapid Chromatographic Immunoassay	Manual
14	Sterile Body Fluid *(Peritoneal/ Pericardial/ Pleural/ Bile/ Synovial/ CSF)*	Macroscopy, Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
15	Tissue	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
16	Throat swab	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
17	Urine	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT
18	Wound Specimen	Microscopy, Culture, Identification & Sensitivity	Manual, VITEK® 2 COMPACT

** The test is performed only upon specific request*

APPENDIX 4

TEST PROFILE AND TAT

PANEL	TEST LIST
ALLERGY COMPREHENSIVE PANEL (51 ALLERGEN)	**Foods** • Egg white, Chicken • Milk, Cow • Cod • Wheat, Whole • Rice • Peanut • Soybean • Hazelnut • Crab • Shrimp • Tomato • Pork • Beef • Carrot • Potato • Tuna • Salmon • Strawberry • Yeast, Baker's • Garlic • Egg yolk, Chicken • Lobster • Cheddar Cheese • Chicken • Mutton • Cacao Bean/Chocolate Bean • Milk, Goat • Shellfish Mix • Blue Mussel • Oyster **Mites** • *D. Pteronyssinus* • *D. Farinae* • *Blomia Tropicalis* **Molds** (Mould Mix) • *Penicillium notatum* • *Cladosporium herbarum* • *Aspergillus fumigates* • *Candida albicans* • *Alternaria alternate* **Pollens** (Grass/Weed Mix) • Bermuda Grass • Timothy Grass • Ragweed, Short • Mugwort, Common • Goldenrod **Trees** (Tree Mix) • Acacia • Pine **Animal Dander** • Cat dander • Dog dander • Chicken feathers/Skin • Duck feathers/Skin • Cockroach Mix (German, Oriental, American) **Other** • Latex
ALLERGY P412-IgG4	• *Dermatophagoides farinae* • *Dermatophagoides pteronyssinus*

PANEL	TEST LIST
ALLERGY EURO 54 PANEL	• Bermuda grass • Timothy grass • Grass mix 5 (Sweet vernal, Bermuda) • Timothy grass • cultivated rye • Acacia • Pine (Australian) • Oil palm • *Dermatophagoides pteronyssinus* • *Dermatophagoides farinae* • *Dermatophagoides microceras* • *Tyrophagus putrescentiae* • *Glycyphagus domesticus* • *Blomia tropicalis* • Cat • Dog • Horse • nBos d6 BSA (Milk) • Feather mix 1 (Chicken, Duck, Goose) • Kapok • Honey bee venom • *Candida albicans* • Mould mix 1 (*Aspergillus fumigatus, Alternaria alternata, Cladosporium herbarum)* • *Penicillium notatum* • Wheat flour • Gluten egg • White milk • nBos d4 alpha-lactalbumin (Milk) • nBos d5 beta-lactoglobulin (Milk) • nBos d8 Casein (Milk) • Chocolate • Peanut • Hazelnut • Soybean • Almond • Baker's yeast • Glutamate • Codfish • Crab • Shrimp • Tuna • Salmon • Lobster • Duck meat • Beef (cooked) • Pork (cooked) • Cheddar cheese • Chicken • Lamb • Tomato • Garlic • Strawberry • Kiwi • Shellfish mix 1 (Spiny lobster, Oyster, Clam) • Coffee • CCD-marker

PANEL	TEST LIST
ALLERGY PANEL 1 (32 ALLERGENS)	• Egg white • Squid • Milk, Cow • Wheat • Peanut • Soybean • Shrimp • *Blomia Tropicalis* • Fish Cod • Crab **House Dust and Cockroach Mix** • *Blattella germanica* • *D. Pteronyssinus* • *Farinae* • Hollister-stier Labs **Pet Furry Dander Mix** Cat, Dog, Guinea Pig, Mouse, Rat **Grass Pollen Mix** • Bermuda • Rye and Bahia grass • Timothy grass • Meadow grass • Kentucky grass • Johnson grass **Mold Mix 1** • *Aspergillus fumigatus* • *Alternaria* • *Cladosporium herbarum* • *Penicillium chrysogenum*
ALLERGY PANEL 2 (COMMON MIX)	• Phadiatop ImmunoCap (Total IgE) • Egg white • Milk, Cow • Peanut • Soybean • Fish Cod • Wheat **Pet Furry Dander Mix** Cat, Dog, Guinea Pig, Mouse, Rat **House Dust and Cockroach Mix** • *Blattella germanica* • *D. Pteronyssinus* • *D.Farinae* • Hollister-stier Labs **Seafood Mix** • Blue Mussel • Salmon • Shrimp
ALLERGY PANEL 3 (DOMESTIC)	• Phadiatop ImmunoCap (Total IgE) • *Blomia Tropicalis* **Pet Furry Dander Mix** Cat, Dog, Guinea Pig, Mouse, Rat **House Dust and Cockroach Mix** • *Blattella germanica* • *D. Pteronyssinus* • *D.Farinae* • Hollister-stier Labs

PANEL	TEST LIST
ALLERGY PANEL 4 (COMMON FOOD)	• Phadiatop ImmunoCap (Total IgE) • Egg white • Milk, Cow • Wheat • Peanut • Soybean • Chicken
ALLERGY PANEL 5 (HOUSE DUST MITES)	• *D. Pteronyssinus* • *D.Farinae* • *Blomia Tropicalis*
ALLERGY PANEL 6 (SEAFOOD)	• Phadiatop ImmunoCap (Total IgE) • Shrimp • Crab • Fish Cod • Clam • Squid
ALLERGY PANEL 7	• Phadiatop ImmunoCap (Total IgE) • Anchovy • Milk, Cow • Egg White • Peanut • Shrimp • Soy Bean • Wheat • *D. Pteronyssinus* • *D.Farinae* **Pet Furry Dander Mix** • Cat, Dog, Guinea Pig, Mouse, Rat
ALL SCREEN	• E2A-PBX1 • ETV6-RUNX1 • MLL-AF4 • BCR-ABL1 • e1a2 • SIL-TAL1

PANEL	TEST LIST	
ALPHA THALASSAEMIA GENOTYPING	Large deletion • -α3.7 • -α4.2 • --SEA • --THAI • --FIL 60 Alpha 2 Point Mutation (Please contact laboratory for more details information)	
AML SCREEN	• RUNX1 - RUNX1T1 • CBFB-MYH11	
AMPHETAMINES TYPE SUBSTANCE SCREEN	Amphetamines and methamphetamines	
ANCA	• p-ANCA • c-ANCA	
ANTI-ENA ANTIBODIES	• AMA-M2 • Ribosomal P-Protein • Histones • Nucleosomes • dsDNA • PCNA • CENP B • Jo-1	• PM-Scl • Scl-70 • SS-B • Ro-52 • SS-A • Sm • RNP/S

PANEL	TEST LIST
ASEAN ALLERGY PANEL (36 ALLERGENS)	• Phadiatop ImmunoCap (Total IgE) • Latex • Banana • Orange • Rice (White) • Wheat • Sesame seed • Soybean • Peanut • Milk (Cow's milk) • Chocolate • Egg white • Egg yolk • Chicken • Beef • Clam • Crab • Shrimp • Codfish • Tuna • Salmon • *Mucor* • Bermuda grass • Timothy grass • *Alternaria* • *Aspergillus* • *Candida* • *Cladosporium* • Penicillin • Cat Dander • Dog Dander • Cockroach mix • *Dermatophagoides* • *Pteronyssinus* • *Dermatophagoides farinae* • *Blomia Tropicallis* • House dust
BCR ABL	• e13a2 • e14a2
BETA THALASSAEMIA GENOTYPING	• 349 Beta Thala Mutation (Please contact laboratory for more details information)
BETA - 2 - GLYCOPROTEIN	• Beta 2 glycoprotein IgM Ab • Beta 2 glycoprotein IgG Ab

PANEL	TEST LIST
BLOOD CULTURE IDENTIFICATION PANEL	**Bacteria** • *Acinetobacter calcoaceticus-baumannii complex* • *Bacteroides fragilis* • *Enterobacter cloacae complex* • *Escherichia coli* • *Klebsiella aerogenes* • *Klebsiella oxytoca* • *Klebsiella pneumoniae group* • *Proteus spp.* • *Salmonella spp.* • *Serratia marcescens* • *Haemophilus influenzae* • *Neisseria meningitidis* • *Pseudomonas aeruginosa* • *Stenotrophomonas maltophilia* • *Enterococcus faecalis* • *Enterococcus faecium* • *Listeria monocytogenes* • *Staphylococcus aureus* • *Staphylococcus epidermidis* • *Staphylococcus lugdunensis* • *Streptococcus agalactiae* • *Streptococcus pneumoniae* • *Streptococcus pyogenes* **Yeast** • *Candida albicans* • *Candida auris* • *Candida glabrata* • *Candida krusei* • *Candida parapsilosis* • *Candida tropicalis* • *Cryptococcus (C. neoformans/C. gattii)* **Antimicrobial resistance genes** • IMP • KPC • OXA-48-like • NDM • VIM • mcr-1 • CTX-M • mecA/C • mecA/C and MREJ (MRSA) • vanA/B
CATECHOLAMINES	• Norepinephrine • Epinephrine • Dopamine
CSF FEME	• Colour • Appearance • RBC • WBC • WBC Differential Count (If more than 5 cells/uL) • Glucose • CSF protein • Xanthochromia
DIABETES AUTO AB	• GAD Autoantibodies • IA-2 Autoantibodies

PANEL	TEST LIST
ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 3 (SERUM)	• Anti-nuclear antibody (ANA) **Autoimmune Encephalitis Receptor Antibodies:** • N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR) • Glutamate receptor, type AMPA 1/2 Antibody (Anti-AMPA1/2) • Contactin-associated protein 2 receptor Antibody (Anti-CASPR2) • Leucine-rich glioma-inactivated protein 1 receptor Antibody (Anti-LGI1) • Dipeptidyl aminopeptidase-like protein 6 receptor Antibody (Anti-DPPX • GABA B receptor Antibody (Anti-GABAb)
ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 5 (CSF)	• N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR) • Glutamate receptor, type AMPA 1/2 Antibody (Anti-AMPA1/2) • Contactin-associated protein 2 receptor Antibody (Anti-CASPR2) • Leucine-rich glioma-inactivated protein 1 receptor Antibody (Anti-LGI1) • Dipeptidyl aminopeptidase-like protein 6 receptor Antibody (Anti-DPPX • GABA B receptor Antibody (Anti-GABAb)
ENUMERATION LYMPHOCYTES SUBSETS	• CD3 • CD4 • CD8 • CD19 • CD16+56
EYE VITREOUS FLUID FOR PCR	• Cytomegalovirus • Herpes Simplex Virus • Varicella Zoster Virus
FIRST SCREENING TEST	• Dichotomous Marker • Trisomy 21 Age Risk • Trisomy 22 Risk • Trisomy 18/13 Risk

PANEL	TEST LIST			
FOOD INTOLERANCE [FITT200]	**Dairy** ● Egg Yolk ● Egg White ● Cow's Milk ● Alpha-lactalbumin ● Beta-lactoglobulin ● Casein ● Goat Milk ● Sheep Milk ● Buffalo Milk **Grains** ● Rice ● Rye flour ● Corn (Maize) ● Barley ● Buckwheat ● Wheat ● Oat ● Millet ● Couscous ● Durum Wheat ● Gliadin ● Malt ● Quinoa ● Spelt ● Wheat bran ● Tapioca ● Amaranth **Nuts** ● Almond ● Brazil Nut ● Cashew Nut ● Coconut ● Hazelnut ● Macadamia Nut ● Peanut ● Pine Nut ● Pistachio ● Tiger Nut ● Walnut ● Flax Seed ● Rapeseed ● Sesame Seed ● Sunflower Seed	**Fruits** ● Apple ● Apricot ● Avocado ● Banana ● Blackberry ● Blackcurrant ● Blueberry ● Cherry ● Cranberry ● Date ● Fig ● Grape ● Grapefruit ● Guava ● Kiwi ● Lemon ● Lime ● Lychee ● Mango ● Melon (Honeydew) ● Mulberry ● Nectarine ● Olive ● Orange ● Papaya ● Peach ● Pear ● Pineapple ● Plum ● Pomegranate ● Raisin ● Raspberry ● Redcurrant ● Rhubarb ● Strawberry ● Tangerine ● Watermelon **Meat** ● Beef ● Lamb ● Pork ● Chicken ● Turkey ● Duck ● Venison ● Ox ● Partridge ● Quail ● Wild Boar ● Rabbit ● Ostrich ● Horse ● Veal	**Vegetables** ● Artichoke ● Asparagus ● Aubergine ● Bean (Broad) ● Bean (Green) ● Bean (Red Kidney) ● Bean (White Haricot) ● Beetroot ● Broccoli ● Brussel Sprout ● Cabbage ● Cabbage (Red) ● Capper ● Carrot ● Cauliflower ● Celery ● Chard ● Chickpea ● Chicory ● Cucumber ● Fennel (Leaf) ● Leek ● Lentil ● Lettuce ● Marrow ● Onion ● Pea ● Peppers (Mixed) ● Potato ● Radish ● Rocket ● Shallot ● Soybean ● Spinach ● Sweet Potato ● Turnip ● Watercress ● Yucca ● Tomato ● Squash (Butternut / Carnival) ● Quinoa	**Herbs / Spices** ● Aniseed ● Basil ● Bay leaf ● Camomile ● Cayenne ● Cinnamon ● Clove ● Coriander (Leaf) ● Cumin ● Curry ● Dill ● Garlic ● Ginger ● Ginkgo ● Ginseng ● Hops ● Liquorice ● Marjoram ● Mint ● Mustard Seed ● Nettle ● Nutmeg ● Parsley ● Peppercorns ● Peppermint ● Red Chilli ● Rosemary ● Saffron ● Sage ● Tarragon ● Thyme ● Vanilla **Others** ● Agar Agar ● Cane Sugar ● Carob ● Chestnut ● Cocoa Bean ● Coffee ● Cola Nut ● Honey ● Mushroom ● Tea (Black) ● Tea (Green) ● Yeast (Baker's) ● Yeast (Brewer's) ● Aloe Vera ● Transglutaminase

PANEL	TEST LIST	
FREE TESTOSTERONE INDEX	• Testosterone • Albumin • Free Testosterone Index • Free Testosterone • Bioavailable Testosterone • Sex Binding Hormone	
FULL BLOOD COUNT (FBC)	• RBC • Haemoglobin • PCV • MCV • MCH • MCHC • RDW • Platelet count	• Total WBC • WBC Differential and Absolute Count: • Neutrophil • Lymphocyte • Monocyte • Eosinophil • Basophil
GANGLIOSIDE AUTOIMMUNE PROFILE	**Autoimmune Ganglioside-monosialic Acid IgM** • Sulfatide IgM • GM1 IgM • GM2 IgM • GM3 IgM • GM4 IgM • GD1a IgM • GD1b IgM • GD2 IgM • GD3 IgM • GT1a IgM • GT1b IgM • GQ1b IgM	**Autoimmune Ganglioside-monosialic Acid IgG** • Sulfatide IgG • GM1 IgG • GM2 IgG • GM3 IgG • GM4 IgG • GD1a IgG • GD1b IgG • GD2 IgG • GD3 IgG • GT1a IgG • GT1b IgG • GQ1b IgG

PANEL	TEST LIST
GASTROINTESTINAL PANEL	**Viruses** • Adenovirus F40/41 • Astrovirus • Norovirus GI/GII • Rotavirus A • Sapovirus (I, II, IV, and V) **Bacteria** • Adenovirus F40/41 • Astrovirus • Norovirus GI/GII • Rotavirus A • Sapovirus (I, II, IV, and V) ***Diarrheagenic Escherichia Coli/Shigella*** • *Enteroaggregative E. coli* (EAEC) • *Enteropathogenic E. coli* (EPEC) • *Enterotoxigenic E. coli* (ETEC) lt/st • *Shiga-like toxin-producing E. coli* (STEC) stx1/stx2 • *Shigella/Enteroinvasive E. coli* (EIEC) **Parasites** • *Cryptosporidium* • *Cyclospora cayetanensis* • *Entamoeba histolytica* • *Giardia lamblia*
GENETIC HAEMOCHROMATOSIS	• C282Y VARIANT • H63D VARIANT
GIST MUTATION (KIT AND PDGFRA)	• KIT • PDGFRA • BRAF • NTRK • FGFR1, 2 & 3 • NTRK1, 2 & 3 • MSI
GLUCAGON STIMULATION TEST	• CORTISOL • GLUCOSE • GROWTH HORMONE **TESTS RESULT IN TIME INTERVAL:** 0 MIN, 60MIN, 90MIN, 120MIN , 150MIN, 180MIN
HIGH SENSITIVITY MYASTHENIA GRAVIS SCREEN	• AChR Cluster Ab • Low aff-MuSK Ab • LRP4 Ab
HISTOPLASMA SEROLOGY	• Histoplasma Yeast CompFix • Histoplasma Immunodiffusion
HLA TYPING CLASS I LOW OR MEDIUM	• HLA-A • HLA-B

PANEL	TEST LIST	
HLA TYPING CLASS I HIGH RESOLUTION	• HLA-C	
HLA TYPING CLASS I/II	• HLA-A • HLA-B • HLA-C • DR • DQ	• DQB1 • DQA1 • DPB1 • DPA1
HLA TYPING CLASS I/II HIGH RESOLUTION (HSA)	• HLA-A • HLA-B • HLA-C • DRB1 • DRB3/4/5	
HLA TYPING CLASS II LOW OR MEDIUM	• DRB1 • DQB1 • DRB3,4,5	
HLA TYPING CLASS II HIGH RESOLUTION	• DR • DQ	
HLA TYPING (HIGH RESOLUTION) - NGS	• HLA-A • HLA-B • HLA-C • DRB1	
HLA TYPING HIGH RESOLUTION (5 LOCI)	• HLA-A • HLA-B • HLA-C • DRB1 • DQB1	
HLA TYPING HIGH RESOLUTION (6 LOCI)	• HLA-A • HLA-B • HLA-C	• DQA1 • DQB1 • DPA1 • DPB1
LEUKEMIA WORKUP	• AML • ALL	

PANEL	TEST LIST	
LiverFAst	**Test Score:** • Fibrosis • Activity • Steatosis	**Biomarker:** • Alpha-2-Macroglobulin • Haptoglobin • Apolipoprotein A-1 • Bilirubin Total • GGT • ALT • AST • Glucose • Cholesterol • Triglycerides
LIVER SPECIFIC ANTINODY	• Anti-Ro-52 • Anti-AMA M2 • Anti-M2-3E/ BPO • Anti-Sp100 • Anti-PML	• Anti-gp120 • Anti-LC1 • Anti-LKM-1 • Anti-SLA/LP
LUNG CANCER MARKER PANEL 1 (LUCM)	• CEA • CYFRA 21-1 • NSE • ProGRP • SCC	
LUPUS ANTICOAGULANT INHIBITOR	**Basic Coagulation Screening:** • APTT • Prothrombin Time	**Lupus Anticoagulant Screening:** • PTT-LA/STA-CLOT • DRVVTGlobulin (EP) • Alpha 1 globulin (EP) • Alpha 2 globulin (EP) • Beta 1 Globulin (EP) • Beta 2 Globulin (EP) • Gamma globulin (EP)
LYMPHOMA WORKUP	• CLL • NHL • HCL	

PANEL	TEST LIST
MALE HORMONAL STUDIES [ANDROGEN STUDIES]	• Free androgen index • Sex hormone binding globulin • Testosterone
MENINGITIS ENCEPHALITIS PANEL	**Bacteria** • *Escherichia coli K1* • *Haemophilus influenzae* • *Listeria monocytogenes* • *Neisseria meningitidis* • *Streptococcus agalactiae* • *Streptococcus pneumoniae* **Yeast** • *Cryptococcus (C. neoformans/C. gattii)* **Viruses** • Cytomegalovirus (CMV) • Enterovirus (EV) • Herpes simplex virus 1 (HSV-1) • Herpes simplex virus 2 (HSV-2) • Human herpesvirus 6 (HHV-6) • Human parechovirus (HPeV) • Varicella zoster virus (VZV)
MYASTHENIA GRAVIS AUTOIMMUNE PROFILE (SMC)	• AChR Ab • MuSK Ab
MYOSITIS PROFILE	**Myositis Specific Autoantibody** • Anti-Mi-2 alpha (nuclear helicase) • Anti-Mi-2 beta (nuclear helicase) • Anti-TIFI-gamma (anti-p155/p140) • Anti MDA5 (anti-CADM 140) • Anti-NXP2 (Nuclear matrix protein 2) • Anti-SAE1 (Anti-Sumo) • Anti-Jo-1 (Histidyl-tRNA synthetase) • Anti-SRP (Signal recognition particle) • Anti-PL-7 (Threonly-tRNA synthetase) • Anti-PL-12 (Alanyl-tRNA synthetase) • Anti-EJ (Glycyl-tRNA synthetase) • Anti-OJ (Isoleucyl-tRNA) • Anti-cN-1A (Anti-HNG-CoA reductase) **Myositis Associated Autoantibody** • Anti-Ku • Anti-PM-Scl100 • Anti-PM-Scl75 • Anti-Ro-52

PANEL	TEST LIST
NICC BASIC (DNA LAB)	• Trisomies (T9, T13, T16, T21, T22) • Sex chromosome aneuploidies (XO, XXY, XXX & XYY) • Gender (optional)
NICC BASIC (GGA)	• Trisomies (T9, T13, T16, T21, T22) • Sex chromosome aneuploidies (XO, XXY, XXX & XYY) • Other 19 chromosome aneuploidies (Supplementary Information) • Gender
NICC BASIC (PANORAMA USA)	• Trisomies (T13, T18, T21) • Sex chromosome aneuploidy • Triploidy • Gender (Optional)
NICC BASIC (STEMLIFE)	• Trisomies (T13, T18, T21) • Sex chromosome aneuploidies (XO, XXX, XXY, XYY) • 8 microdeletions • Gender
NICC BASIC (SYNAPSE)	• Trisomies (T13, T18, T21) • Aneuploidies for 23 chromosomes • Sex chromosome aneuploidies (XO, XXY, XYY, XXX) • Gender
NICC COMPREHENSIVE (DNA LAB)	• Trisomies (T9, T13, T16, T21, T22) • Sex chromosome aneuploidies (XO, XXY, XXX & XYY) • 84 microdeletions • Gender (optional)
NICC COMPREHENSIVE (GGA)	• Trisomies (T9, T13, T16, T21, T22) • Sex chromosome aneuploidies (XO, XXY, XXX, XYY & XXXX) • 7 Microdeletions • 14 copy number variants (Supplementary Information) • Other 19 chromosome aneuploidies (Supplementary Information) • Gender

PANEL	TEST LIST	
NICC COMPREHENSIVE (PANORAMA USA)	• Trisomies (T13, T18, T21) • Monosomy X • Triploidy • 22q11.2 microdeletion • 4 microdeletions • Gender (Optional)	
NICC COMPREHENSIVE (STEMLIFE)	• Trisomies (T21, T18, T13, T9, T16 & T22) • Sex chromosome aneuploidies (XO, XXY, XXX & XYY) • 8 microdeletions • Gender	
NICC COMPREHENSIVE (SYNAPSE)	• Trisomies (T13, T18, T21) • Aneuploidies for 23 chromosomes • Sex chromosome aneuploidy • Gender • Microdeletion / microduplication (60 types)	
NIPT VISTARA (PANORAMA USA)	• FGFR2 • CDKL5 • MECP2 • SYNGA • BRAF1 • CBL • HRAS • KRAS • MAP2K • NRAS • PTPN1 • RAF1 • RIT1 • FGFR3	• COL1A1 • COL1A2 • CHD7 • HDAC8 • JAG1 • NIPBL • NSD1 • RAD21 • SMC1A • SMC3 • TSC1 • TSC2 • SHOC2 • SOS1 • SOS2
NEUROMYELITIS OPTICA AUTOIMMUNE PROFILE	• Aquaporin 4 • Anti-MOG	
NON-KETOTIC HYPERGLYCEMIA (NKH)	• Amino Acid (CSF) • Amino Acid (Plasma)	

PANEL	TEST LIST
OLIGOCLONAL BANDS [SERUM & CSF]	• Oligoclonal bands (serum) • Oligoclonal bands (CSF)
OSMOLARITY	• Sodium • Glucose • Urea • Osmolarity
OVARIAN CANCER RISK ASSESSMENT	• CA-125 • HE-4
PANEL STI	• *Ureaplasma urealyticum* • *Neisseria gonorrhoeae* • *Mycoplasma hominis* • *Mycoplasma genitalium* • *Ureaplasma parvum* • *Chlamydia trachomatis* • *Trichomonas Vaginalis*
PANEL STI-14	**Bacteria** • *Neisseria gonorrhoeae* • *Chlamydia trachomatis* • *Mycoplasma genitalium* • *Trichomonas vaginalis* • *Ureaplasma urealyticum* • *Ureaplasma parvum* • *Mycoplasma hominis* • *Haemophilus ducreyi (HD)* • *Lymphogranuloma venereum (LGV)* • *Treponema pallidum (TP)* **Virus** • Cytomegalovirus (CMV) • Varicella-zoster virus (VZV) • Herpes simplex virus type 1 (HSV1) • Herpes simplex virus type 2 (HSV2)
PANEL ZIKA DENGUE CHIKUNGUNYA	• Chikungunya PCR • Dengue PCR • Zika PCR
PARANEOPLASTIC ANTIGEN AUTOIMMUNE 6	• Amphiphysin Antibody • CV2 Antibody • PNMA2 Antibody • Ri Antibody • Yo Antibody • Hu Antibody • Recoverin Antibody • SOX1 Antibody • Titin Antibody

PANEL	TEST LIST	
PLASMA METANEPHRINE	• Metanephrine • Normetanephrine • Total Metanephrines	
PLEURAL FLUID FEME	• Colour • Appearance • RBC • WBC	• WBC Differential Count (If more than 5 cells/uL) • Glucose • Total protein

PANEL	TEST LIST
PNEUMONIA PANEL	**Viruses** • Adenovirus • Coronavirus • Human metapneumovirus • Human rhinovirus/enterovirus • Influenza A virus • Influenza B virus • Parainfluenza virus • Respiratory syncytial virus **Bacteria (semi-quantitative)** • *Acinetobacter calcoaceticus-baumannii complex* • *Enterobacter cloacae complex* • *Escherichia coli* • *Haemophilus influenza* • *Klebsiella aerogenes* • *Klebsiella oxytoca* • *Klebsiella pneumoniae group* • *Moraxella catarrhalis* • *Proteus spp.* • *Pseudomonas aeruginosa* • *Serratia marcescens* • *Staphylococcus aureus* • *Streptococcus agalactiae* • *Streptococcus pneumonia* • *Streptococcus pyogenes* **Atypical bacteria (qualitative)** • *Chlamydia pneumonia* • *Legionella pneumophila* • *Mycoplasma pneumoniae* **Antimicrobial resistance genes** • Carbapenemases (IMP, KPC, NDM, OXA-48-like, VIM) • ESBL (CTX-M), Methicillin resistance (mecA/C and MREJ (MRSA))

PANEL	TEST LIST
QF PCR SCREENING	• Trisomy 21 • Trisomy 18 • Trisomy 13 • Chromosome X • Chromosome Y
RESPIRATORY FULL PANEL	**Viruses** • Adenovirus • Coronavirus 229E • Coronavirus HKU1 • Coronavirus NL63 • Coronavirus OC43 • Severe Acute Respiratory Syndrome Coronavirus 2 • Human Metapneumovirus • Human Rhinovirus/Enterovirus • Influenza A virus • Influenza A virus A/H1 • Influenza A virus A/H3 • Influenza A virus A/H1-2009 • Influenza B virus • Parainfluenza virus 1 • Parainfluenza virus 2 • Parainfluenza virus 3 • Parainfluenza virus 4 • Respiratory syncytial virus **Bacteria** • *Bordetella parapertussis* • *Bordetella pertussis* • *Chlamydia pneumoniae* • *Mycoplasma pneumoniae*

PANEL	TEST LIST
RESPIRATORY PANEL 19	• Human Adenovirus • Influenza A & B Virus • Parainfluenza Virus Type 1 • Parainfluenza Virus Type 2 • Parainfluenza Virus Type 3 • Parainfluenza Virus Type 4 • Human Rhinovirus (A/B/C) • Human Resp.Syncytial Virus A, B • Bocavirus 1/2/3/4 • Metapneumovirus • Coronavirus 229E, NL63, OC43 • Enterovirus

PANEL	TEST LIST
RESPIRATORY PANEL 36	**Viruses** • *Influenza virus A* (covering H1N1-2009, H7N9, H1N1, H3N2, H5N1) • *Influenza virus B* (covering Victoria strain and Yamagata strain) • Respiratory Syncytial Virus A • Respiratory Syncytial Virus B • Coronavirus 229E • Coronavirus OC43 • Coronavirus NL63 • Coronavirus HKU1 • Adenovirus (covering group B, C and E) • Bocavirus • Rhinovirus/Enterovirus • Parainfluenza Virus I • Parainfluenza Virus II • Parainfluenza Virus III • Parainfluenza Virus IV Human Metapneumovirus **Bacteria** • *Escherichia coli* • *Mycoplasma pneumoniae* • *Chlamydia pneumoniae* • *Streptococcus pneumoniae* • *Klebsiella pneumoniae* • *Legionella pneumophila* • *Bordetella pertussis* • *Staphylococcus epidermidis* • *Salmonella* • *Staphylococcus aureus* • *Rickettsia* • *Haemophilus influenzae* • *Moraxella catarrhalis* • *Acinetobacter baumannii* • *Streptococcus pyogenes* **Fungi** • *Candida albicans* • *Pneumocystis jirovecii* • *Aspergillus fumigatus* • *Cryptococcus Pseudomonas aeruginosa*

PANEL	TEST LIST	
RESPIRATORY VIRUSES ANTIGEN SCREEN (RVAS)	• Adenovirus • Influenza A • Influenza B • RSV	
SECOND TRIMESTER TEST	• Trisomy 21 • Trisomy 18/13 • Neural Tube Defect (Total hCG & AFP)	
SERUM FREE LIGHT CHAIN	• Kappa Free Light Chain • Lambda Free Light Chain • Kappa/Lambda ratios	
SERUM PROTEIN ELECTROPHORESIS	• Immunoglobulin G • Immunoglobulin A • Immunoglobulin M • Protein • Albumin	• DRB1 • DQB1 • DPB1
SNP MICROARRAY ANALYSIS 750K & HD	• Aneuploidies for chromosome 1-22 • XY Trisomy and monosomy • Gender • Microdeletions and Duplications • UPD and AOH • Imprinted genes on Chr 6, 7,11, 14,15,20	
SPINAL MUSCULAR ATROPHY	• SMN1 • SMN2	
STOOL / FEACES FEME	• Colour • Consistency • Mucus • RBC • Puscells • Parasites • Ova • Cysts • Total WBC	• Neutrophils • Lymphocytes • Monocytes • Eosinophils • Basophils • Neutrophil Count • Lymphocyte Count • Monocyte Count • Eosinophil Count • Basophil Count

PANEL	TEST LIST	
SYNOVIAL FLUID FEME	• Colour • Appearance • RBC • WBC • WBC Differential Count (If more than 5 cells/uL)	• Glucose • Total protein • Uric acids • Monosodium Urate Crystals
TORCH SCREEN	• CMV IgG • CMV IgM • HSV 1 & 2 IgG • HSV 1 & 2 IgM • Rubella IgG • Rubella IgM • Toxoplasma IgG • Toxoplasma IgM	
UFEME	• Appearance • Colour • Glucose • Bilirubin • Ketone • Specific Gravity • Reaction-pH • Protein • Urobilinogen • Nitrite	• Blood • Leucocytes • RBCs • WBCs • Epithelial Cells • Crystal • Hyaline Cast • Pathological Cast • Bacteria • Mucous Thread • Yeast
URINE METANEPHRINE	• Metanephrine (Urine) • Normetanephrine (Urine) • Total Metanephrines (Urine)	
URINE OSMOLARITY	• Urine Sodium • Urine Glucose • Urine Urea • Urine Potassium • Urine Osmolarity	

PANEL	TEST LIST	
URINE PHASE CONTRAST	• Appearance • Colour • Glucose • Bilirubin • Ketone • Specific Gravity • Reaction-pH • Protein • Urobilinogen • Nitrite • Blood •	• Red Blood Cell Morphology (Dysmorphic / Isomorphic) • Leucocytes • RBCs • WBCs • Epithelial Cells • Crystal • Hyaline Cast • Pathological Cast • Bacteria • Mucous Thread • Yeast
VON WILLEBRANDS FACTOR	• APTT • Coagulation Factor VIII • vW Antigen • vW Activity	
WWF	• SO • SH • AH • BH	• OA • BO • OX2 • OXK • OX19

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
ADMISSION PROFILE FBC, ESR CRP, LFT, RP UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
ADMISSION PROFILE (PAEDIATRICS) FBC CRP, LFT, RP2	1 PAED EDTA 1 PAED HEPARIN	1.5 HOURS
AMENORRHEA PROFILE Estradiol, Free T4, FSH, LH, Prolactin	1 SST	2.5 HOURS
ANAEMIA PROFILE 1 Ferritin, Iron, TIBC	1 SST	2.5 HOURS
ANAEMIA PROFILE 2 Folic Acid, Vitamin B12	1 SST	2.5 HOURS
ANTENATAL PROFILE FBC ABO & Rh Typing HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis	2 EDTA 1 SST	2.5 HOURS
ANTENATAL PROFILE + NIPT BASIC (GGA/SYNAPSE) FBC ABO & Rh Typing HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis NICC Basic	2 EDTA 1 SST 1 NICC KIT (GGA / Synapse)	2.5 HOURS 14 WORKING DAYS (NICC)
ANTENATAL PROFILE + NIPT BASIC (STEMLIFE/DNA LAB) FBC ABO & Rh Typing HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis NICC Basic	2 EDTA 1 SST 1 NICC KIT (Stem life / DNA Lab)	2.5 HOURS 14 WORKING DAYS (NICC)
ANTENATAL PROFILE 2 FBC ABO & Rh Typing, Antibody Screen HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis	2 EDTA 1 SST	2.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
ANTENATAL PROFILE 2 + NIPT BASIC (GGA/Synapse) FBC ABO & Rh Typing, Antibody Screen HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis NICC Basic	2 EDTA 1 SST 1 NICC KIT (GGA / Synapse)	2.5 HOURS 14 WORKING DAYS (NICC)
ANTENATAL PROFILE 2 + NIPT BASIC (STEMLIFE/DNA LAB) FBC ABO & Rh Typing, Antibody Screen HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis NICC Basic	2 EDTA 1 SST 1 NICC KIT (Stem life / DNA Lab)	2.5 HOURS 14 WORKING DAYS (NICC)
ANTENATAL PROFILE 2 + NICC COMPREHENSIVE FBC ABO & Rh Typing, Antibody Screen HBsAb, HBsAg, HIV 1/2 Ag/Ab, Rubella IgG, Syphilis NICC Comprehensive	2 EDTA 1 SST 1 NICC KIT (Stem life / DNA LAB)	2.5 HOURS 14 WORKING DAYS (NICC)
APS SCREENING PROFILE Beta-2 Glycoprotein, Phospholipid Ab	1 SST	1-2 WEEKS
ARTHRITIS PROFILE FBC, ESR CRP, RF, Uric Acid	1 EDTA 1 SST	1.5 HOURS
ASCITES WORKUP Ascites FEME, Ascites Biochemistry C&S for Swab/Wound/Pus/Tissue/Fluid, Direct Smear for AFB, Direct Smear for Gram Stain Ascites Cytology TB Culture	STERILE CONTAINERS	3 HOURS 3 WORKING DAYS (Cytology, C&S) 3 MONTHS (TB Culture)
AUTOIMMUNE HEPATITIS PROFILE ANA, ANCA Anti Smooth Muscles, Immunoglobulin IgG, IgM & IgA, Mitochondrial Ab	2 SST	1 WEEK (ANA & ANCA) 1-2 WEEKS
AUTOIMMUNE PROFILE ANA, Anti ds-DNA, Anti-ENA	1 SST	1 WEEK

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
BASIC SCREENING PROFILE FBC, ESR LFT, LP, RP1 UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
BASIC SCREENING PROFILE 2 FBC, ESR, HbA1c LFT, LP, RP1 UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
BASIC SCREENING PROFILE 3 HbA1c LFT, LP, RP1	1 EDTA 1 SST	1.5 HOURS
BIOCHEMICAL HEPATITIS PROFILE HAV IgM, HBsAg, HCV Ab HBC IgM, Ceruloplasmin	2 SST	2.5 HOURS 1-2 DAYS (HBC IgM, Ceruloplasmin)
BLOOD CULTURE AND SENSITIVITY (AEROBIC AND ANAEROBIC) Blood Culture: Aerobic Blood Culture: Anaerobic	2 BLOOD CULTURE BOTTLES (1 ANAEROBIC & 1 AEROBIC)	5 DAYS
BLOOD PROFILE 1 (BP1) FBC, ESR, PBF ABO & Rh Typing CRP, LFT, LP, RP1, HBsAg, HBsAb, HCV Ab, TSH, RPR UFEME	2 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS 3 WORKING DAYS (PBF)
BLOOD PROFILE 2 (BP2) FBC, ESR, PBF ABO & Rh Typing LFT, LP, RF, RP1, AFP, CEA, HAV IgG, HBsAb, HBsAg, TSH, RPR UFEME	2 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS 3 WORKING DAYS (PBF)
BLOOD PROFILE 3 (BP3) FBC, ESR CRP, LFT, LP, RP1, CA-199, FT3, FT4, TSH, RPR UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
CANCER MARKER (FEMALE) AFP, CA-125, CA-153, CA-199, CEA	1 SST	2.5 HOURS
CANCER MARKER (MALE) AFP, CA-199, CEA, PSA TOTAL	1 SST	2.5 HOURS
CARDIAC MARKERS HS-TROP I, CKMB, CK	1 SST	2 HOURS
CARDIAC MARKERS 2 CK, CKMB	1 SST	2 HOURS
CHEMO PROFILE FBC LFT, RP1	1 EDTA 1 SST	1.5 HOURS
COAGULATION PROFILE FBC APTT, PT & INR	1 EDTA 1 CITRATE	1 HOUR
COAGULATION PROFILE 2 FBC APTT, PT & INR	1 CITRATE	1 HOUR
COLORECTAL BASIC SCREEN FBC, ESR LFT, LP, RP1, CA-199, CEA, H. Pylori UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS
COMPREHENSIVE CANCER MARKER SCREEN (FEMALE) AFP, CA-125, CA-153, CA-199, CEA EBV VCA IGA (NPC Screen) Beta-2 Microglobulin	2 SST	2.5 HOURS 1 WEEK (EBV VCA IGA) 3-5 WORKING DAYS (Beta-2 Microglobulin)
COMPREHENSIVE CANCER MARKER SCREEN (MALE) AFP, CA-199, CEA, PSA Total, Testosterone EBV VCA IGA (NPC Screen) Beta-2 Microglobulin	2 SST	2.5 HOURS 1 WEEK (EBV VCA IGA (NPC Screen) 3-5 WORKING DAYS (Beta-2 Microglobulin)

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
CORD BLOOD PROFILE G6PD Screen ABO & Rh Typing, Direct Coomb's Test TSH	1 EDTA 1 LITHIUM HEPARIN	2.5 HOURS
COVID-19 ADMISSION PROFILE FBC, ESR CRP, LFT, RP1, Ferritin, LDH D-Dimer Blood C&S (Aerobic & Anaerobic) UFEME	1 EDTA 1 SST 1 LITHIUM HEPARIN 2 BLOOD CULTURE BOTTLES (1 ANAEROBIC & 1 AEROBIC) 1 STERILE URINE CONTAINER	2.5 HOURS 5 DAYS (Blood C&S)
CSF PANEL 1 CSF FEME C&S for CSF, Direct Smear for AFB, Direct Smear for Gram Stain Meningitis Encephalitis Panel	BIJOU BOTTLES	3 HOURS 3 DAYS (C&S for CSF)
CSF PANEL 2 CSF FEME C&S For CSF, Direct Smear for Gram Stain CSF Cytology Cryptococcus Antigen	BIJOU BOTTLES	3 HOURS 1-2 DAYS (Cryptococcus Ag) 3 DAYS (C&S for CSF) 3-5 WORKING DAYS (Cytology)
DENGUE FEVER STUDIES FBC Dengue lgG & lgM, Dengue NS1	1 EDTA	1 HOUR
DENGUE FEVER STUDIES 2 Dengue lgG & lgM, Dengue NS1	1 EDTA	1 HOUR
DIABETIC PROFILE FBC, HbA1c LFT, LP, RP1 Urine Microalbumin	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
DIALYSIS PRE-& POST UREA Urea Pre-Dialysis Urea Post-Dialysis	1 SST (PRE-DIALYSIS) 1 SST (POST-DIALYSIS)	1 HOUR (EACH)

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
DIALYSIS PROFILE **Pre-Dialysis:** FBC iPTH Na, K, Cl, Albumin, Calcium, Creatinine (Enzymatic), Glucose, LFT, LP, Phosphate Inorganic, Urea Pre-Dialysis, HBsAg, HBsAb, HCV Ab, HIV 1/2 Ag/Ab, Iron, Ferritin, TIBC, Transferrin Saturation **Post-Dialysis:** Urea Post-Dialysis	2 EDTA 1 SST (PRE-DIALYSIS) 1 SST (POST-DIALYSIS)	2.5 HOURS (PRE-DIALYSIS) 1.5 HOURS (POST-DIALYSIS)
DIALYSIS VIROLOGY PROFILE HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab	1 SST	2.5 HOURS
DIVC SCREEN FBC D-DIMER APTT, Fibrinogen, PT & INR, Thrombin Time	1 EDTA 1 LITHIUM HEPARIN 2 CITRATES	1 HOUR 24 HOURS (Thrombin Time)
ELECTROLYTES Chloride, Sodium, Potassium	1 SST	1 HOUR
ESTRADIOL AND PROGESTERONE Estradiol, Progesterone	1 SST	2.5 HOURS
FEMALE HORMONE PROFILE Estradiol, Free T4, FSH, LH, Progesterone, Prolactin	1 SST	2.5 HOURS
FEMALE HORMONE PROFILE 2 Estradiol, FSH, LH, Progesterone, Prolactin	1 SST	2.5 HOURS
FEMALE ONCOLOGY SCREENING PROFILE FBC, ESR ABO & Rh Typing LFT, LP, RP1, AFP, CA-125, CA-153, CA-199, CEA, HBsAb, HBsAg, Syphilis, TSH UFEME	2 EDTA 2 SST 1 STERILE URINE CONTAINER	2.5 HOURS
FEMALE SCREENING PROFILE FBC ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab, Syphilis	2 EDTA 1 SST	2.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
FERTILITY SCREENING PROFILE FBC ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab, Syphilis, TSH	2 EDTA 1 SST	2.5 HOURS
FERTILITY SCREENING PROFILE 2 FBC ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab, Prolactin, Rubella IgG, Syphilis, TSH	2 EDTA 1 SST	2.5 HOURS
FERTILITY SCREENING PROFILE 3 FBC, HbA1c ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab, Prolactin, Rubella IgG, Syphilis, TSH, Vitamin D AMH	2 EDTA 2 SST	2.5 HOURS 1-2 DAYS (AMH)
FULL BLOOD PICTURE (FBP) FBC, PBF	1 EDTA	1 HOUR 3 WORKING DAYS (PBF)
GLUCOSE TOLERANCE TEST 2 POINTS (GTT2) Glucose (Fasting) Glucose (2HPP)	1ST HOUR: 1 FLUORIDE 2nd HOUR: 1 FLUORIDE	1.5 HOURS (EACH INTERVAL)
GLUCOSE TOLERANCE TEST 3 POINTS (GTT3) Glucose (Fasting) Glucose (1st Hour) Glucose (2nd Hour)	1ST HOUR: 1 FLUORIDE 2nd HOUR: 1 FLUORIDE 3rd HOUR: 1 FLUORIDE	1.5 HOURS (EACH INTERVAL)
GROUP, SCREEN AND HOLD ABO & Rh Typing, Antibody Screen	1 EDTA	1 HOUR
HB ANALYSIS / Hb Electrophoresis (HSC) Ferritin, Iron HB Electrophoresis (Patient shall have no transfusion within 3 months)	1 EDTA 1 SST	2.5 HOURS 1 WEEK (HB Electrophoresis)
HEPATITIS B CARRIER PROFILE ALT, AFP, HBeAb, HBeAg, HBsAb, HBsAg	1 SST	2 .5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
HEPATITIS B SCREEN HbsAb, HbsAg	1 SST	2.5 HOURS
HEPATITIS SCREEN HbsAb, HbsAg, HCV Ab, HAV IgG, HAV IgM	1 SST	2.5 HOURS
HSP BLOOD PROFILE 2 FBC. HbA1c LFT, LP, RP1, AFP, CEA UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS
HYPERTENSION PROFILE LP, RP1 UFEME	1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
IRON STUDIES Iron, Ferritin, TIBC, Transferrin saturation	1 SST	2.5 HOURS
LIPID PROFILE Cholesterol Total, Cholesterol/HDL Ratio, HDL, LDL, Non-HDL Cholesterol, Triglycerides	1 SST	1.5 HOURS
LIVER FUNCTION TEST Total Protein, Albumin, Globulin, A/G Ratio, Total Bilirubin, ALT, AST, ALP, GGT	1 SST	1.5 HOURS
LUPUS FOLLOW UP FBC, ESR Albumin, ALT, AST, Creatinine (Enzymatic), CRP, Urea, C3, C4 Anti ds-DNA UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS 1 WEEK (Anti ds-DNA)
LUPUS FULL ASSESSMENT FBC, ESR, Reticulocyte Count Direct Coomb's Test Albumin, Chloride, Creatinine (Enzymatic), C3, C4 Anti ds-DNA, ANA UFEME	2 EDTA 2 SST 1 STERILE URINE CONTAINER	1.5 HOURS 1 WEEK (ANA & Anti ds-DNA)
MALE HORMONE PROFILE RP1, FSH, LH, Prolactin, Testosterone	1 SST	2.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
MALE ONCOLOGY SCREENING PROFILE FBC, ESR ABO & Rh Typing LFT, LP, RP1, AFP, CA-199, CEA, HBsAb, HBsAg, PSA Total, Syphilis, TSH UFEME	2 EDTA 2 SST 1 STERILE URINE CONTAINER	2.5 HOURS
MALE SCREENING PROFILE FBC ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab, Syphilis	2 EDTA 1 SST	2.5 HOURS
MFM ANTENATAL SCREEN FBC, HbA1c, ABO & Rh Typing, Antibody Screen RP1, LFT, HbsAb, HbsAg, HCV Ab, HIV 1/2 Ag/Ab, Free T3, Free T4, TSH, Rubella IgG, Syphilis UFEME Microalbumin Creatinine Ratio (Urine)	2 EDTA 2 SST 1 URINE STERILE CONTAINER	2.5 HOURS
MONITORING PROFILE FBC CRP, LFT, RP1	1 EDTA 1 SST	1.5 HOURS
MONITORING PROFILE 2 FBC, ESR Albumin, ALT, AST, Creatinine (Enzymatic), CRP, Urea	1 EDTA 1 SST	1.5 HOURS
NEONATAL JAUNDICE SCREEN FBC, Reticulocyte count Bilirubin (Conjugated & Unconjugated)	1 PEAD EDTA 1 PEAD HEPARIN	1.5 HOURS
PAEDIATRIC BASIC SCREEN FBC CRP	1 PEAD EDTA and/or 1 PEAD HEPARIN	1 HOUR
PAEDIATRIC SCREENING PROFILE (PSP) FBC, CRP Dengue IgM/IgG, Dengue NS1 Antigen, Mycoplasma IgM Influenza Rapid Test	2 PEAD EDTA or 1 PAED EDTA & 1 PAED HEPARIN 1 NASAL SWAB	1.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
PARTIAL SEPTIC WORKOUT FBC CRP Blood Culture: Paediatrics Urine C&S	1 EDTA 1 SST 1 BLOOD CULTURE BOTTLE (YELLOW) 1 URINE STRILE CONTAINER	1 HOUR 3 DAYS (URINE C&S) 5 DAYS (BLOOD CULTUE: PAEDIATRICS)
PHOSPHOLIPID ANTIBODY Cardiolipin Ab, Lupus Anticoagulant	1 SST, 3 CITRATE	1-2 WEEKS
PRE-ECLAMPSIA BLOOD PROFILE FBC LFT, RP2, Uric Acid UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
PRE - OPERATION (BASIC) PROFILE FBC ABO & Rh Typing HBsAb, HBsAg, HCV Ab, HIV 1/2 Ag/Ab RPR	2 EDTA 1 SST	2.5 HOURS
PRE - OPERATION MINOR FBC Na, K, Cl, Creatinine (Enzymatic), Glucose, Urea, HBsAg, HCV Ab UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS
PRE - OPERATION PROFILE FBC ABO & Rh Typing APTT, PT & INR Na, K, Cl, Creatinine (Enzymatic), Glucose, LFT, Urea, HBsAg, HCV Ab UFEME	2 EDTA 1 SST 1 CITRATE 1 STERILE URINE CONTAINER	2.5 HOURS
PRE-OPERATION PROFILE + GSH FBC GSH APTT, PT & INR Na, K, Cl, Creatinine (Enzymatic), Glucose, LFT, Urea, HBsAg, HCV Ab UFEME	2 EDTA 1 CITRATE 1 SST 1 STERILE URINE CONTAINER	2.5 HOURS

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
PRE - OPERATION PROFILE 2 FBC, ESR ABO & Rh Typing APTT, PT & INR Na, K, Cl, Creatinine (Enzymatic), Glucose, Urea, HBsAg, HIV 1/2 Ag/Ab UFEME	2 EDTA 1 SST 1 CITRATE 1 STERILE URINE CONTAINER	2.5 HOURS
PROLONGED JAUNDICE SCREEN (PJS) Bilirubin (Conjugated & Unconjugated), LFT, TFT	2 PAED HEPARIN	2.5 HOURS
PROLONGED JAUNDICE SCREEN 2 FBC, Reticulocyte count Bilirubin (Conjugated & Unconjugated) TFT UFEME	1 PEAD EDTA 2 PEAD HEPARIN 1 URINE STERILE CONTAINER	2.5 HOURS
PROLONGED JAUNDICE SCREEN 3 (PJS3) LFT, Free T4, TSH	1 PAED HEPARIN	2.5 HOURS
PROLONGED JAUNDIC SCREEN 4 FBC Bilirubin (Conjugated & Unconjugated, LFT TFT	1 PEAD EDTA 2 PEAD HEPARIN	2.5 HOURS
RENAL PROFILE 1 Na, K, Cl, Albumin, Adjusted calcium, Calcium, Creatinine (Enzymatic), Glucose, Phosphate Inorganic, Urea, Uric Acid	1 SST	1.5 HOURS
RENAL PROFILE 2 Na, K, Cl, Creatinine (Enzymatic), Urea	1 SST	1.5 HOURS
STD PROFILE 1 HIV 1/2 Ag/Ab, Syphilis Chlamydia IgG & IgM, Herpes Simplex I&II IgG & IgM	2 SST	2.5 HOURS 7 WORKING DAYS (Chlamydia, Herpes Simplex)
STD PROFILE 3 HIV 1/2 Ag/Ab, Syphilis Chlamydia IgG, Herpes Simplex I&II IgG	2 SST	2.5 HOURS 7 WORKING DAYS (Chlamydia, Herpes Simplex)

PROFILE TEST	SPECIMEN REQUIREMENT	TURNAROUND TIME
SYNACTEN SUPRESSION TEST Cortisol 0-hour, 30 min, 60 min, 90 min, 120 min	1 SST (EACH INTERVAL)	2.5 HOURS
THALASSAEMIA STUDIES PROFILE FBC, Reticulocyte Count, PBF HB Electrophoresis Ferritin, Iron, TIBC, Transferrin Saturation	2 EDTA 1 SST	2.5 HOURS 1 WEEK (HB Electrophoresis)
THYROID PROFILE Free T3, Free T4, TSH	1 SST	2.5 HOURS
VIRUS-VECTOR SCREEN Dengue IgM/IgG, Dengue NS1 Antigen Chikungunya Serology	1 EDTA 1 SST	1 HOUR
UVEITIS BASIC PROFILE 1 FBC, ESR CRP, Lipid Profile, Liver Function Test, Renal Profile 1, Rheumatic Factor, RPR UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS
UVEITIS BASIC PROFILE 1 FBC, ESR CRP, Lipid Profile, Liver Function Test, Renal Profile 1, Rheumatic Factor, RPR ANA, ANCA ACE, QuantiFERON TB UFEME	1 EDTA 1 SST 1 STERILE URINE CONTAINER	1.5 HOURS 7 WORKING DAYS (ANA & ANCA) 2 WEEKS (ACE, QuantiFERON TB) *Note: Shipment only on Tuesday*
24 HOURS URINE CREATININE CLEARANCE SERUM CREATININE 24 HOURS CREATININE CLEARANCE	1 SST 1 24 HOURS URINE CONTAINER	1.5 HOURS

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
5-HYDROXYINDOLE-ACETIC ACID (5HIAA)	24 HOURS URINE	24 HOURS URINE CONTAINER	14 WORKING DAYS	**PATIENT REQUIREMENT:** • If medically feasible, for 48 hours before specimen collection, patient should not take the acetaminophen or tryptophan containing supplements • For 48 hours prior to, as well as during, the urine collection, the patient should limit the following to one serving of fruits, vegetables, nuts, caffeinated beverages or foods per day SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
17 HYDROXY PROGESTERONE	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
ABO & RH TYPING	PLASMA & PACKED CELL	1 EDTA	1 HOUR	-
ABSOLUTE EPSINOPHIL COUNT	WHOLE BLOOD	1 EDTA	1 HOUR	-
ACETAMINOPHEN (PARACETAMOL)	SERUM	1 SST	2 HOURS	-
ACETYLSALICYLIC ACID (ASPIRIN)	SERUM	1 SST	1 WORKING DAY	-
ACID PHOSPHATASE	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ACTIVATE PROTEIN C RESISTANCE (APC) / FACTOR V LEIDEN	PLASMA	1 SODIUM CITRATE	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working day before 3 pm **MEDICAL DIAGNOSIS REQUIRED:** • Indicate patient's anticoagulant therapy in order's remark
ACYLCARNITINE	DRIED BLOOD SPOTS	FILTER PAPER	5 WORKING DAYS	**ACTION REQUIRED:** • Contact the laboratory to request the container
ADENOSINE DEAMINASE	SERUM / CSF / BODY FLUID	1 SST / 1 BIJOU BOTTLE / 1 STERILE URINE CONTAINER	3 WORKING DAYS	-
ADJUSTED CALCIUM	SERUM	1 SST	1 HOUR	-
ADRENOCORTICOTROPIC HORMONE (ACTH)	WHOLE BLOOD	1 EDTA	2 WORKING DAYS	-
ALBUMIN	SERUM	1 SST	1 HOUR	-
ALDOLASE	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
ALDOSTERONE	PLASMA	2 EDTA	1 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
ALL SCREEN	WHOLE BLOOD / BONE MARROW ASPIRATE	2 EDTA	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
ALP (ALKALINE PHOSPHATASE)	SERUM	1 SST	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ALLOGENIC	STEM CELL PRODUCT	N/A	1 WORKING DAY	**SPECIMEN REQUIREMENT:** • Specimen shall send to lab immediately
ALPHA THALASSAEMIA GENOTYPING	**FETUS Specimen**: AMNIOTIC FLUID / CVS / POC WITHOUT FIX / FETAL BLOOD **INDIVIDUAL:** BLOOD **NEWBORN:** BLOOD	**FETUS Specimen**: 1 CONICAL TUBE / 1 STERILE CONTAINER / EDTA **INDIVIDUAL:** EDTA **NEWBORN:** EDTA	10 WORKING DAYS	**PATIENT REQUIREMENT**: • Gestation age (CVS): 10 - 12 weeks • Minimum gestation age (amniotic fluid): 15 weeks • Provide a copy of HbEp or previous thalassemia DNA test report of the individual or parents • **DOCUMENT REQUIRED:** • Consent form **SPECIMEN REQUIREMENT:** • Fetal Specimen: Send with 3 mL maternal EDTA blood
ALPHA-1-ANTITRYPSIN	SERUM	1 SST	3 WORKING DAYS	-
ALPHA-FETOPROTEIN (AFP)	SERUM	1 SST	2 HOURS	-
ALT (ALANINE TRANSAMINASE)	SERUM	1 SST	1 HOUR	-
ALUMINIUM	SERUM	1 ROYAL BLUE TUBE	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
AMIKACIN	SERUM	1 SST	1 WORKING DAY	**INFORMATION REQUIRED:** • Last dosage • Specimen collection time
AMINO ACID CHROMATOGRAPHY	PLASMA	1 LITHIUM HEPARIN	15 WORKING DAYS	-
AMINO ACID CHROMATOGRAPHY - URINE	URINE	1 STERILE URINE CONTAINER	15 WORKING DAYS	**ACTION REQUIRED:** • Ordering doctor must call IMR MO for order

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
AML SCREEN	WHOLE BLOOD / BONE MARROW ASPIRATE	2 EDTA	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
AMMONIA	PLASMA	1 LITHIUM HEPARIN	1 WORKING DAY	-
AMOEBIASIS ANTIBODY	WHOLE BLOOD / SERUM	1 EDTA / 1 RED PLAIN TUBE	5 WORKING DAYS	-
AMOXICILLIN	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
AMPHETAMINES (SYABU)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
AMPHETAMINES TYPE SUBSTANCE SCREEN	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
AMYLASE	SERUM	1 SST	1 HOUR	-
AMYLASE (FLUID)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
ANCA	SERUM	1 SST	2 WORKING DAYS	**BATCH RUN:** MONDAY & THURSDAY
ANDROSTENEDIONE	SERUM	1 SST	4 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
ANGIOTENSIN CONVERTING ENZYMES (ACE)	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ANTI DIURETIC HORMONE (ADH)	PLASMA	1 EDTA	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient shall fast and thirst for at least 8 hours SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ANTI DNASE B	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ANTI ds-DNA ANTIBODY	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** WEDNESDAY
ANTI GANGLIOSIDE MONOSIALIC ACID (ANTI GM1)	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	7 WORKING DAYS	**BATCH RUN:** FRIDAY
ANTI MOG (MYELIN OLIGODENDROCYTE GLYCOPROTEIN)	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
ANTI MOG (MYELIN OLIGODENDROCYTE GLYCOPROTEIN) - MAYO CLINIC	SERUM	1 SST	14 WORKING DAYS	**PATIENT REQUIREMENT:** • For optimal antibody detection, specimen collection should occur prior to initiation of immunosuppressant medication SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ANTI MULLERIAN HORMONE (AMH)	SERUM	1 SST	1 DAY	-
ANTI NUCLEAR ANTIBODY (ANA)	SERUM	1 SST	2 WORKING DAYS	**BATCH RUN:** MONDAY & THURSDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ANTI SACCHAROMYCES CEREVISIE ANTIBODY (ASCA)	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ANTI SMOOTH MUSCLES	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** WEDNESDAY
ANTIBODY IDENTIFICATION	WHOLE BLOOD	4 EDTA	22 WORKING DAYS	CALL THE LABORATORY TO OBTAIN PRELIMINARY RESULTS (IF AVAILABLE)
ANTIBODY SCREEN	WHOLE BLOOD	1 EDTA	1 HOUR	-
ANTI-CARDIOLIPIN ANTIBODY	SERUM	1 SST	7 WORKING DAYS	**BATCH RUN:** TUESDAY
ANTI-CYCLIC CITRULLINATED PEPTIDE (ANTI-CCP)	SERUM	1 SST	1 DAY	-
ANTI-ENA ANTIBODIES	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** SATURDAY
ANTI-HISTONE ANTIBODY	SERUM	1 SST	4 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
ANTI-MUSK	SERUM	1 SST	4 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
ANTI-MUSK [SMC]	SERUM	1 SST	7 WORKING DAY	**BATCH RUN:** WEDNESDAY
ANTI-PHOSPHOLIPASE-A2-RECEPTOR (PLA2R)	SERUM	1 SST	7 WORKING DAYS	**BATCH RUN:** TUESDAY
ANTITHROMBIN III	PLASMA	1 SODIUM CITRATE	7 WORKING DAYS	-
APOLIPOPROTEIN A	SERUM	1 SST	3 WORKING DAYS	-
APOLIPOPROTEIN B	SERUM	1 SST	3 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
APT DOWNEY TEST	VOMITUS / GASTRIC CONTENT / NASOGASTRIC ASPIRATE / FAECES	1 STERILE CONTAINER	1 HOUR	-
APTT	PLASMA	1 SODIUM CITRATE	1 HOUR	-
AQUAPORIN 4	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
AQUAPORIN 4 - MAYO CLINIC	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ARSENIC	WHOLE BLOOD	1 ROYAL BLUE	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
ARSENIC - URINE	URINE	1 STERILE URINE CONTAINER	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
ASOT	SERUM	1 SST	1 HOUR	-
ASPERGILLUS ANTIBODY	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
AST (ASPARTATE AMINOTRANSFERASE)	SERUM	1 SST	1 HOUR	-
AUTOLOGOUS	STEM CELL PRODUCT	N/A	-	**ACTION REQUIRED:** • Specimens must be sent to the laboratory immediately
B2 TRANSFERRIN	NASAL / OTIC / WOUND / OTHER BODY FLUID	1 STERILE CONTAINER	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
BARBITURATES	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
BARTONELLA IGM & IGG	SERUM	1 SST	7 WORKING DAYS	-
BCR-ABL	WHOLE BLOOD / BONE MARROW ASPIRATE	2 EDTA	21 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
BENCE JONES PROTEIN	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	**SPECIMEN REQUIREMENT:** • Morning specimen preferred
BENZODIAZEPINE	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
BETA - AMYLOID AGGREGATION LEVEL	PLASMA	2 EDTA	22 WORKING DAYS	-
BETA - CAROTENE	SERUM	1 SST	15 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient must fast overnight • Patient must abstain from alcohol 24 hours before collection **SPECIMEN REQUIREMENT:** • Specimen should be avoided from light
BETA HCG	SERUM	1 SST	1 HOUR	-
BETA-2 GLYCOPROTEIN	SERUM	1 SST	7 WORKING DAYS	**BATCH RUN:** TUESDAY
BETA-2 MICROGLOBULIN	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
BETA-THALASSEMIA GENOTYPING	• FETUS Specimen: 20ML AMNIOTIC FLUID / 30MG CVS / 1ML FETAL BLOOD / 30 MG POC WITHOUT FIX • INDIVIDUAL: 3 ML BLOOD • NEWBORN: 1 ML BLOOD	1 STERILE FLUID CONTAINER / 1 - 2 EDTA	10 WORKING DAYS	**PATIENT REQUIREMENT:** • Gestation age (CVS): 10 - 12 weeks • Minimum gestation age (Amniotic fluid): 15 weeks • Provide a copy of HbEp or previous thalassaemia DNA test report of the individual or parents **DOCUMENT REQUIRED:** • Consent form **SPECIMEN REQUIREMENT:** • Fetal specimen: Send with 3 mL maternal EDTA blood
BILE ACID	SERUM	1 SST	3 WORKING DAYS	**PATIENT REQUIREMENT:** • Fasting specimen preferred
BILIRUBIN (CONJUGATED & UNCONJUGATED)	SERUM	1 SST	1 HOUR	-
BILIRUBIN TOTAL	SERUM	1 SST	1 HOUR	-
BILIRUBIN TOTAL (FLUID)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
BILIRUBIN TOTAL (BILISTICK)	WHOLE BLOOD	1 CAPILLARY TUBE	15 MINUTES	-
BK & JC VIRAL LOAD	SERUM / WHOLE BLOOD / CSF / URINE	1 SST / 1 EDTA / 1 BIJOU BOTTLE / 1 STERILE URINE CONTAINER	2 WORKING DAYS	-
BLOOD ALCOHOL	WHOLE BLOOD	1 FLUORIDE	2 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
BLOOD CHROMIUM	WHOLE BLOOD	1 ROYAL BLUE	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
BLOOD CULTURE: AEROBIC	WHOLE BLOOD / STERILE FLUID	BLOOD CULTURE BOTTLE	5 WORKING DAYS	**ACTION REQUIRED:** • Mention the specimen type if a non-blood specimen is sent
BLOOD CULTURE: ANAEROBIC	WHOLE BLOOD	BLOOD CULTURE BOTTLE	5 WORKING DAYS	**ACTION REQUIRED:** • Mention the specimen type if a non-blood specimen is sent
BLOOD CULTURE: PAEDIATRICS	WHOLE BLOOD	BLOOD CULTURE BOTTLE (min 1mL)	5 WORKING DAYS	**ACTION REQUIRED**: • Mention the specimen type if a non-blood specimen is sent
BONE MARROW ASPIRATE	BONE MARROW ASPIRATE	1 EDTA	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to make an appointment during working hours
BONE MARROW ASPIRATE & TREPHINE	BONE MARROW ASPIRATE	1 EDTA	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to make an appointment during working hours
BORDETELLA PERTUSSIS IGG	SERUM	1 SST	15 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
BRCA I & II	HPE / WHOLE BLOOD	TISSUE / BLOCK / 2 EDTA	14 - 21 WORKING DAYS	**SPECIMEN REQUIREMENT:** Somatic: FFPE block or 15 unstained slides (10um, >5mm^2 sections) with at least 30% tumor cellularity & 1 H&E slides • Germline: 2 EDTA (whole blood)
BRUCELLA AB	SERUM	1 SST	10 WORKING DAYS	-
BRUCELLA AGGLUTINATION	SERUM	1 SST	5 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
BRUCELLA PCR	EDTA / CSF	1 EDTA / 1 BIJOU BOTTLE	7 WORKING DAYS	-
C1 ESTERANCE INHIBITOR	SERUM	1 SST	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Fasting is preferred **ACTION REQUIRED:** • Specimen shall send to lab immediately SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
CA - 125	SERUM	1 SST	2 HOURS	-
CA - 153	SERUM	1 SST	2 HOURS	-
CA - 199	SERUM	1 SST	2 HOURS	-
CALCITONIN	SERUM	1 SST	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient should not take multivitamins or dietary supplements (e.g. hair, skin and nail supplements) containing biotin (vitamin b7) before 12 hours of specimen collection SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
CALCIUM	SERUM	1 SST	1 HOUR	-
CALPROTECTIN	STOOL	1 STERILE STOOL CONTAINER	1 WORKING DAY	-
CANNABINOIDS (MARIJUANA)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CARBAMAZEPINE (TEGRETOL)	SERUM	1 SST	1 WORKING DAY	-
CARBAPENEM RESISTANT PCR	MICROBIAL ISOLATE	AGAR PLATE / NUTRIENT SLANT	14 WORKING DAYS	-
CARNITINE	PLASMA	1 LITHIUM HEPARIN	7 WORKING DAYS	-
CATECHOLAMINES	24 HOURS URINE	24 HOURS URINE CONTAINER	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory 15 minutes before collecting the container
CD3 ENUMERATION	STEMCELL	1 EDTA	3 - 5 HOURS	No individual order for peripheral blood specimen **ACTION REQUIRED**: • Ordering doctor must sign on test request form • Specimen shall send to the laboratory immediately
CD34 ENUMERATION	WHOLE BLOOD	1 EDTA	3 - 5 HOURS	**ACTION REQUIRED:** • Ordering doctor must sign on test request form • Specimen shall send to the laboratory immediately
CD4	WHOLE BLOOD	1 EDTA	2 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working days only **BATCH RUN:** TUESDAY & FRIDAY
CD4 AND CD8	WHOLE BLOOD	1 EDTA	2 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working days only **BATCH RUN:** TUESDAY & FRIDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CD8	WHOLE BLOOD	1 EDTA	2 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working days only **BATCH RUN:** TUESDAY & FRIDAY
CEA	SERUM	1 SST	2 HOURS	-
CERULOPLASMIN	SERUM	1 SST	1 WORKING DAY	-
CHIKUGUNYA SEROLOGY	SERUM	1 SST	1 HOUR	-
CHIKUNGUNYA PCR	WHOLE BLOOD / SERUM	2 EDTA / 1 SST	10 WORKING DAYS	-
CHIMERISM ANALYSIS (STR)	WHOLE BLOOD	1 EDTA	30 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
CHLAMYDIA AND GONORRHOEAE PCR	GENITAL SWAB / URINE	1 DRY SWAB / 1 STERILE URINE CONTAINER	1 WORKING DAY	-
CHLAMYDIA ANTIGEN	NASOPHARYNGEAL ASPIRATE / BAL / (CERVICAL / GENITAL / CONJUCTIVAL) SMEAR / SCRAPPING	STERILE CONTAINER / SMEAR / SCRAPING	3 WORKING DAYS	-
CHLAMYDIA IGG	SERUM	1 SST	7 WORKING DAYS	-
CHLAMYDIA IGM	SERUM	1 SST	3 WORKING DAYS	-
CHLORIDE	SERUM	1 SST	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CHOLESTEROL (HDL)	SERUM	1 SST	1 HOUR	-
CHOLESTEROL (TOTAL)	SERUM	1 SST	1 HOUR	-
CHOLINESTERASE	SERUM	1 SST	1 WORKING DAY	-
CHROMOGRANIN A	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
CHROMOSOMAL MICROARRAY ASSAY (CMA)	AMNIOTIC FLUID & WHOLE BLOOD	1 CONICAL TUBE & 2 EDTA	14 WORKING DAYS	-
CK (CREATINE KINASE)	SERUM	1 SST	1 HOUR	-
CKMB	SERUM	1 SST	1 HOUR	-
CLOSTRIDIUM DIFFICILE CULTURE	STOOL	1 STERILE STOOL CONTAINER	5 WORKING DAYS	-
CLOSTRIDIUM DIFICILE TOXIN	STOOL	1 STERILE STOOL CONTAINER	3 HOURS	-
CMV IGG	SERUM	1 SST	7 WORKING DAYS	-
CMV IGM	SERUM	1 SST	7 WORKING DAYS	-
CMV VIRAL LOAD	WHOLE BLOOD / URINE / EYE VITREOUS FLUID / TISSUE BIOPSY / AMNIOTIC FLUID / BAL / CSF / SALIVA / SEMEN / DRY OR WET SWAB	1 EDTA / 1 STERILE CONTAINER	2 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CN GENOME	• **FETUS Specimen:** 20ML AMNIOTIC FLUID / 30MG CVS / 30 MG POC WITHOUT FIX • **INDIVIDUAL:** 3 ML BLOOD / 5 DRIED BLOOS SPOT / BUCCAL SWAB • **NEWBORN:** 1 ML BLOOD / DRIED BLOOD SPOTS	1 STERILE FLUID CONTAINER / 1 STERILE CONTAINER WITH SALINE / 1 - 2 EDTA / DRIED BLOOD SPOT CARD	18 WORKING DAYS	**PATIENT REQUIREMENT:** • Gestation age (CVS) : 10 - 12 weeks • Minimum gestation age (Amniotic fluid): 15 weeks **DOCUMENT REQUIRED:** • Consent form **SPECIMEN REQUIREMENT:** • Fetal Specimen: Send with 3mL maternal EDTA blood
COCAINE	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
CODEIN	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
COELIAC DISEASE SCREEN	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
COMPLEMENT C3	SERUM	1 SST	1 HOUR	-
COMPLEMENT C4	SERUM	1 SST	1 HOUR	-
COPPER	SERUM	1 SST TUBE	7 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
CORTISOL - 24 HOUR URINE	24 HOURS URINE	24 HOURS URINE CONTAINER	2 HOURS	-
CORTISOL 0 HOUR	SERUM	1 SST	1 HOUR	-
CORTISOL 30 MINUTES	SERUM	1 SST	1 HOUR	-
CORTISOL 60 MINUTES	SERUM	1 SST	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CORTISOL 90 MINUTES	SERUM	1 SST	1 HOUR	-
CORTISOL 120 MINUTES	SERUM	1 SST	1 HOUR	-
CORTISOL SINGLE	SERUM	1 SST	1 HOUR	-
COVID-19 (SARS-COV-2) IGM & IGG	SERUM	1 SST	1 WORKING DAY	-
COVID-19 [SARS-CoV-2] NEUTRALIZING AB	SERUM	1 SST	2 WORKING DAYS	-
COVID-19 ANTIGEN	NASAL SWAB	DRY SWAB	1 HOUR	-
COXSACKIE B VIRUS	RESPIRATORY / BODY FLUID / TISSUE	SWAB WITH VTM / 1 STERILE CONTAINER WITH SALINE	28 WORKING DAYS	-
C-PEPTIDE	SERUM	1 SST	1 WORKING DAY	-
C-REACTIVE PROTEIN (CRP)	SERUM	1 SST	1 HOUR	-
CREATININE	SERUM	1 SST	1 HOUR	-
CRI-DU CHAT SYNDROME (5p15)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
CROSSMATCH [PACKED CELL IRRADIATED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:** • 6 mL EDTA X 1

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CROSSMATCH [PACKED CELLS LEUCODEPLETED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:** • 6 mL EDTA X 1
CROSSMATCH [PACKED CELLS]	PLASMA & PACKED CELL	1 EDTA	3 HOURS (ROUTINE) 1 HOUR (URGENT)	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:** • 6 mL EDTA X 1

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CROSSMATCH [PEDI-PACK]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **≤ 4-month-old:** • Paediatric 0.5ml EDTA x 1 from baby & • 6ml EDTA x 1 from mother **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:** • 6 mL EDTA X 1 • Provide volume required in remark
CROSSMATCH [WHOLE BLOOD]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:** • 6 mL EDTA X 1

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CRYOGLOBULIN	SERUM	1 SST	3 WORKING DAYS	**PATIENT REQUIREMENT:** • Overnight fasting is required **ACTION REQUIRED:** • Call the laboratory to make appointment before test order
CRYOPRECIPITATE	WHOLE BLOOD	1 EDTA	45 MINUTES	-
CRYPTOCCOCUS ANTIGEN	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	1 WORKING DAY	-
CSF 14-3-3 PROTEIN	CSF	SPECIAL KIT	20 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory 2 working days before procedure to get special kit
CULTURE & SENSITIVITY (GONOCOCCI)	SWAB/URINE	1 STERILE URINE CONTAINER/ CHARCOAL SWAB	5 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR CATHETER TIP	CATHETER TIP	TIP, CATHETER	3 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR HIGH VAGINAL/CERVICAL SWAB	HIGH VAGINAL/CERVICAL SWAB	CHARCOAL SWAB	5 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR RESPIRATORY SPECIMEN	RESPIRATORY SPECIMEN	STERILE CONTAINER	3 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR SEMEN	SEMEN	STERILE CONTAINER	3 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
CULTURE AND SENSITIVITY FOR SWAB / WOUND / PUS / TISSUE / FLUID	SWAB / WOUND / PUS / TISSUE / FLUID	STERILE CONTAINER/ CHARCOAL SWAB	3 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR URETHRAL	URETHRAL SWAB	CHARCOAL SWAB	5 WORKING DAYS	-
CULTURE AND SENSITIVITY FOR URINE / CATHETER	URINE	1 STERILE URINE CONTAINER	3 WORKING DAYS	-
CULTURE AND SENSITIVTY FOR CEREBROSPINAL FLUID	CSF	1 BIJOU BOTTLE	3 WORKING DAYS	-
CULTURE FOR FUNGUS	SWAB / WOUND / PUS / TISSUE / FLUID	STERILE CONTAINER/ SWAB	10 WORKING DAYS	-
CYCLOSPORIN	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-
CYFRA 21-1	SERUM	1 SST	1 WORKING DAY	-
D-DIMER	WHOLE BLOOD	1 LITHIUM HEPARIN	1 HOUR	-
DEHYDROXY EPIANDOSTERNE SULPHATE (DHEAS)	SERUM	1 SST	1 WORKING DAY	-
DENGUE IGM/IGG	WHOLE BLOOD	1 EDTA	1 HOUR	-
DENGUE NS1 ANTIGEN	WHOLE BLOOD	1 EDTA	1 HOUR	-
DHT (DIHYDROTESTOSTERONE)	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
DIABETES AUTO-AB (GAD AND IA-2)	SERUM	1 SST	4 WORKING DAY	**BATCH RUN:** SATURDAY
DIASTASE (AMYLASE)	BODY FLUID	1 STERILE URINE CONTAINER	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
DIGEORGE SYNDROME (N25 22Q11.2)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
DIGOXIN	SERUM	1 SST	1 WORKING DAY	-
DIPHTHERIA	THROAT SWAB / NASOPHARYNGEAL SWAB / NASOPHARYNGEAL ASPIRATE / PSEUDOMEMBRANE EXUDATES / POSITIVE ISOLATE	1 SWAB WITH AMIES CLEAR / 1 STERILE CONTAINER / 1 BLOOD AGAR	7 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get specific swab
DIRECT BILIRUBIN (CONJUGATED)	SERUM	1 SST	1 HOUR	-
DIRECT COOMB'S TEST	WHOLE BLOOD	1 EDTA	2 HOURS	-
DIRECT SMEAR FOR ACID FAST BACILLI (AFB)	SWAB/ URINE/ TISSUE/ FLUID	1 STERILE CONTAINER/ 1 CHARCOAL SWAB	2 HOURS	-
DIRECT SMEAR FOR FUNGUS	SWAB/ URINE/ TISSUE/ FLUID	1 STERILE CONTAINER/ 1CHARCOAL SWAB	2 HOURS	-
DIRECT SMEAR FOR GONOCOCCI	SWAB/URINE	1 STERILE URINE CONTAINER/ CHARCOAL SWAB	2 HOURS	-
DIRECT SMEAR FOR GRAM STAIN	SWAB/ URINE/ TISSUE/ FLUID	1 STERILE CONTAINER/ 1 CHARCOAL SWAB	2 HOURS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
DIRECT SMEAR FOR TRICHOMONAS, GONOCOCCI & MONILIA	SWAB/URINE	1 STERILE URINE CONTAINER/ CHARCOAL SWAB	2 HOURS	-
DNA PATERNITY TEST	**FETUS:** 20ML AMNIOTIC FLUID / 30MG CVS / 30 MG POC WITHOUT FIX / 1ML FETAL BLOOD **INDIVIDUAL:** 3 ML BLOOD / BUCCAL SWAB **NEWBORN:** 1 ML BLOOD	**FETUS:** CONICAL TUBE / STERILE CONTAINER / EDTA **INDIVIDUAL:** EDTA / SWAB **NEWBORN:** EDTA	5 WORKING DAYS	**PATIENT REQUIREMENT:** • Gestation age (CVS): 10 - 12 weeks • Minimum gestation age (Amniotic fluid): 15 weeks **DOCUMENT REQUIRED**: • Consent form
DNA PATERNITY TEST - ADD ON (FOR TWINS ONLY)				
DRUG CONFIRMATORY (GCMS) TESTING	URINE	1 STERILE URINE CONTAINER	7 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY
DRY COPPER WEIGHT	2MG LIVER TISSUE	METAL-FREE SPECIMEN VIAL / PARAFFIN BLOCK (WITH NO MORE THAN 1 OR 2 CUTS PREVIOUSLY MADE)	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before test order SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
DUCHENNE MUSCULAR DYSTROPHY / BECKER MUSCULAR DYSTROPHY (DMD)	WHOLE BLOOD	1 EDTA	90 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
EBV EA IGA (NPC MARKER)	SERUM	1 SST	5 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
EBV PCR	WHOLE BLOOD / CSF / BAL	2 EDTA / 1 BIJOU BOTTLE / 1 STERILE CONTAINER	2 WORKING DAYS	-
EBV VCA IGA (NPC SCREEN)	SERUM	1 SST	3 WORKING DAYS	-
EBV VCA IGG	SERUM	1 SST	4 WORKING DAYS	-
EBV VCA IGM	SERUM	1 SST	1 WORKING DAY	-
EFFUSION FLUID FEME	EFFUSION FLUID	FLUID	2 HOURS	-
EGFR PCR	BLOCK/ SLIDE	BLOCK/SLIDE	3 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE Block / 10 unstained slides
EGFR T790M MUTATION TESTING	WHOLE BLOOD	STRECK TUBE	7 WORKING DAYS	-
ELECTROLYTES	SERUM	1 SST	1 HOUR	-
ENDOMYSIAL ANTIBODY [IGA]	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ENTAMOEBA HISTOLYTICA AB	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
ENTERO VIRUS SEROLOGY	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
ERYTHROPOIETIN	SERUM	1 SST	4 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
ESR	WHOLE BLOOD	1 EDTA	1 HOUR	-
ESTRADIOL (E2)	SERUM	1 SST	2 HOURS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ESTRIOL E3	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
FACTOR IX ASSAY	PLASMA	2 SODIUM CITRATES	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
FACTOR VII	PLASMA	2 SODIUM CITRATES	7 WORKING DAYS	-
FACTOR VIII ASSAY	PLASMA	2 SODIUM CITRATES	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
FAECAL OCCULT BLOOD [FOB]	STOOL	1 STERILE STOOL CONTAINER	1 HOUR	-
FAECAL PARASITOLOGY	STOOL	1 STERILE STOOL CONTAINER	1 WORKING DAY	-
FAECES FEME	STOOL	1 STERILE STOOL CONTAINER	24 HOURS	-
FAT GLOBULES	STOOL	1 STERILE STOOL CONTAINER	1 WORKING DAY	-
FERRITIN	SERUM	1 SST	2 HOURS	-
FIBRINOGEN	PLASMA	1 SODIUM CITRATE	1 HOUR	-
FILARIASIS IGG	SERUM	1 SST	1 WORKING DAY	-
FIRST TRIMESTER SCREENING	SERUM	1 SST	1 WORKING DAY	**ACTION REQUIRED:** • Ordering doctor must fill up test request form
FLOW CYTOMETRY	BONE MARROW ASPIRATE / WHOLE BLOOD	1 EDTA	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to make appointment before order

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
FLP1L1 - PDGFRA	BONE MARROW ASPIRATE	1 LITHIUM HEPARIN	21 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
FLP1L1 - PDGFRB	BONE MARROW ASPIRATE	1 LITHIUM HEPARIN	21 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
FLT-3-ITD/D835 MUTATION	BONE MARROW ASPIRATE / WHOLE BLOOD	1 EDTA	30 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
FLUORESCENT TREPONEMAL ANTIBODY (FTA)	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
FOLIC ACID	SERUM	1 SST	2 HOURS	-
FRACTIONAL EXCRETION OF URIC ACID	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
FREE T3	SERUM	1 SST	2 HOURS	-
FREE T4	SERUM	1 SST	2 HOURS	-
FRESH FROZEN PLASMA [FFP IRRADIATED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
FRESH FROZEN PLASMA [FFP]	PLASMA & PACKED CELL	1 EDTA	45 MINUTES	-
FRUCTOSAMINE	SERUM	1 SST	5 WORKING DAYS	WEEKLY BACTH RUN TEST
FSH	SERUM	1 SST	2 HOURS	-
FULL BLOOD COUNT (FBC)	WHOLE BLOOD	1 EDTA	1 HOUR	-
ABO GENOTYPING	WHOLE BLOOD	3 EDTA	20 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
G6PD GENOTYPING	WHOLE BLOOD DRIED BLOOD SPOT / BUCCAL SWAB / SALIVA	2 EDTA / 1 DBS CARD / 1 SWAB / 1 SALIVA KIT	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get specific container
G6PD SCREEN	WHOLE BLOOD	1 EDTA	1 HOUR	-
GAD AB	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
GALACTOMANNAN TEST	SERUM	1 SST	1 WORKING DAY	-
GALACTOMANNAN TEST (FOR BAL)	BAL	1 STERILE CONTAINER	1 WORKING DAY	-
GALACTOSEMIA	DRIED BLOOD SPOT	FILTER PAPER	7 WORKING DAYS	-
GASTRIN	SERUM	1 SST	14 WORKING DAYS	**PATIENT REQUIREMENT:** • 8 hours fasting is required • No intake of multivitamin or dietary supplements contain biotin 12 hours before blood sampling • No intake of any drugs that interfere with gastrointestinal motility at least 2 weeks before blood sampling SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
GENETIC HAEMOCHROMATOSIS	WHOLE BLOOD	2 EDTA	35 - 42 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
GENTAMICIN	SERUM	1 SST	1 WORKING DAY	-
GGT (GAMMA GLUTAMYL TRANSFERASE)	SERUM	1 SST	1 HOUR	-
GIST MUTATION (KIT AND PDGFRA)	BLOCK/SLIDE	BLOCK/SLIDE	10 WORKING DAYS	-
GLIADIN ANTIBODY	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
GLOMERULAR BASE MEMBRANE	SERUM	1 SST	4 WORKING DAYS	-
GLUCOSE	SERUM	1 SST	1 HOUR	-
GLUCOSE (FLUID)	FLUID	STERILE CONTAINER	1 HOUR	-
GROUP, SCREEN AND HOLD [GSH]	PLASMA & PACKED CELL	1 EDTA (6mL)	1 HOUR	**SPECIMEN REQUIREMENT (PATIENT'S AGE):** **≤ 4-month-old:** • Paediatric 0.5ml EDTA x 1 from baby & • 6ml EDTA x 1 from mother **4-month-old - 12-year-old:** • 6ml EDTA x 1 is preferred • If not Feasible, minimum of 2ml EDTA x 1 **≥13-year-old:C** • 6 mL EDTA X 1
GROWTH HORMONE	SERUM	1 SST	1 WORKING DAY	-
H. PYLORI	SERUM	1 SST	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
HAEMOGLOBIN (HB)	WHOLE BLOOD	1 EDTA	1 HOUR	-
HAEMOGLOBIN A1C (HBA1C)	WHOLE BLOOD	1 EDTA	1 HOUR	-
HAPTOGLOBIN	SERUM	1 SST	1 WORKING DAY	-
HAV IGG	SERUM	1 SST	2 HOURS	-
HAV IGM	SERUM	1 SST	2 HOURS	-
HEPATITIS B CORE ANTIBODY (HBC IGG)	SERUM	1 SST	1 WORKING DAY	-
HBC IGM	SERUM	1 SST	1 WORKING DAY	-
HBE AB	SERUM	1 SST	2 HOURS	-
HBE AG	SERUM	1 SST	2 HOURS	-
HBS AB	SERUM	1 SST	2 HOURS	-
HBS AG	SERUM	1 SST	2 HOURS	-
HBS AG QUANTIFICATION	SERUM	1 SST	1 WORKING DAY	-
HBV DNA VIRAL LOAD	PLASMA	3 EDTA	5 WORKING DAYS	-
HCV AB	SERUM	1 SST	2 HOURS	-
HCV GENOTYPING	PLASMA / SERUM	2 EDTA / 1 SST	14 WORKING DAYS	-
HCV RNA VIRAL LOAD (QUANTITATIVE)	WHOLE BLOOD	3 EDTA	1 WORKING DAY	-
HEINZ BODIES	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
HELICOBACTER PYLORI CULTURE AND SENSITIVITY	GASTRIC BIOPSY	SPECIAL TUBE (IN ICE BOX)	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only **ACTION REQUIRED:** • Call laboratory to get container
HEMATOLOGY IHC STAIN	BONE MARROW	SLIDE	3 WORKING DAYS	-
HEMOGLOBIN PIGMENT (PORPHYRIN)	URINE	1 STERILE URINE CONTAINER	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be avoided from light
HEMOSIDERIN	URINE	1 STERILE URINE CONTAINER	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
HEPATITIS D ANTIBODY	SERUM	1 SST	12 WORKING DAYS	-
HEPATITIS E ANTIBODY	SERUM	1 SST	3 WORKING DAYS	-
HERPES SIMPLEX I&II IGG	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN**: TUESDAY & FRIDAY
HERPES SIMPLEX I&II IGM	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN**: TUESDAY & FRIDAY
HERPES SIMPLEX TYPE I IGG	SERUM	1 SST	2 WORKING DAYS	-
HERPES SIMPLEX TYPE I IGM	SERUM	1 SST	2 WORKING DAYS	-
HERPES SIMPLEX TYPE II IGG	SERUM	1 SST	2 WORKING DAYS	-
HERPES SIMPLEX TYPE II IGM	SERUM	1 SST	2 WORKING DAYS	-
HERPES SIMPLEX VIRUS - PCR	WHOLE BLOOD / PLASMA / URINE / CSF / GENITAL / VESICULAR SWAB	2 EDTA / 1 STERILE URINE CONTAINER / 1 SWAB	3 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
HIGH SENSITIVITY C-REACTIVE PROTEIN (HS-CRP)	SERUM	1 SST	1 HOUR	-
HIGH SENSITIVITY TROPONIN I	SERUM	1 SST	1.5 HOURS	-
HISTOPLASMA SEROLOGY	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
HIV 1/2 AG/AB	SERUM	1 SST	2 HOURS	-
HIV RESISTANCE	WHOLE BLOOD	1 EDTA	40 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient's recent viral load should be > 1000 cp/Ml **ACTION REQUIRED:** • Inform the laboratory to proceed whether (protease and reverse transcriptase) test or integrase test
HIV VIRAL LOAD	WHOLE BLOOD	3 EDTA	4 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
HLA ANTIBODY IDENTIFICATION	SERUM	2 SST	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA B*1502 TYPING	WHOLE BLOOD	2 EDTA	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA B-27	WHOLE BLOOD	2 EDTA	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA TYPING CLASS I HIGH RESOLUTION	WHOLE BLOOD	2 EDTA	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA TYPING CLASS I LOW OR MEDIUM	WHOLE BLOOD	1 ACD / 5 EDTA	7 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
HLA TYPING CLASS I/II	WHOLE BLOOD	3 EDTA	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA TYPING CLASS I/II HIGH RESOLUTION (HSA)	WHOLE BLOOD	1 ACD / 5 EDTA	7 WORKING DAYS	-
HLA TYPING CLASS II HIGH RESOLUTION	WHOLE BLOOD	3 EDTA	7 WORKING DAYS	**BATCH RUN:** THURSDAY
HLA TYPING CLASS II LOW OR MEDIUM	WHOLE BLOOD	1 ACD / 5 EDTA	7 WORKING DAYS	-
HLA TYPING HIGH RESOLUTION (5 LOCI)	WHOLE BLOOD	2 ROYAL BLUE TUBES	25 WORKUNG DAYS	-
HLA TYPING HIGH RESOLUTION (6 LOCI)	WHOLE BLOOD	2 ROYAL BLUE TUBES	25 WORKUNG DAYS	-
HLA-TYPING (HIGH RESOLUTION) - NGS	WHOLE BLOOD	2 EDTA	10 WORKING DAYS	**BATCH RUN:** THURSDAY
HOMOCYSTEINE	SERUM	1 SST	1 WORKING DAY	-
HTLV 1 & 2 ANTIBODIES	SERUM	1 SST	3 WORKING DAYS	-
HUMAN EPIDIDYMIS PROTEIN 4 (HE 4)	SERUM	1 SST	1 WORKING DAY	-
HUNGTINGTON DISEASE (HTT)	WHOLE BLOOD	2 EDTA	14 – 21 WORKING DAYS	**DOCUMENT REQUIRED:** • Consent form
IDH1/2	FFPE TISSUE	BLOCK/SLIDE	7 WORKING DAYS	-
IEM SCREEN (INBORN ERROR OF METABOLISM)	DRIED BLOOD SPOT	FILTER PAPER	5 WORKING DAYS	-
IMMEDIATE SPIN CROSSMATCH PACKED CELL (ISXM)	PLASMA & PACKED CELL	1 EDTA	30 MINUTES	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
IMMUNOFIXATION OF PARAPROTEINS	SERUM	1 SST	10 WORKING DAYS	-
IMMUNOGLOBULIN E (IGE)	SERUM	1 SST	1 WORKING DAY	-
IMMUNOGLOBULIN IGA	SERUM	1 SST	1 WORKING DAY	-
IMMUNOGLOBULIN IGG	SERUM	1 SST	1 WORKING DAY	-
IMMUNOGLOBULIN IGG, IGM, IGA	SERUM	1 SST	1 WORKING DAY	-
IMMUNOGLOBULIN IGM	SERUM	1 SST	1 WORKING DAY	-
IMMUNOGLOBULIN SUBCLASS IGG 1-4	SERUM	1 SST	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Fasting preferred SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
IMMUNOPHENOTYPING	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory for appointment before order
INDIRECT COOMB'S TEST	PLASMA	1 EDTA	1 HOUR	-
INFLUENZA RAPID TEST (FIA)	NASAL SWAB	DRY SWAB	1 HOUR	-
INFLUENZA/RSV PCR	NASAL SWAB	DRY SWAB	3 HOURS	-
INSULIN	SERUM	1 SST	1 WORKING DAY	-
INSULIN LIKE GROWTH HORMONE (IGF-1)	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
INTRINSIC FACTOR AB	SERUM	1 SST	8 WORKING DAYS	**PATIENT REQUIREMENT:** • 8 hours-fasting is required • Patients should not receive vitamin b12 injection or radiolabelled vitamin b12 injection within the previous 2 weeks
INVITAE TEST (GENERAL)	**ACTION REQUIRED:** • Call the laboratory for more details			
IRIS LACTOSE INTOLERANCE TEST	**ACTION REQUIRED:** • Call the laboratory 3 days before procedure			
IRIS UREA BREATH TEST (UBT)	PROCEED TEST IN LAB		1 HOUR	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
IRON	SERUM	1 SST	1 HOUR	-
ISLET CELL AUTO AB	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
JAK2 EX12/ MPL EX10 MUTATION	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	60 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
JAK2 GENE	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	14 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
JAPANESE ENCEPHALITIS IGM	PLASMA / SERUM / CSF	2 EDTA / 1 SST / 1 BIJOU BOTTLE	14 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
KARYOTYPING	PLEASE CALL THE LABORATORY FOR MORE DETAILS			**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
KARYOTYPING - BONE MARROW	PLEASE CALL THE LABORATORY FOR MORE DETAILS			**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
KLEIHAUER BETKE ELUSION TEST	WHOLE BLOOD	1 EDTA (MATERNAL)	3 DAYS	-
K-TRACK	WHOLE BLOOD & FFPE TISSUE	1 STRECK TUBE & BLOCK	30 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get container
K-TRACK (BO)	WHOLE BLOOD	1 STRECK TUBE	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get container
K-TRACK (MET)	WHOLE BLOOD & FFPE TISSUE	1 STRECK TUBE & BLOCK	30 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get container
K-TRACK (n)	WHOLE BLOOD	1 STRECK TUBE	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get container
LACTIC ACID	WHOLE BLOOD	1 FLUORIDE	1 WORKING DAY	-
LAP SCORE	WHOLE BLOOD / BONE MARROW SMEAR	1 EDTA / FRESH BONE MARROW UNFIXED SMEARS	2 WORKING DAYS	-
LDH (LACTATE DEHYDOGENASE)	SERUM	1 SST	1 HOUR	-
LDH (LACTATE DEHYDOGENASE) - FLUID	FLUID	1 STERILE CONTAINER	1 HOUR	-
LEAD - BLOOD	WHOLE BLOOD	1 ROYAL BLUE	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
LEGIONELLA ANTIBODY	SERUM	1 SST	12 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
LEGIONELLA RAPID TEST	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
LEISHMANIA SEROLOGY	SERUM	1 SST	5 WORKING DAYS	-
LEPTOSPIROSIS IGM	SERUM	1 SST	1 HOUR	-
LEPTOSPIROSIS PCR	WHOLE BLOOD / EARLY MORNING FIRST VOID URINE	3 EDTA / URINE	7 WORKING DAYS	-
LEUCINE-RICH GLIOMA-INACTIVATED PROTEIN -1	SERUM	1 SST	3 WORKING DAYS	NO SINGLE TEST, UNDER ERAP3 PROFILE
LH OVULATION RAPID TEST	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
LIPASE	SERUM	1 SST	1 WORKING DAY	-
LITHIUM	SERUM	1 SST	1 WORKING DAY	-
ALLERGY COMPREHENSIVE PANEL (84 ALLERGEN)	SERUM	1 SST	2 HOURS	-
ALLERGY EURO 54 PANEL	SERUM	1 SST	3 WORKING DAYS	-
ALLERGY P412 - IgG4	SERUM	1 SST	3 WORKING DAYS	-
ALLERGY PANEL 1 (32 ALLERGENS)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ALLERGY PANEL 2 (COMMON MIX)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ALLERGY PANEL 3 (DOMESTIC)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ALLERGY PANEL 4 (COMMON FOOD)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ALLERGY PANEL 5 (HOUSE DUST MITES)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ALLERGY PANEL 6 (SEAFOOD)	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ALLERGY PANEL 7	SERUM	1 SST	1 WORKING DAY	**BATCH RUN:** MONDAY & THURSDAY
ASEAN ALLERGY PANEL (36 ALLERGENS)	SERUM	1 SST	3 WORKING DAYS	-
BKV & CMV PCR	EDTA	3 EDTA	7 WORKING DAYS	-
BLOOD CULTURE IDENTIFICATION PANEL	POSITIVE BLOOD CULTURE		1 WORKING DAY	-
BRAF	BLOCK/SLIDE	BLOCK/SLIDE	6 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
CSF FEME	CSF	1 BIJOU BOTTLE	2 HOURS	-
DIABETES AUTO-AB (ANTI GAD & 1A-2 ANTIBODY)	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
DIHYDRORHODAMINE (DHR)	WHOLE BLOOD	1 LITHIUM HEPARIN	14 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory for appointment before order
EBER (EBV-ISH)	BLOCK/SLIDE	BLOCK/SLIDE	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory for appointment before order
EGFR LUNG PANEL (EGFR, ALK, ROS1)	BLOCK/SLIDE	BLOCK/SLIDE	9 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory for appointment before order

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 3 (SERUM)	SERUM	1 SST	7 WORKING DAYS	-
ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 5 (CSF)	CSF / SERUM	1 BIJOU BOTTLE/ 1 SST	3 WORKING DAYS	-
ENUMERATION LYMPHOCYTES SUBSETS	WHOLE BLOOD	1 EDTA	2 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only **BATCH RUN:** TUESDAY & FRIDAY
EXTENDED RED CELL GENOTYPING	WHOLE BLOOD & SERUM	3 EDTA & 1 SST	22 WORKING DAYS	-
EYE VITREOUS FLUID FOR PCR (CMV, HSV, VZV)	EYE VITREOUS FLUID/ CORNEAL SRCAPPING / EYE SWAB	1 STERILE CONTAINER / 1 SWAB IN UTM	2 WORKING DAYS	-
FEACAL & STOOL CULTURE	STOOL	1 STERILE CONTAINER	3 WORKING DAYS	-
FISH (EXTERNAL)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**ACTION REQUIRED:** • Please call the laboratory to specify FISH test details
FOOD INTOLERANCE	SERUM	1 SST	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
FREE TESTOSTERONE INDEX	SERUM	1 SST	4 WORKING DAYS	-
GANGLIOSIDE AUTOIMMUNE PROFILE	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	7 WORKING DAYS	**BATCH RUN**: FRIDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
GASTROINTESTINAL PANEL	STOOL	1 STERILE STOOL CONTAINER	3 HOURS	-
H. PYLORI ANTIGEN (STOOL)	STOOL	1 STOOL CONTAINER	36 WORKING DAYS	-
H. PYLORI RT-PCR	STOOL /	1 STOOL CONTAINER	2 WORKING DAYS	-
HAEMATOLOGY SPECIAL STAIN	TREPHINE	BLOCK/SLIDE	3 WORKING DAYS	-
HER2 DDISH	BLOCK/SLIDE	BLOCK/SLIDE	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
HIGH SENSITIVITY MYASTHENIA GRAVIS SCREEN	SERUM	1 SST	20 WORKING DAYS	-
HORIZON STS 20 (LUNG) WITH PDL-1	FFPE BLOCK	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON STS 20 (BREAST)	FFPE BLOCK	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON STS 20 (COLORECTAL)	FFPE BLOCK	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON STS 20 (OVARIAN)	FFPE BLOCK	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON STS 20 (PROSTATE)	FFPE BLOCK	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON STS 179	FFPE BLOCK / 8 UNSTAINED SLIDE	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT**: • Slide should be > 50% tumor content
HORIZON STS 192 WITH PDL-1	FFPE BLOCK / 8 UNSTAINED SLIDE	BLOCK/SLIDE	12 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Slide should be > 50% tumor content

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
HORIZON ULTIMA 1000 (TISSUE BIOPSY)	FFPE TISSUE & WHOLE BLOOD	BLOCK/SLIDE & 1 SPECIAL TUBE	20 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Slide should be 20 – 30 % tumour content
HORIZON ULTIMA 1000 (LIQUID BIOPSY)	WHOLE BLOOD	1 SPECIAL TUBE	20 WORKING DAYS	-
HORIZON ULTIMA PLUS	FFPE BLOCK & WHOLE BLOOD	BLOCK/SLIDE & 2 SPECIAL TUBES & 2 EDTA	10 WORKING DAYS	**SPECIMEN REQUIREMENT:** • FFPE block should be < 6 months old
HORIZON LBX DYNAMIC TRACKER	WHOLE BLOOD	1 SPECIAL TUBE & 2 EDTA	10 WORKING DAYS	-
HPV DNA	GENITAL SWAB / ORAL SWAB	1 DRY SWAB	4 WORKING DAYS	-
ISLET CELL AUTO AB	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN**: TUESDAY& FRIDAY
KRAS	BLOCK/SLIDE	BLOCK/SLIDE	15 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
KRAS/NRAS	BLOCK/SLIDE	BLOCK/SLIDE	15 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
LEUKEMIA WORKUP	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	3 WORKING DAYS	-
LIVER SPECIFIC ANTIBODY	SERUM	1 SST	4 WORKING DAYS	**BACTH RUN:** WEDNESDAY & SATURDAY
LiverFASt	SERUM & PLASMA	1 SST & 1 CITRATE	1 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
LKM AUTO ANTIBODIES	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** WEDNESDAY
LUNG CANCER MARKER PANEL 1 (LUCM)	SERUM	1 SST	1 WORKING DAY	-
LUPUS ANTICOAGULANT INHIBITORS	PLASMA	2 SODIUM CITRATES	7 WORKING DAYS	**BATCH RUN:** WEDNESDAY
LUTEINIZING HORMONE (LH)	SERUM	1 SST	2 HOURS	-
LYME DISEASE IGM & IGG	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
LYMPHOMA WORKUP (LYMPHOPROLIFERATIVE DISORDER: CLL, NHL, HCL)	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	3 WORKING DAYS	-
MAGNESIUM	SERUM	1 SST	1 HOUR	-
MALARIA PARASITE (BFMP)	WHOLE BLOOD	1 EDTA	2 HOURS	-
MALARIA PARASITE IDENTIFICATION	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-
MALARIA PCR	WHOLE BLOOD	1 EDTA	3 WORKING DAYS	-
MALE HORMONAL STUDIES [ANDROGEN STUDIES]	SERUM	1 SST	1 WORKING DAY	-
MAPLE SYRUP URINE DISEASE (MSUD)	SERUM	1 SST	15 WORKING DAYS	-
MASSIVE TRANSFUSION PROTOCOL CYCLE 1&2 [MTP CYCLE 1&2]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
MASSIVE TRANSFUSION PROTOCOL CYCLE EXTENDED [MTP CYCLE EXTENDED]	PLASMA & PACKED CELL	UPON REQUEST	UPON REQUEST	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
MEASLES AB	SERUM / PLASMA	1 SST / EDTA	7 WORKING DAYS	-
MEASLES PCR	THROAT SWAB / NASOPHARYNGEAL SECRETION / TRACHEAL ASPIRATE / URINE	1 SWAB IN UTM / 1 STERINE CONTAINER	3 WORKING DAY	-
MEASLES PCR	THROAT SWAB/ NASOPHARYNGEAL SECRETION / TRACHEAL ASPIRATE / URINE	1 SWAB IN UTM / 1 STERILE CONTANER	14 WORKING DAYS	-
MELAS MUTATION	WHOLE BLOOD / URINE SEDIMENT / MUSCLE BIOPSY	1 EDTA / 1 STERILE URINE CONTAINER / 1 STERILE CONTAINER	66 WORKING DAYS	**ACTION REQUIRED:** • Ordering Dr to call IMR MO for order
MELIODOSIS SEROLOGY	SERUM	1 SST	7 WORKING DAYS	-
MENINGITIS ENCEPHALITIS PANEL	CSF	1 BIJOU BOTTLE	3 HOURS	-
MERCURY	WHOLE BLOOD	1 ROYAL BLUE	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
METHADONE	URINE	1 STERILE URINE CONTAINER	3 WORKING DAYS	-
METHAEMOGLOBIN	PLEASE CALL LAB			
METHAMPHETAMINES	URINE	1 STERILE URINE CONTAINER	7 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY
METHOTREXATE LEVEL	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
MICROALBUMIN CREATININE RATIO	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
MICROFILARIA AB	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY E VERY SATURDAY
MICROFILARIA MICROSCOPY	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-
MILLER DIEKER SYNDROME (MDS 11P13.3)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hour only
MITOCHONDRIAL AB	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** WEDNESDAY
MIXING STUDIES APTT	PLASMA	1 SODIUM CITRATE	1 WORKING DAY	-
MIXING STUDIES PT	PLASMA	1 SODIUM CITRATE	1 WORKING DAY	-
MONKEY POX (MPOX) PCR	VESICLE / PUS / NASAL	1 DACRON SWAB IN VTM	1 WORKING DAY	**ACTION REQUIRED:** • Call the laboratory to get container
MONOSPECIFIC COOMB'S TEST	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-
MONOSPOT TEST	SERUM	1 SST	1 HOUR	-
MRSA PCR	NASAL & ORO SWAB	MRSA SWAB	3 HOURS	-
MRSA SCREEN	NASAL / GROIN / AXILLARY	CHARCOAL SWAB	3 WORKING DAYS	-
MSI PCR	BLOCK/ SLIDE	BLOCK/SLIDE	5 WORKING DAYS	-
MTB/RIF PCR (SPUTUM AND TRACHEAL ASPIRATE)	RESPIRATORY SPECIMEN / CSF	1 STERILE CONTAINER	3 HOURS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
MULTIPLE MYELOMA WORKUP	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	3 WORKING DAYS	-
MUMPS IGG	SERUM	1 SST	3 WORKING DAYS	-
MUMPS IGM	SERUM	1 SST	3 WORKING DAYS	-
MYASTHENIA GRAVIS AUTOIMMUNE PROFILE (SMC)	SERUM	1 SST	7 WORKING DAY	**BATCH RUN:** WEDNESDAY
MYCOPHENOLIC ACID	PLASMA	1 EDTA	5 WORKING DAYS	-
MYCOPLASMA AB	SERUM	1 SST	4 HOURS	-
MYCOPLASMA IGM	SERUM	1 SST	1 HOUR	-
MYCOPLASMA PCR	NASAL ASPIRATE / NASAL SWAB / BAL / SPUTUM	1 SWAB IN VTM / 1 STERILE CONTAINER	1 WORKING DAY	-
MYELIN ASSOCIATED GLYCOPROTEIN (MAG) ANTIBODY	SERUM	1 SST	22 WORKING DAYS	-
MYELOPEROXIDASE (MPO)	SERUM	1 SST	3 WORKING DAYS	-
MYOGLOBIN	URINE	1 STERILE URINE CONTAINER	10 WORKING DAYS	-
MYOSITIS PROFILE	SERUM	1 SST	4 WORKING DAYS	**BACTH RUN:** WEDNESDAY & SATURDAY
NEUROMYELITIS OPTICA AUTOIMMUNE PROFILE	SERUM	1 SST	4 WORKING DAYS	**BACTH RUN** WEDNESDAY
NGS COMPREHENSIVE CANCER PANEL (161 GENES)	FFPE BLOCK / TISSUE	N/A	15 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
NGS COMPREHENSIVE CANCER PANEL (161 GENES) PLUS PDL1 AND MSI	FFPE BLOCK / TISSUE	N/A	15 WORKING DAYS	-
NGS EXPRESS - COLON PANEL (PLASMA)	FFPE BLOCK / TISSUE	N/A	5 WORKING DAYS	-
NGS EXPRESS - COLON PANEL (TUMOR)	FFPE BLOCK / TISSUE	N/A	5 WORKING DAYS	-
NGS EXPRESS - LUNG PANEL (PLASMA)	FFPE BLOCK / TISSUE	N/A	5 WORKING DAYS	-
NGS EXPRESS - LUNG PANEL (TUMOR)	FFPE BLOCK / TISSUE	N/A	5 WORKING DAYS	-
NGS PRECISION COLORECTAL CANCER PANEL (SMC)	FFPE BLOCK / SLIDE	N/A	7 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Slide: 15 - 20 unstained slides with ≥30% tumor content
NGS PRECISION COLORECTAL CANCER PANEL WITH MSI (SMC)	FFPE BLOCK / SLIDE	N/A	7 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Slide: 15 - 20 unstained slides with ≥30% tumor content
NGS PRECISION LUNG CANCER PANEL (SMC)	FFPE BLOCK / SLIDE	N/A	7 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Slide: 15 - 20 unstained slides with ≥30% tumor content
NICC BASIC (DNA LAB)	WHOLE BLOOD	1 STRECK TUBE	5 WORKING DAYS	-
NICC COMPREHENSIVE (DNA LAB)	WHOLE BLOOD	1 STRECK TUBE	6 WORKING DAYS	-
NIPAH VIRUS AB	SERUM / CSF	1 SST / 1 BIJOU BOTTLE	10 WORKING DAYS	-
NIPT BASIC (PANORAMA USA)	WHOLE BLOOD	1 STRECK TUBE	10 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
NIPT BASIC (STEMLIFE)	WHOLE BLOOD	1 STRECK TUBE	14 WORKING DAYS	-
NIPT COMPREHENSIVE (PANORAMA USA)	WHOLE BLOOD	1 STRECK TUBE	20 WORKING DAYS	-
NIPT COMPREHENSIVE (STEMLIFE)	WHOLE BLOOD	1 STRECK TUBE	14 WORKING DAYS	-
NIPT VISTARA (PANORAMA USA)	WHOLE BLOOD	2 STRECK TUBES	15 WORKING DAYS	**PATIENT REQUIREMENT:** • ≥ 9 weeks pregnancy
NMDAR (ANTI N METHYL D ASPARATE RECEPTOR) CSF	CSF	1 BIJOU BOTTLE	3 WORKING DAYS	-
NMDAR (ANTI N METHYL D ASPARATE RECEPTOR) SERUM	SERUM	1 SST	3 WORKING DAYS	-
NON-KETOTIC HYPERGLYCINEMIA (NKH)	PLASMA & CSF	1 LITHIUM HEPARIN & 1 BIJOU BOTTLE	15 WORKING DAYS	-
NPM1 MUTATION	BONE MARROW ASPIRATE / WHOLE BLOOD	1 EDTA	30 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
NRAS	BLOCK/SLIDE	BLOCK/SLIDE	15 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
NSE	SERUM	1 SST	1 DAY	-
NT-PRO BNP	SERUM	1 SST	1.5 HOURS	-
OLIGOCLONAL BANDS	PLASMA & CSF	1 LITHIUM HEPARIN & 1 BIJOU BOTTLE	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY THRUSDAY
ONCODECIPHER BREAST TISSUE100 NGS PANEL	FFPE BLOCK / 10 UNSTAINED SLIDES & 1 H&E SLIDE	SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ONCODECIPHER COLON TISSUE100 NGS PANEL	FFPE BLOCK / 10 UNSTAINED SLIDES & 1 H&E SLIDE	SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided
ONCODECIPHER LIQUID100 NGS PANEL	WHOLE BLOOD	2 STRECK TUBE	15 WORKING DAYS	-
ONCODECIPHER PANCREATIC TISSUE100 NGS PANEL	FFPE BLOCK / 10 UNSTAINED SLIDES & 1 H&E SLIDE	SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided
ONCODECIPHER RARE & OTHER CANCER BRAF PCR	FFPE BLOCK / 5 UNSTAINED SLIDE & 1 H&E SLIDE	SLIDE CONTAINER & 2 EDTA	10 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided
ONCODECIPHER RARE & OTHER CANCER MSI PCR	FFPE BLOCK / 5 UNSTAINED SLIDE & WHOLE BLOOD & 1 H&E SLIDE	SLIDE CONTAINER & 2 EDTA	10 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided
ONCODECIPHER TISSUE PREMIUM	FFPE BLOCK / 15 UNSTAINED SLIDES & 1 H&E SLIDE	SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided
ONCODECIPHER TISSUE100 NGS PANEL	FFPE BLOCK / 10 UNSTAINED SLIDES & 1 H&E SLIDE	SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • HPE report need to be provided

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ONCODEDUCE ABL1 KINASE DOMAIN MUTATION	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
ONCODEDUCE AML COMBO PLUS [MUTATION & FUSION] NGS PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	10 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
ONCODEDUCE AML FUSION FOCUS NGS PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	10 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
ONCODEDUCE BRAF V600E QUALITATIVE PCR PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD / *FFPE BLOCK / 10 **UNSTAINED SLIDES & 1 H&E SLIDE	2 EDTA / BLOCK CONTAINER / SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • Unstained slides & H&E slide: HPE report need to be provided
ONCODEDUCE EOSINOPHILIA NGS PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
ONCODEDUCE FLT3 [ITD-TKD] & NPM1 QUALITATIVE PCR PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	10 WORKING DAYS	-
ONCODEDUCE FUSION 87-GENE NGS PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
ONCODEDUCE MUTATION 37-GENE NGS PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD / BONE MARROW ASPIRATE SLIDE	2 EDTA / SLIDE CONTAINER	15 WORKING DAYS	-
ONCODEDUCE MYD88 L265P QUALITATIVE PCR PANEL	BONE MARROW ASPIRATE / WHOLE BLOOD / *FFPE BLOCK / 10 **UNSTAINED SLIDES & 1 H&E SLIDE	2 EDTA / BLOCK CONTAINER / SLIDE CONTAINER	15 WORKING DAYS	**DOCUMENT REQUIRED:** • Unstained slides & H&E slide: HPE report need to be provided
ONCODEDUCE PCR DUO GENES	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	-
ONCODEDUCE PCR PANEL [3 GENES - JAK2 CALR MPL]	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	-
ONCODEDUCE PCR SINGLE GENE	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	15 WORKING DAYS	-
OPIATE (MORPHINE)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
OSMOLALITY	SERUM	1 SST	1.5 HOURS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
OSMOTIC FRAGILITY	WHOLE BLOOD	STERILE GLASS WITHN 500 UNITS HEPARIN	7 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient must have no transfusion history within 3 months **ACTION REQUIRED:** • Call the laboratory before procedure to make appointment • Call the laboratory 1 working day to get container
P. CARINII STAIN	SPUTUM / BAL	1 STERILE CONTAINER	7 WORKING DAYS	-
PANEL REACTIVE ANTIBODIES	SERUM	1 SST	7 WORKING DAYS	**BATCH RUN:** THURSDAY
PANEL STI	URINE / GENITAL SWAB / LBC	1 STERILE CONTAINER / 1 SWAB IN VTM	2 WORKING DAYS	-
PANEL STI-14	URINE / GENITAL SWAB	1 STERILE CONTAINER / DRY SWAB	2 WORKING DAYS	-
PANEL ZIKA DENGUE CHIKUNGUNYA	SERUM	1 SST	3 WORKING DAYS	-
PARANEOPLASTIC ANTIGEN AUTOIMMUNE PROFILE 6	SERUM	1 SST	3 WORKING DAYS	-
PARAQUAT	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
PARATHYROID HORMONE (iPTH)	PLASMA	1 EDTA	2 HOURS	-
PARIETAL CELL ANTIBODY	SERUM	1 SST	1 WORKING DAYS	**BATCH RUN:** TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
PAROXYSMAL NOCTURNAL HEMOGLOBINURIA (PNH)	WHOLE BLOOD	2 EDTA	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory before order
PARVOVIRUS B19 IGG	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
PARVOVIRUS B19 IGM	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
PBF (PERIPHERAL BLOOD FILM)	WHOLE BLOOD	1 EDTA	3 WORKING DAYS	-
PHENCYCLIDINE	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
PHENOBARBITONE	SERUM	1 SST	1 WORKING DAY	-
PHENYLKETONURIA (PKU)	DRIED BLOOD SPOT	FILTER PAPER	5 WORKING DAYS	-
PHENYTOIN (DILANTIN)	SERUM	1 SST	1 WORKING DAY	-
PHOSPHATE INORGANIC	SERUM	1 SST	1 HOUR	-
PHOSPHOLIPID ANTIBODY	SERUM PLASMA	1 SST 3 CITRATES	7 WORKING DAYS	CARDIOLIPIN AB BATCH RUN: TUESDAY LUPUS ANTICOAGULANT BATCH RUN: THURSDAY
PIK3CA (BLOOD)	WHOLE BLOOD	1 STRECK TUBE	7 WORKING DAYS	-
PIK3CA MUTATION TEST (TISSUE)	TISSUE	FFPE / PARAFILM BLOCK	7 WORKING DAYS	-
PLACENTA GROWTH FACTOR	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
PLASMA METANEPHRINE	PLASMA	3 EDTA	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Use of an epi-pen within the 7 days prior to test may produce inaccurate results SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
PLATELET CONCENTRATE	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
PLATELET CONCENTRATE [IRRADIATED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
PLATELET CONCENTRATE [LEUCODEPLETED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
PLEURAL FLUID FEME	PLEURAL FLUID	1 STERILE CONTAINER	2 HOURS	-
PML-RARA	BONE MARROW ASPIRATE / WHOLE BLOOD	2 EDTA	21 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
PNEUMONIA PANEL	SPUTUM / BAL	1 STERILE CONTAINER	1 WORKING DAY	-
PORPHOBILINOGEN	URINE	1 STERILE URINE CONTAINER	5 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be avoided from light
POSACONAZOLE	SERUM	1 RED PLAIN TUBE	14 WORKING DAYS	**ACTION REQUIRED:** • Specimen shall be SEND TO LAB IMMEDIATELY SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
POTASSIUM	SERUM	1 SST	1 HOUR	-
PRADER WILLI/ANGELMAN SYNDROME (SNRPN 15Q11.2)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
PREALBUMIN	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
PRE-ECLAMPSIA RISK ASSESSMENT TEST (SFLT-1/PIGF RATIO)	SERUM	1 SST	1 WORKING DAY	-
PRO GRP	SERUM	1 SST	1 WORKING DAY	-
PROCALCITONIN	SERUM	1 SST	2 HOURS	-
PROGESTERONE	SERUM	1 SST	2 HOURS	-
PROLACTIN	SERUM	1 SST	2 HOURS	-
PROLACTIN DILUTION STUDY	SERUM	1 SST	2 HOURS	-
PROPOXYPHENE	URINE	1 STERILE URINE CONTAINER	5 WORKING DAYS	-
PROTEIN C	PLASMA	1 SODIUM CITRATE	5 WORKING DAYS	-
PROTEIN ELECTROPHORESIS	SERUM	1 SST	10 WOKING DAYS	-
PROTEIN S	PLASMA	1 SODIUM CITRATE	5 WORKING DAYS	-
PROTEIN TOTAL	SERUM	1 SST	1 HOUR	-
PROTEINASE 3 (PR-3)	SERUM	1 SST	3 WORKING DAYS	-
PROTHROMBIN TIME (PT) & INR	PLASMA	1 SODIUM CITRATE	1 HOUR	-
PSA (FREE & TOTAL)	SERUM	1 SST	1 WORKING DAY	-
PSA TOTAL	SERUM	1 SST	2 HOURS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
PYRUVIC ACID (E)	WHOLE BLOOD / CSF	SPECIAL TUBE / 1 BIJOU BOTTLE	5 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory 1 working day before procedure to get container
QF PCR SCREENING	• **FETUS**: 20ML AMNIOTIC FLUID / 30MG CVS / 1ML FETAL BLOOD / 30 MG POC WITHOUT FIX • **INDIVIDUAL**: 3 ML BLOOD • **NEWBORN**: 1 ML BLOOD	**FETUS**: 1 CONICAL TUBE / 1 STERILE CONTAINER / EDTA **INDIVIDUAL:** EDTA **NEWBORN:** EDTA	3 WORKING DAYS	**PATIENT REQUIREMENT:** • Gestation age (CVS): 10 - 12 weeks • Minimum gestation age (Amniotic fluid): 15 weeks **DOCUMENT REQUIRED:** • Consent form **SPECIMEN REQUIREMENT:** • Fetal Specimen: Send with 3mL maternal EDTA blood
QUANTIFERON TB	WHOLE BLOOD	SPECIAL TUBES	4 WORKING DAYS	**ACTION REQUIRED:** • Call the laboratory to get container **BATCH RUN:** MONDAY & THURSDAY
RENIN	PLASMA	2 EDTA	4 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
REPTILASE TEST	PLASMA	1 SODIUM CITRATE	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
RESPIRATORY FULL PANEL ASSAY	NASOPHARYNGEAL & OSOPHARYNGEAL SWAB	1 SWAB FOR EACH SPECIMEN SOURCE; IN VTM	3 HOURS	-
RESPIRATORY VIRUSES ANTIGEN SCREEN (RVAS)	NASOPHARYNGEAL SWAB	1 DRY SWAB	30 MINUTES	-
RETICULOCYTE COUNT	WHOLE BLOOD	1 EDTA	1 HOUR	-
RETT SYNDROME	WHOLE BLOOD	2 EDTA	15 WORKING DAYS	-
RH (D) VARIANT GENOTYPING	WHOLE BLOOD & SERUM	3 EDTA & 1 SST	22 WORKING DAYS	-
RHEUMATOID ARTHRITIS (RF)	SERUM	1 SST	1 HOUR	-
ROTAVIRUS ANTIGEN	STOOL	1 STERILE STOOL CONTAINER	1 HOUR	-
RP 16 (RESPIRATORY VIRUSES)	NASOPHARYNGEAL ASPIRATE / NASOPHARYNGEAL SWAB / SPUTUM / BAL / TRACHEAL ASPIRATE / RESPIRATORY TISSUE BIOPSY	1 STERILE CONTAINER	2 - 3 WORKING DAYS	-
RP 36 (RESPIRATORY PANEL)	THROAT SWAB / NASAL SWAB / SPUTUM / BAL / TRACHEAL ASPIRATE	1 SWAB IN UTM / 1 STERILE CONTAINER	2 - 3 WORKING DAYS	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
RPR	SERUM	1 SST	1 HOUR	-
RSV RAPID TEST	NASAL SWAB	1 DRY SWAB	1 WORKING DAY	-
RUBELLA IGG	SERUM	1 SST	2 HOURS	-
RUBELLA IGM	SERUM	1 SST	4 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
S. PNEUMONIAE RAPID TEST	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
SCC ANTIGEN	SERUM	1 SST	1 WORKING DAY	-
SECOND TRIMESTER TEST	SERUM	1 SST	3 WORKING DAYS	ONLY APPLICABLE FOR SINGLETON & TWIN PREGNANCY **PATIENT REQUIREMENT:** • Gestation age: 14W0D -19W6D • No fasting required **INFORMATION REQUIRED:** • Date of birth, ethnicity, weight, blood collection date & scan date • Smoker (yes/no) • Number of fetus (singleton or twin) • Previous pregnancy history of t13, t18 or t21) • Assisted pregnancy details, (method, egg-freezing date, donor egg birth date, • Conception date & transfer date) if any • Biparietal diameter (bpd)

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
SELENIUM	SERUM	1 ROYAL BLUE	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient should proceed test at least 96 hours after administration of gadolinium-, iodine and barium-containing contrast medicine SEND TO OVERSEAS REFERRAL LABORATORY E VERY TUESDAY
SERUM FREE LIGHT CHAIN	SERUM	1 SST	22 WORKING DAYS	CLINICAL INFORMATION MUST BE PROVIDED
SEX HORMONE BINDING GLOBULIN	SERUM	1 SST	1 WORKING DAY	-
SINGLE DONOR PLATELET	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
SINGLE DONOR PLATELET [IRRADIATED]	PLASMA & PACKED CELL	1 EDTA	UPON REQUEST	-
SIROLIMUS	WHOLE BLOOD	2 EDTA	5 WORKING DAYS	-
SMITH MAGENIS SYNDROME (SMCR 11P11.2)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
SNP MICROARRAY ANALYSIS 750K [CMA 750K]	**PRENATAL**: AMNIOTIC FLUID **POST-NATAL**: FETAL WHOLE BLOOD **PARENTAL**: WHOLE BLOOD FROM EACH PARENT	**PRENATAL**: 1 CONICAL TUBE **POST-NATAL**: 1 EDTA **PARENTAL**: 1 EDTA FROM EACH PARENT	14 WORKING DAYS	-
SNP MICROARRAY ANALYSIS HD [CMA HD]			14 WORKING DAYS	-
SODIUM	SERUM	1 SST	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
SPERM ANTIBODY	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
SPINAL MUSCULAR ATROPHY (SMN1, SMN2)	WHOLE BLOOD	2 EDTA	90 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
SPINOCEREBELLAR ATAXIA (SCA) SCREEN	WHOLE BLOOD	3 EDTA	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
SPOT-MAS 10 MULTICANCER EARLY DETECTION	WHOLE BLOOD	1 STRECK TUBE	25 WORKING DAYS	-
SPOT-MAS LUNG	WHOLE BLOOD	1 STRECK TUBE	25 WORKING DAYS	-
SPOT-MAS CRC (COLORECTAL)	WHOLE BLOOD	1 STRECK TUBE	25 WORKING DAYS	-
STONE ANALYSIS	STONE	1 STERILE CONTAINER	1 WORKING DAY	-
STRONGYLOIDIASIS IGG	SERUM	1 SST	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
SULFONYL UREA	WHOLE BLOOD	1 LITHIUM HEPARIN	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
SYNOVIAL FLUID FEME	SYNOVIAL FLUID	1 STERILE CONTAINER	2 HOURS	-
SYPHILIS	SERUM	1 SST	2 HOURS	-
TACROLIMUS	WHOLE BLOOD	1 EDTA	1 WORKING DAY	-
TB ANTIBODY	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
TB CULTURE	RESPIRATORY SPECIMEN / WHOLE BLOOD / URINE / CSF	1 STERILE CONTAINER / 1 LITHIUM HEPARIN / 1 BIJOU BOTTLE	60 WORKING DAYS	PRELIMINARY REPORT: 14 WORKING DAYS
TB CULTURE (NTM)	RESPIRATORY SPECIMEN / WHOLE BLOOD / URINE / CSF	1 STERILE CONTAINER / 1 LITHIUM HEPARIN / 1 BIJOU BOTTLE	60 WORKING DAYS	PRELIMINARY REPORT: 14 WORKING DAYS
TB CULTURE (NTM)	RESPIRATORY SPECIMEN / WHOLE BLOOD / URINE / CSF	1 STERILE CONTAINER / 1 LITHIUM HEPARIN / 1 BIJOU BOTTLE	60 WORKING DAYS	PRELIMINARY REPORT: 14 WORKING DAYS
TB PCR (MTB/NTM)	RESPIRATORY SPECIMEN / URINE / WHOLE BLOOD / CSF	1 STERILE CONTAINER / 1 LITHIUM HEPARIN / 1 BIJOU BOTTLE	7 WORKING DAY	**BATCH RUN:** TUESDAY & FRIDAY
TCRB GENE REARRANGEMENT	WHOLE BLOOD / BONE MARROW ASPIRATE	2 EDTA	30 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
TESTOSTERONE	SERUM	1 SST	2 HOURS	-
THEOPHYLLINE (AMINOPHYLLINE)	SERUM	1 SST	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
THERAPEUTIC VENESECTION	WHOLE BLOOD	PLEASE CALL THE LABORATORY TO GET REQUIRED APPARATUS	N/A	**INFORMATION REQUIRED:** • Time Start • Time End • Volume • BP • Site of needle insertion • Assisted by • Ordering Dr
THIAMINE (VITAMIN B1)	WHOLE BLOOD	1 LITHIUM HEPARIN	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Patient should fast overnight (12-14 hours) • Infants should have specimen collected just before next feeding and water can be taken as needed • For 12 hours before specimen collection, patient should not take vitamin supplements SEND TO OVERSEAS REFERRAL LABORATORY ON EVERY TUESDAY
THIOPURINE METHYLTRANSFERASE (TPMT)	WHOLE BLOOD	2 EDTA	12 WORKING DAYS	**PATIENT REQUIREMENT:** • Patients should abstain from the following drugs for at least 48 hours prior to testing: • Naproxen (Aleve), Ibuprofen (Advil, Motrin), Ketoprofen (Orudis), Furosemide (Lasix), Sulfasalazine (Azulfidine), Mesalamine (Asacol), Olsalazine (Dipentum), Mefenamic Acid (Ponstel), Trimethoprim (Proloprim), Methotrexate, Thiazide Diuretics, Benzoic Acid Inhibitors
THROMBIN TIME TEST [TT]	PLASMA	1 SODIUM CITRATE	1 WORKING DAY	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
THROMBOPHILIA SCREEN	PLASMA	3 SODIUM CITRATES	10 WORKING DAYS	RUN EVERY 2ND & 4TH THURSDAY OF THE MONTH
THYROGLOBULIN	SERUM	1 SST	1 WORKING DAY	-
THYROGLOBULIN AB	SERUM	1 SST	1 WORKING DAY	-
THYROID AUTO ANTIBODY	SERUM	1 SST	1 WORKING DAY	-
THYROID MICROSOMAL AB (ANTI-TPO)	SERUM	1 SST	1 WORKING DAY	-
TISSUE TRANSGLUTAMINASE ANTIBODY (TTG)	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
TORCH SCREEN	SERUM	1 SST	7 WORKING DAYS	-
TOTAL IRON BINDING CAPACITY (TIBC)	SERUM	1 SST	1 HOUR	-
TOTAL T4	SERUM	1 SST	1 WORKING DAY	-
TOXOCARA SEROLOGY	SERUM	1 SST	5 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
TOXOPLASMA IGG	SERUM	1 SST	1 WORKING DAY	-
TOXOPLASMA IGM	SERUM	1 SST	7 WORKING DAYS	-
TPPA (TREPONEMA PALLIDUM PA)	SERUM	1 SST	3 HOURS	-
TRANSFUSION REACTION INVESTIGATION	WHOLE BLOOD & SERUM & URINE	3 EDTA & 1 SST & 1 STERILE URINE CONTAINER	10 WORKING DAYS	**ACTION REQUIRED:** • Return all related blood component to lab
TRIGLYCERIDES	SERUM	1 SST	1 HOUR	-
TROPONIN T	WHOLE BLOOD	1 LITHIUM HEPARIN	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
TRYPTASE	SERUM	1 SST	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
TSH	SERUM	1 SST	2 HOURS	-
TSH RECEPTOR ANTIBODY	SERUM	1 SST	1 WORKING DAY	-
TYPHOID IGM/IGG	SERUM	1 SST	1 HOUR	-
TYPHUS IP	SERUM	1 SST	5 WORKING DAYS	-
UNCROSSMATCHED O POSITIVE PACKED CELL	N/A	PLEASE CALL LAB	15 MINS	-
UREA	SERUM	1 SST	1 HOUR	-
URIC ACID	SERUM	1 SST	1 HOUR	-
URINE BETA - MICROGLOBULIN	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
URINE BILIRUBIN	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE CALCIUM (RANDOM)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE CALCIUM 24 HOURS	24 HOURS URINE	24 HOURS URINE CONTAINER	1 HOUR	-
URINE CHLORIDE	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE CHROMIUM	URINE	1 STERILE URINE CONTAINER	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY
URINE COPPER	24 HOURS URINE	24 HOURS URINE CONTAINER	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
URINE COPROPORPHYRIN	URINE	1 STERILE URINE CONTAINER	15 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be avoided from light
URINE COTININE (NICOTINE METABOLITE)	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	-
URINE CREATININE (RANDOM)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE CYSTINE	URINE	1 STERILE URINE CONTAINER	14 WORKING DAYS	-
URINE ELECTROLYTES (RANDOM)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE FEME	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE FREE CORTISOL	24 HOURS URINE	24 HOURS URINE CONTAINER	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
URINE GLUCOSE (QUALITATIVE)	URINE	1 STERILE URINE CONTAINER	30 MINUTES	-
URINE KETONE	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE LEAD	24 HOURS URINE	24 HOURS URINE CONTAINER	12 WORKING DAYS	-
URINE MERCURY	URINE	1 STERILE URINE CONTAINER	10 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY MONDAY & WEDNESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
URINE METANEPHRINE	24 HOURS URINE	24 HOURS URINE CONTAINER	14 WORKING DAYS	**PATIENT REQUIREMENT:** • Tricyclic antidepressants, labetalol, and sotalol medications may elevate levels of metanephrines producing results that cannot be interpreted • If clinically feasible, it is optimal to discontinue these medications at least 1 week before collection SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
URINE MICROALBUMIN	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE ORGANIC ACID	URINE	1 STERILE URINE CONTAINER	7 WORKING DAYS	-
URINE OSMOLALITY	URINE	1 STERILE URINE CONTAINER	1.5 HOURS	-
URINE OXALATE 24 HOURS	24 HOURS URINE	24 HOURS URINE CONTAINER	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
URINE PHASE CONTRAST	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE PHOSPHATE INORGANIC	24 HOURS URINE	24 HOURS URINE CONTAINER	1 HOUR	-
URINE POTASSIUM	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE PREGNANCY TEST	URINE	1 STERILE URINE CONTAINER	30 MINUTES	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
URINE PROTEIN (QUALITATIVE)	URINE	1 STERILE URINE CONTAINER	30 MINUTES	-
URINE PROTEIN (RANDOM)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE PROTEIN / CREATININE INDEX	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE PROTEIN 24 HOURS	24 HOURS URINE	24 HOURS URINE CONTAINER	1 HOUR	-
URINE PROTEIN ELECTROPHORESIS	24 HOURS URINE	PLEASE CALL LAB	10 WORKING DAYS	-
URINE PURINE & PYRIMIDINE	URINE	1 STERILE URINE CONTAINER	14 WORKING DAYS	-
URINE RBC	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE REDUCING SUGAR (BENEDICT)	URINE	1 STERILE URINE CONTAINER	5 WORKING DAYS	-
URINE SODIUM	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
URINE SULFOCYSTEINE	URINE	1 STERILE URINE CONTAINER	18 WORKING DAYS	-
URINE SULPHITE (DIPSTICK)	URINE	1 STERILE URINE CONTAINER	1 WORKING DAY	**ACTION REQUIRED:** • Call the laboratory to make appointment before order
URINE UREA 24 HOURS	24 HOURS URINE	24 HOURS URINE CONTAINER	1 HOUR	-
URINE URIC ACID (RANDOM)	URINE	1 STERILE URINE CONTAINER	1 HOUR	-

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
URINE URIC ACID 24 HOURS	24 HOURS URINE	24 HOURS URINE CONTAINER	1 HOUR	-
URINE UROBILINOGEN	URINE	1 STERILE URINE CONTAINER	1 HOUR	-
VALPROIC ACID (EPILIM)	SERUM	1 SST	1 WORKING DAY	-
VANCOMYCIN	SERUM	1 SST	1 WORKING DAY	-
VANCOMYCIN MIC TEST (E-TEST)	MICROBIAL ISOLATE	AGAR PLATE	2 WORKING DAYS	-
VANILLYLMANDELIC ACID	24 HOURS / RANDOM URINE	24 HOURS URINE CONTAINER	5 WORKING DAYS	-
VARICELLA ZOSTER IGG	SERUM	1 SST	3 WORKING DAYS	**BATCH RUN:** TUESDAY & FRIDAY
VARICELLA ZOSTER IGM	SERUM	1 SST	3 WORKING DAYS	-
VARICELLA ZOSTER VIRUS - PCR	WHOLE BLOOD / CSF /SKIN SCRAPING / VESICLE FLUID / AMNIOTIC FLUID / EYE VITROUS FLUID/ SKIN / GENITAL LESION / VESICAL SWAB FROM ORAL	1 EDTA / 1 BIJOU BOTTLE / 1 STERILE CONTAINER / 1 SWAB	2 WORKING DAYS	-
VIABILITY (7-AAD)	WHOLE BLOOD	CRYOPRESERVED PRODUCT	3 HOURS UPON RECEIVE	**ACTION REQUIRED:** Ordering doctor must fill up test request form
VITAMIN B12	SERUM	1 SST	2 HOURS	-
VITAMIN D	SERUM	1 SST	2 HOURS	-
VITAMIN D1-25 OH HYDROXY	SERUM	1 SST	14 WORKING DAYS	SHIPMENT EVERY TUESDAY

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
VOLTAGE-GATED CALCIUM CHANNEL AB	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
VOLTAGE-GATED POTASSIUM CHANNEL AB	SERUM	1 SST	31 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY SATURDAY
VON WILLEBRANDS FACTOR (APTT, F8, vW Antigen, vW Activity)	PLASMA	2 SODIUM CITRATES	14 WORKING DAYS	-
VORICONAZOLE	SERUM	1 RED PLAIN TUBE	14 WORKING DAYS	SEND TO OVERSEAS REFERRAL LABORATORY EVERY TUESDAY
WEIL FELIX & WIDAL TEST (WWF)	SERUM	1 SST	1 HOUR	-
WEIL FELIX & WIDAL TEST (WWF)	SERUM	1 SST	2 HOURS	-
WET SMEAR FOR TRICHOMONAS	SWAB/URINE	1 CHARCOAL SWAB / STERINE URINE CONTAINER	1 HOUR	-
WHOLE EXOME SEQUENCING (WES)	• **FETUS**: 20ML AMNIOTIC FLUID / 30MG CVS / 1ML FETAL BLOOD / 30 MG POC WITHOUT FIX • **INDIVIDUAL**: 3 ML BLOOD • **NEWBORN**: 1 ML BLOOD	**FETUS**: 1 CONICAL TUBE / 1 STERILE CONTAINER / EDTA **INDIVIDUAL:** EDTA **NEWBORN:** EDTA	36 WORKING DAYS	**PATIENT REQUIREMENT:** • Gestation age (CVS): 10 - 12 weeks • Min. Gestation age (Amniotic fluid): 15 weeks **DOCUMENT REQUIRED:** • Consent form **SPECIMEN REQUIREMENT:** • Fetal Specimen: Send with 3mL maternal EDTA blood
WHOLE EXOME SEQUENCING TRIO (WES TRIO)			48 WORKING DAYS	
WHOLE GENOME SEQUENCING (WGS)			36 WORKING DAYS	
WHOLE GENOME SEQUENCING TRIO (WGS TRIO)			48 WORKING DAYS	

SINGLE TEST	SPECIMEN	CONTAINER	EXPECTED TAT	REMARKS
WILLIAM SYNDROME (Elastin 7Q11.23)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
WOLF-HIRSCHHORN SYNDROME (WHSCR 4P16.3)	WHOLE BLOOD	1 LITHIUM HEPARIN	28 WORKING DAYS	**SPECIMEN REQUIREMENT:** • Specimen shall be collected on working hours only
Y-CHROMOSOME DELETION	WHOLE BLOOD	1 EDTA	10 WORKING DAYS	**INFORMATION REQUIRED:** • Clinical indication
ZIKA VIRUS GENOME DETECTION	SERUM	1 SST	3 WORKING DAYS	-
ZINC	WHOLE BLOOD	1 ROYAL BLUE	12 WORKING DAYS	-

Remarks

- Cut-off day is 1 day before shipment and batch run
- If public holiday falls on batch run, the test will be proceeded in the subsequent working day

CYTOPATHOLOGY	SPECIMEN TYPE	SPECIMEN SPECIMEN	TURNAROUND TIME
ASCITES CYTOLOGY	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
BLADDER WASH	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
BREAST CYST FLUID - LEFT/RIGHT	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
BRONCHIAL BRUSH CYTOLOGY	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRONCHOALVEOLAR LAVAGE (BAL) CYTOLOGY	BAL	STERILE CONTAINER	3 - 5 WORKING DAYS
BRUSHING BLADDER	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRUSHING COMMON BILE DUCT	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
BRUSHING LUNG - LEFT/RIGHT	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRUSHING RENAL PELVIS - LEFT/RIGHT	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRUSHING URETER - LEFT/RIGHT	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRUSHING URETHRA	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
BRUSHING (OTHERS)	BRUSHING	STERILE CONTAINER, BRUSH	3 - 5 WORKING DAYS
CELL BLOCK	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
CSF CYTOLOGY	FLUID	BIJOU BOTTLES	3 - 5 WORKING DAYS
CYTOLOGY (OTHERS)	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
CYTOLOGY URINE	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS

CYTOPATHOLOGY	SPECIMEN TYPE	SPECIMEN SPECIMEN	TURNAROUND TIME
FINE NEEDLE ASPIRATION (FNAC) BREAST - LEFT/RIGHT	ASPIRATION FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) LIVER	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) LYMPH NODE	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) PANCREAS - BODY/HEAD/TAIL	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) SALIVARY GLAND (PAROTID) - LEFT/RIGHT	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) SALIVARY GLAND (SUBMANDIBULAR) - LEFT/RIGHT	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) SPECIMEN - OTHER	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FINE NEEDLE ASPIRATION (FNAC) THYROID - LEFT/ RIGHT	ASPIRATION FLUID	STERILE CONTAINER, SLIDES	3 - 5 WORKING DAYS
FLUIDS (OTHERS)	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
HPV DNA	PAP SMEAR / GENITAL SWAB	DRY SWAB / STERILE CONTAINER	7 - 9 WORKING DAYS
HYDROCELE FLUID	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
NIPPLE DISCHARGE - LEFT/RIGHT (FLUID)	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
OVARIAN CYST FLUID - LEFT/RIGHT (FLUID)	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
PAP SMEAR (CONVENTIONAL)	SLIDE	SLIDE	3 - 5 WORKING DAYS

CYTOPATHOLOGY	SPECIMEN TYPE	SPECIMEN SPECIMEN	TURNAROUND TIME
PAP SMEAR (LIQUID BASED CYTOLOGY)	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
PAP SMEAR (LIQUID BASED CYTOLOGY) & HPV DNA	FLUID	STERILE CONTAINER	7 - 9 WORKING DAYS
PERICARDIAL FLUID	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
PLEURAL EFFUSION - LEFT/RIGHT	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
SPUTUM CYTOLOGY	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
SYNOVIAL FLUID CYTOLOGY	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
URINE CYTOLOGY CATHETER	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
URINE CYTOLOGY CONDUIT	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS
URINE CYTOLOGY ILEAL	FLUID	STERILE CONTAINER	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
ADENOIDS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
ANTRAL BIOPSY/ POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
APPENDIX	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
ASCENDING COLON POLYP/ BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
BARTHOLIN'S CYST	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
BASAL CELL CARCINOMA (SKIN) IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
BIOPSY SPECIMEN	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
BLADDER BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
BLADDER TUMOUR	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
BONE MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
BRAIN SPECIMEN	SMALL	CONTAINER, BIOPSY	4 - 5 WORKING DAYS
BREAST - LEFT/RIGHT	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
BREAST IHC PANEL (ER, PR, HER2)	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
BREAST LUMP (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
BREAST LUMP (SMALL)	SMALL (WITHOUT SUTURE)	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
BREAST WITH HOOKWIRE	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
CAECAL POLYP/ BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
CARBUNCLE	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
CERVICAL BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
CERVICAL POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
COLON AND RECTUM RESECTION	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
COLON BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
COLON POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
COLON RESECTION	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
COMPLEX SPECIMEN-MULTIPLE	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
CONE BIOPSY	ALL SIZE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
CONE BIOPSY CERVIX	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
CONE/LLETZ/LOOP OF CERVIX IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
CORE BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
CORN	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
CYST	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
CYST WALL MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
CYST WALL SMALL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
DERMOID CYST	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
DESCENDING COLON POLYP/ BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
DOUGHNUT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
DUODENAL BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
EAR BX/LESION	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
EBER (EBV-ISH)	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
ELECTION MICROSCOPY	N/A	SPECIAL CONTAINER	30 WORKING DAYS
ECTOPIC PREGNANCY	MEDIUM	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
ENDOBRONCHIAL LUNG BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
ENDOMETRIAL CURRETTINGS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
ESOPHAGUS/GASTRECTOMY IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
EXCISED TUMOR LARGE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
EXCISED TUMOR MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
EXCISED TUMOR SMALL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
EYE LID BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
FALLOPIAN TUBES	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
FALLOPIAN TUBE, LEFT/RIGHT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
FIBROID (LARGE)	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
FIBROID (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
FIBROID (SMALL)	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
FISTULA TRACT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
FORESKIN	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
FORESKIN BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
FROZEN SECTION (PLEASE CALL LABORATORY)	FRESH SAMPLE	CONTAINER, BIOPSY	WITHIN 30 MINUTES
FUNDAL BODY BIOPSY/ POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
GALLBLADDER	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
GANGLION	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
GASTRECTOMY SPECIMEN	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
GASTRIC BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
GASTRIC POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
HAEMRRHOIDS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
HEMICOLECTOMY	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
HEMITHYROID	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
HEPATIC FLEXURE BIOPSY/POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
HER2 DDISH	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
HISTOPATHOLOGY SECOND OPINION (COMPLEX)	UPON REQUEST	BLOCK/SLIDE	6 - 8 WORKING DAYS
HISTOPATHOLOGY SECOND OPINION (INTERMEDIATE)	UPON REQUEST	BLOCK/SLIDE	3 - 5 WORKING DAYS
HISTOPATHOLOGY SECOND OPINION (SIMPLE)	UPON REQUEST	BLOCK/SLIDE	2 WORKING DAYS
HISTOPATHOLOGY SPECIAL STAIN	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
IHC Stain - Antibody Range I	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
IHC Stain - Antibody Range II	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
KI-67 (IHC)	BLOCK/SLIDE	CONTAINER, BIOPSY	4 - 5 WORKING DAYS
KIDNEY	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LARGE SURGICAL SPECIMEN	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LARYNX (LARGE)	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LARYNX (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
LESION	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
LIPOMA (LARGE)	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LIPOMA (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
LIVER BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
LIVER LARGE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LIVER MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
LUMP SMALL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
LUNG BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
LUNG IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
LUNG LOBE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
LYMPH NODE IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
LYMPH NODES (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
LYMPH NODES (SMALL)	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
MASTECTOMY SPECIMEN	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
MASTECTOMY WITH AXILLARY CLEARANCE	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
MEDIUM SIZE SPECIMEN	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
MELANOMA (SKIN) IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
MMA RADICAL SPECIMENS	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
MOLE	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
MSI (IHC)	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
MUSCLE/NERVE BIOPSY (PLEASE CALL LAB ONE WORKING DAY BEFORE)	UPON REQUEST	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
NAEVUS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
NASAL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
NEUROENDOCRINE IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
OESOPHAGUS BIOPSY/ POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
OG JUNCTION MUCOSA	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
OMENTUM	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
OTHER BIOPSY SPECIMEN	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
OVARIAN CYST (LARGE)	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
OVARIAN CYST (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
OVARIAN CYST (SMALL)	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
p63 (IHC)	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
PANCREAS	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
PARATUBAL CYST	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PAROTID GLAND	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
PD-L1 IHC (22C3 CLONE)	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
PILES	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PILONIDAL ABSCESS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PIPELLE	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PITUITARY TUMOUR	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
PLACENTA	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
PLANTAR WART	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PNS BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
POLYP TISSUE	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PRODUCT OF CONCEPTION (POC)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
PROSTATE BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PROSTATE BIOPSY, LEFT/RIGHT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PROSTATE/CORE BIOPSY IHC PANEL	BLOCK/SLIDE	BLOCK/SLIDE	4 - 5 WORKING DAYS
PROSTATIC CHIPS	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
PROXIMAL JEJUNAL MUCOSA	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
PUNCH BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
RADICAL NECK DISSECTION	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
RADICAL PROSTATECTOMY	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
RADICAL SPECIMENS WITH NODES	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
RECTAL BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
RECTAL POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
RENAL BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
RENAL BIOPSY & IMMUNOFLUORESCENCE	SMALL	CONTAINER, BIOPSY & MICHEL'S MEDIUM BOTTLE	3 - 5 WORKING DAYS
RENAL BIOPSY FOR RENAL TRANSPLANT	SMALL	BLOCK/SLIDE	3 - 5 WORKING DAYS
RECTOSIGMOID BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SCALP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SEBACEOUS CYST (MEDIUM)	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
SEBACEOUS CYST (SMALL)	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SEBORRHEIC KERATOSIS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SESSILE POLYP/ BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SHAVE SKIN BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SIGMOID POLYP/ BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
SINUS MUCOSA	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SINUS TRACT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SKIN BIOPSY MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
SKIN BIOPSY SMALL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SKIN IMMUNOFLUORESCENCE	SMALL / FRESH TISSUE	CONTAINER, BIOPSY / STERILE CONTAINER WITH SALINE	3 - 5 WORKING DAYS
SKIN TAG	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SKIN TUMOUR WITH MARGIN	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
SLIDES (H&E / UNSTAINED)	BLOCK/SLIDE	BLOCK/SLIDE	3-4 WORKING DAYS
SMALL INTESTINE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
SMALL SURGICAL SPECIMEN	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SOFT TISSUE	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SPLEEN	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
SPLENIC FLEXURE POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
STOMACH MUCOSA/ POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
SUBMANDIBULAR GLAND	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
SUBTOTAL THYROIDECTOMY	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
TAHBSO	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TAHLSO	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TAHRSO	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TEMPORAL LOBE	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
TERMINAL ILLEUM BIOPSY	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TESTICULAR SPECIMEN	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
THYROID LOBE/NODULE	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
TONGUE BX	SMALL	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TONSIL, LEFT/RIGHT	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TONSILS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TOTAL THYROIDECTOMY	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TRANSVERSE COLON POLYP	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TREPHINE PROCESSING	TREPHINE	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TUMOR LARGE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
TUMOUR MEDIUM	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
TUMOUR SMALL	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
TURBINATES	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS

HISTOPATHOLOGY	SPECIMEN SIZE	SPECIMEN CONTAINER	TURNAROUND TIME
TURP	MEDIUM	CONTAINER, BIOPSY	4 - 6 WORKING DAYS
UTERUS ALONE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
UTERUS W. APPENDAGES	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
UTERUS/TAH	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
VAS DEFERENS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
VOCAL CORD	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
WARTS	SMALL	CONTAINER, BIOPSY	3 - 5 WORKING DAYS
WHIPPLE'S	COMPLEX	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
WHOLE CONE	LARGE	CONTAINER, BIOPSY	6 - 8 WORKING DAYS
BRAF	BLOCK/SLIDE	BLOCK/SLIDE	4 - 6 WORKING DAYS
EGFR LUNG PANEL (EGFR, ALK, ROS1)	BLOCK/SLIDE	BLOCK/SLIDE	7 - 9 WORKING DAYS
KRAS	BLOCK/SLIDE	BLOCK/SLIDE	2 - 3 WEEKS
KRAS/NRAS	BLOCK/SLIDE	BLOCK/SLIDE	2 - 3 WEEKS
NRAS	BLOCK/SLIDE	BLOCK/SLIDE	2 - 3 WEEKS

APPENDIX 5

LIST OF ABBREVIATIONS

Appendix 5 - Abbreviations

ACD	:	Acid Citrate Dextrose
ADD-ON	:	Additional Order
A&E	:	Accident and Emergency
BMA	:	Bone Marrow Aspirate
BOFF	:	Business Office
CPG	:	Clinical Practice Guidelines
CSF	:	Cerebrospinal Fluid
C&S	:	Culture and Sensitivity
DNA	:	Deoxyribonucleic Acid
DOB	:	Date of Birth
EDTA	:	Ethylenediaminetetraacetic Acid
EMR	:	Electronic Medical Record
FEME	:	Full Examination of the Microscopic Examination
FNAC	:	Fine Needle Aspiration Cytology
g	:	grams
GSH	:	Group, Screen, and Hold
GXM	:	Group and Crossmatch
HCl	:	Hydrochloric Acid
HDU	:	High Dependency Unit
HIS	:	Hospital Information System
HIV	:	Human Immunodeficiency Virus
HPE	:	Histopathological Examination
IC No.	:	Identity Card Number
ICU	:	Intensive Care Unit
LIS	:	Laboratory Information System
MLS	:	Medical Laboratory Scientist
MRD	:	Medical Reports Department
MRN	:	Medical Record Number
MRSA	:	Methicillin-Resistant Staphylococcus Aureus
NICU	:	Neonatal Intensive Care Unit
NPA	:	Nasopharyngeal Aspirates
OPD	:	Outpatient Department
OT	:	Operating Theatre
PAP	:	Papanicolaou
PBF	:	Peripheral Blood Film
PCR	:	Polymerase Chain Reaction
POC	:	Product of Conception
QR	:	Quick Response
RBC	:	Red Blood Cells
RFP	:	Respiratory Full Panel
ROSE	:	Rapid On-Site Cytological Evaluation
SMCV	:	Sunway Medical Centre Velocity
SST	:	Serum Separator Tube

SRN	:	State Registered Nurse
STI	:	Sexually Transmitted Infection
TAT	:	Turnaround Time
TB	:	Tuberculosis
VTM	:	Viral Transport Medium

APPENDIX 6

DOCUMENT REVISION HISTORY

Appendix 6 – Document Revision History

Date	Version	Description of Revision
01.06.2019	Version 1, 2019	Document first initiated
06.10.2025	Version 1, 2025	Added introduction, laboratory requisitions, specimen collection and handling, specimen rejection, preparation of specimen, result reporting
05.05.2025	Version 2, 2025	2 Laboratory Requisition Amended test requisition, consent form
		3 Specimen Collection and Handling Amended Microbiology Swab and order of draw for blood specimens, blood collection procedure
		4 Specimen Acceptance and Rejection Added specimen receiving procedure, evaluate specimen acceptability, added specimen acceptance lists, specimen acceptance exceptions
		5 Specimen Preparation Added bone marrow
20.06.2025	Version 3, 2025	3 Specimen Collection and Handling Added 6 mL EDTA tube, clot activator tube, STRECK Cell Free DNA Tube, Trace Elements tube, ACD tube, PAXgene Blood ccfDNA tube, PAXgene Blood DNA tube, TEMPUS Blood RNA
		5 Specimen Preparation Added specimen collection procedure for Glucose Tolerance Test, renal biopsy & immunofluorescence, frozen section, Rapid On-Site Cytological Evaluation, electron microscopy Added procedure for release of Histopathology slides/ block to patient and request second opinion
15.10.2025	Version 4, 2025	1 Introduction Added laboratory Goals & Objectives Amended laboratory consumable requisition and collection schedule
		4 Blood Component Preparation Added types of blood components, STAT/ emergency blood component options and blood component transportation
		6 Specimen Preparation Added General guidelines for Pap Smear and HPV DNA collection, specimen collection for Conventional Pap Smear, SurePath (LBC) and HPV DNA and Rapid Molecular HPV DNA
		Appendix 3 Added test methodology
		Appendix 6

Date	Version	Description of Revision
		Added document revision history
25.02.2026	Version 1, 2026	1 Introduction Amended decentralised phlebotomy operation hours
		2 Laboratory Test Requisition Amended written request forms during code white
		3 Specimen Collection and Handling Amended packing & transportation of laboratory specimen
		6 Specimen Preparation Added blood culture collection procedure
		Appendix 1 Added specimen stability for Cytopathology and Histopathology

SUNWAY

MEDICAL CENTRE

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