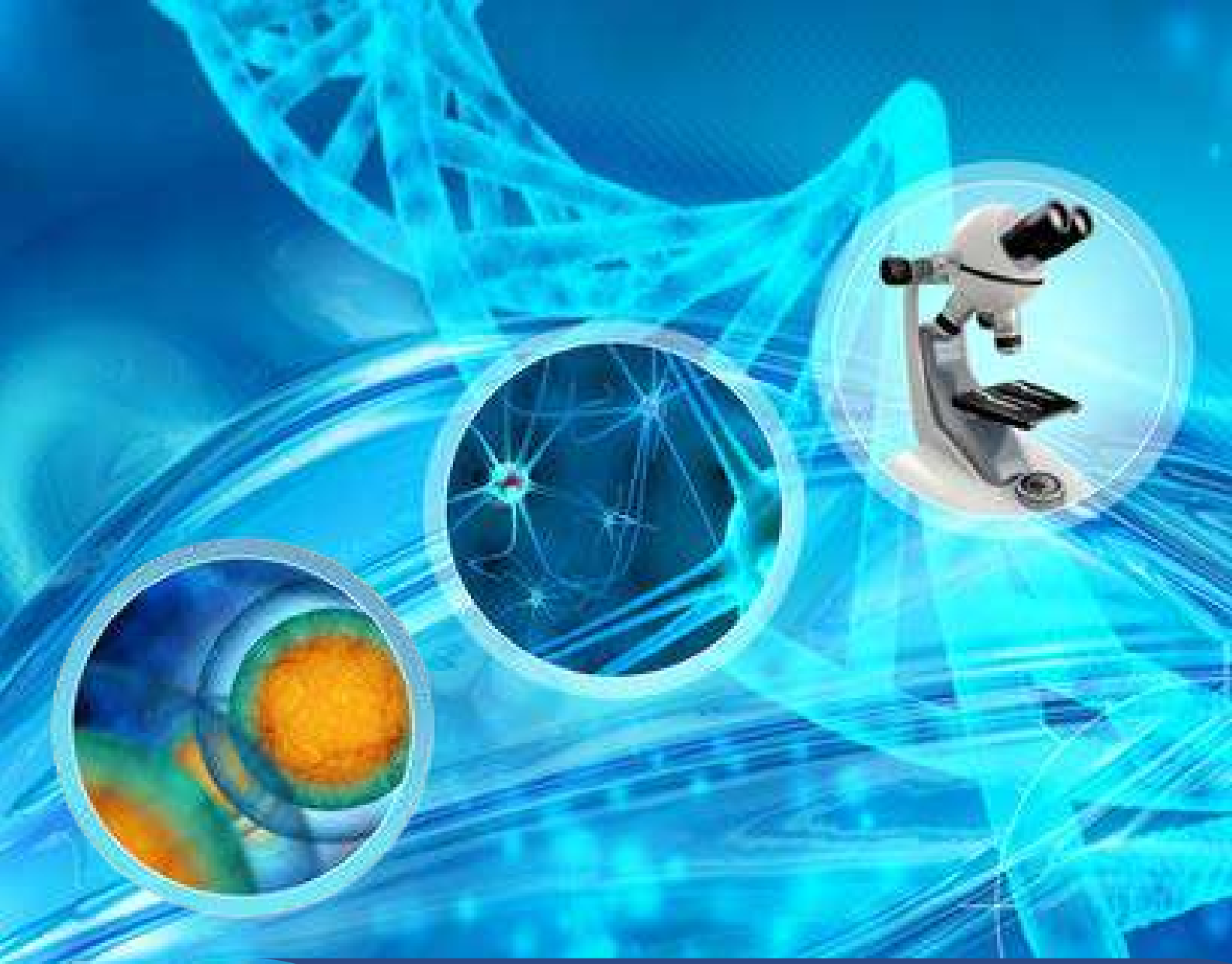

LABORATORY HANDBOOK

LABLINK

MEDICAL LABORATORY

LABORATORY HANDBOOK

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Version 9, June 2022

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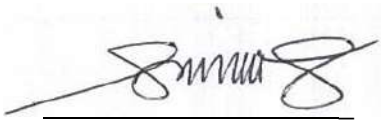

Dr. Muhammad Nazri Aziz
Person in Charge
Date: 20 June 2022

SUMMARY OF CHANGES

This version is updated to reflect changes in guidance and procedure dealing with the MS ISO 15189:2014. The changes include:

1. Updated on editorial committee and members on Laboratory Handbook.
2. Updated on Consultant Pathologist.
3. Updated on Network of Laboratories, Scope of Services & Operation Hours.
4. Updated Appendices on Molecular Diagnostic Catalogue – MDL Test Booklet (Version 8, 2022).

TABLE OF CONTENTS

Lablink Medical Laboratory

Established in 1989, Lablink (M) Sdn Medical Laboratory is the largest private hospital laboratory in Malaysia. Our mission is to be the preferred provider of laboratory service by delivering quality laboratory services to our customers. In 1991, Lablink became a subsidiary of KPJ Healthcare Berhad and started to manage all the hospital laboratories within the KPJ Group in 1999.

In 2021, Lablink entered into a strategic partnership with Pathology Asia Holdings to grow its pathology and diagnostics businesses in Malaysia. The partnership also aimed to establish Lablink as a regional pathology and diagnostic leader by exploring new growth markets in Southeast Asia.

Lablink manages KPJ's network of 27 hospital laboratories, more than 100 external non-KPJ hospitals and general practitioner clinics across Malaysia. Lablink is a reference centre for KPJ laboratories, equipped with state-of-the-art technology that meets international standards for the services offered. Most distinctively, Lablink Central is the first private laboratory in Malaysia to comply with the Bio-Safety Level 3 (BSL3) Laboratory for testing of highly infectious diseases.

Going forward, Lablink will continue to integrate all laboratories under its management. This would go a long way towards gaining greater recognition among the public, clients, and other medical laboratories.

VISION

“The preferred provider of laboratory services”

MISSION

“Deliver quality laboratory services to our customer”

CORE VALUES

Ensuring SAFETY

Delivering service with COURTESY

Performing duties with INTEGRITY

Exercising PROFESSIONALISM

Striving for CONTINUOUS IMPROVEMENT

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INTRODUCTION

Lablink Medical Laboratory is one of the Clinical Support Services in the KPJ Group of hospitals. It provides medical laboratory diagnostic and consultation services to the entire clinical services in the KPJ Group and external healthcare facilities. The diagnostic services comprised of several disciplines in medical pathology, concerned with the testing of biological samples obtained from patients.

This handbook is designed to be a comprehensive guideline on the Laboratory Services in KPJ Group of hospitals for medical practitioners and healthcare workers for the utilization of the laboratory services.

This handbook is also used for refreshing users on the proper collection, packaging and transportation of specimens for testing.

This handbook also provides special instructions about patient preparation before specimen collection, including the type or number of specimens that are needed to be sent to the laboratory.

This is to ensure meaningful, accurate and timely results are obtained after testing, which is required in the management of patients.

QUALITY POLICY

At Lablink, every one of us from both the clinical and operational division work in harmony in pursuing and meeting QUALITY STANDARDS in laboratory practice. We shall meet the needs and expectations of the medical practitioners who are our direct clients, so that they are satisfied with our service, and in so doing our service will provide maximum benefits to the patients. We take every opportunity given to us by our client doctors to make their already complex job easier, by providing accurate laboratory results and correct interpretations along with professional advice within specified “turn-around time”. We work hard towards achieving this goal and helping our doctors to keep up with the continued advances in laboratory science. In providing prompt, cordial and cost effective service, patients’ welfare is uppermost on the mind of our staff.

NETWORK OF LABORATORIES, SCOPE OF SERVICES & OPERATION HOURS

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink (Central) **Head Office** Bangunan Lablink, 14(129) Jalan Pahang Barat, Off Jalan Pahang, 53000 Kuala Lumpur. Tel: 03 4023 4588 / 03 4023 3588 Fax: 03 4023 4298	Chemical Pathology, Cytopathology (Gynaecology – Conventional Pap Smear, Liquid Based Cytology (Sure Path); Non-Gynaecology – Fine Needle Aspiration; Non-Gynaecology – Others), Haematology, Histopathology, Immunology and Serology, Microbiology, Molecular Diagnostics, Urinalysis	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Ampang Puteri Specialist Hospital** 1, Jalan Mamanda 9, Taman Dato' Ahmad Razali, 68000 Ampang. Selangor Darul Ehsan. Tel: 03 4270 7078	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Tawakkal Specialist Hospital** No 1, Jalan Pahang Barat, Off Jalan Pahang, 53000 Kuala Lumpur. Tel:: 03 4023 3599 Ext. 315, 316 Fax : 03 4026 1049	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Damansara Specialist Hospital** 119, Jalan SS 20/10, Damansara Utama, 47400 Petaling Jaya, Selangor Darul Ehsan. Tel : 03 7722 2692 Ext. 1136	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General) Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Perdana Specialist Hospital** Lot PT. 37 & PT. 600, Seksyen 14, Jalan Bayam, Kota Bharu, Kelantan Darul Naim. Tel: 09 745 8000 (General)	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology Molecular Diagnostics (Selected test only – Please refer lab)	Saturday – Wednesday 8.30 AM – 5.00 PM Thursday 8.30 AM – 12.30 PM Friday and Public Holidays Close

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink **KPJ Ipoh Specialist Hospital** 26, Jalan Raja Dihilir, 3035 Ipoh, Perak Darul Ridzuan. Tel : 05 240 8777 Fax: 05 241 6777	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology, Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 8.00 AM – 6.00 PM Saturday 8.00 AM – 2.00 PM Sunday and Public Holidays Close
Lablink **KPJ Rawang Specialist Hospital** 2156, Jalan Bandar Rawang 15, Bandar Baru Rawang, 48000 Rawang. Tel : 03 6099 8999	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Sentosa K.L Specialist Hospital** 36, Jalan Cemor, Kompleks Damai, 50400 Kuala Lumpur. Tel : 03 4043 7166 Fax: 03 4043 7761	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Kuching Specialist Hospital** Lot 1807, Block 11, Muara Tebas Land District, Jalan Stutong, 93350 Kuching, Sarawak Tel: 082 365 777 (General) Fax: 082 364 666 (General)	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology, Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Seremban Specialist Hospital** Lot 6219 & 6220, Jalan Toman 1, Kemayan Square, 70200 Seremban, Negeri Sembilan Darul Khusus Tel: 06 767 7800 (General) Fax: 06 767 0045 (General)	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General) Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 7.30 AM – 5.00 PM Saturday 7.30 AM – 1.00 PM Sunday and Public Holidays Close
Lablink **KPJ Kajang Specialist Hospital** Jalan Cheras ,43000, Kajang, Selangor Darul Ehsan. Tel: 03 8769 2999 Fax: 03 8769 2891	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink **Nilai Medical Centre** PT 13717, Jalan BBN 2/1, 71800 Nilai, Negeri Sembilan. Tel : 06 850 0999 Fax : 06 791 1023	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Pahang Specialist Hospital** Jalan Tanjung Lumpur, 26060 Kuantan, Pahang, Malaysia Tel: 09 511 2692	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology	Monday – Friday 7.00 AM – 7.00 PM Saturday 7.00 AM – 3.00 PM Sunday and Public Holidays Close
Lablink **Kluang Utama Specialist Hospital** PTD 91374, Jalan Saujana Utama, Taman Saujana, 86000 Kluang, Johor Darul Takzim. Tel: 07 771 1732	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Selangor Specialist Hospital** Lot 1, Jalan Singa 20/1, Section 20, 40300 Shah Alam, Selangor Darul Ehsan. Tel: 03 5543 1111 Fax:03 5540 3373	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Pasir Gudang Specialist Hospital** Lot PTD 204871, Jln Persiaran Dahlia 2, Taman Bukit Dahlia, 81700 Pasir Gudang, Johor Darul Takzim. Tel: 07 257 3999 Ext. 3851 / 3852	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General) Molecular Diagnostics (Selected test only – Please refer lab)	Sunday – Thursday 8.30 AM – 5.00 PM Friday 8.30 AM – 12.30 PM Saturday and Public Holidays Close
Lablink **KPJ Penang Specialist Hospital** 570 Jalan Perda Utama, Bandar Perda, 14000 Bukit Mertajam, Pulau Pinang. Tel: 04 548 6688 Fax: 04 548 6700	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General) Molecular Diagnostics (Selected test only – Please refer lab)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink **KPJ Klang Specialist Hospital** Lot PT 21154, Persiaran Rajawali, Bandar Baru Klang, 41150, Klang, Selangor. Tel: 03 3377 7888	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Sibu Specialist Medical Centre** No. 52K, Level 2, Brooke Drive, 96000 Sibu, Sarawak. Tel : 084 329 900 Fax: 084 327 700	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Sabah Specialist Hospital** Lot No. 2, Off Jalan Damai, Luyang, 88300 Kota Kinabalu, Sabah, Malaysia. Tel : 088 211 333 / 322 000 Fax: 088 272 622	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Johor Specialist Hospital** 39-B, Jalan Abdul Samad, 80100 Johor Bahru, Johor. Tel : 07 225 3077 Fax: 07 225 3035	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General), Microbiology, Molecular Diagnostics (Selected test only – Please refer lab), Blood Bank	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Puteri Specialist Hospital** 33, Jalan Tun Abdul Razak (Susur 5) 80350, Johor Bahru, johor Tel : 07 225 3222 / 226 0681 Fax: 07 223 8833 / 222 6961	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Taiping Medical Centre** 45-49, Jalan Medan Taiping 2, Medan Taiping, 34000, Taiping, Perak Darul Ridzuan Tel : 05 807 1049 / 05 807 1971 Fax: 05 806 3713 / 05 804 1049	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink **KPJ Seri Manjung Specialist Centre** Lot 14777, Jalan Lumut, 32000, Sitiawan, Perak, Malaysia. Tel : 05 691 8153	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Bandar Maharani Specialist Hospital** 73-1, Jalan stadium, Kampung Baharu, 84000 Muar, Johor Tel : 06 956 4500	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Perlis Specialist Hospital** No. 77, Jalan Dato Wan Ahmad, 01000 Kangar, Perlis. Tel : 04 970 7777	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Bandar Dato' Onn Specialist Hospital** Jalan Bukit Mutiara, Bandar Dato Onn, 81100 Johor Bahru, Johor. Tel : 07 301 1000	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **MSU Medical Centre** Jalan Boling Padang 13/64, Seksyen 13, 40100 Shah Alam, Selangor. Tel : 03 5526 2600	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.30 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Batu Pahat Specialist Hospital** No 1, Jalan Mutiara Gading 1 Taman Mutiara Gading Sri Gading, 83000 Batu Pahat, Johor. Tel : 07 459 1000	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Sunday – Thursday 8.30 AM – 5.00 PM Friday 8.30 AM – 12.30 PM Saturday and Public Holidays Close

BRANCH	SCOPE OF SERVICE AVAILABLE	OPERATION HOURS
Lablink **KPJ Miri Specialist Hospital** Lot 8836, Block 11, Kuala Baram By Pass Rd, Bandar Baru Permyjaya, 98000 Miri, Sarawak. Tel : 085 649 999	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Ambulatory Care Centre (KPJACC)** 33, 35 & 37, Jalan BK 5a/2, Bandar Kinrara, 47180 Puchong, Selangor Tel : 03-8090 7070	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close
Lablink **KPJ Damansara Specialist Hospital 2 (DSH 2)** No. 1 Jalan Bukit Lanjan 3, 60000 Kuala Lumpur. Tel : 013-335 5569	Chemical Pathology (General), Haematology (General), Immunology and Serology (General), Urinalysis (General)	Monday – Friday 8.30 AM – 5.00 PM Saturday 8.30 AM – 12.30 PM Sunday and Public Holidays Close

REFERRED TEST

1. Tests that are not provided/listed in-house will be referred out to the referral laboratory for analysis following the registered list of external laboratory service providers by the company.
2. The referral test specimen is sent out to the respectively referred lab from Monday to Saturday (Except to Government laboratories: Monday to Friday).
3. For any inquiries on our services, please refer to the table above for the contact number.

URGENT REQUEST

Request with appropriate justification will be accepted as ***"Urgent Request"***. Please contact respective laboratory telephone numbers for the arrangement.

For Lablink Central, please contact 03-4027 2852 / 03-4027 2800.

GUIDELINES OF SPECIMEN COLLECTION

INTRODUCTION

Lablink aims to deliver accurate and precise data to the medical community. However, many things to be considered in order to obtain samples with good quality. Therefore, this guideline helps practitioners to meet that requirement thus sample rejection can be minimized.

IDENTIFICATION OF TUBES

Various tubes are used in Lablink. It all depends on which test to be performed. Below are the examples of tubes coded by different colours. The coded colour on cap indicates the type of preservative contains. Each tube has their specificity thus, blood drawn into the tubes must be same as test requested (**Figure 1**).

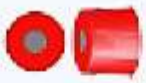
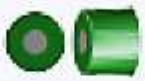
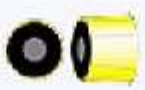
VACUETTE® tube type	Colour-coding of cap	Additive	Intended purpose
Serum		Clot Activator	Determinations in serum for clinical chemistry, microbiological serology, immunology, TDM
Serum Gel		Clot Activator and gel	Determinations in serum for clinical chemistry, microbiological serology, immunology, TDM
Serum Beads		Clot Activator and Beads	Determinations in serum for clinical chemistry, microbiological serology, immunology
Serum Crossmatch		Clot Activator	Determinations in serum for crossmatch testing
Plasma		Sodium Heparin	Determinations in heparinised plasma for clinical chemistry
Plasma		Lithium Heparin	Determinations in heparinised plasma for clinical chemistry
Plasma Gel		Lithium Heparin and gel	Determinations in heparinised plasma for clinical chemistry
EDTA		K2 EDTA K3 EDTA	Determinations in EDTA whole blood for haematology
EDTA Crossmatch		K3 EDTA	Determinations in EDTA whole blood for crossmatch testing
EDTA Gel		K2 EDTA / gel	Determinations in EDTA plasma for molecular biological identification of viruses, parasites and bacteria
Coagulation		Citrate Solution (3.2%) Citrate Solution (3.8%)	Determinations in citrated plasma for coagulation testing
CTAD		CTAD (3.2%)	Determinations in citrated plasma for coagulation testing where the artificial entry of platelet factors into the plasma is avoided
Glucose		Anticoagulant Glycolysis inhibitor	Determinations in stabilised anticoagulated whole blood or plasma for glucose and lactate testing
Trace Elements		Clot Activator Sodium Heparin	Determinations in serum / heparinised plasma for trace elements testing
Blood Grouping		ACD-A ACD-B CPDA	Determinations in ACD / CPDA whole blood for blood grouping

Figure 1: Tubes coded by different colours

HAND HYGIENE

Keeping hands clean through improved hand hygiene is one of the most important steps we can take to avoid getting sick and spreading germs to others. Many diseases and conditions are spread by not washing hands with soap and clean, running water. If clean, running water is not accessible, as is common in many parts of the world, use soap and available water. If soap and water are unavailable, use an alcohol-based hand sanitizer that contains at least 60% alcohol to clean hands. Below show the 7 steps of hand hygiene.

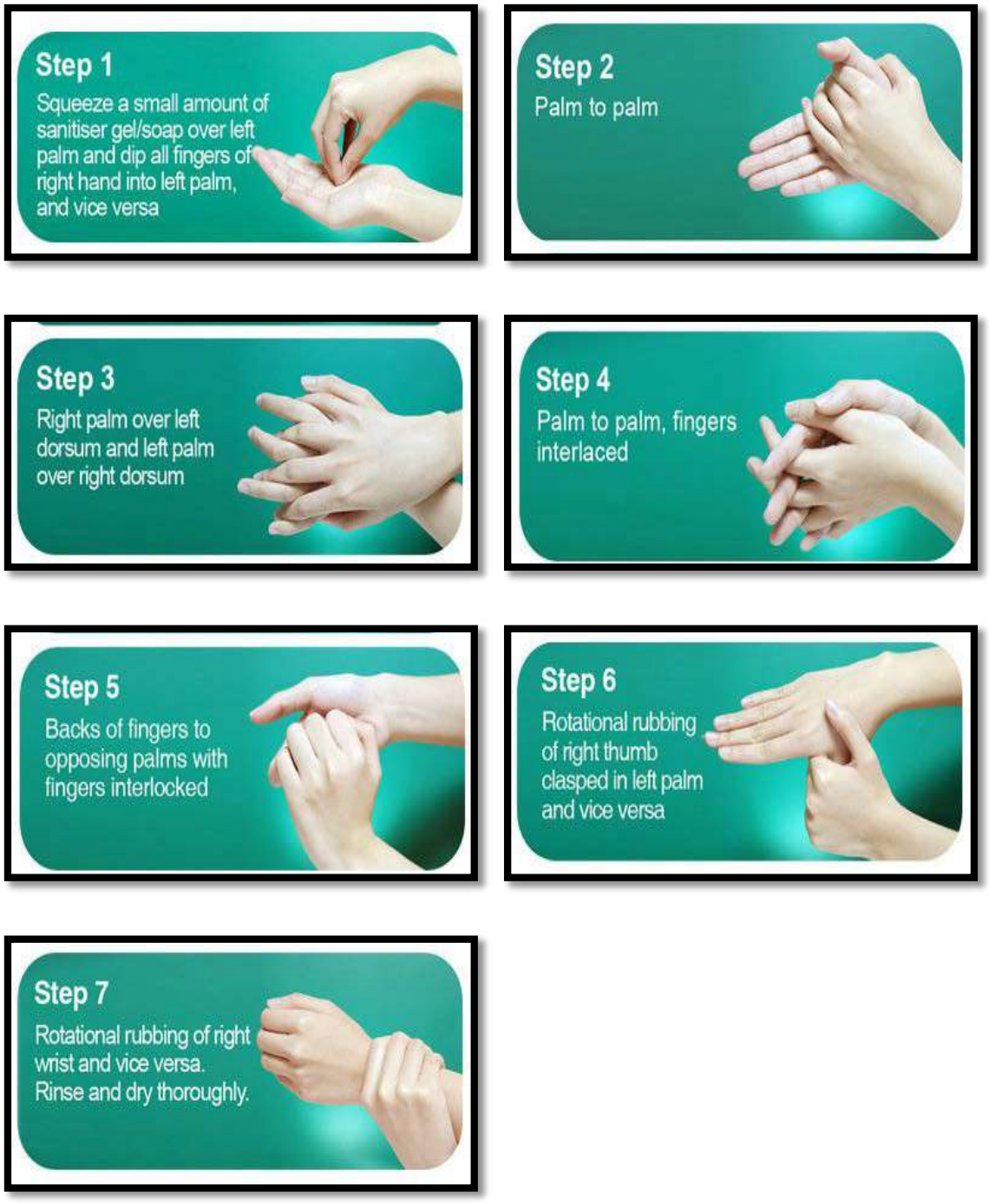
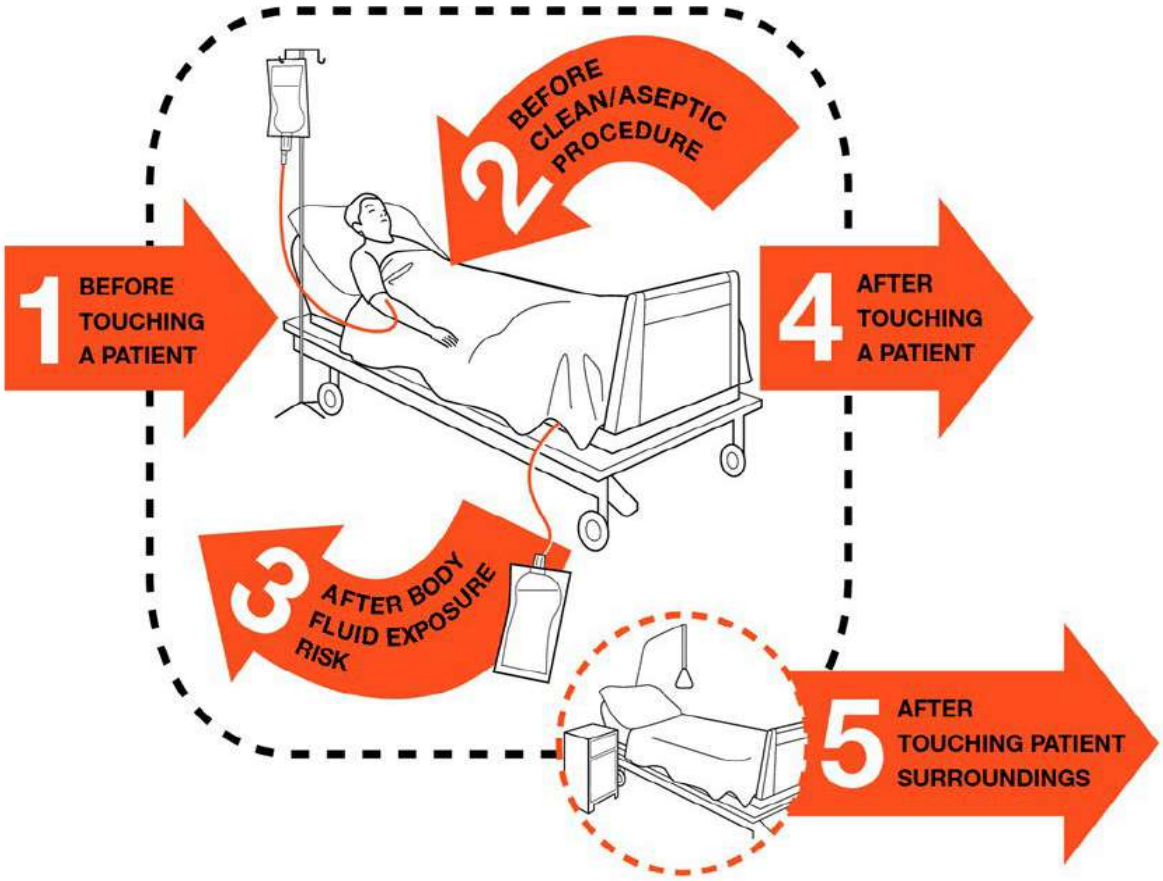


Figure 2: Seven steps of hand hygiene

5 MOMENTS FOR HAND HYGIENE

The newly developed Five Moments for Hand Hygiene has emerged from the WHO Guidelines on Hand Hygiene in Health Care (Advanced Draft) to add value to any hand hygiene improvement strategy. Quite simply, it defines the key moments for hand hygiene, overcoming misleading language and complicated descriptions. It presents a unified vision and promotes a strong sense of ownership.

Not only does the Five Moments align with the evidence base concerning the spread of Hospital Acquired Infection (HAI) but it is interwoven with the natural workflow of care and is designed to be easy to learn, logical and applicable in a wide range of settings.



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient when approaching him/her.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
4	AFTER TOUCHING A PATIENT	WHEN?	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.

Figure 3: Five moments for hand hygiene

PHLEBOTOMY PROCEDURES

DO AND DON'T DURING PHLEBOTOMY PROCEDURE

All the times, always follow the procedure in order to ensure the safety and accuracy of sample withdrawn from the patient. Below is the table show you should do and don't for phlebotomy procedure.

Do	Don't
DO carry out hand hygiene (use soap and water or alcohol rub), and wash carefully, including wrists and spaces between the fingers for at least 30 seconds	**DO NOT** forget to clean your hands
DO use one pair of non-sterile gloves per procedure or patient	**DO NOT** use the same pair of gloves for more than one patient
DO use a single-use device for blood sampling and drawing	**DO NOT** use a syringe, needle or lancet for more than one patient
DO disinfect the skin at the venepuncture site	**DO NOT** touch the puncture site after disinfecting it
DO discard the used device (a needle and syringe is a single unit) immediately into a robust sharps container	**DO NOT** leave an unprotected needle lying outside the sharps container
Where recapping of a needle is unavoidable, **DO** use the one-hand scoop technique	**DO NOT** recap a needle using both hands
DO seal the sharps container with a tamper-proof lid	**DO NOT** overfill or decant a sharps container
DO place laboratory sample tubes in a sturdy rack before injecting into the rubber stopper	**DO NOT** inject into a laboratory tube while holding it with the other hand

PHLEBOTOMY PROCEDURE IN DETAILS

1. Assemble equipment

Collect all the equipment needed for the procedure and place it within safe and easy reach on a tray or trolley, ensuring that all the items are clearly visible. The equipment required includes:

- a supply of laboratory sample tubes, which should be stored dry and upright in a rack; blood can be collected in
  - Sterile glass or plastic tubes with rubber caps
  - Vacuum-extraction blood tubes
  - Glass tubes with screw caps
- a sterile glass or bleeding pack (collapsible) if large quantities of blood are to be collected
- well-fitting, non-sterile gloves
- an assortment of blood-sampling devices
- a tourniquet
- alcohol hand rub
- 70% alcohol swabs for skin disinfection
- gauze or cotton-wool ball to be applied over puncture site
- laboratory specimen labels
- writing equipment
- laboratory forms
- leak-proof transportation bags and containers
- a puncture-resistant sharps container

Ensure that the rack containing the sample tubes is close to you, the health worker, but away from the patient, to avoid it being accidentally tipped over.

2. Identify and prepare the patient

Where the patient is adult and conscious follow the steps outlined below.

- Introduce yourself to the patient, and ask the patient to state their full name.
- Check that the laboratory form matches the patient's identity (i.e. match the patient's details with the laboratory form, to ensure accurate identification).
- Ask whether the patent has allergies, phobias or has ever fainted during previous injections or blood draws.
- If the patient is anxious or afraid, reassure the person and ask what would make them more comfortable.
- Make the patient comfortable in a supine position (if possible).
- Discuss the test to be performed obtain verbal consent. The patient has a right to refuse a test at any time before the blood sampling, so it is important to ensure that the patient has understood the procedure.

3. Select the site

General

- Extend the patient's arm and inspect the antecubital fossa or forearm.
- Locate a vein of a good size that is visible, straight and clear. The median cubital vein lies between muscles and is usually the easiest to puncture. Under the basilica vein run an artery and a nerve, so puncturing here runs the risk of damaging the nerve or artery and is usually more painful. **DO NOT** inserts the needle where veins are diverting, because this increases the chance of a haematoma.
- The vein should be visible without applying the tourniquet. Locating the vein will help in determining the correct size of needle.
- Apply the tourniquet about 4–5 finger widths above the venepuncture site and re-examine the vein.

Hospitalized patient

- In hospitalized patients, do not take blood from an existing peripheral venous access site because this may give false results. Haemolysis, contamination and presence of intravenous fluid and medication can all alter the results. Nursing staff and physicians may access central venous lines for specimens following protocols.
- However, specimens from central lines carry a risk of contamination or erroneous laboratory test results.
- It is acceptable, but not ideal, to draw blood specimens when first introducing an in-dwelling venous device, before connecting the cannula to the intravenous fluids.

4. Perform hand hygiene and put on gloves

- Perform hand hygiene
    - Wash hands with soap and water, and dry with single-use towels
    - If hands are not visibly contaminated, clean with alcohol rub – use 3 ml of alcohol rub on the palm of the hand, and rub it into fingertips, back of hands and all over the hands until dry.
- After performing hand hygiene, put on well-fitting, non-sterile gloves.

5. Disinfect the entry site

- Unless drawing blood cultures, or prepping for a blood collection, clean the site with a 70% alcohol swab for 30 seconds and allow to dry completely (30 seconds).
    - Note: alcohol is preferable to povidone iodine, because blood contaminated with povidone iodine may falsely increase levels of potassium, phosphorus or uric acid in laboratory test results.
- Apply firm but gentle pressure. Start from the centre of the venepuncture site and work downward and outwards to cover an area of 2 cm or more.
- Allow the area to dry. Failure to allow enough contact time increases the risk of contamination.
- **DO NOT** touches the cleaned site; in particular, **DO NOT** places a finger over the vein to guide the shaft of the exposed needle. It the site is touched, repeat the disinfection.

6. Take blood

Perform venepuncture as follows.

- Anchor the vein by holding the patient's arm and placing a thumb below the venepuncture site.
- Ask the patient to form a fist so the veins are more prominent.
- Enter the vein swiftly at a 30 degree angle or less, and continue to introduce the needle along the vein at the easiest angle of entry.
- Once sufficient blood has been collected, release the tourniquet before withdrawing the needle.
- Some guidelines suggest removing the tourniquet as soon as blood flow is established, and always before it has been in place for two minutes or more.
- Withdraw the needle gently and apply gentle pressure to the site with a clean gauze or dry cotton-wool ball. Ask the patient to hold the gauze or cotton wool in place, with the arm extended and raised. Ask the patient **NOT** to bend the arm, because doing so causes a haematoma.

7. Fill the laboratory sample tubes

- When obtaining multiple tubes of blood, use evacuated tubes with a needle and tube holder. This system allows the tubes to be filled directly. If this system is not available, use a syringe or winged needle set instead.
- Pierce the stopper on the tube with the needle directly above the tube using slow, steady pressure. **DO NOT** press the syringe plunger because additional pressure increases the risk of haemolysis.
- Where possible, keep the tubes in a rack and move the rack towards you. Inject downwards into the appropriate coloured stopper. **DO NOT** remove the stopper because it will release the vacuum.
- If the sample tube does not have a rubber stopper, inject extremely slowly into the tube as minimizing the pressure and velocity used to transfer the specimen reduces the risk of haemolysis. **DO NOT** recap and remove the needle.
- Before dispatch, invert the tubes containing additives for the required number of times.

8. Draw the samples in correct order as follows:

Order of use	Type of tube/usual colour	Additive	Mode of action	Uses
1	Blood culture bottle (yellow-black striped tubes)	Broth mixture	Preserves viability of microorganisms	Microbiology – aerobes, anaerobes, fungi
2	Non-additive tube	None	Centrifugation	Chemistries, immunology and serology
3	Coagulation tube (light blue top)	Sodium citrate	Forms calcium salts to remove calcium	Coagulation tests (prothrombin time), requires full draw
4	Clot activator (red top)	Clot activator	Blood clots, and the serum is separated by Centrifugation	Chemistries, immunology and serology, blood bank (cross-match)

Order of use	Type of tube/usual colour	Additive	Mode of action	Uses
5	Serum separator tube (red-grey tiger top or gold)	None	Contains a gel at the bottom to separate blood from serum on Centrifugation	Chemistries, immunology and serology
6	Sodium heparin (dark green top)	Sodium heparin or lithium heparin	Inactivates thrombin and Thromboplastin	For lithium level use sodium heparin, for ammonia level use either
7	PST (light green top)	Lithium heparin anticoagulant and a gel separator	Anticoagulants with lithium, separates plasma with PST gel at bottom of tube	Chemistries
8	EDTA (purple top)	EDTA	Forms calcium salts to remove calcium	Haematology, Blood Bank (cross-match) requires full draw
9	Blood tube (pale yellow top)	Acid-citrate-dextrose (ACD, ACDA or ACDB)	Complement inactivation	HLA tissue typing, paternity testing, DNA studies
10	Oxalate/fluoride (light grey top)	Sodium fluoride and potassium oxalate	Anti-glycolytic agent preserves glucose up to five days	Glucoses, requires full draw (may cause haemolysis if short draw)

9. Clean contaminated surfaces and complete patient procedure

- Discard the used needle and syringe or blood sampling device into a puncture-resistant sharps container.
- Check the label and forms for accuracy. The label should be clearly written with the information required by the laboratory.
- Discard used items into the appropriate category of waste. Items used for phlebotomy that would not release a drop of blood if squeezed (e.g. gloves) may be discarded in the general waste, unless local regulations state otherwise.
- Perform hand hygiene again, as described above.
- Recheck the labels on the tubes and the forms before dispatch.
- Inform the patient when the procedure is over.
- Ask the patient or donor how they are feeling. Check the insertion site to verify that it is not bleeding, then thank the patient and say something reassuring and encouraging before the person leaves.

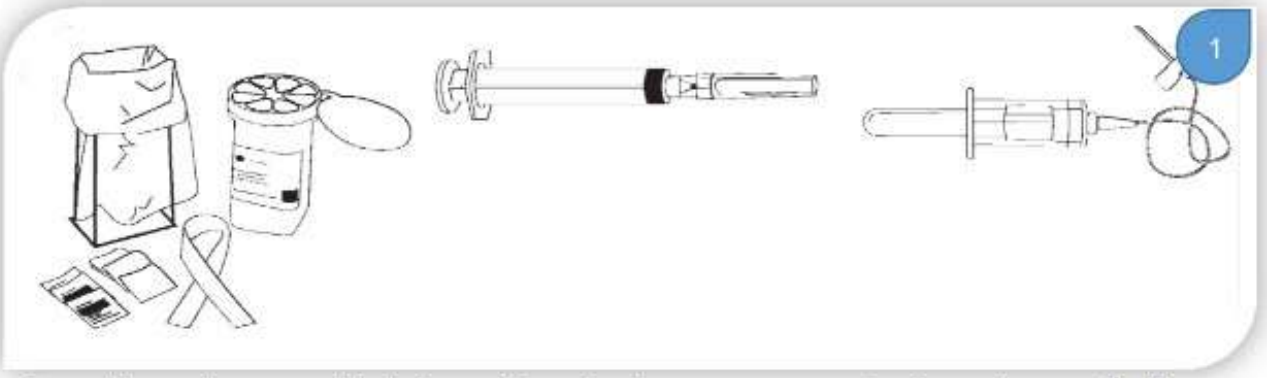
10. Prepare sample for transportation (if need)

- Pack laboratory samples safely in a plastic leak-proof bag with an outside compartment for the laboratory request form. Placing the requisition on the outside helps avoid contamination.If there are multiple tubes, place them in a rack or padded holder to avoid breakage during transportation.

11. Clean up spills of blood or body fluids

If blood spillage has occurred (e.g. because of a laboratory sample breaking in the phlebotomy area or during transportation, or excessive bleeding during the procedure), clean it up. An example of a safe procedure is given below.

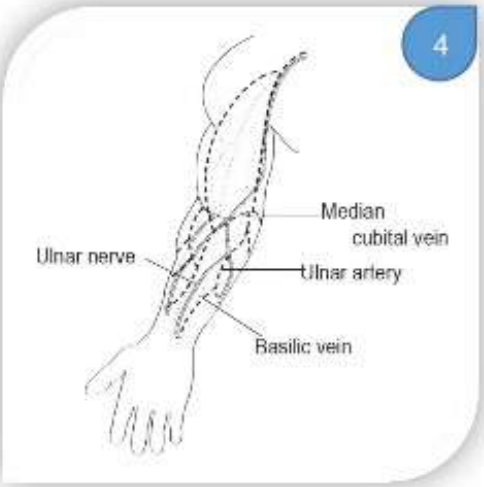
- Put on gloves and a gown or apron if contamination or bleaching of a uniform is likely in a large spill.
- Mop up liquid from large spills using paper towels, and place them into the infectious waste.
- Remove as much blood as possible with wet cloths before disinfecting.
- Assess the surface to see whether it will be damaged by a bleach and water solution.
- For cement, metal and other surfaces that can tolerate a stronger bleach solution, flood the area with an approximately 5000 parts per million (ppm) solution of sodium hypochlorite (1:10 dilution of a 5.25% chlorine bleach to water). This is the preferred concentration for large spills. Leave the area wet for 10 minutes. Use blood spillage kit.
- For surfaces that may be corroded or discoloured by a strong bleach, clean carefully to remove all visible stains. Make a weaker solution and leave it in contact for a longer period of time. For example, an approximately 525 ppm solution (1:100 dilution of 5.25% bleach) is effective.
- Prepare bleach solution fresh daily and keep it in a closed container because it degrades over time and in contact with the sun.



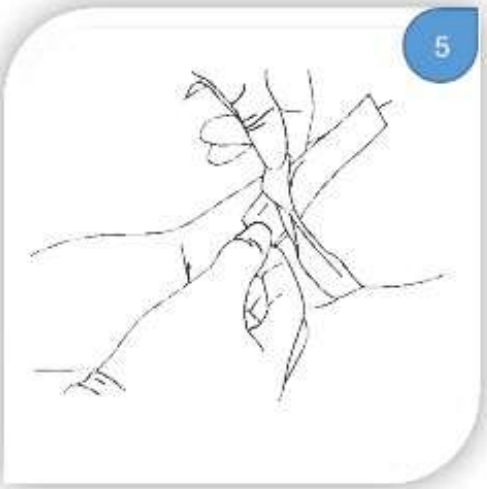
Assemble equipment and include needle and syringe or vacuum tube, depending on which is to be used.

Perform hand hygiene (if using soap and water, dry hands with single use towel).

Identify and prepare the patient.



Select the site, preferably at the antecubital area (i.e: the bend of elbow). Warming the arm with a hot pack, or hanging the hand down may make it easier to see the veins. Palpate the area to locate the anatomic landmarks. Do not touch the site once alcohol or other antiseptic has been applied.



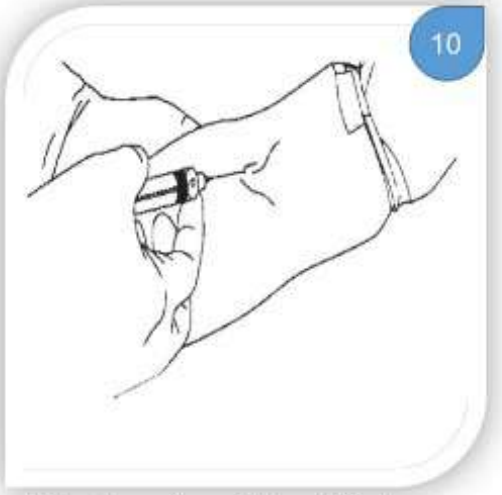
Apply a tourniquet, about 4-5 finger widths above the selected venepuncture site.

Ask the patient to form a fist so that the veins are more prominent.

Put on well-fitting, non-sterile gloves.

Disinfect site using 70 % isopropyl alcohol for 30 seconds and allow to dry completely (30 seconds).

Anchor the vein by holding the patient's arm and placing a thumb below the venepuncture site.



Enter the vein swiftly at 30 degree angle.

Once sufficient blood has been collected, release the tourniquet before withdrawing the needle.

Withdraw the needle gently and then give patient a clean gauze or dry cotton –wool ball to apply to the site with gentle pressure.

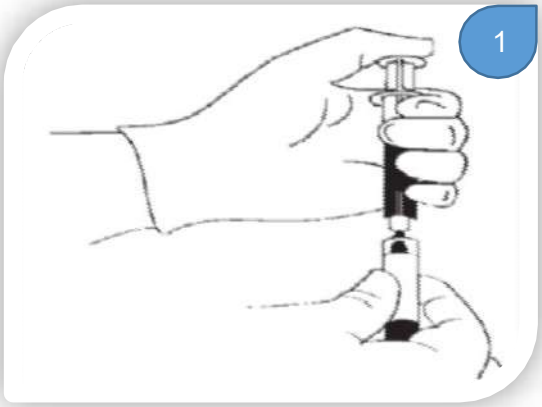
Discard the used needle and syringe or blood-sampling device into a puncture resistance container

Check the label and forms for accuracy.

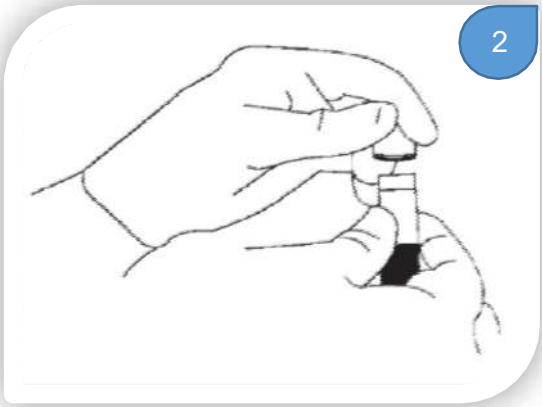
Discard sharp and broken glass into the sharps container. Place items that can drip blood or body fluids into the infectious waste.

Remove gloves and place them in the general waste. Perform hand hygiene. If using soap and water, dry hands with single use towels.

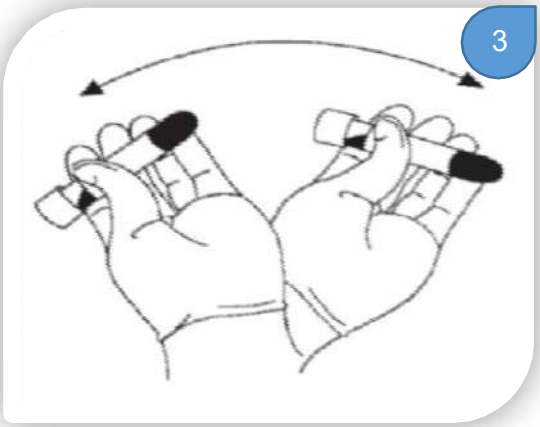
FILLING TUBES



If the tubes does not have rubber stopper, press the plunger in slowly to reduce haemolysis (this is safer than removing the needle).



Place stopper in the tube.



Following laboratory instructions, invert the sample gently to mix the blood with the additives. Invert 8 to 10 times.

PHLEBOTOMY FOR NEONATES AND PAEDIATRICS

Choice of procedure and site

The choice of site and procedure (venous site, finger-prick or heel-prick – also referred to as "capillary sampling" or "skin puncture") will depend on the volume of blood needed for the procedure and the type of laboratory test to be done. Venepuncture is the method of choice for blood sampling in term neonates. However, it requires an experienced and trained phlebotomist. If a trained phlebotomist is not available, the physician may need to draw the specimen. The blood from a capillary specimen is similar to an arterial specimen in oxygen content, and is suitable for only a limited number of tests because of its higher likelihood of contamination with skin flora and smaller total volume.

Preparation

Ask whether the parent would like to help by holding the child. If the parent wishes to help, provide full instructions on how and where to hold the child. If the parent prefers not to help, ask for assistance from another phlebotomist.
Immobilize the child as described below.

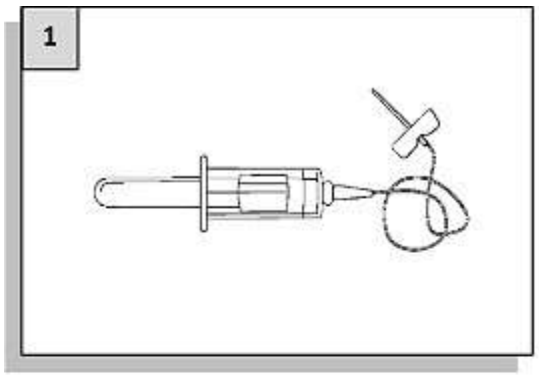
- Designate one phlebotomist as the technician, and another phlebotomist or a parent to immobilize the child.
- Ask the two adults to stand on opposite sides of an examination table.
- Ask the immobilizer to:
    - Stretch an arm across the table and place the child on its back, with its head on top of the outstretched arm.
    - Pull the child close, as if the person were cradling the child.
    - Grasp the child's elbow in the outstretched hand.
    - Use their other arm to reach across the child and grasp its wrist in a palm-up position (reaching across the child anchors the child's shoulder, and thus prevents twisting or rocking movements; also, a firm grasp on the wrist effectively provides the phlebotomist with a "tourniquet").

- If necessary, take the following steps to improve the ease of venepuncture.
    - Ask the parent to rhythmically tighten and release the child's wrist, to ensure that there is an adequate flow of blood.
    - Keep the child warm, which may increase the rate of blood flow by as much as sevenfold, by removing as few of the child's clothes as possible and, in the case of an infant, by:
        - Swaddling in a blanket.
        - Having the parent or caregiver hold the infant, leaving only the extremity of the site of venepuncture exposed.
        - Warm the area of puncture with warm cloths to help dilate the blood vessels.
        - Use a trans-illuminator or pocket pen light to display the dorsal hand veins and the veins of the antecubital fossa.

Drawing Blood

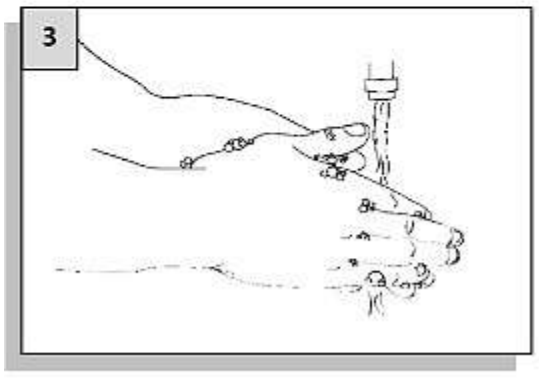
- Follow the procedures given in Phlebotomy for Adult for:
    - Hand hygiene
    - Advance preparation
    - Patient identification and positioning
    - Skin antisepsis (but **DO NOT** use chlorhexidine on children under 2 months of age).
- Once the infant or child is immobilized, puncture the skin 3–5 mm distal to (i.e. away from) the vein this allows good access without pushing the vein away.
- If the needle enters alongside the vein rather than into it, withdraw the needle slightly without removing it completely, and angle it into the vessel.
- Draw blood slowly and steadily.

Procedure

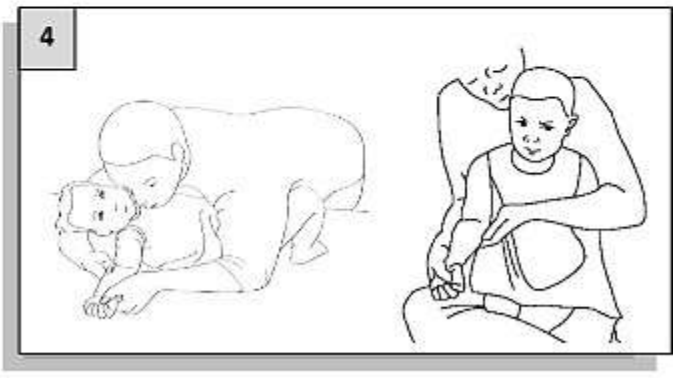


Use a winged steel needle, usually 23 or 25 gauge, with an extension tube (butterfly). Keep the tube and needle separate until the needle is in the vein.

Collect supplies and equipment.



Perform hand hygiene (if using soap and water, dry hands with single-used towels).



Immobilize the baby or child.

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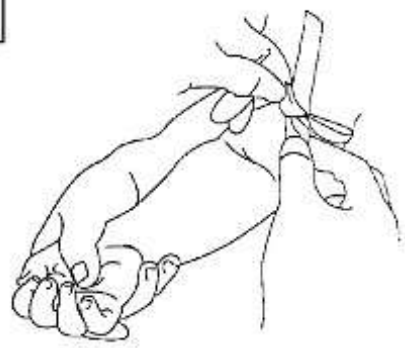

Put the tourniquet on the patient about two fingers widths above the venepuncture site.

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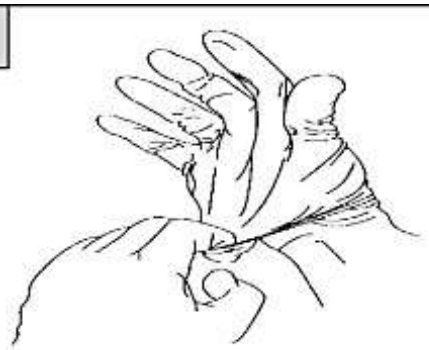

Put on well fitting, non-sterile gloves

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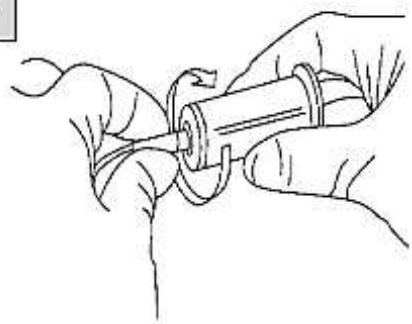
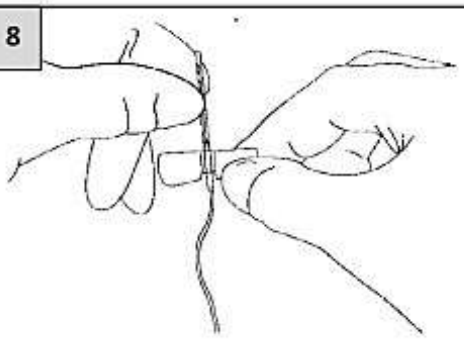


Attach the end of the winged infusion set to the end of the vacuum tube and insert the collection tube into the holder until the tube reaches the needle.

8



Remove the plastic sleeve from the end of the butterfly.

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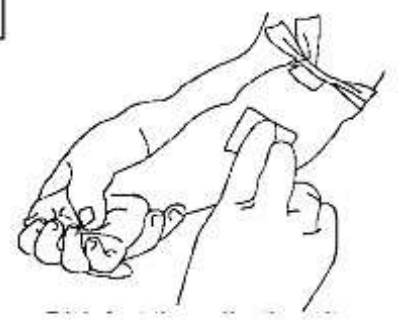
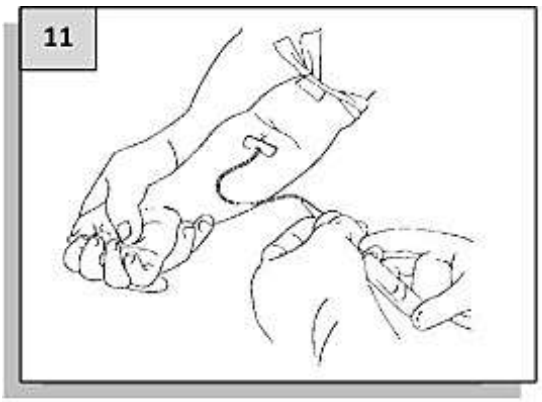


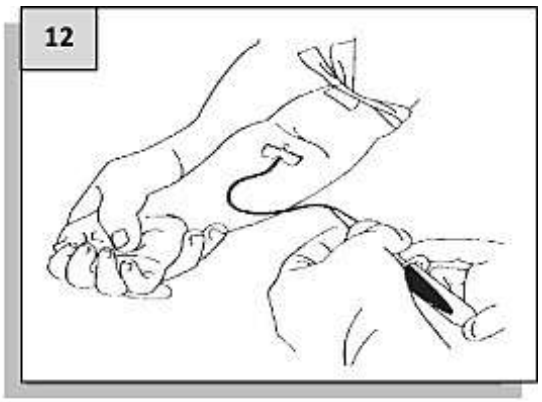
Disinfect the collection site and allow to dry.

10

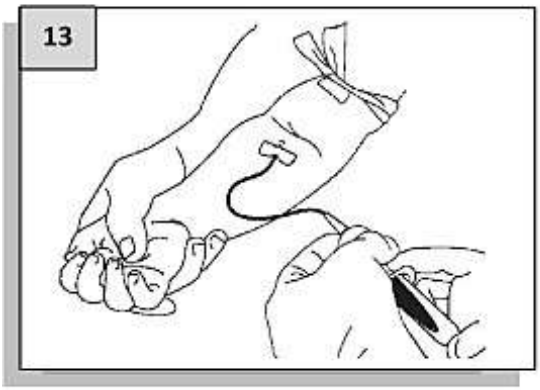
Use a thumb to draw the skin tight.



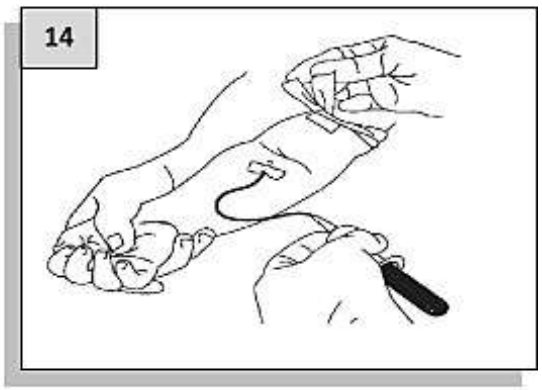
Push the vacuum tube completely onto the needle.



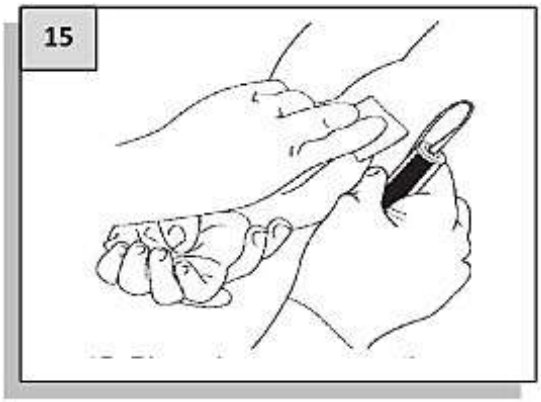
Blood should begin to flow into the tube.



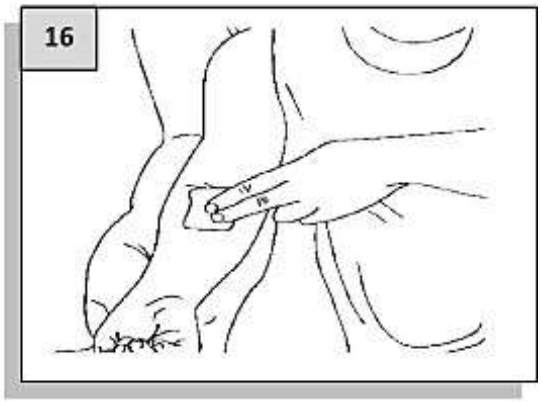
Fill the tube until it is full or until the vacuum is exhausted. If filling multiple tubes, carefully remove the full tube and replace with another tube, taking care not to move the needle in the vein.



After the required amount has been collected, release the tourniquet.



Place dry gauze over the venepuncture site and slowly withdraw the needle.



Ask the parent to continue applying mild pressure.

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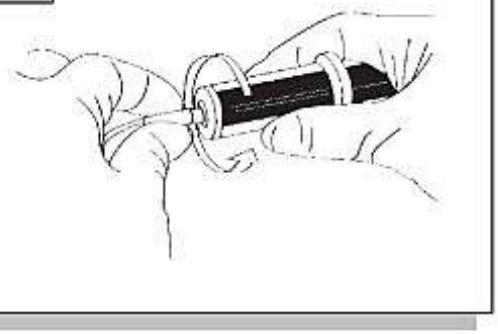
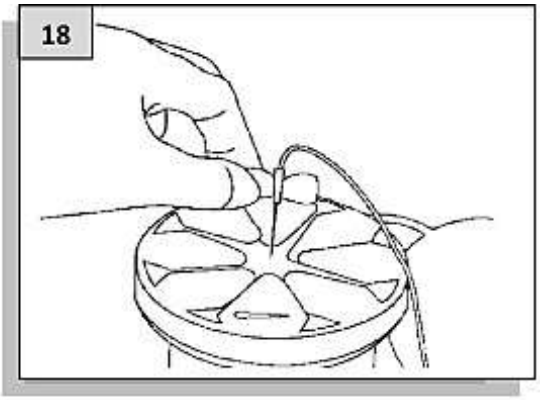


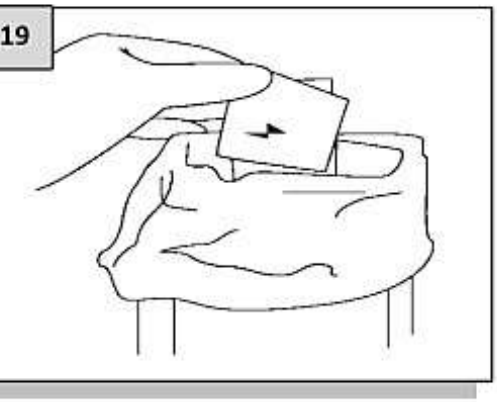
Remove the butterfly from the vacuum tube holder.

18



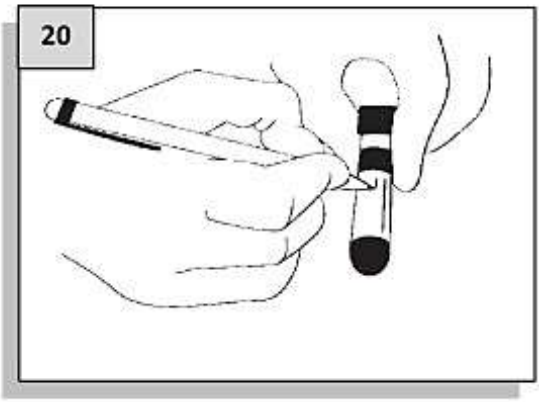
Dispose the butterfly in a sharp container.

19



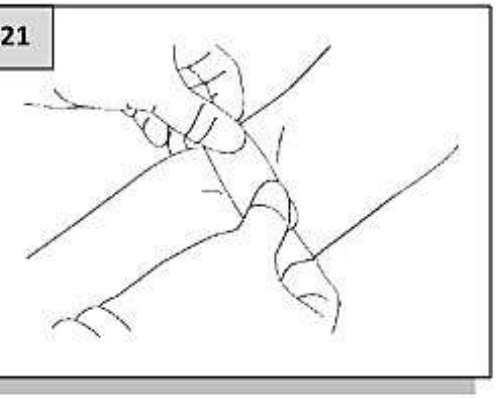
Properly dispose of all contaminated supplies.

20



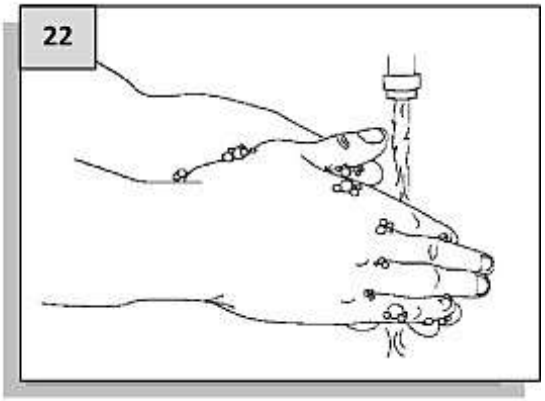
Label the tube with patient's name and MRN/ DOB/ IC.

21



Put and adhesive bandage on the patient if necessary.

22



Remove gloves, dispose them appropriately and perform hand hygiene (if use soap and water, dry hands with single-used towel).

CAPILLARY SAMPLING

Choice of site

Adult patients

The finger is usually the preferred site for capillary testing in an adult patient. The sides of the heel are only used in paediatric and neonatal patients. Ear lobes are sometimes used in mass screening or research studies.

Paediatric and neonatal patients

Selection of a site for capillary sampling in a paediatric patient is usually based on the age and weight of the patient. If the child is walking, the child's feet may have calluses that hinder adequate blood flow. Below show the conditions influencing the choice of heel or finger-prick.

Condition	Heel-prick	Finger-prick
Age	Birth to about 6 months	Over 6 months
Weight	From 3 – 10 kg, approximately	Greater than 10 kg
Placement of lancet	On the medial or lateral plantar surface	On the side of the ball of the finger perpendicular to the lines of finger prints
Recommended finger	Not applicable	Second and third finger (i.e. middle and ring finger); avoid the thumb and index finger because of calluses, and avoid the little finger because the tissue is thin

Order of draw

With skin punctures, the haematology specimen is collected first, followed by the chemistry and blood bank specimens. This order of drawing is essential to minimize the effects of platelet clumping. The order used for skin punctures is the reverse of that used for venepuncture collection. If more than two specimens are needed, venepuncture may provide more accurate laboratory results.

Procedure

Adult patient

- Prepare the skin
    - Apply alcohol to the entry site and allow to air dry.
    - Puncture the skin with one quick, continuous and deliberate stroke, to achieve a good flow of blood and to prevent the need to repeat the puncture.
    - Wipe away the first drop of blood because it may be contaminated with tissue fluid or debris (sloughing skin).
    - Avoid squeezing the finger or heel too tightly because this dilutes the specimen with tissue fluid (plasma) and increases the probability of haemolysis.

- When the blood collection procedure is complete, apply firm pressure to the site to stop the bleeding.

- Take laboratory samples in the correct order to minimize erroneous test results
  - With skin punctures, collect the specimens in the order below, starting with haematology specimens:
    - Haematology specimens
    - Chemistry specimens
    - Blood bank specimens

<u>Paedratic and neonatal patient</u>

- Immobilize the child
  - First immobilize the child by asking the parent to:
    - Sit on the phlebotomy chair with the child on the parent's lap
    - immobilize the child's lower extremities by positioning their legs around the child's in a cross-leg pattern
    - Extend an arm across the child's chest, and secure the child's free arm by firmly tucking it under their own
    - Grasp the child's elbow (i.e. the skin puncture arm), and hold it securely;
    - Use his or her other arm to firmly grasp the child's wrist, holding it palm down

- Prepare the skin
  - Prepare the skin as described above for adult patients.
  - **DO NOT** use povidone iodine for a capillary skin puncture in paediatric and neonatal patients; instead, use alcohol, as stated in the instructions for adults.

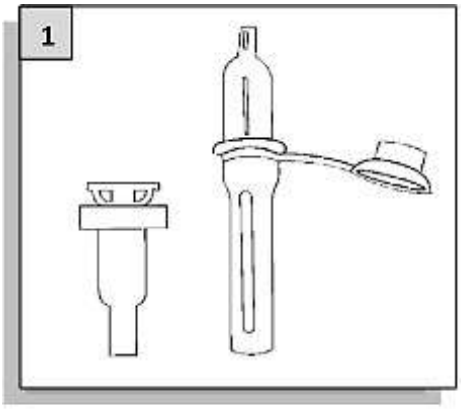
- Puncture the skin
  - Puncture the skin as described above for adult patients.
  - If necessary, take the following steps to improve the ease of obtaining blood by finger-prick in paediatric and neonatal patients:
    - Ask the parent to rhythmically tighten and release the child's wrist, to ensure that there is sufficient flow of blood
    - Keep the child warm by removing as few clothes as possible, swaddling an infant in a blanket, and having a mother or caregiver hold an infant, leaving only the extremity of the site of capillary sampling exposed.
  - Avoid excessive massaging or squeezing of fingers because this will cause haemolysis and impede blood flow.

- Take laboratory samples in the order that prevent cross-contamination of sample tube additives
  - As described above for adult patients, collect the capillary haematology specimen first, followed by the chemistry and blood bank specimens.
  - Clean up blood spills.
  - Collect all equipment used in the procedure, being careful to remove all items from the patient's bed or cot; to avoid accidents, do not leave anything behind.

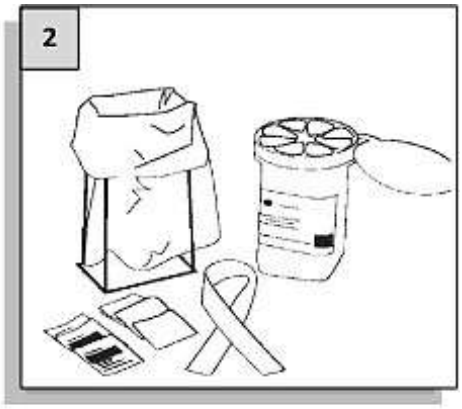
- Give follow up care
  - There are two separate steps to patient follow-up care – data entry (i.e. completion of

requisitions), and provision of comfort and reassurance.

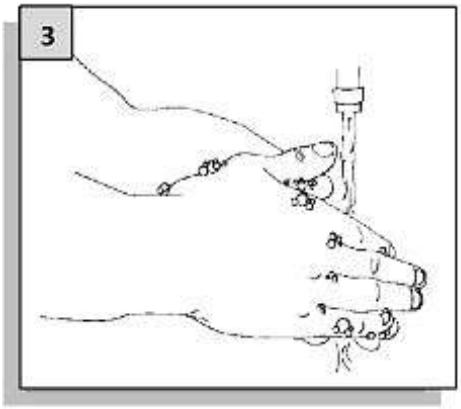
- Unsuccessful attempts in paediatric patients
    - Adhere strictly to a limit on the number of times a paediatric patient may be stuck. If no satisfactory sample has been collected after two attempts, seek a second opinion to decide whether to make a further attempt, or cancel the tests.



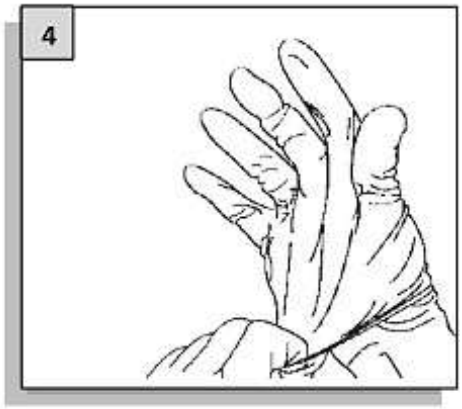
Lancet and collection tube



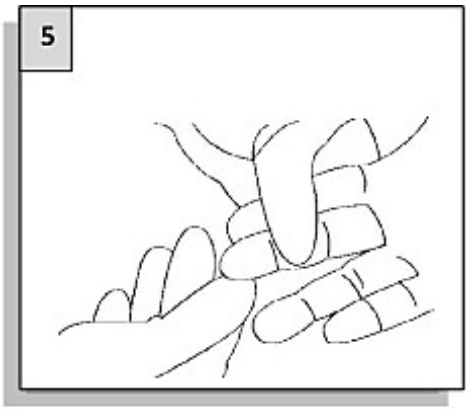
Assemble equipment and supplies.



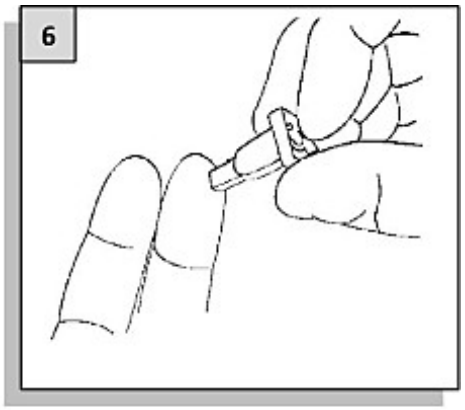
Perform hand hygiene (if using soap and water, dry hands with single-use towel)



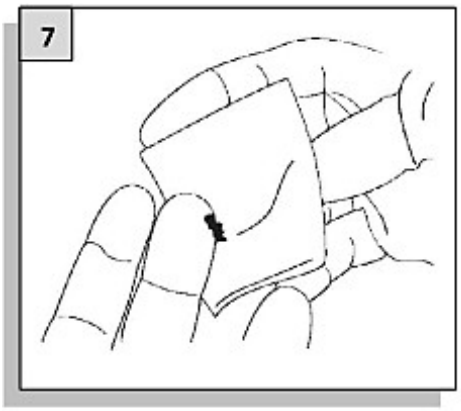
Put on well fitting, non-sterile gloves.



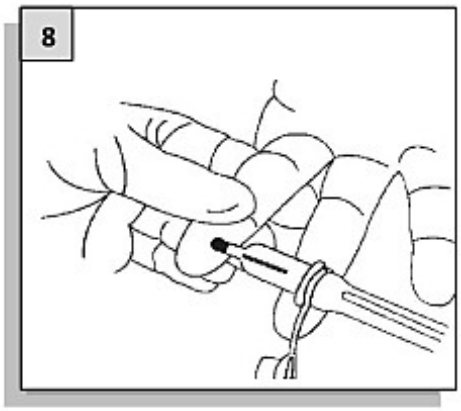
Select the site. Apply 70% isopropyl alcohol and allow to air dry.



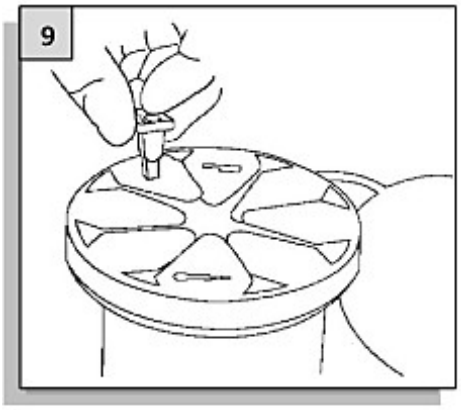
Puncture the skin.



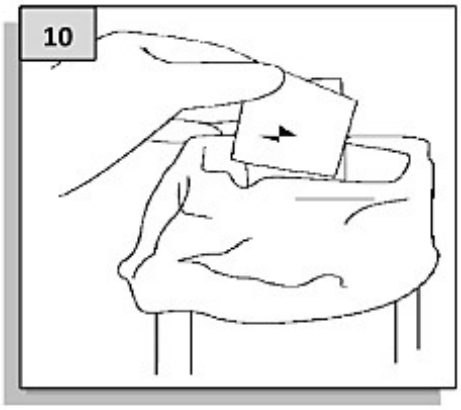
Wipe away the first drop of blood.



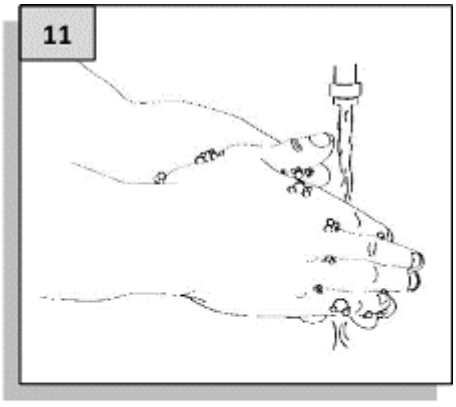
Avoid squeezing the finger too tightly



Dispose all sharps appropriately.



Dispose of waste materials appropriately.



Remove gloves and place in general waste. Perform hand hygiene (if using soap and water, dry hands with single use towels)

SPECIMEN REJECTION / ACCEPTANCE CRITERIA

1. INTRODUCTION

The following is a general listing of common situations in which a specimen may be rejected for processing. Each functional laboratory area has an additional listing of rejection protocol depending on the specific testing criteria. Specific transportation requirements need to be observed every time to ensure the sample's integrity. For each general category, a few examples are listed.

2. GENERAL

List of Specimen Rejection Criteria:

a. Incorrect specimen
b. Insufficient volume for test
c. Spoilt specimen
d. Improper labeling od specimen
e. Improper transportation of specimen
f. Delay in dispatch of specimen
g. Incomplete information in request form
h. Incorrect collection procedure
i. Specimen sent without request form
j. Specimen sent without worklist
k. Form received without specimen
l. Test not done/available/test for external laboratories
m. Duplicate request
n. Wrong request form
o. Wrong laboratory
p. Discrepancy of specimen against checklist/form
q. Wrong full blood count results sent with PBF slides/request
r. Incomplete full blood count results sent with peripheral blood film slides/request
s. Wrong test code
t. Test order not sent in system
u. Cancel test
v. Incomplete information on specimen container
w. Specimen sent without checklist
x. Wrong registration of patient information

3. CHEMICAL PATHOLOGY, SEROLOGY AND IMMUNOLOGY

Request which do not fulfill the laboratory requirements will be rejected. Below are among the common primary rejection criteria by Chemical Pathology, Serology and Immunology Services:

3.1 Spoilt specimen

a. Blood haemolysed.
b. Lipaemic sample.
c. Icteric sample.
d. Sample out of stability.
e. Sample under incubation / over incubation.
f. Sample overfilled / under filled.
g. Sample collected using unsuitable or inappropriate blood collection tube or container.

3.2 Wrong registration of patient information

a. Wrong patient identification inclusive of name, age, birth date, and gender.
b. Incomplete patient's particulars such as:
    i. Identification Card (IC) number.
    ii. Name of the patients.
    iii. Sender information.

3.3 Test not send order in system

a. Specimen received without order request in system (LIS).
b. No test request stated.

3.4 Wrong Test Code

a. Test ordered in LIS is not tally with patient request form.
b. Test ordered is not tally between manual work list and ordering system (LIS).

3.5 Improper labeling of specimen

a. No barcode sticker.
b. Unreadable patient information on printed bar code.

4. URINALYSIS

Request which do not fulfill the laboratory requirements will be rejected. Below are among the common primary rejection criteria by Urinalysis section:

4.1 Spoilt specimen

a. Sample out of stability:
    i. Urine sample (for urinalysis) which has been left at room temperature (20 - 25^{o}C) for more than 2 hours and also urine which has been kept in temperature ranged of 2 - 8 ^{o}C for more than 24 hours.
    ii. The laboratory requisition must indicate the time of collection.
b. Sample received other than in prescribed container.
c. Contaminated specimen.
d. Leaking specimen.
e. Broken container.
f. Non urine sample.

4.2 Insufficient volume for testing

- Specimen received less than 10ml.

4.3 Incorrect timing of collection for specimens submitted for antibiotic levels.

5. HAEMATOLOGY

Request which do not fulfill the laboratory requirements will be rejected. Below are among the common primary rejection criteria by Haematology Services:

5.1 Wrong FBC results sent with PBF slides/request

5.2 Incomplete FBC results sent with PBF slides/request

a. No Full Blood Count (FBC) result attached.
b. No clinical history provided.
c. No quality control slide and complete form attached.
d. No slide smear provided.

5.3 Spoilt specimen

a. Blood smear such as blood smear is too narrow, made on greasy slide, too thick, long, wide and uneven thickness.
b. Lipaemic sample – Grossly lipaemic sample giving inaccurate result even after plasma replacement should be recollected.
c. Haemolysed sample – Grossly haemolysed sample giving inaccurate result or unreadable blood films should be rejected and a recollection performed.
d. Aged Specimens – General acceptability of EDTA sample is max 24 hours. Upon old samples received, shall there be significant morphological changes in the white cells and red cells, specimen will be rejected and recollected.
e. Presence of clots in the vacutainers upon visual inspection.
f. Flow Cytometry – Sample refrigerated or exposed to cold temperature or exceeding 48 hours after collection.
g. Blood Group – Specimen **must** be whole blood EDTA / Plain.
h. Sample leaking.

5.4 Insufficient volume for test

a. Lavender vacutainers for Hematology analysis with less than 1cc. in an EDTA tube.
b. Blue vacutainers for Coagulation studies which are less than 2 cc.
c. Pediatric sample collected using Microtainer collection devices, which is less than 1 line on the Microtainer.

5.5 Test not send order in system

a. Specimen received without order request in system (LIS).
b. No test request stated.

6. BLOOD BANK

All Blood Bank specimens for Crossmatch will be rejected unless identified as follows:

a. Patient's name and Hospital MRN/ IC/ DOB
b. Date of the specimen

7. MICROBIOLOGY

7.1 Improper specimen source

a. Swabs for AFB cultures(fluid or tissue required)
b. Urine, sputum, routine genital or oral lesions submitted for anaerobic culture.
c. Specimens contaminated with aerobic flora submitted for anaerobic culture.
d. Pooled 24 hour sputum, urine, or feces for AFB cultures.

7.2 Improper specimen collection

a. Uncapped or unsterile collection container or swab
b. Dry swab, moisture ampule not crushed after collection.
c. Barium present in stool specimens for Ova and Parasite analysis.
d. Improper transport medium or environment for all microbiological specimens.
e. Specimens for Neiserria gonorrheae which have been refrigerated.
f. Duplicate specimens collected within a 24 hour time period, except for blood cultures.

7.3 Swabs submitted for culture not identified as to source.

7.4 Rejection of culture plate

a. Broken culture plates.
b. Expired culture plates.
c. Sending culture plates which are not suitable to the specimen type.
d. Culture plates that are overgrown or dried out.
e. Sending anaerobe culture plates without GASPACK.
f. Not sealed culture plates.
g. Sending mix growth for bacteria identification.
h. Plates not incubated at 35-37 degrees centigrade in CO2 condition and received <24 hrs after collection for suspected cases of Neisseria gonorrhoea

7.5 Improper transport

a. Urine specimens for culture left at room temperature for more than two hours or refrigerated for more than 24 hours.
b. Anaerobic cultures not transported in an anaerobic environment.

8. HISTOPATHOLOGY

All specimens in the Histopathology laboratory are irretrievable specimen, hence rejection in Histopathology by means as ***rejected to process*** the specimen and **not to** return or discard the specimen inappropriately. The rejected specimen will be kept in a non-conformance box until the rectification is done. The sender shall be notified by phone and followed by the issuance of the *Histopathology Rejection Form, LL.9-008* (Refer Appendix 1) and the request will be processed once rectification is done with appropriate documentation. However, in some circumstances e.g. no label on the specimen container and as requested by the sender, the specimen will be rejected/returned to the sender for further rectification. Turnaround time (TAT) of specimen held in non-conformance box will be counted from the date rectification has been taken.

Specimen Acceptance Criteria

a. The request form must be completed with:

i. Patient details with at least two identifiers: Name AND MRN number OR Date of Birth (D.o.B) OR identification number
ii. Nature and anatomical site of specimen
iii. Doctors name and signature
iv. Diagnosis and clinical history
v. Specimen collection date and time
vi. Itemized number of the specimen if multiple specimen containers.

b. The specimen container:

i. Patient details with at least two identifiers: Name AND MRN number OR Date of Birth (D.o.B) OR identification number
ii. Nature and anatomical site of specimen
iii. Date of sampling/collection
iv. Itemized number of multiple specimen containers.
v. Proper fixatives; e.g 10% buffered formalin for routine histology H&E testing.

Note: All details on the request form and specimen container MUST be tallied.

Specimen Rejection Criteria

i. No or Incomplete details on request form; patient details, doctor's name & signature, nature of specimen, diagnosis and clinical history.
ii. Incomplete details on specimen container e.g No type of specimen.
iii. Improper or No preservatives
iv. Discrepancies between specimen container and request form on patient details
v. Discrepancies between specimen container and request form on specimen type or an anatomical site.
vi. Discrepancies between details on specimen container & request form and the specimen received. E.g. stated on the request form and specimen container as 'Gallbladder' but macroscopic/gross examination received 'Appendix'.
vii. Illegible handwriting
viii. Formalin leaking and specimen spilled out from the container.
ix. The number of specimens received does not match with the number of specimens stated on the request form
x. Wrong specimen.
xi. No specimen in the container

9. CYTOPATHOLOGY

The following is a general listing of common situations in which a specimen may be rejected for processing. Each functional laboratory area has an additional listing of rejection protocol depending on the specific testing criteria. Specific transportation requirements need to be observed every time to ensure the sample's integrity. For each general category, a few examples are listed.

- Improperly labelled specimens

    - Specimens not labelled
    - Specimens labelled with incorrect patient identification.
    - Specimens that do not match the patient information on the laboratory requisition.

- Improper Collection

    - Specimens collected with improper preservative.
    - Quantity of specimen insufficient to perform testing.
    - Specimens that are obviously or subsequently prove to be contaminated.

- Specimens inappropriately transported to the laboratory

    - Specimens leaking or grossly contaminated on the exterior portion of the container
    - Broken slides beyond repair

- Inappropriate specimens

    - Tissue sample
    - Sample in formalin (fluid + formalin)
    - Incorrect sample container
    - Specimen not complying with temperature, transportation or storage requirement.

- Improper Test Request

    - No specimen accompanied with request form
    - No request form accompanied with specimen
    - Patient details in request form are not tally with LIS system

- Specimens inappropriately transported to the laboratory

    - Specimens leaking or grossly contaminated on the exterior portion of the container.

Note: Most of the cytology sample is irretrievable specimens such as pap smear, Cerebral Spinal Fluid (CSF), neonatal specimens, fine needle aspirate or body fluids specimens will not be discarded. The responsible individual will be notified to come to the laboratory (if necessary) to decontaminate the sample so that processing can occur. The samples will be appropriately stored until the decontamination process commences.

10. MOLECULAR DIAGNOSTICS

The rejection criteria for molecular testing in Molecular Diagnostics Laboratory (MDL) is mainly follow 'List of Specimen Rejection Criteria' outlined in General section (No 2). Note down all rejection in LL.22-5 Test Request Reject Analysis form. In all cases, the sender/requester will be contacted and informed on the rejection matters for corrective action/rectification. The following further defines conditions that would render a specimen unacceptable for processing in MDL:

- Improper specimen transportation
    - not meeting cold chain (2-8°C) transportation requirement
- Incorrect specimen container
    - not using appropriate transport medium
- Insufficient specimen volume
    - not enough volume for testing
    - inadequate specimen for number of tests requested
- Incorrect specimen type
    - inappropriate specimen sent for test requested
- Mislabelled or unlabelled specimen and/or form
    - discrepancy on patient information between specimen container and request form
    - discrepancy between test requested in LIS and request form
    - inadequate information on specimen and/or form
- Poor specimen quality
    - haemolysed blood specimen
    - heavily blood-stained swab specimen
    - heavily leaked specimen
- Wrong or no test order sent in system
    - specimen received without order request in system (LIS)
    - wrong test code

SPECIMEN COLLECTION BASED ON SPECIMEN TYPE OR TEST REQUIREMENTS

1. HAEMATOLOGY

Specimen Collection and Containers

General

Venous Blood specimens are preferred. To ensure consistent and accurate results follow strictly to the volume of blood required for the type of test as specified on the label or fill up to the mark on the label of the specimen tube.

Haematology tests are extremely sensitive to methods of collection and preservation. It is important that sample collection and processing instructions be followed to ensure accurate test results. Refer **Figure 4** for specific containers used for different tests.

To prevent haemolysis:

- Avoid vigorous mixing
- Remove needle from syringe before squirting the blood into containers.
- Send the specimen as soon as possible to the lab after collection.

Avoid clot formation by:

- Ensuring a smooth venipuncture and steady flow of blood into the syringe.
- Ensuring the anticoagulant in the specimen bottle not dry off.
- Introducing blood in the anticoagulant bottle as soon as blood is withdrawn.
- Immediately mix gently by inverting tube at least 6 – 10 times. Refer **Figure 5** for sample mixing for tube with anti-coagulant.

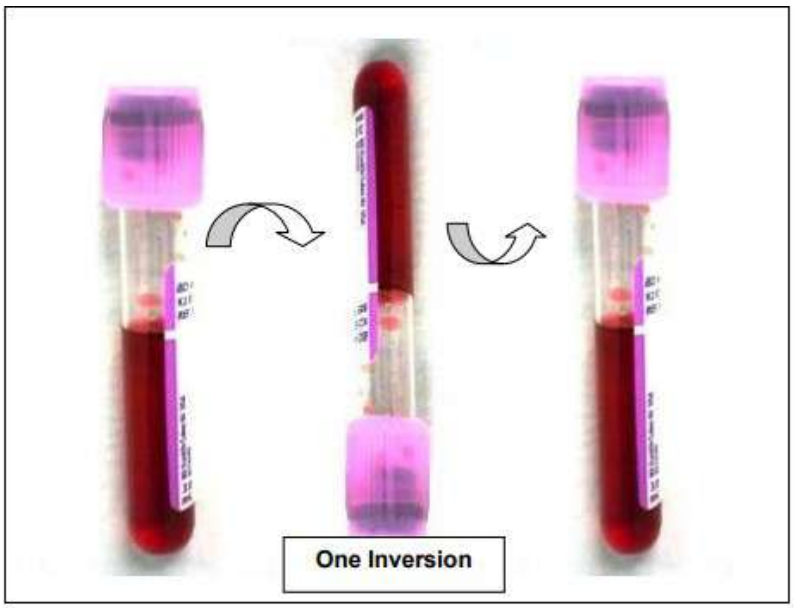
Urgent / STAT Request

Please contact the relevant unit during working hours to alert staff for urgent processing. Requesting physician should discuss with appropriate Laboratory unit before obtaining sample. Please identify STAT requests by checking/stamping/writing the word “URGENT”/ “STAT” in the request form. Fill form completely with clearly written name of doctor in charge, so they are contacted if there is any inquiry. Result will be notify to clinic/hospital via EMAIL / FAX / CALL.

LIST OF SPECIMEN CONTAINERS/TUBES

Images of the container/tube	Test	Anti-coagulant	Tube type	Specimen volume	Mixing Frequency
INTERGRATED LABORATORY					
 correct filling level	PT, APTT, INR ratio, Fibrinogen,	Buffer Sodium Citrate	Vacuum	1.8 ml	3 – 4 times
 Adult correct filling level	FBP, FBC	Purple cap – EDTA	Adult- vacuum	Adult: 2.5ml	8 times
 Paediatric correct filling level		Purple cap - EDTA	Paediatric- non vacuum	Paediatric: 250 – 500 ul	8 times

Figure 4: Specific containers used for different test.



MIX WELL BY INVERTING TUBE. DRAW VOLUME AND NUMBER OF INVERSIONS ARE OF CRITICAL IMPORTANCE AND CLINICALLY SIGNIFICANT!!

Figure 5: Proper sample mixing for tube with anti-coagulant.

2. MICROBIOLOGY

Specimen type / Test	Collection Instructions
Abscess (aspirate or swab)	1. Remove surface exudate if present by wiping an open abscess with sterile saline or 70% alcohol. 2. Sample the leading edge of an open abscess. Sample must be acquired using aseptic technique. 3. A closed abscess should be aspirated with a needle and syringe after sterilizing skin with iodine, chlorhexidine preparation or isopropyl alcohol wipes. 4. Sampling of skin surface area can introduce colonizing bacteria not involved in the infectious process.
Blood Culture	1. Disinfect rubber stopper on the culture bottle using 70% isopropyl alcohol, wait one minute. 2. Disinfect palpated venipuncture site using 70% alcohol swab by using a back and forth friction rub to cleanse the skin, cleanse for 15 seconds over a 4 cm x 4 cm area. 3. Allow to dry (**DO NOT** re-palpate vein). 4. Collect blood using needle and syringe or safety butterfly. **Note:** Bottle adaptors must be used with butterfly collections.
Catheter (Intravenous or Intra-Arterial)	1. Cleanse skin around site with 70% alcohol. 2. Aseptically remove catheter and clip the 5 cm distal tip of the catheter into a sterile screw capped transport container.
Cervical Swab – Culture for *N. gonorrhoeae*	1. Visualize the cervix using a speculum without lubricant. 2. Remove mucus and secretions from the cervix with a sterile swab, discard the swab. 3. Sample the endocervical canal with a newly obtained sterile swab.
Eye (Conjunctiva)	1. Sample eye using swab pre-moistened with sterile saline. 2. Roll swab over conjunctiva. 3. Put in the transport medium.
Feces (Stool)	1. Sample should be passed directly into a clean, sterile container. Avoid contaminating sample with urine. 2. Transport the sample promptly to the laboratory (≤ 1 hour). If transport is delayed, transfer a portion of the sample to a swab transport system such as Alkaline Peptone Water and Selenite medium.
Sputum (Expectorated)	1. Sample should be collected under the direct supervision of a nurse or physician. 2. Have the patient rinse or gargle with water to remove superficial flora.

Specimen type / Test	Collection Instructions
	3. Instruct patient to cough deeply to produce lower respiratory secretions. 4. Collect in sterile container.
Sputum – Induced	1. Have the patient rinse the mouth with water after brushing the gums and tongue. 2. Using a nebulizer, have the patient inhale ≈ 25 mL of a 3-10% sterile saline solution. 3. Collect induced specimen in a sterile container
Throat Swab	1. Depress the tongue with a tongue depressor. 2. Sample the posterior pharynx, tonsils and inflamed areas. 3. Submit swab in transport medium for culture.
Urethral Swab (male) – Culture for *N. gonorrhoeae*	1. Insert urogenital swab 2-4 cm into the urethral lumen. 2. Rotate the swab, leave in place for at least 2 seconds to facilitate absorption. 3. Submit swab in transport medium.
Urine – Indwelling Catheter	1. Disinfect the catheter collection port with 70% alcohol. 2. Use a needle and syringe to aseptically collect 5-10 mL of urine. 3. Transfer sample to sterile container.
Urine – Midstream	A. Female 1. While holding the labia apart, begin voiding. 2. After several milliliters have been passed, collect a midstream portion (without stopping the flow) into a sterile transport container. B. Male 1. Retract the foreskin (if uncircumcised). 2. Begin voiding. 3. After several milliliters have been passed, collect a midstream portion (without stopping the flow) into a sterile transport container.

2.1 COLLECTION OF STOOL

Specimen type/test	Collection Instructions	Storage/Transport
Stool Culture	• A single properly collected specimen is usually enough to identify the cause of acute bacterial diarrhea. To detect a carrier state, single specimens for three consecutive days are	• Specimens are acceptable for culture as long as the transport fluid has not

Specimen type/test	Collection Instructions	Storage/Transport
	recommended. Only one specimen per patient per day will be accepted. • All stool specimens for culture should be submitted in a transport media. The transport media is designed to maintain pH levels because some pathogens are sensitive to the pH changes associated with normal bacterial metabolism. Currently, the transport vial for culture has an orange cap and contains a red-pink fluid. If the fluid is yellow, do not use the vial; or if the fluid turns yellow after the specimen has been added, it is not acceptable for culture and must be recollected. • Stool specimens should be collected in a clean, dry container. Stool specimens should not be contaminated with water, urine, barium, or mineral oil. • Tighten the cap and shake well to mix. • Alternative collection methods: o For children in diapers, scrape up the stool with the spork in the cap assembly of the transport vial, recap, shake well, and submit. o For children with a watery diarrhea that soaks into the diaper, place a pedi urine collection bag over the child's anal area. Monitor closely, so the bag can be removed ASAP after a bowel movement to preserve as much specimen as possible in the bag. Watery specimens will tend to leak out of the pedi bag. Cut a corner from the bottom of the bag and pour contents into a transport vial. o Rectal swabs are substituted for stool culture specimens only if absolutely necessary. Insert sterile culturette swab a short distance into the rectum. Hold in place for a minimum of 30 seconds to allow the swab	turned yellow. • Do not refrigerate. • Transport ASAP tothe laboratory.

Specimen type/test	Collection Instructions	Storage/Transport
	to absorb specimen and withdraw. Remove cap and place swab in culturette sleeve. Squeeze sponge to moisten swab.	
Ova and Parasite Exam	• Three specimens collected on three successive days are recommended for optimum parasite detection. Collect specimen in a clean, dry container. Stool swabs are unacceptable for ova and parasite exams**.** • Interfering substances - Certain substances and medications interfere with parasite detection. These are listed below: o Specimen should not contain water or urine. o Contamination with mineral oil, barium, bismuth, antibiotics, anti- malarials, or non-absorbable anti- diarrheal agents can prevent parasite recovery for one to several weeks. o Purging or bowel prep agents must be cleared before the specimen can be submitted for ova and parasite exam, as they are crystalline in nature and obscure any parasitic elements that might be present.	• Transport to the laboratory as soon as possible. • Do not refrigerate • Fresh liquid stool must be transported immediately and rapidly to the lab and hand delivered to the technologist on duty with verbal instructions to look for amoebae.
Occult blood	• There are no restrictions on the number of times an occult blood test may be ordered. • If the initial negative test, additional specimens may be required. Since gastrointestinal lesions may bleed intermittently, the recommendation is a specimen from three consecutive bowel movements. o For females, do not submit specimens during, or until three days after a menstrual period.	Transport to the laboratory as soon as possible. Do not refrigerate**.**

Specimen type/test	Collection Instructions	Storage/Transport
	○ Do not submit specimens while the patient has bleeding hemorrhoids or blood in the urine. ○ For 7 days prior to and during the collection period, avoid aspirin or other nonsteroidal anti-inflammatory drugs, anticoagulants, or any substance which could irritate the gastro- intestinal tract, including alcohol. ○ For 72 hours prior to and during the collection period, avoid: ▪ Vitamin C, or iron supplements containing Vitamin C ▪ Red meat ▪ Artichokes, mushrooms, bean sprouts, apples, oranges, bananas, grapes.	

2.2 COLLECTION AND TRANSPORTATION OF SINGLE-COLLECTION URINE SPECIMENS

Procedural guidelines for the collection and transportation of urine specimens to the clinical laboratory are important, because diagnostic and therapeutic decisions may be based on the results of the urinalysis. Variables such as collection method, container, transportation, and storage are significant, because they affect the outcome of the analysis.

2.2.1 Types of Urine Specimens

Patient Collection

The following types of urine specimens can be collected by cooperative patients after instruction and without direct supervision:

- Random
- First morning or eight-hour
- Timed specimen, including 24-hour.

Supervised Collection

Collecting the following types of specimens may require supervision by, or the participation of, trained personnel from the clinical laboratory staff:

- Midstream “clean catch” specimen
- Specimen for microbiological culture
- Medicolegal cases

Assisted Collection

Collecting the following types of specimens requires the active participation of trained personnel:

- Catheter specimens
- Suprapubic aspiration specimens
- Collections from infants

2.2.2 Instructing the Patient

Specimen Description

Urine specimens, except those obtained by catheterization or suprapubic aspiration, are collected by having the patient voluntarily urinate and, insofar as possible, avoid contamination by vaginal secretion, pubic hair, powders, oils, lotions, and other extraneous materials. Specimens should not be recovered from diapers.

Patient Instruction

Many urine specimens can be collected by the cooperative patient after simple instruction from the clinical laboratory personnel responsible for the procedure.
The following steps should be taken:

- When instructing patients, emphasize hand washing and general cleanliness
- Give patients a properly labelled specimen container and ask them to verify their name on the label
- Give oral instructions, and give a written instruction sheet or card with illustrations to the patient or display it in the area of urine collection for more information. Give patients collection instructions in their native language
- Instruct patients to secure the lid of the specimen container to prevent leakage

2.2.3 Collecting the Specimen

Random Specimen

The random specimen may be collected at any time, but the actual time of collection (voiding) should be recorded on the specimen container. Several hours of urinary continence before collection can be necessary to provide a specimen suitable for analysis.

First Morning or Eight-Hour Specimen

The first morning or eight-hour specimen is normally collected immediately on the patient's arising from a night's sleep. This is also known as an "overnight" or "early morning" specimen. Other eight- hour periods may also be used to accommodate insomniacs and night-shift workers, as well as certain pediatric situations. Specimens to verify orthostatic proteinuria are collected after an eight- hour period of lying down. The bladder is emptied immediately before lying down, and the specimen is collected on arising so that the urine collected is that which accumulated while the patient was in the recumbent position. Any urine voided during the night should be collected and pooled with the first morning, voided specimen.

Timed Specimen

The timed specimen is collected at a specified time in the 24-hour period (e.g., at 10 a.m. or at a specified time in relation to another activity, such as two hours after eating a meal or immediately after prostatic massage).

24 Hour Urine Specimen

If it is necessary to measure the total amount of solutes excreted in a 24-hour period, a strictly timed 24-hour specimen is required, because many solutes exhibit diurnal variations. The lowest concentrations of catecholamines, 17-hydroxysteroids, and electrolytes occur in the early morning, whereas highest concentrations occur at noon or shortly thereafter.

"Clean Catch" Specimen

Male

- Before beginning the procedure, the patient should wash his hands with soap or a cleansing towel.
- Instruct the uncircumcised patient to withdraw the foreskin to expose the urethral meatus.
- With a sterile cleansing towel or the equivalent, cleanse the glans, beginning at the urethra and working away from it.
- Have the patient begin urination, passing the first portion into the bedpan or toilet. Collect the mid-portion in the appropriate urine specimen container without contaminating the container ("clean catch"). Any excess urine can pass into the bedpan or toilet.

- Offer assistance if the patient is unable to carry out the recommended procedure. Sterile gloves should be worn by the assistant.

Female

- Before beginning the procedure, the patient should wash her hands with soap or a cleansing towelette.
- Instruct the patient to squat over the bedpan or toilet.
- With a sterile cleansing towelette or the equivalent, cleanse the urethral meatus and surrounding area.
- Have the patient begin urination, passing the first portion into the bedpan or toilet. The midportion should be collected in the appropriate container without contaminating the container ("clean catch"). Any excess urine can pass into the bedpan or toilet.
- Offer assistance if the patient is unable to carry out the recommended procedure. Sterile gloves should be worn by the assistant.

Catheter Specimen

A catheter specimen is one collected after inserting a catheter into the bladder through the urethra, using sterile technique. Urine may be collected as a single specimen from the catheter outflow.

Suprapubic Specimen

A suprapubic specimen is one collected by aspirating urine from the distended bladder through the abdominal wall, using sterile technique.

Microbiological Cultures

Any of the specimens presented above may be used for microbiological culture if special precautions are taken.

2.2.4 Collecting Urine Specimens from Infants and Small Children

Use paediatric and newborn urine specimen collection bags with hypoallergenic skin adhesives for children who are too young to collect a urine specimen.

Random Specimen Procedure

To collect random specimens from children, clinical personnel should do the following:

- Separate the child's legs.
- Be sure pubic and perineal areas are clean, dry, and free of mucus. Do not apply

powders, oils, or lotions to the skin.

- Using a pediatric urine collection device, remove the protective paper, exposing the hypoallergenic skin adhesive attached to the bag.
    - For girls, stretch the perineum to remove skin folds. Press the adhesive firmly to the skin all around the external genitals. Be sure to start at the bridge of the skin, separate the rectum from the vagina, and work forward, avoiding contamination from the rectal area.
    - For boys, fit the bag over the penis and press the flaps firmly to the perineum.
    - Make sure the entire adhesive coating is firmly attached to the skin with no puckering of the adhesive.

- Check the container periodically (e.g., every 15 minutes).
- Retrieve the collected specimen from the patient and label it.
- Without further contamination, pour or decant the specimen into a collection cup. Label the cup and transport it.

Some laboratories may prefer to collect specimens from very young babies with cotton-wool balls, rather than affixing adhesive tape to very delicate body areas. In such cases, it is critical that the sediment microscopic be aware of the potential for exogenous structures.

Procedure for Collecting a Urine Specimen for Microbiological Culture

To collect a microbiological culture specimen from children, clinical personnel should do the following:

- Before beginning the procedure, clinical personnel should wash their hands with soap or cleansing towel.
- Separate the child's legs.
- Cleanse the pubic and perianal areas with soap and water, and dry them so that these areas are clean, dry, and free of residual soap. Do not apply powders, oils, or lotions to the skin.
- Remove the protective paper, exposing the hypoallergenic skin adhesive attached to the bag.
    - For girls, stretch the perineum to remove skin folds. Press the adhesive firmly to the skin all around the external genitals. Be sure to start at the bridge of the skin, separate the rectum from the vagina, and work forward, carefully avoiding contamination from the rectal area.
    - For boys, fit the bag over the penis and press the flaps firmly to the perineum.
    - Make sure the entire adhesive coating is firmly attached to the skin with no puckering of the adhesive.

- Check the container periodically (e.g., every 15 minutes).
- Retrieve the collected specimen and label it.
- Without further contamination, pour or decant the specimen into a collection cup and secure the plastic lid. Label the cup and transport it.

2.2.5 Collection Containers

Composition

The primary collection container and transport container, if applicable, should be clean, leak-proof, particle-free, and preferably made of a clear, disposable material that is inert with regard to urinary constituents. The container and closure should be free of interfering substances, e.g., detergents. Most laboratories prefer to use sterile containers for all urine collection.

Reuse

Do not reuse specimen containers.

Capacity

The primary collection container should have a capacity of at least 50 mL with a round opening at least 4.0 cm in diameter. The container should have a wide base to avoid accidental spillage. Smaller, specialized containers are used for specimens collected from young children.

Transport and Storage

The container used during transportation should have a secure closure to prevent leakage of the contents during transportation. The closure should be easily applied and removed. The laboratory should ensure the integrity of the specimen identification and condition from the time of specimen submission to analysis. For example, if the specimen is refrigerated, the laboratory should ensure that the refrigerator is properly maintained and that delays in specimen delivery do not compromise specimen integrity.

Sterile Container

When a urine specimen is submitted for microbiological studies, the sterile containers must have secure closures. The specimen should be submitted for microbiological studies before urinalysis, unless sterile technique is used to make aliquots from a portion of the specimen for urinalysis. Sterile containers are also suggested if more than two hours elapse between specimen collection and analysis.

Label

The container should be designed to accept a label that will adhere during refrigeration or freezing. The label should include sufficient space for the patient's full name; unique identification number; date and time of specimen collection; and the name of the preservative in the container, if applicable. Some laboratories might need a label to include other information or a barcode.

To ensure proper specimen identification, place labels on the container, not on the closure.

Preservatives

For specimens not analyzed within two hours of collection, preserve the urine specimen using a specifically designed chemical preservative or a media transport device. Chemical preservatives are recommended if there is a delay in analysis (greater than two hours from collection); the specimen is being tested for an otherwise unstable analyte; or the specimen is being stabilized for microbiological studies.

2.2.6 Transporting and Storing Urine Specimen

Transport

If the specimen is transported, the container should have a secure closure to prevent leakage of the contents. If appropriate, use a secondary container to ensure containment of possible spills. Rapidly transport urine specimens to the laboratory for prompt examination. Laboratories should ensure the integrity of specimens during transportation (e.g., pneumatic tube systems).

Refrigeration

If the specimen cannot be transported and analyzed immediately, it should be refrigerated (2 to 8 °C) after collection. (See Section 2.1.6 for more information).

Microbiological Examination

If a microbiological examination is requested and the specimen cannot be transported immediately to the laboratory, take the following steps:

- Specimens may be refrigerated at 2 to 8 °C for up to 24 hours and still yield valid culture information.
- An aliquot of urine may be transferred into a transport tube containing a bacteriostatic preservative, several of which are commonly available; consult with the laboratory to perform testing. Preserved specimens do not require refrigeration.

Alternatively, where there is a very long transport time, an agar film (attached to a plastic support) may be dipped into the urine and placed into an appropriate closed container. Both agar and urine are sent to the testing laboratory, where sub-culturing may be performed from the agar sampling.

2.2.7 Collection and Preservation of 24-Hour Urine Specimens

If it is necessary to measure the total amount of solutes excreted in a 24-hour period, a strictly timed 24-hour specimen is required, because many solutes exhibit diurnal variations. The lowest concentrations of catecholamines, 17-hydroxysteroids, and electrolytes occur in the early morning, whereas the highest concentrations occur at noon or shortly thereafter.

2.2.8 Collecting 24-Hour Urine Specimens

Container

Collect the specimen in one or more disposable, wide-mouthed, clean, plastic container(s) (with a plastic lid) large enough to hold about 3 L. Keep the collection container in the refrigerator or on ice during the 24-hour period. Provide amber-colour containers for light-sensitive analytes.For non-ambulatory catheterized patients, store the bag on ice; if the patient is ambulatory, empty the bag periodically and refrigerate the contents.

Label

The label on the collection bottle should include the patient's identification; test required; preservative used; and the dates and the times of the start and finish of the collection period. If spillage of the preservative could harm the patient, add a suitable warning to the label and explain this to the patient verbally. Basic elements of material safety data sheet (or equivalent) information should be provided to the patient.

Preservative

For patient and healthcare worker safety, a goal should be to avoid preservatives when possible. If a special preservative is required, add it to the collection bottle before the urine collection begins. See the table following Section 9.2 for appropriate preservatives. When more than one preservative type is analytically acceptable, efforts should be made to select the least hazardous additive.

Collection

The 24-hour collection should begin by having the patient empty his or her bladder or catheter bag at a fixed time and discard the specimen. Note the date and time that the collection started. If the preservative is a biohazard, the patient should be advised to collect the urine in a separate clean container and then carefully transfer the urine to the collection container for the laboratory.

Instruction

Instruct the nurse or patient to collect all voided urine during the 24-hour collection period and add it to the collection container. Written instructions must be written in simple form and in a language comprehensible to the patient.

Completion

The collection should end exactly 24 hours after it began by having the patient empty his or her bladder, or catheter bag, and adding this specimen to the collection container.

2.3 FLUID SPECIMEN COLLECTIONS

Cerebrospinal Fluid

Cerebrospinal fluid is usually collected by lumbar puncture, but may also be obtained by lateral cervical or cisternal puncture. Sterile technique is mandatory to avoid introducing bacteria.

Manometric measurements may be done and are the responsibility of the clinical service rather than the laboratory.

Usually, fluid is collected into three or four tubes for chemical, microbiologic, and cellular analysis. The tubes should be labelled according to the sequence of collection. It is preferable to have the first tube analyzed for chemical and serologic studies. Subsequent tubes should be used for microbial and cellular analysis to obtain accurate cell counts and decrease the chance of bacterial contamination.

A sterile tube must be used for microbial studies. No anticoagulant is necessary, since spinal fluid does not clot except occasionally if the puncture is traumatic. Since the volume of CSF is relatively small, the total amount collected is limited and usually varies from 10 to 20 mL in adults. Up to 8 mL may be safely removed from the smallest infant. Complications of lumbar puncture include headache, infection, and brain herniation. Rarer complications may also occur.

Test	Anticoagulant	Volume (mL)	Comments
(e.g., protein, glucose, other special tests)	None	3-5	**Tube #1** If traumatic tap is suspected, cell count should also be performed on Tube 1.
Gram stain and culture	None	3-5	**Tube #2**
Cell count and Differential	None	3-5	**Tube #3 or #4**
Other tests as required (e.g., cytology)	None	3-5	**Tube #4**

Serous Fluid

Serous fluids (e.g., pleural, peritoneal) from large volume collections may be aliquot into smaller volumes before transport to the laboratory or in the laboratory. Specimens should be gently agitated during collection, before aliquoting, and before testing for cell counts and differentials.

Ethylenediaminetetraacetic acid (EDTA) is the recommended anticoagulant for cell counts and differentials. Refrigerated storage is adequate for cell counts and differentials for up to 24 hours. Although testing can be done on small volumes of fluid, 5 to 8 mL is recommended in the event follow up studies are needed (e.g., flow cytometry). A sterile collection tube must be used for microbial studies.

For cytology specimens, a wide range of volumes may be sent to the laboratory. As little as 15 to greater than 100 mL may be sent for analysis. A 50-mL specimen is recommended. Sterility is not required and no anticoagulant is necessary.

However, heparin and EDTA are also used. If clumps of material are present, they can be processed as a cell block. Refer to Section 10.1.1 for collection of samples for cytological examination.

Tests	Anticoagulant	Volume (mL)
RBC, WBC, differential	EDTA	5-8
Total protein, LD, glucose Amylase	Heparin, none	8-10
Gram stain, bacterial culture	SPS*, none, or anticoagulant without bactericidal or bacteriostatic effect	8-10
AFB culture	SPS, none, or anticoagulant without bactericidal or bacteriostatic effect	15-50
PAP stain, cell block	None	As Collected (raw specimen or slide smear)

*SPS = Sodium polyanetholsulfonate

Synovial Fluid

The amount of fluid removed depends on the size of the joint and effusion. A 3- to 5-mL sample is ideal for laboratory analysis. However, since this may not be possible in smaller joints, the physician should prioritize the requested tests and clearly communicate with the laboratory. Specimens should not be rejected because of small volumes, since even a drop may provide definitive diagnosis in crystalline joint disease and only small volumes are needed for cell count and differential. Infected fluids may also grow organisms even if the volume is compromised. Specimen requirements are listed in table.

The following precautions should be noted. The physician must be careful not to express synovial fluid into tubes using a needle on the collection tray, previously used to remove fluid from a medicinal vial. Fluid should be thoroughly mixed after collection and before analysis in

the laboratory to obtain accurate cell counts.

Some texts indicate that lithium heparin and EDTA should not be used as anticoagulants because they produce crystalline material that can be confused with pathologic crystals.

However, others have used lithium heparin and EDTA without difficulty. Oxalate should not be used because of extensive formation of calcium oxalate crystals.

Test	Anticoagulant	Volume (mL)	Comments
Cell count, differential, crystals, inclusions	Heparin, EDTA	3-5	Can be done on a few drops of fluid. Mix thoroughly.
Glucose	Fluoride or none	3-5	8-hr fast preferred
Protein CH50	None None		
C3, C4	None or EDTA	3-5	Requires 1 mL
Culture	SPS, none, or anticoagulant without bactericidal or bacteriostatic effect	3-5	Sterile tube required
PAP stain, Crystal studies	None	As Collected (raw specimen)	None

Bronchoalveolar Lavage (BAL)

A fiber-optic bronchoscope is wedged into a midsize segmental bronchus, and aliquots of sterile saline are instilled and aspirated into the alveolar spaces. In this manner, cells and organisms in the alveoli distant to the bronchoscope can be sampled. The instillation volume typically is approximately 100- to 300-mL sterile saline in 20- to 50-mL aliquots.

The first aliquot should be discarded. The other aliquots are pooled for further analysis. In diffuse lung disease, the middle or lingular lobe is used as a standard site for BAL.

If a definite segment has been lavaged, this should be recorded on the request form. Aspiration of the instilled solution should be carried out with as little trauma as possible. A typical recovery is in the range of 50 to 70%. A very low recovery of less than 25% of the applied volume may appear in cases of chronic obstructive lung diseases. Low-volume recovery should be recorded on the request form.

2.3.1 Fluid Specimen Handling and Transport

Specimens should be transported to the laboratory promptly. Cellular degeneration of CSF can begin within one hour of collection, so cell counts should be completed as soon as possible.

Cerebrospinal Fluid (CSF)

Cerebrospinal fluid (CSF) specimens should be transported at ambient temperature to the testing site as soon as possible following completion of the collection procedures. CSF for microbiology testing should never be refrigerated before or after transport; since some organisms are fastidious and temperature sensitive, they have the capability of becoming nonviable.

Serous Fluids

It is also recommended that pleural, pericardial, and peritoneal fluids be transported to the testing site at ambient temperature. To preserve the integrity of these specimens, however, the testing site should be in receipt of these specimens as soon as possible after the completion of the collection procedures.

Otherwise, cell lysis, cellular degradation, and bacterial growth could occur and possibly affect the test results specimen should be refrigerated at 4 °C without a fixative. Serous fluids have a high protein content, cellular detail with Papanicolaou (PAP), H & E, or other stains will be adequately preserved with refrigeration for several days.

Synovial Fluids

Synovial fluid specimens may be transported and analyzed at room temperature.

BAL

Bronchoalveolar lavage (BAL) samples should be kept at room temperature and transported to the laboratory immediately after collection. Analysis of cell number, viability, and differential count should be performed within three hours. Preliminary tests demonstrate a deterioration of cellular characteristics after approximately six hours.

Specimens that cannot be processed within 36 hours should be discarded. Samples are often filtered using 50- to 70-μ nylon filters before staining to remove phlegm and dust.

3. CYTOPATHOLOGY

3.1 Test offered

1) Gynecological specimen. (Cervicovaginal specimen, i.e.: Pap Smear)
2) Non-Gynecological specimen.
    i. Sputum.
    ii. Body fluids. (Urine, CSF, Pleural and ascetic fluid).
    iii. Nipple Discharge.
    iv. Brushing. (e.g.: Bronchial, Gastric).
    v. Washing (e.g.: Bronchial washing/ Peritoneal Washing).
    vi. Fine Needle Aspiration Cytology.

3.2 Requisition form

1) Fill in the cytology form accompanying the specimen, with full details (e.g.: patient's name, MRN, IC number or passport number) and the following required information:
    i. Nature of specimen,
    ii. LMP; Last menstrual period
    iii. Adequate history including relevant previous investigations, surgery and treatment. E.g.: previous radiotherapy, IUCD user, Post LEEP or TAHBSO.
    iv. Any Hormonal/oral contraceptive (OCP)
    v. And any previous histology and cytology references numbers.
2) For urgent request, please tick the request form as "URGENT".
3) Complete the form with the contactable doctor in charge.

3.3 Special instructions

1) Please inform urgent cases to cytology laboratory staff or noted in the requisition form, as these will only be done prior arrangement.
2) If more than one investigation is to be done, (e.g.: Bronchial washing for cytology and Culture for AFB) Please submit separate containers (Where possible)
3) It is very important that slides are prepared by the clinician e.g.; pap smear or bronchial brushing are fixed promptly and correctly to optimize the diagnostic process.

3.4 Specimen container

1) All specimens for cytological examination should be put in clean universal leak-proof containers.
2) Slides (Pap smear, nipple discharge, FNA, sputum, etc.) should be placed in slide mailer before being dispatched to the laboratory.
3) All specimens should have the same identification as that written on the request form.

3.5 Specimen Collection

A. Gynecological specimen

Conventional Pap Smear

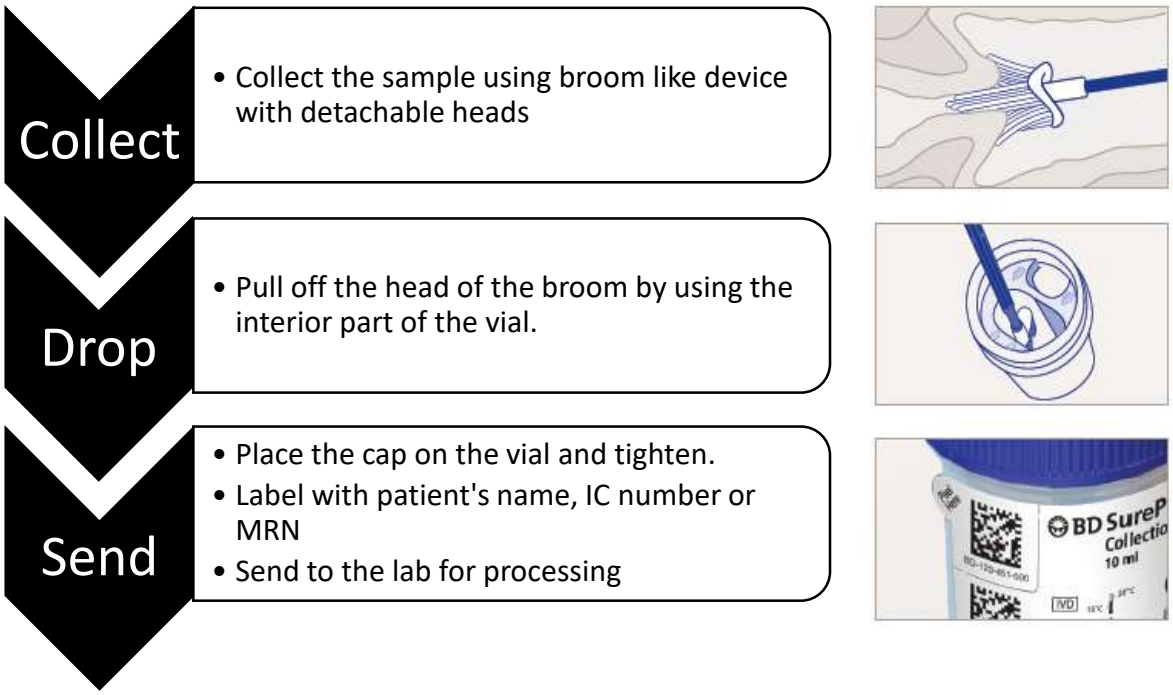
i. Take the smear before the bimanual examination.
ii. Do not use a lubricant on the speculum.
iii. Gently cleanse the cervix with cotton pledget if obscured with discharge or secretion.
iv. Place spatula at the external os and rotate through 360 degrees, lightly scraping the squamocolumnar junction.
v. Place the collected material near the frosted end of the glass slide and smear it thinly along the entire length of the slide.
vi. Fix the sample immediately before the smear dries up:

Fixative	Duration
95% ethyl alcohol	15-30 minutes
Spray fixatives (15-20cm away)	10 minutes

vii. Place inside the slide container and close the lid only after the fixative is dry.

Liquid Based Cytology (LBC)

- Liquid based methods used in Lablink is a Surepath which is FDA approved.
- It requires the use of collection devices that have been endorsed by the FDA for use with the particular specimen preparation instrument.



B. Non-gynaecological / General cytology

Respiratory sample

- Sputum
- Bronchial lavage
- Bronchial washing
- Tracheal aspirate
- Brushings

Figure 6: Sterile container

Sputum

1) Early morning, deep cough specimen is preferred.
2) Sputum should be a deep cough specimen and contain no saliva. Collect the sputum in a sterile labeled container supplied.
3) Send the specimen together with a request form to the laboratory immediately. If delay, the specimen can be refrigerated 2 - 8 ºC.

DO NOT FREEZE SPECIMENS

Brushing specimen

1) The brush must be rotated gently, and immediately smeared onto a clean labeled glass slide.
2) Fix immediately with fixative spray or 95% alcohol.
3) Place inside the slide container and close the lid only after the fixative is dry.

Body fluids

- Pleural
- Peritoneal
- Pericardial
- Hydrocoele
- CSF
- Synovial fluid
- Cyst fluid

1) Specimens are collected in clean labeled containers and dispatched immediately to the laboratory.
2) If a delay of more than 12 hours is anticipated, please refrigerate the specimen at 2 – 8 ºC.

DO NOT FREEZE SPECIMENS

Urine

1) The requesting doctor must indicate the type of urine either voided or catheterized urine.
2) The first morning voided urine specimens should be avoided and do not send overnight urine sample as most of the cells in these samples have degenerated .
3) To help ensure the adequacy of the sample, a midstream (clean catch) specimen is recommended.
4) Send the urine sample to the laboratory immediately.
5) If the specimen cannot be transported to the laboratory immediately, the specimen should be refrigerated at 2 – 8 ºC.

DO NOT FREEZE SPECIMENS

Nipple discharge

1) Do imprint smear by placing the labeled slides onto the nipple. Prepare at least 2 smears.
2) Fix immediately the labelled slides with fixative spray or 95% alcohol.

Fine Needle Aspiration (FNA)

1) FNAC procedure is conducted by appointment if necessary. If needed please contact the cytology department for an appointment.
2) Appointment requests for FNAC should be ordered only by the specialist – the request forms should be filled legibly, complete with the clinical history and findings. Whenever there is more than one lump or swelling present, the clinician should indicate which lump/s or swelling/s to be aspirated. The clinician requesting the FNAC procedure should have his/her name written clearly on the request form so that they would be able to be contacted if there is any query.
3) Consent from the patient shall be taken by the requesting practitioner.
4) FNAC for superficial lesions can be performed either by clinicians or pathologists.
5) FNAC for deep-seated lesions and as clinically indicated is performed by the radiologist under radiological guidance or the respective specialized medical practitioner on an appointment basis.

FNA services provided by cytology department:

Superficial or palpable lesions.

1) For the location and hours of this service, please contact the cytology department for an appointment if necessary.
2) Fill in the cytology form with full details and the following details
    i. Adequate history including relevant previous investigations and treatment.
    ii. And any previous histology and cytology reference numbers.
3) If a booked FNA is cancelled, inform the cytology's staff in advance.
4) If you cannot refer the patient to the cytopathology department, see the technique of fine needle aspiration below.

FNA Collection Procedure

(Please note that this procedure is for palpable lesions and NOT for deep-seated lesions, which should be conducted under radiological guidance)

a) Label all slides (on the frosted portion) by using a pencil with the patient's name or hospital number and site of aspiration if more than one site to be aspirate in one time.

Note: Do not label slides with barcodes. Put barcodes on slide container

b) Palpate, localize and wipe aspiration site with antiseptic.
c) Insert the needle and retract the piston to create suction in the needle.
d) Under constant suction, move needle tip backward and forward. If possible, direct it toward different areas.
e) Release suction before removing the needle from the lesion.
f) Express the material/ aspirate onto the slide NEAR to the frosted end while holding the needle to prevent it from being disconnected from the syringe if the needle is blocked.
   Refer **Figure 7**: Deliver material onto a slide.
g) Place the second slide on the first, and gently but firmly allow the material to spread to the edges.
h) Pull the 2 slides apart keeping them firmly but gently completely apposed.

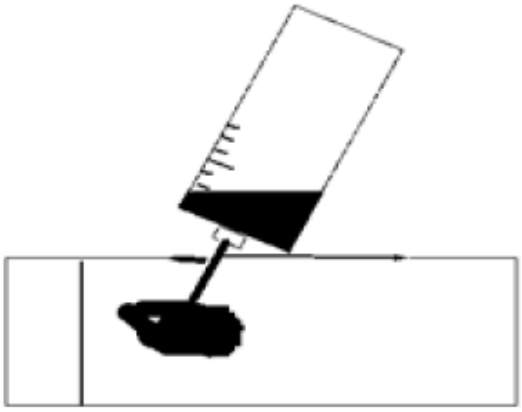


Figure 7: Deliver material onto a slide

i) Repeat the procedure if needed.
j) Fix slides immediately.
k) **Figure 8** shows the prepared FNA slide smear.
l) Label all slides (on the frosted portion) in pencil with the patient's name or hospital number.
   Note: Do not label slides with barcodes. Put barcodes on slide container**.**
m) If TB is suspected clinically, rinse the needle and syringe in sterile saline and sent for mycobacterium culture.
n) Put pressure on the aspiration site. Apply plaster.
o) After the procedure, discard the needle into a sharps-container.
p) Inform the patient where and when to get their results.
q) Send the sample and the request form to the laboratory for processing and diagnosis.

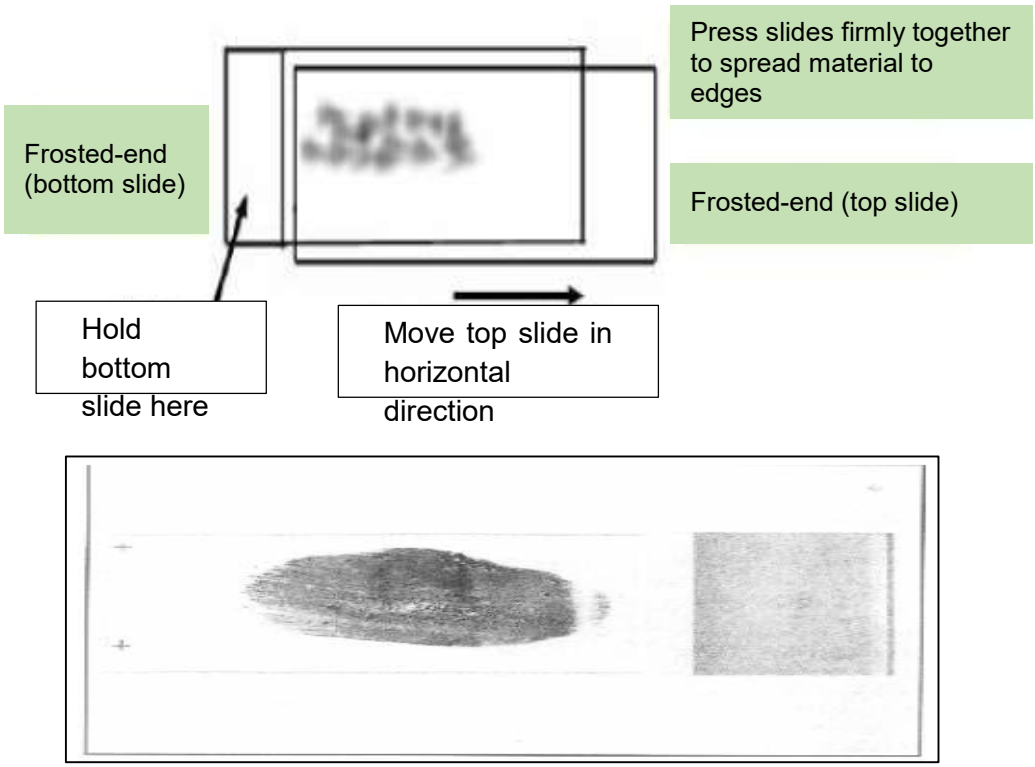


Figure 8: Prepared FNA slide smear

(Stained smear showing the appearance of a properly smeared specimen with good distribution of material).

Specimen collected after office hours and which are unable to be sent to the laboratory shall be kept in the refrigerator at 2-8'C.
(Applicable for fluids)

4. HISTOPATHOLOGY

Request of Test and Specimen Collection

4.1 List of services offered

A. General histopathological examination of tissue (routine HPE)
B. Special histopathology diagnosis:
    i. Renal biopsy with Immunofluorescence (IF) studies (Refer to Test Catalogue and Requirements for Histopathology for List of antibodies for IF)
C. Frozen section
D. Special stains.
E. Immunohistochemistry (IHC) stains (Refer to Test Catalogue and Requirements for Histopathology for List of IHC antibodies)

Note: All histopathology specimen including frozen section specimen are sent to Histopathology laboratory on daily basis from 8.30 a.m to 5.30pm (Monday to Friday) and 8.30a.m to 12.30 p.m (Saturday) except on Sunday and Public Holiday.

There is no after hours or out-of-hours for Histopathology services at Lablink medical laboratory.

4.2 Requisition form

A. General Routine Histopathology Test

1. Fill in an appropriate Histopathology Requisition Form accompanying all specimen for histological examinations.
2. The request form must be completed with**:**

    i. Patient details with at least two identifier : Name AND MRN number OR Date of birth OR Identification number
    ii. Nature and anatomical site of specimen
    iii. Diagnosis and clinical history
    iv. Test requested (e.g. IHC, Immunofluorescence(IF) studies)
    v. Previous history or lab number (if applicable)
    vi. Doctors/referring clinician/surgeon's name and signature
    vii. Specimen collection date and time
    viii. Itemized number of specimen if multiple specimen container.

3. Register and manage the specimen in the laboratory/clinic prior to sending it to the histopathology laboratory.
4. Use only one request form for multiple samples from a single patient undergone same surgery procedures. An appropriate information must be clearly labelled and differentiated on the respective request form**.**
5. Affix hospital barcode (if available) at the left hand side corner (or where applicable) on the request form. Do not affix any label on the information provided on the request form**.**
6. The referring clinician must ensure that high-risk samples are clearly identified on both the sample container and request form to reduce the risk of infection.
7. For urgent request, please mark 'URGENT' on the request form.

B. Frozen Section

1. Frozen section must be booked in advance with the histopathology laboratory at least 48 hours prior to the procedure via phone call followed by request form.
2. Frozen Section Form (please contact laboratory) must be clearly completed including the following essential information:

    i. Patient's details; Name, NRIC or Passport no, Age and Sex
    ii. Contact number of surgeon/consultant in charge of the case and operation theatre contact number.
    iii. Indications for frozen section, including specimen type and purpose of frozen section procedure; e.g. margins of tumor or to confirm malignancy of tumor tissue.
    iv. Previous HPE lab number (if applicable)

v. Date and time of procedure

Note: It is imperative that once a specimen has been sent, the operation theatre and consultants in charge telephone is kept free, so that the pathologist can communicate the result promptly.

3. Contact histopathology services (03-40272806) to highlight its impending arrival.
4. If Frozen Section is cancelled or the time of expected arrival changes, ensure the histopathology services is notified.

C. Request for Second opinion

The client (requesting doctor/clinician) can communicate directly with the pathologist specialized in the respective field for any consultation of the reports or histopathology services.

For referral or cases for second opinion, the requesting doctor/clinician is required to fill up the request form as routine cases accompanied with paraffin embedded block, stained or unstained slides and a copy of report (primary report) and submit to Histopathology laboratory.

Specimen Collection and Specimen Container

1. In general, the specimen container must be completed with:

    i. Patient details with at least two identifier : Name AND MRN number OR Date of birth OR Identification number
    ii. Nature and anatomical site of specimen
    iii. Date of collection
    iv. Itemized number if multiple specimen container.
    v. Proper fixatives; e.g. 10% buffered formalin for routine histology H&E testing.

2. Specimen for routine histological examination is to be fixed in 10% phosphate buffered formalin in adequately sized and suitable leak-proof container. The volume of formalin used more than sufficient to cover the specimen completely (at least 10 times the volume of specimen (10:1)) to be fixed. Large specimen must be entirely submerged in formalin to ensure proper fixation. The container must be labelled with an appropriate label indicating that it contains 10% buffered formalin.

    Note: It is vital that specimens are adequately covered in 10% Neutral Buffered Formalin to ensure adequate fixation. Poor fixation can compromise the quality of the specimen and subsequent histological examination.

3. Specimens from different anatomical sites should be sent in separate containers and must be itemized and labeled in the same request form and the specimen container respectively.

Note: Write the patient's details, specimen type and anatomical site and date collection on each containers label. **DO NOT** label on the lid of container

4. Multiple small specimens such as gastrointestinal biopsies should ideally be mounted on a piece of filter paper and immediately put in formalin

5. If more than one specimen container is submitted for the same patient at the same operation/procedure, please use only one request form and clearly itemized in the request form and the specimen containers.

6. Do not put large specimen in a small container as this would prevent proper fixation of the tissue and also distort the specimen.

7. For specimen where orientation is important, mark or tag the specimen e.g., axillary tail of mastectomy specimen with important margins.

8. Specimen's container should have the same identifications as that written on the request forms.

9. Specimen for **Immunofluorescence studies** (Renal or Skin) is to be sent in Michel's transport medium or on filter paper moistened with phosphate buffered solution (PBS) to prevent specimen from drying.

10. For **Renal Biopsy studies**: Two specimens consist of formalin fixed tissue (light microscopy examination) and fresh tissue for immunofluorescent staining are recommended for each case for appropriate histological evaluation.

    Specimen collection guideline for renal biopsy immunofluorescence:
    a. Take at least 3mm cores of fresh tissue.
    b. The specimen should be sent fresh in Michel's transport medium or on filter paper immersed in the container filled phosphate buffered solution (PBS).
    c. Transport in ice pack.

    Note: Do not put fresh tissue specimen on gauze.

11. Specimen for **Frozen Section** are to be sent fresh WITHOUT fixative or any other preservative, in a clean container and should send immediately to the histopathology department.

    Safety Notes: Don proper PPE and follow universal precaution when handling specimen. It is essential that all fresh tissue MUST be treated as though it is potentially infectious, regardless of the clinical history.

TRANSPORTATION MANAGEMENT

INTRODUCTION

The purpose of this guidance document is to aid and provide guidance for transporting patient specimens collected at laboratory site for diagnosis and investigational activities.

Patient specimens collected directly from human such as excreta, secretion, blood, tissue and tissue fluid swabs, culture plate and body parts that need to be transported safely, timely and efficiently to main laboratory where they will be analysed. Patient specimens should be packaged and transported safely in order to protect those involve in the transportation process from risk of infection regardless of the status of the specimens.

This guidance addresses the pre-analytical stage in handling of clinical specimens, i.e. after collecting the specimens from patients to reaching the laboratory, and includes both within hospital transport and local inter-hospital/laboratory transport of specimens.

A proper package should have:

Classification
Packaging
Labelling
Documentation

PACKAGING OF SPECIMEN FOR TRANSPORT

a. Clinical specimens must be packaged to avoid leakage and for shock absorption during transport. In general the basic triple packaging system should be adopted.

b. Triple packaging system

- All specimens shall be collected in a **primary container** that is watertight and leak proof. The cap should be correctly and securely closed. As far as practicable, the primary containers should be kept in an upright position in a rack during transport.
- The primary containers shall be put into a **secondary container** that is watertight. Several clinical specimens may be placed into one secondary container. Secondary containers have to be cleansed and disinfected if they are to be re-used.
- Examples of secondary containers are:
    - Disposable, zip-lock plastic bags
    - Large centrifuge tubes (50 ml) with screw caps.
- A rack to maintain the specimens in an upright position and put into an outer box is acceptable only for within hospital specimen transport.
- When sending specimens of **high biohazard risk** (refer to next chapter – Transport of Infectious Substances), the primary container should be packed singly, and wrapped with absorbing material in a single secondary container.
- Do not stick the specimen on the request form. Specimen request forms should be put into a separate plastic bag. Alternatively, they can be put in the carrying pocket of the zip-lock plastic bag.

PROPER SPECIMEN HANDLING DURING TRANSPORT

a. The outer container (transport box) must be handled gently with care. Throwing or dropping of the transport box is prohibited.

b. Staff handling these transport boxes should maintain good personal hygiene. Hands should be washed after each session of work, when contaminated or soiled, or after removal of gloves.

c. Staff must not touch mouth, eyes, nose and mucosal membranes prior to hand washing and definitely not with gloved hands.

d. Specific PPE, except working uniforms, is not necessary if the packing and handling of transferred specimens and materials is properly followed.

COLD CHAIN AND ROOM TEMPERATURE PACKAGING

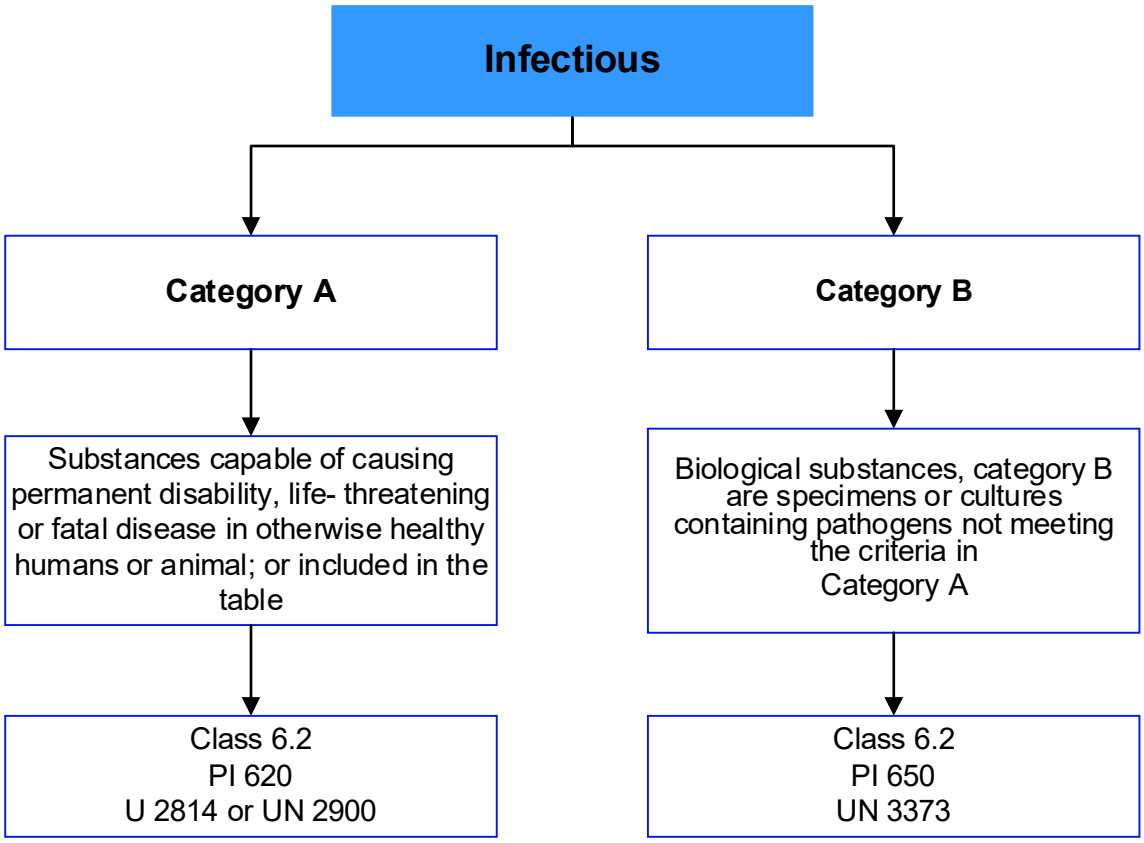
ROOM TEMPERATURE	COLD CHAIN (Temperature from 2°c to 8°c)
• Histopathology sample • Culture Plates (Transport ≤2 hours after 18 - 24 hours of incubation at 35-37° C) • LBC • PAP smears • FNAC slides • Biopsy for Histopathology • Hair specimen • Nail clipping specimen • Skin scrapping specimen • Blood culture bottle • PBF	□ Molecular specimen □ Plain tube □ EDTA tube □ Urine sample □ Stool sample □ Fluid □ Biopsy for culture □ Sputum sample □ Tracheal aspirate □ Bronchial lavage □ Pleural fluid □ Sterile body fluid □ CSF □ Genital swab (with gel) □ Pus □ Swabs (with gel) □ Nasopharyngeal aspirate □ Frozen Section □ Fresh tissue for Immunofluorescence studies □ Cytology fluid □ FNAC fluid

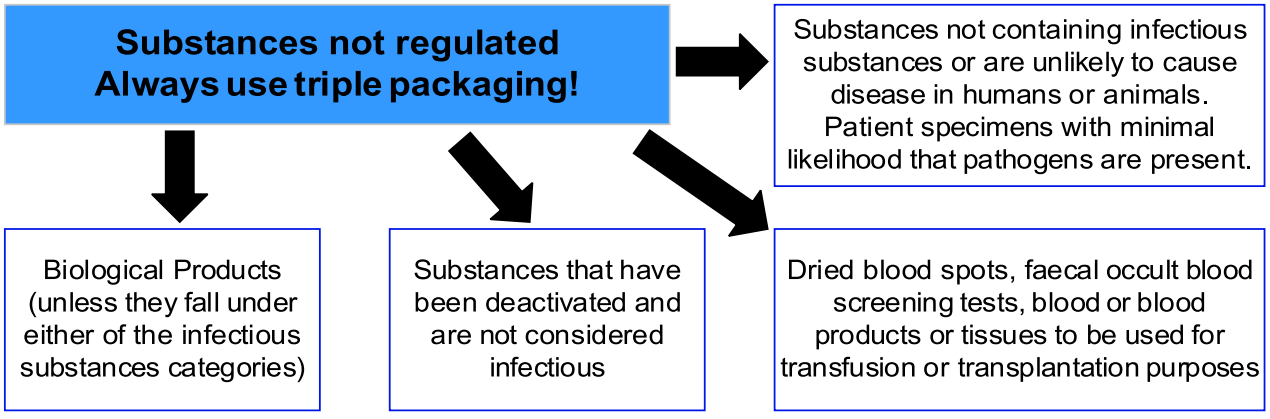
Handling of Specimen Leakage and Spillage

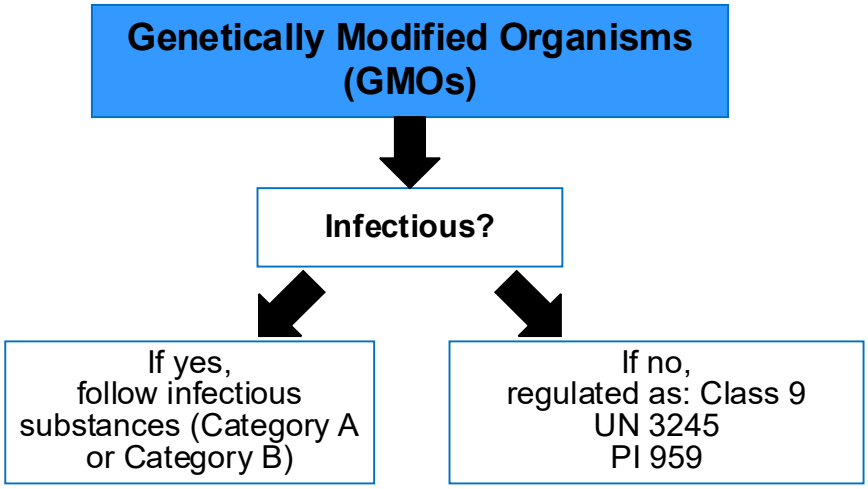
a. Leaking specimens are hazardous to all staff involved in their handling. Such specimens could be rejected or discarded according to the laboratory practice.
b. When leakage of fluid content to the outside of the outer container is encountered during transport within hospital / institution.
    - The spill should be decontaminated as soon as possible by using dedicated **Spillage Kit**.

Transportation of Infectious Substances

Classification







Definitions

- **Category A** infectious sample are specimens capable of causing permanent disability, life-threatening or fatal disease when expose to public. Its transportation package should be labelled with UN 2814 : Infectious sample, affecting human. Category A sample must be packaged with basic triple packaging system.

- **Category B** infectious sample are infectious specimens but do not meet the criteria for Category A. This sample should carry the label of UN 3373 : Biological sample. Category B sample must be packaged with basic triple packaging system.

- **Diagnostic specimen** is define as any human material including, but not limited to, excreta, secreta, blood and its components, cultures, tissue and tissue fluids, being transported for diagnostic or investigational purposes. Cultures are the result of a process by which microorganisms are intentionally propagated for the purpose of diagnostic and investigation. Diagnostic specimen must be label as UN 3373 unless the source patient has a disease which can be transmitted directly or indirectly during transportation process then the label should be UN 2814. For transportation, diagnostic specimen need to be triple packaged for containment exposure.

- **Biological products** derived from living organisms(believe to be infectious), manufactured and distributed and used either for prevention, treatment or diagnosis of disease, or for development, experimental or investigational purpose related to finished or unfinished products such as vaccines and diagnostic products must be assigned UN 2814 or UN 3373 as appropriate.

- **Genetically modified microorganisms** and organisms that have been purposely altered through genetic engineering and meet the definition of an infectious specimen must be label UN 2814. Triple package system must be applied to these specimens for transportation purpose.

- **Exempt patient specimen** is specimen with minimal likelihood pathogens present and is used to monitor hormone levels, cholesterol or glucose levels. These specimens need to be transported in triple packaged system but do not require specific shipping label.

PACKING AND LABELLING OF INFECTIOUS SPECIMEN

Potentially hazardous biological specimen must be packaged to withstand content leakage, shocks, temperature changes and other conditions that can occur during transport. Patient specimens must be packaged appropriately to further minimize the risk of exposure.

It is recommended to use the basic triple packaging system which consists of three layers: primary, secondary and outer packaging.

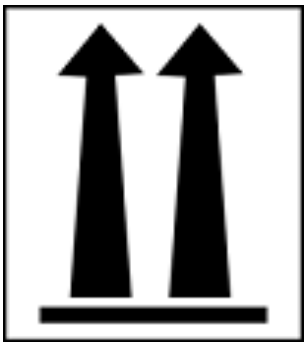
- **Primary container** should be watertight and leak-proof container. For liquid sample, absorbent material must be placed between primary container and secondary container so that any leakage during transportation will not reach the third packaging container and subsequently leak out to environment.

- **Secondary container** should be durable, watertight, leak-proof container to enclose and protect the primary container. Sufficient absorbent material should be used to absorb all fluid in case of primary container leakage and breakage.

- **Third container** or outer container should be rigid and able to protect contents from outside influences such as physical damage.

SAMPLE OF LABEL FOR APPLICATION

Infectious Sample

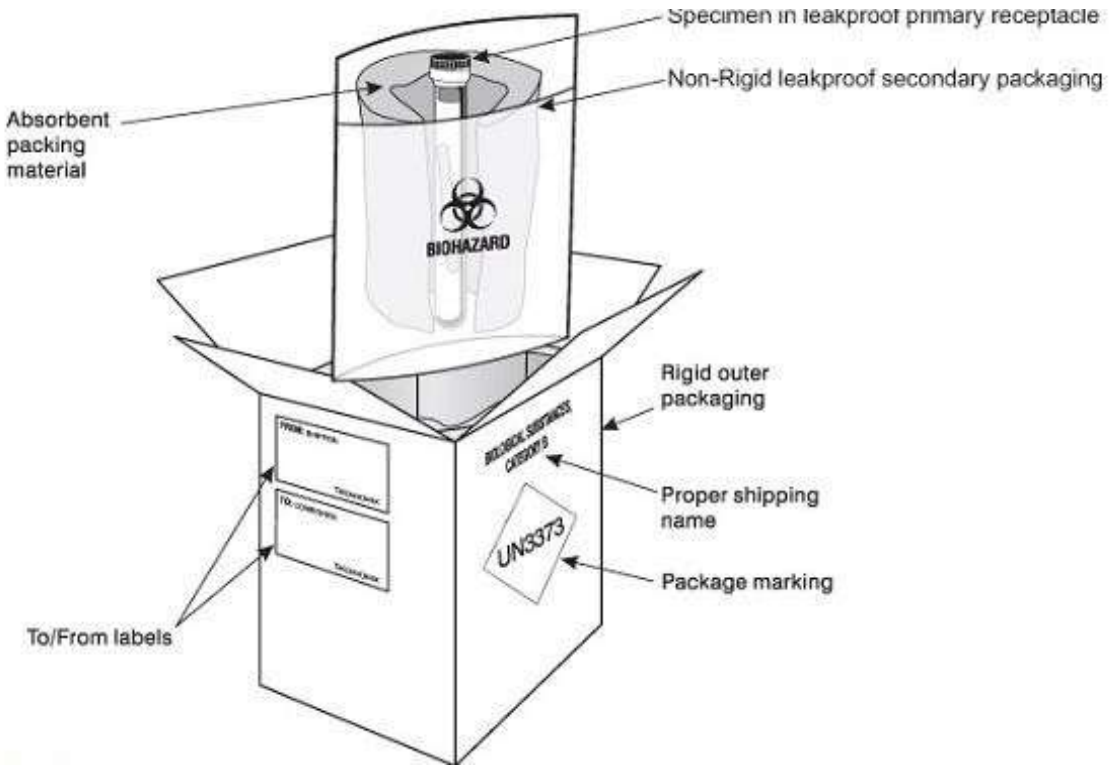


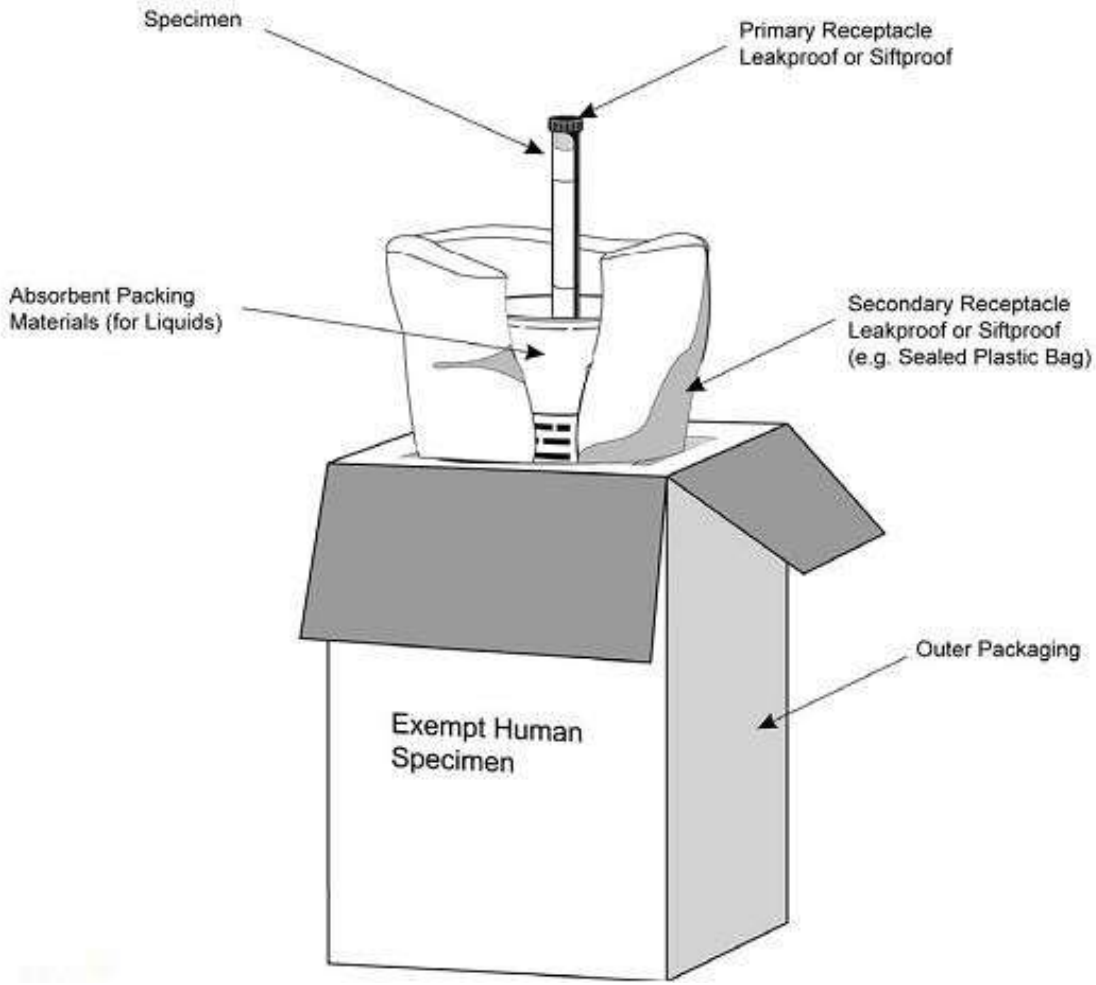
Orientation Label

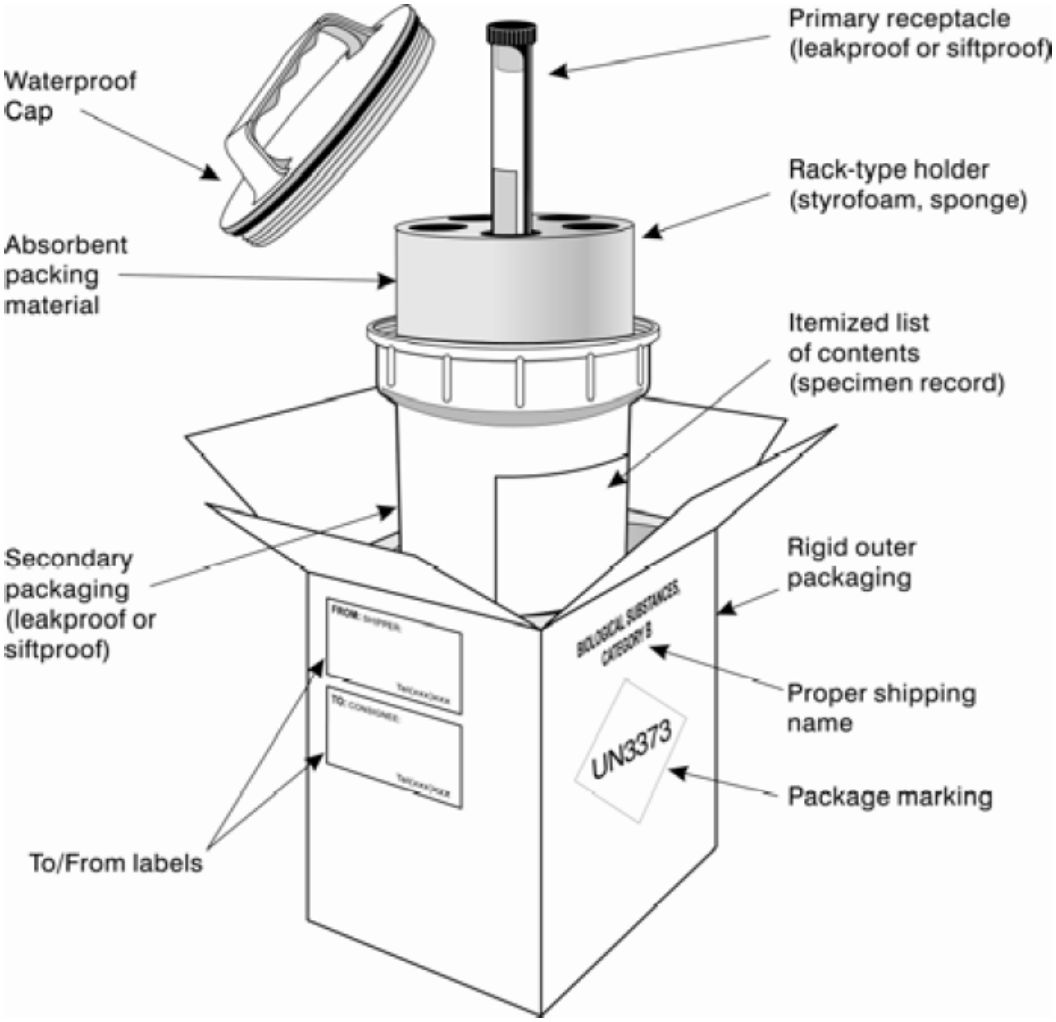
Classification

Non-Infectious Microorganisms

SAMPLE OF TRIPLE LAYER PACKAGE







Summary of packing classification Shipment type	Proper shipping name	UN number
Category A infectious	Infectious sample affecting humans	UN 2814
Category B infectious	Biological sample, Category B	UN 3373
Diagnostic specimen	Biological sample, Category B	UN 3373
Non-infectious modified micro-organism	Genetically modified micro-organism	UN 3245
Infectious micro-organism	Genetically modified micro-organism	UN 2814
Exempt human specimen	Exempt human specimen	-

EXAMPLES OF INFECTIOUS SAMPLE IN CATEGORY A

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	**Microorganism**
UN 2814 Infectious substances affecting humans	*Bacillus anthracis* (cultures only)
	Brucella abortus (cultures only)
	Brucella melitensis (cultures only)
	Brucella suis (cultures only)
	Burkholderia mallei – Pseudomonas mallei – glanders (cultures only)
	Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)
	Chlamydia psittaci – avian strains (cultures only)
	Clostridium botulinum (cultures only)
	Coccidioides immitis (cultures only)
	Coxiella burnetii (cultures only)
	Crimean-Congo haemorrhagic fever virus
	Dengue virus (cultures only)
	Eastern equine encephalitis virus (cultures only)
	Escherichia coli, verotoxigenic (cultures only)[1]
	Ebola virus
	Flexal virus
	Francisella tularensis (cultures only)
	Guanarito virus
	Hantaan virus
	Hantaviruses causing haemorrhagic fever with renal syndrome
	Hendra virus
	Hepatitis B virus (cultures only)
	Herpes B virus (cultures only)
	Human immunodeficiency virus (cultures only)
	Highly pathogenic avian influenza virus (cultures only)
	Japanese Encephalitis virus (cultures only)
	Junin virus
	Kyasanur Forest disease virus
	Lassa virus
	Machupo virus
	Marburg virus
	Monkeypox virus
	Mycobacterium tuberculosis (cultures only)[1]
	Nipah virus

TEST CATALOGUE & REQUIREMENTS

PACKAGES / PROFILE: GENERAL LABORATORY SERVICES

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP1	**FULL BLOOD PICTURE / ANAEMIA PROFILE (GP1)** Haemoglobin (Hb) Red cell count (RBC) Packed cell volume (PCV) Erythrocyte Sedimentation Rate (ESR) Mean corpuscular volume (MCV) Mean corpuscular Hb (MCH) Mean corpuscular Hb conc (MCHC) Reticulocyte count Platelet count White blood cell count (WBC) Differential count Blood film morphology comment	2 mL EDTA blood 2 Slide Smear	3 working days
GP1Z	**FULL BLOOD PICTURE / ANAEMIA PROFILE (GP1Z)** Haemoglobin (Hb) Red cell count (RBC) Packed cell volume (PCV) Mean corpuscular volume (MCV) Mean corpuscular Hb (MCH) Mean corpuscular Hb conc (MCHC) Red Cell Distribution Width (RDW) Platelet count Mean Platelet Volume (MPV) White blood cell count (WBC) Differential count Reticulocyte count Blood film morphology comment by Haematologist	2.0 mL EDTA blood 2 Slide Smear	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP2	**ANAEMIA BIOCHEMICAL PROFILE (GP2)** Serum iron Total iron binding capacity (TIBC) Serum folate Serum vitamin B12 Percentage iron saturation	6 mL plain blood	3 working days
GP2A	**ANAEMIA BIOCHEMICAL PROFILE (GP2A)** Serum folate Red blood cell folate folate Serum vitamin B12 Serum feritin Serum transferrin	2 mL EDTA blood 6 mL plain blood	3 working days
GP4J	**ANTENATAL PROFILE (GP4J)** Full blood Count (GP1C) Blood group (ABO & Rh) Venereal disease research laboratory (VDRL) & titre Rubella IgG antibody Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab)	2 mL EDTA blood 6 mL plain blood	3 working days
GP9	**ANTENATAL PROFILE (GP9D)** Full blood Count (GP1C) Blood group (ABO & Rh) Venereal disease research laboratory (VDRL) & titre Rubella IgG antibody Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab)	2 mL EDTA blood 6 mL plain blood 20 mL fresh urine	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP10	**ANTENATAL PROFILE (H) (GP10)** Haemoglobin (Hb) Blood group (ABO & Rh) Venereal disease research laboratory (VDRL) & titre Rubella IgG antibody Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab)	2 mL EDTA blood 6 mL plain blood	3 working days
GP11A	**ARTHRITIS PROFILE (GP11A)** White blood cell count (WBC) Differential count Erythrocyte Sedimentation Rate (ESR) Anti-streptolysin O titre (ASOT) Rheumatoid arthritis factor test (RF) Venereal disease research laboratory (VDRL) & titre Anti-nuclear factor (ANF)	2 mL EDTA blood 6 mL plain blood 8 mL heparin blood	3 working days (Additional 3 working days for positive ANF Screening)
GP12	**ARTHRITIS PROFILE (B) (GP12)** White blood cell count (WBC) Differential count Erythrocyte Sedimentation Rate (ESR) Uric acid Anti-streptolysin O titre (ASOT) Rheumatoid arthritis factor test (RF) Venereal disease research laboratory (VDRL) & titre C-reactive protein (CRP) Anti-nuclear factor (ANF)	2 mL EDTA blood 6 mL plain blood	3 working days (Additional 3 working days for positive ANF Screening)

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP12A	**LUPUS ERYTHEMATOSUS STUDIES (GP12A)** Haemoglobin (Hb) White blood cell count (WBC) Differential count Erythrocyte Sedimentation Rate (ESR) Protein Albumin Globulin A/G ratio Urea Creatinine Rheumatoid arthritis factor test (RF) Anti-nuclear factor (ANF) Anti-DNA antibody Complement C3 Complement C4 Urine FEME	2 mL EDTA blood 8 mL plain blood 20 mL (minimum) fresh urine	3 working days (Additional 3 working days for positive ANF Screening)
GP13	**AMENORRHOEA STUDIES (GP13)** Free thyroxine (FT4) Prolactin Follicle stimulating hormone (FSH) Luteinising hormone (LH) Estradiol (E2)	7 mL plain blood	3 working days
GP14	**ANTENATAL ANTIBODIES STUDIES (GP14)** Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab) Toxoplasma IgG antibody Rubella IgG antibody Cytomegalovirus (CMV) IgG antibody Herpes simplex (HSV) type 1 & 2 IgG antibody Venereal disease research laboratory (VDRL) & titre	10 mL plain blood	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP17	**ANTIBODY STUDIES (GP17)** Immunoglobulin G Immunoglobulin M Immunoglobulin A	5 mL plain blood	3 working days
GP18	**BONE METABOLISM STUDIES (GP18)** Alkaline phosphatase Calcium Phosphorus	4 mL plain blood	1 working day
GP19	**CARDIAC ENZYMES (GP19)** Aspartate transaminase (SGOT/AST) Creatine Kinase (CK) Lactate dehydrogenase (LDH)	4 mL plain blood	1 working day
GP24	**LIPID PROFILE (GP24)** Cholesterol Triglycerides HDL cholesterol LDL cholesterol Cholesterol/HDL cholesterol ratio	FASTING SAMPLE 6 mL plain blood	1 working day
GP25C	**FEBRILE STUDIES (GP25C)** Haemoglobin White blood cell count (WBC) Differential count Platelet count Widal test Weil felix test Monospot test Urine FEME	2 mL EDTA blood 5 mL (minimum) plain blood 20 mL fresh urine	2 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP31	**HEPATITIS B SCREENING (GP31)** Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab)	4 mL plain blood	3 working days
GP40A	**RENAL FUNCTION TEST (GP40A)** Uric acid Creatinine Urea Sodium Potassium Chloride	6 mL plain blood	1 working day
GP40B	**RENAL FUNCTION TEST (GP40B)** Uric acid Creatinine Urea Sodium Potassium Chloride Urine FEME	6 mL (minimum) plain blood 20 mL fresh urine	1 working day
GP43	**THALASSEMIA STUDIES (GP43)** Haemoglobin (Hb) Reticulocyte count Packed cell volume (PCV) Mean corpuscular volume (MCV) Mean corpuscular Hb (MCH) Mean corpuscular Hb conc (MCHC) Blood film morphology comment Haemoglobin electrophoresis Iron Total iron binding capacity (TIBC) Percentage Iron saturation	4 mL EDTA blood 6 mL plain blood	10 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP45A	**THYROID FUNCTION STUDIES (B) (GP45A)** Serum free thyroxine (FT4) Thyroid stimulating hormone (TSH)	4 mL plain blood	3 working days
GP46A	**THYROID PROFILE (A) (GP46A)** Serum free triiodothyronine (FT3) Serum free thyroxine (FT4) Thyroid stimulating hormone (TSH)	4 mL plain blood	3 working days
GP61M	**LABLINK EXECUTIVE PROFILE (GP61M)** Glucose TSH Uric acid Creatinine Urea Sodium Potassium Chloride Calcium Phosphorus Cholesterol Triglyceride HDL cholesterol LDL cholesterol Cholesterol/HDL cholesterol ratio Protein Albumin Globulin Albumin/globulin ratio Bilirubin Alanine transaminase (SGPT/ALT) Aspartate transaminase (SGOT/AST) Alkaline phosphatase (ALP) Gamma GT Venereal disease research laboratory (VDRL) & titre Blood group (ABO & Rh)	2 ml EDTA blood 10 mL plain blood 1 ml fluoride blood 20 ml (minimum) urine	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
	Rheumatoid arthritis factor test (RF) Haemoglobin (Hb) Red cell count (RBC) Packed cell volume (PCV) Mean corpuscular volume (MCV) Mean corpuscular Hb (MCH) Mean corpuscular Hb conc (MCHC) Red cell Distribution Width (RDW) Platelet count Mean platelet volume (MPV) White blood cell count (WBC) Differential count Erythrocyte Sedimentation Rate (ESR) Urine FEME Hepatitis B screen Hepatitis B surface antigen (Hbs Ag) Hepatitis B surface antibody (Hbs Ab) Hepatitis A Virus Ab HAVAB AIDS screen Antibody to HIV1/HIV2 (AIDS)		
LiverFASt	**LiverFASt SCREENING (LiverFASt)** Glucose Cholesterol Triglyceride Apolipoprotein A-1 Gamma GT Bilirubin Alanine transaminase (SGPT/ALT) Aspartate transaminase (SGOT/AST) Haptoglobin: Alpha-2 Macroglobulin Fibrosis score, Liver Activity score, Liver Steatosis score, Liver	5 mL plain blood 2 ml fluoride blood	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
SteatoT	**STEATOTEST SCREENING (SteatoT)** Glucose Cholesterol Triglyceride Apolipoprotein A-1 Gamma GT Bilirubin Alanine transaminase (SGPT/ALT) Aspartate transaminase (SGOT/AST) Haptoglobin Alpha-2 Macroglobulin Steatosis score, Liver	5 mL plain blood 2 mL fluoride blood	3 working days
GP1R	**CD4/CD8 ABSOLUTE COUNT (GP1R)** White blood cell count Lymphocyte count Total CD3 (Mature T cells) count % CD3 (Mature T cells) Total CD4 (Helper T cells) count % CD4 (Helper T cells) Total CD8 (Suppressor T cells) count % CD8 (Suppressor T cells) CD4/CD8 ratio **Note:** - Specimen must be properly packaged and labelled as a biohazards. - Send immediately at room temperature (20°C-25°C). - Specimen kept for more than 48 hours are not suitable for analysis.	4 mL fresh EDTA blood	1 working day Cut off: 11.00am

PACKAGES / PROFILE: ALLERGY SERVICES

Please refer Appendix 2 - Allergy Profile Catalogue

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP94A	**ALLERGY PANEL (FOOD)** *IgE, Egg White, Egg Yolk, Cow's milk, Wheat, Peanut, Cashew nut, Cocoa, Rice, Cheddar cheese, Tuna, Anchovy, Crab, Shrimp, Clam, Chicken, Beef, Lemon, Orange, Banana, Pineapple*	10 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94B	**ALLERGY PANEL (INHALANT)** *IgE, , D. pteronyssinus, D. farinae, House dust (Greer Lab), Dog, Cat, Cockroach, Bermuda grass, Johnson grass, A. fumigatus, A. alternata, Mould Mix, Latex*	10 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94C	**MALAYSIAN ALLERGY PANEL 1 (FOOD & INHALANT)** *IgE, Egg White, Egg Yolk, Cow's milk, Wheat, Peanut, Soy bean, Squid, Crab, Anchovy, Chicken, Dog dander, Cat dander, Cockroach, D. pteronyssinus, D. farinae, B. tropicalis*	10 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94D	**DOMESTIC ALLERGY PANEL** *IgE, D. pteronyssinus, D. farinae, B. tropicalis, House dust (Greer Lab), Cockroach*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94E	**SEAFOOD PANEL** *IgE, Squid, Crab, Shrimp, Clam, Anchovy*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94F	**PEDIATRIC FOOD ALLERGY PANEL** *IgE, Egg White, Egg Yolk, Cow's milk, Wheat, Peanut, Soy bean, Anchovy, Chicken*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP94G	**MALAYSIAN ALLERGY PANEL 2 (FOOD, INHALANT, SEAFOOD, MOULD)** *IgE, Banana, Beef, Chicken, Orange, Cow's milk, Crab, Egg white, Egg Yolk, Peanut, Shrimp, Soy bean, Tuna, Anchovy, Clam, Wheat, A. alternata, A. fumigatus, Bermuda Grass, C. albicans, Cat, C. herbarum, Cockroach, Dog, House Dust (Greer Lab), Johnson Grass, Latex, D. farinae, D. pteronyssinus, M. racemosus, P. notatum*	10 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94H	**ATOPY ALLERGY PANEL** *IgE, Bermuda grass, Timothy grass, Grass mix 5 (sweet vernal-, Bermuda-, Timothy grass and cultivated rye), Acacia, Australian Pine, Oil palm, D. pteronyssinus, D. farinae, D. microceras, T. putrescentiae, G. domesticus B. tropicalis, Kapok, Feather mix 1 (chicken-, duck-, goose down feathers), Bovine serum albumin (BSA), Horse, Dog, Cat, C. albicans, Mould mix 1 (P. notatum, C. herbarum, A. fumigatus, A. alternata), Honey bee venom, Cockroach (German), Wheat flour, Gluten, Egg white, Cow's milk, α-lactalbumin, β-lactoglobulin, Casein, Chocolate, Peanut, Soybean , Hazelnut, Almond, Baker's yeast, Glutamate, Codfish, Tuna, Salmon, Crab, Prawn, Lobster, Duck meat, Beef (cooked), Pork (cooked), Chicken, Lamb meat, Cheddar cheese, Tomato, Garlic, Strawberry, Kiwi, Shellfish mix 1 (spiny lobster, oyster, clam), Coffee, Cross-reactive carbohydrate determinants*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94J	**FOOD ALLERGY PANEL** *IgE, Egg white, Egg yolk, Cow's milk, Wheat flour, Rice, Sesame, Soybean , Peanut , Hazelnut, Beef (cooked), Pork (cooked), Chicken, Shellfish mix 1 (spiny lobster, oyster, clam), Fish mix 1 (codfish, herring, mackerel, and plaice), Crab, Shrimp/Prawn, Lobster, Blue crab, Chocolate, Glutamate, Cross-reactive carbohydrate determinants*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am
GP94K	**Paediatric Allergy Panel (Food & Inhalant)** *IgE, Grass mix 2 (Timothy grass, cultivated rye), Birch, Mugwort, D. pteronyssinus, D. farinae, Horse, Dog, Cat, C. herbarum, A. fumigatus, A. alternata, Egg white, Egg yolk, Cow's milk, Codfish, α-lactalbumin, β-lactoglobulin, Casein, Bovine serum albumin (BSA), Wheat flour, Rice, Peanut, Soybean, Hazelnut, Carrot, Potato, Apple, Cross-reactive carbohydrate determinants*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
GP94L	**INHALATION ALLERGY PANEL** *IgE, Tree mix 1 (melaleuca, Australian pine, acacia, eucalyptus and willow), Australian Pine, Acacia, Grass mix 1 (sweet vernal-, Bermuda-, Timothy grass and cultivated rye), Oil palm, House dust mite mix 1 (D. pteronyssinus and D. farinae), Cockroach (German), Kapok, Dog, Cat, Cage bird mix 2 (budgerigar-, canary-, parrot-, lorebird-, and finch feathers), Guinea pig, Mouse, Rabbit, Hamster, Mould mix 1 (P. notatum, C. herbarum, A. fumigatus, A. alternata), Mould mix 2 (P. notatum, P. brevicompactum and P. roqueforti), C. albicans, A. pullulans, C. spicifera, Cross-reactive carbohydrate determinants*	5 mL plain blood	1 Week *Wednesday Cut-Off 10.00 am

PACKAGES / PROFILE: AUTOIMMUNE SERVICES

Please refer Appendix 3 - Autoimmune Profile and Individual Catalogue

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
AiCTDp1	CONNECTIVE TISSUE DISEASES AUTOIMMUNE PROFILE 1	1 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiCTDp4	CONNECTIVE TISSUE DISEASES AUTOIMMUNE PROFILE 4	1 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiCTDp5	CONNECTIVE TISSUE DISEASES / EXTRACTABLE NUCLEAR ANTIGENS PROFILE 5	1 mL of separated serum	3 working days
AiVasP1	VASCULITIS AUTOIMMUNE PROFILE 1	2 mL of separated serum	3 working days
AiVasP2	VASCULITIS AUTOIMMUNE PROFILE 2	2 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiVasP3	VASCULITIS AUTOIMMUNE PROFILE 3	1 mL of separated serum	Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiVasP4	VASCULITIS AUTOIMMUNE PROFILE 4	2 mL of separated serum	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
AiVasP5	NEPHRITIS AUTOIMMUNE PROFILE 5	2 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiNeuroP1	ENCEPHALITIS AUTOIMMUNE PROFILE 1	1 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiNeuroP2	ENCEPHALITIS AUTOIMMUNE PROFILE 2	1 mL of separated serum and 1 mL of CSF	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiNeuroP3	ENCEPHALITIS AUTOIMMUNE PROFILE 3	1 mL of separated serum	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiNeuroP4	ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 4	1 mL of separated serum	3 working days
AiNeuroP5	ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 5	1 mL of CSF	3 working days
AiNeuroP6	PARANEOPLASTIC ANTIGEN AUTOIMMUNE PROFILE 6	1 mL of separated serum or CSF	3 working days

GROUP	PROFILE TEST	SAMPLE REQUIREMENT	TURNAROUND TIME
AiNeuroP7	ENCEPHALITIS AUTOIMMUNE PROFILE 7	Preference: 1 mL of separated serum and 1 mL of CSF; or 1 mL (minimum) of separated serum only	3 working days Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) Screening.
AiNeuroP8	GANGLIOSIDE AUTOIMMUNE PROFILE 8	1 mL of separated serum or 2 mL of CSF	3 working days
AiNeuroP9	NEUROMYELITIS OPTICA AUTOIMMUNE PROFILE 9	1 ml of separated serum or 1 ml of CSF	3 working days
AiDMp1	DIABETES MELLITUS AUTOIMMUNE PROFILE 1	2 mL of separated serum	3 working days
AiThyP1	THYROID AUTOANTIBODY SCREEN PROFILE	2 mL of separated serum	3 working days
AiGasP1	LIVER AUTOIMMUNE PROFILE 1	1 mL of separated serum	3 working days
AiGasP2	LIVER AUTOIMMUNE IMMUNOFLUORESCENCE ASSAY 2	1 mL of separated serum	3 working days
AiGasP3	LIVER AUTOIMMUNE SPECIFIC AUTOANTIBODY PROFILE 3	1 mL of separated serum	3 working days
AiMyoP1	MYOSITIS PANEL/AUTOIMMUNE INFLAMMATORY MYOPATHY PROFILE 1	1 mL of separated serum	3 working days
AiMyoP2	MYOSITIS PANEL/AUTOIMMUNE INFLAMMATORY MYOPATHY PROFILE 2	1 mL of separated serum	3 working days
AiSScP1	SYSTEMIC SCLEROSIS NUCLEOLI AUTOIMMUNE PROFILE	1 mL of separated serum	3 working days

BIOCHEMISTRY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
1	Albumin [Alb]	Serum	Plain	Bromocresol Green	Routine Test	With Ice	Daily	1 Working Day
2	ALP [Alp]	Serum	Plain	Roche AMP Buffer IFCC	Routine Test	With Ice	Daily	1 Working Day
3	ALT [SGPT]	Serum	Plain	IFCC Modified (with pyridoxal phosphate)	Routine Test	With Ice	Daily	1 Working Day
4	Amylase [Amy]	Serum	Plain	IFCC Based - EPS	Routine Test	With Ice	Daily	1 Working Day
5	Calcium [Ca]	Serum	Plain	5-nitro-5'-methyl-BAPTA	Routine Test	With Ice	Daily	1 Working Day
6	Alpha-1-Antitrypsin [AAT]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
7	AST [SGOT]	Serum	Plain	IFCC Modified (with pyridoxal phosphate)	Routine Test	With Ice	Daily	1 Working Day
8	Direct Bilirubin [Dbili]	Serum	Plain	Diazonium salt	Routine Test	With Ice	Daily	1 Working Day
9	Total Bilirubin [Tbili]	Serum	Plain	Diazonium salt	Routine Test	With Ice	Daily	1 Working Day
10	Complement C3 [C3]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
11	Complement C4 [C4]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
12	Total Cholesterol [Chol]	Serum	Plain	Cholesterol Oxidase	Routine Test	With Ice	Daily	1 Working Day
13	Creatine Kinase [CK]	Serum	Plain	CK-NAC IFCC	Routine Test	With Ice	Daily	1 Working Day
14	Creatinine [Crea]	Serum	Plain	Enzymatic	Routine Test	With Ice	Daily	1 Working Day
15	C-Reactive Protein [CRP]	Serum	Plain	Particle enhanced immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
16	Gamma-Glutamyl Transferase [GGT]	Serum	Plain	Enzymatic colorimetric assay	Routine Test	With Ice	Daily	1 Working Day

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
17	Glucose [Glu]	Plasma	Fluoride	Hexokinase	Fasting or random sample. At least 8 hours fast is required for fasting samples.	With Ice	Daily	1 Working Day
18	High-Density Lipoprotein [HDL]	Serum	Plain	Direct HDL, Roche 4th Generation	Routine Test	With Ice	Daily	1 Working Day
19	IgA [IgA]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
20	IgM [IgM]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
21	IgG [IgG]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
22	Iron [Iron]	Serum	Plain	FerroZine	Routine Test	With Ice	Daily	1 Working Day
23	Lactate Dehydrogenase [LDH]	Serum	Plain	L to P, IFCC Modified	Routine Test	With Ice	Daily	1 Working Day
24	Urea [Urea]	Serum	Plain	Urease, Kinetic	Routine Test	With Ice	Daily	1 Working Day
25	Magnesium [Mg]	Serum	Plain	Xylidyl Blue	Routine Test	With Ice	Daily	1 Working Day
26	Phosphate [Phos]	Serum	Plain	Phosphomolybdate UV	Routine Test	With Ice	Daily	1 Working Day
27	Rheumatoid Factor [RF]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
28	Fructosamine [Fructo]	Serum	Plain	Nitrotetrazolium Blue Colorimetric Assay	Routine Test	With Ice	Daily	1 Working Day
29	Total Protein [Prot]	Serum	Plain	Biuret Reaction	Routine Test	With Ice	Daily	1 Working Day
30	Triglyceride [Trig]	Serum	Plain	Lipase / GPO-PAP	Routine Test	With Ice	Daily	1 Working Day
31	Uric Acid [UA]	Serum	Plain	Uricase Peroxidase	Routine Test	With Ice	Daily	1 Working Day
32	UIBC [UIBC]	Serum	Plain	Direct Determination with FerroZine	Routine Test	With Ice	Daily	1 Working Day

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
33	Ceruloplasmin [Cerulo]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
34	Sodium [Na]	Serum	Plain	ISE, indirect	Routine Test	With Ice	Daily	1 Working Day
35	Potassium[K]	Serum	Plain	ISE,indirect	Routine Test	With Ice	Daily	1 Working Day
36	Chloride [Cl]	Serum	Plain	ISE, indirect	Routine Test	With Ice	Daily	1 Working Day
37	Anti-Streptolysin O [ASOT]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
38	HbA1c [HbA1c]	Whole Blood	EDTA	Turbidimetric	Routine Test	With Ice	Daily	1 Working Day
39	Urine Amylase [uAMY]	Urine	Sterile Container	IFCC Based - EPS	Routine Test	With Ice	Daily	1 Working Day
40	Urine Calcium [uCa]	Urine	Acid-washed Sterile Container	5-nitro-5'-methyl-BAPTA	Use 6mol/L HCl to wash container	With Ice	Daily	1 Working Day
41	Urine Creatinine [uCrea]	Urine	Sterile Container	Enzymatic	Routine Test	With Ice	Daily	1 Working Day
42	Urine Glucose [uGlu]	Urine	Sterile Container	Hexokinase	Routine Test	With Ice	Daily	1 Working Day
43	Urine Phosphate [uPhos]	Urine	Sterile Container	Phosphomolybdate UV	Routine Test	With Ice	Daily	1 Working Day
44	Urine Total Protein [uProt]	Urine	Sterile Container	Turbidimetric	Routine Test	With Ice	Daily	1 Working Day
45	Urine Uric Acid [uUA]	Urine	Sterile Container	Uricase Peroxidase	Routine Test	With Ice	Daily	1 Working Day
46	Urine Urea [uUrea]	Urine	Sterile Container	Urease, Kinetic	Routine Test	With Ice	Daily	1 Working Day
47	Urine Microalbumin [uMalb]	Urine	Sterile Container	Immunoturbidimetric	Routine Test	With Ice	Daily	1 Working Day
48	Urine Magnesium [uMg]	Urine	Sterile Container	Xylidyl Blue	Routine Test	With Ice	Daily	1 Working Day

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
49	Urine Na [uNa]	Urine	Sterile Container	ISE, indirect	Routine Test	With Ice	Daily	1 Working Day
50	Urine K [uK]	Urine	Sterile Container	ISE,indirect	Routine Test	With Ice	Daily	1 Working Day
51	Urine Cl [uCl]	Urine	Sterile Container	ISE, indirect	Routine Test	With Ice	Daily	1 Working Day
52	Urine Cannabinoids (THC) [uCan]	Urine	Sterile Container	Kinetic Interaction of Microparticles in A Solution	Routine Test	With Ice	Daily	1 Working Day
53	Urine Amphetamines [uAmphe]	Urine	Sterile Container	Kinetic Interaction of Microparticles in A Solution	Routine Test	With Ice	Daily	1 Working Day
54	Urine Opiates (Morphine) [uOpi]	Urine	Sterile Container	Kinetic Interaction of Microparticles in A Solution	Routine Test	With Ice	Daily	1 Working Day
55	Urine Meth-amphetamines [uMethamph]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
56	Urine Ketamine [uKetamine]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
57	Urine Cocaine [uCocaine]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
58	Urine Barbiturates [uBarbi]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
59	Urine Phencyclidine [uPCP]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
60	Urine Benzodiazepine [uBenzodi]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
61	Urine Propoxyphene (PPX) [uPropoxy]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
62	Urine Methadone [uMethadone]	Urine	Sterile Container	Rapid Test	Routine Test	With Ice	Daily	1 Working Day
63	Stone Analysis [StoneAn]	Kidney Stone	Sterile Container	Fourier Transform Infrared Spectroscopy	Specialized Test	Room Temperature	Daily	3 Working Days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
64	Apolipoprotein A-1 [ApoA1]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	3 Working Days
65	Haptoglobin [Hapto]	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	3 Working Days
66	Alpha-2 Macroglobulin	Serum	Plain	Immunoturbidimetric	Routine Test	With Ice	Daily	3 Working Days

HAEMATOLOGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
1	APTT	Blood	Citrate Tube	Electromagnetic mechanical clot detection system	Contact RBC	Contact RBC	Contact RBC	Contact RBC
2	Bleeding time	Blood	Filter Paper	Duke's method	Contact RBC	Contact RBC	Contact RBC	Contact RBC
3	Bone Marrow Aspirate	Bone Marrow (minimum 6 slides)	Slide smear	Leishman and hematognost stains	FBC Result PBF slide (2 slides) Submit with request form	Not applicable	Daily basis	3-4 working days
4	Bone Marrow biopsy	Bone Marrow	Container with 10% buffered formalin	Haematoxylin and eosin stains	Send in 10% buffered formalin in the container	Not applicable	Daily basis	1 – 2 weeks
5	Differential count (DC)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
6	Erythrocytes sendimentation rates (ESR)	Blood (2ml)	EDTA Tube	Infrared Barrier	Not applicable	With ice	Daily basis	Urgent: 2 hours Non – urgent: 3 hours
7	Haemoglobin (Hb)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
8	Haemoglobin electrophoresis	Blood (4ml)	EDTA Tube Slide smear	Capillary method	2 tubes of 2ml EDTA FBC Result 2 PBF Slides	With ice (EDTA only)	2 times in a week	10 working days
9	L.E. cells	Blood	Heparin Tube	Leishman stain	Contact RBC	Contact RBC	Contact RBC	Contact RBC
10	Malarial Parasites (Blood Film for Malaria Parasite, BFMP)	Blood (2ml)	EDTA Tube	Microscopic method. Giemsa stains	Contact Hematology Lab.	With ice	Daily basis	1 working day
11	Mean corpuscular haemoglobin (MCH)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
12	Mean corpuscular haemoglobin concentrate (MCHC)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
13	Mean corpuscular volume (MCV)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
14	Packed cell volume (PCV)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
15	Peripheral blood film (PBF)	Blood	EDTA Tube	Leishman stain	2 PBF slides FBC Result	With ice	Daily basis	3 working days
16	Platelet count	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
17	Prothrombin time (PT/INR)	Blood	Citrate Tube	Electromagnetic mechanical clot detection system	Contact RBC	Contact RBC	Contact RBC	Contact RBC
18	Reticulocytes count	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
19	Thrombin time (TT)	Blood	Citrate Tube	Electromagnetic mechanical clot detection system	Contact RBC	Contact RBC	Contact RBC	Contact RBC
20	Total red blood cells (TRBC)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
21	Total white blood cells (TWBC)	Blood (2ml)	EDTA Tube	Fluorescence Flow Cytometry	Not applicable	With ice	Daily basis	Urgent: 1 hour Non – urgent: 2 hours
22	Malaria Parasite Antigen	Blood (2ml)	EDTA Tube	Rapid test	Not applicable	With ice	Daily basis	1 hours
23	G6PD	Blood	EDTA Tube	Fluorescent spot testing	Contact RBC	Contact RBC	Contact RBC	Contact RBC

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
24	Peripheral blood film (PBF) by Haematologist	Blood	EDTA Tube	Leishman stain	2 PBF slides FBC Result	Not applicable	Daily basis	3 working Days (Contact Hematology Lab).
25	Bone Marrow -Aspirate by Haematologist	Bone Marrow (minimum 6 slides)	Slide smear	Leishman and hematognost stains	FBC Result 2 PBF slides Request form	Not applicable	Daily basis	3-4 working days

SEROLOGY AND IMMUNOLOGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
INDIVIDUAL TEST								
1	Anti-HAV [HAVAB]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
2	Anti-HAV IgM [HAVM]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
3	Anti-HCV [HCVAb]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
4	Alpha-Feto Protein [AFP]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
5	Anti-HBs [HbsAb]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
6	CA125 [CA125]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
7	CA153 [CA153]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
8	CA199 [CA199]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
9	CEA [CEA]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
10	C-Peptide [Cpeptid]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
11	DHEAS [DHEAS]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
12	Estrogen (E2) [E2estra]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
13	Ferritin [Ferr]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
14	Free PSA [FPSA]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
15	FSH [FSH]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
16	FT3 [FT3]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
17	FT4 [FT4]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
18	HBsAg [HbsAg]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
19	B-HCG[BHCG]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
20	HIV [HIV]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
21	HSV-1 IgG [HSV1G]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
22	HSV-2 IgG [HSV2G]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
23	IgE [IgE]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
24	Insulin [Insulin]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
25	LH [LH]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
26	Total PSA [PSA]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
27	Prolactin [Prol]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
28	Progesterone [Prog]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
29	Parathyroid Hormone [PTH]	Serum Plasma	Plain EDTA	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
30	Thyroid Stimulating Hormone [TSH]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
31	Testosterone [Testo]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
32	Thyroglobulin [Thyroglo]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
33	Toxoplasma IgM [ToxoM]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
34	Neuron-Specific Enolase (NSE) [NSE]	Serum	Plain	ECLIA	Scheduled Test	2 to 8 °C	Thursday	1 week
35	Rubella IgM [RubM]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
36	Anti-Mullerian Hormone (AMH) [AMH]	Serum	Plain	ECLIA	Scheduled Test	2 to 8 °C	Thursday	1 week
37	Vitamin D [VitD]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
38	Anti-CCP [CCPAb]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
39	Anti-HBc Total [HbcAb]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
40	Anti-HBc IgM [HbcM]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
41	Anti-HBe [HbeAb]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
42	Anti-Thyroglobulin [ATG]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
43	Anti-Thyroid Peroxidase (Anti-TPO) / Anti-Microsomal Antibody (AMC) [AMC]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
44	Vitamin B12 [B12]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
45	CMV IgG [CMVG]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
46	Cortisol [Cortisol]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
47	Folate [Folate]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
48	Folate RBC [FolateRC]	Whole Blood	EDTA	CMIA	Scheduled Test Twice a week	2 to 8 °C	Tuesday & Thursday *Cut-off 10.00 am	3-5 Working Days
49	HbeAg [HbeAg]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
50	Homocysteine [Homocys]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
51	Toxoplasma IgG [ToxoG]	Serum	Plain	CMIA	Routine Test	2 to 8 °C	Daily	3 Working Days
52	Growth Hormone [GH]	Serum	Plain	Chemiluminescent Immunometric	Routine Test	2 to 8 °C	Daily	3 Working Days
53	CMV IgM [CMVM]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
54	Insulin-like Growth Factor (IGF) [IGF1]	Serum	Plain	Chemiluminescent Immunometric	Routine Test	2 to 8 °C	Daily	3 Working Days
55	Estriol (E3) [E3estri]	Serum	Plain	Chemiluminescent Immunometric	Routine Test	2 to 8 °C	Daily	3 Working Days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
56	Rubella IgG [RubG]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
57	Dengue IgG/IgM DenAb]	Serum / Whole Blood	Plain / EDTA	Rapid Test	Routine Test	2 to 8 °C	Daily	1 Working Day
58	Dengue NS1 Antigen [DenNS1Ag]	Serum / Whole Blood	Plain / EDTA	Rapid Test	Routine Test	2 to 8 °C	Daily	1 Working Day
59	Chikungunya IgM [ChikunM]	Serum / Whole Blood	Plain / EDTA	Rapid Test	Routine Test	2 to 8 °C	Daily	1 Working Day
60	TPHA [TPHA]	Serum	Plain	Particle Agglutination	Routine Test	2 to 8 °C	Daily	1-2 Working Days
61	Widal Weil Felix (WWF) [WWF1/WWF2]	Serum	Plain	Particle Agglutination	Routine Test	2 to 8 °C	Daily	1-2 Working Days
62	Monospot [Mspot]	Serum	Plain	Latex Agglutination	Routine Test	2 to 8 °C	Daily	1-2 Working Days
63	Brucella Antibody [Bruc]	Serum	Plain	Particle Agglutination	Routine Test	2 to 8 °C	Daily	1-2 Working Days
64	TB-Gold Quantiferon [TBqftG]	Plasma	TB-Gold Kit	ELISA	Scheduled Test To consult Serology Services	To consult Serology Services	Friday *Cut-off 10.00 am	1 week
65	VDRL/RPR [VDRL]	Serum	Plain	Particle Agglutination	Routine Test	2 to 8 °C	Daily	1-2 Working Days
66	HIVPA [HIVAbPA]	Serum	Plain	Particle Agglutination	Scheduled Test	2 to 8 °C	Daily	1-2 Working Days
67	Anti-Nuclear Factor [ANF] / Anti-Nuclear Antibody [ANAIF]	Serum	Plain	Immunofluorescence	Routine Test	2 to 8 °C	Daily	3 Working Days (Additional 3 working days for positive screening)
68	DsDNA [DNAAb]	Serum	Plain	ELISA	Routine Test	2 to 8 °C	Daily	3 Working Days
69	H. Pylori IgG Antibody [HPAbqn]	Serum	Plain	Chemiluminescent Immunometric	Routine Test	2 to 8 °C	Daily	3 Working Days
70	Epstein-Barr Virus (EBV) IgA [EBVvcaA]	Serum	Plain	ELISA	Scheduled Test	2 to 8 °C	Monday Wednesday Friday only *Cut-off 10.00 am	3-5 Working Days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
71	HSV-1 IgM [HSV1M]	Serum	Plain	ELISA	Scheduled Test	2 to 8 °C	Thursday *Cut-off 10.00 am	1 week
72	HSV-2 IgM [HSV2M]	Serum	Plain	ELISA	Scheduled Test	2 to 8 °C	Thursday *Cut-off 10.00 am	1 week
73	Chlamydia IgG [ChlaG/ChlaTraG]	Serum	Plain	ELISA	Scheduled Test	2 to 8 °C	Thursday *Cut-off 10.00 am	1 week
74	CA 242 [CA242]	Serum	Plain	ELISA	Scheduled Test	2 to 8 °C	Thursday *Cut-off 10.00 am	1 week
75	HIV Western Blot [HIVCfm]	Serum	Plain	Line Immunoassay	Scheduled Test	2 to 8 °C	Friday *Cut-off 10.00 am	1 week
76	HCV Western Blot [HCVAbCfm]	Serum	Plain	Line Immunoassay	Scheduled Test	2 to 8 °C	Friday *Cut-off 10.00 am	1 week
77	Anti-TSH Receptor Antibody [TSHRepAB]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
78	Sex Hormone Binding Globulin [SHBG]	Serum	Plain	ECLIA	Routine Test	2 to 8 °C	Daily	3 Working Days
MATERNAL SCREENING								
1	First Trimester Prenatal Screen (FirstTrimD)	Serum	Plain	Chemiluminescent Immunometric	Specialized Test	2 to 8 °C	Daily	7 Working Days
2	Prenatal Risk Screen (Triple Test) (DownScnT)	Serum	Plain	Chemiluminescent Immunometric	Specialized Test	2 to 8 °C	Daily	7 Working Days
FREE LIGHT CHAIN								
1	Free Light Chain (Kappa & Lambda) (FreeLC)	Serum	Plain	Turbidimetry	Scheduled Test	2 to 8 °C	Daily	3 Working Days
AUTOIMMUNE								
Please refer Appendix 3 – Autoimmune Profile and Individual Catalogue								

URINALYSIS AND FLUIDS

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
1	Urine FEME Urine Appearance (uApp), Specific Gravity (uSG), urine pH (upH), Urine Protein (uProt), Urine Glucose (uGlu), Urine Ketone (uKet), Urine Urobilinogen (uUrobilgen), Urine Bilirubin (uBili), Urine erythrocytes (UBlood), Urine white blood cells (uWBCul), Urine Red Blood Cells (uRBCul), Urine Epithelium (uEpi), Urine Cast (uCast), Urine Crystal (uCrys), Urine Bacteria (uBact), Urine Yeast (uYeast), Urine other (uOther).	Urine	Sterilize Urine container	3-wavelengthreflectance photometer	10 mL (minimum) Urine, Collected aseptically into sterile container (preferably mid-stream urine) Urine Stability: - Room Temperature (20 -25°C): Not more than 2 hours. - Refrigerated (2 - 8°C): 24 hours. Urine that is not satisfy or not meet the acceptance criteria, will be rejected.	Room Temperature or Refrigerated.	Daily basis	Urgent: 1 hour Non-urgent: 2 hours
2	Urine Pregnancy test	Urine	Urine container	Immunochromato-graphic tests	20 mL (minimum) Urine, Collected aseptically into sterile container. Preference: Fresh morning urine. Urine Stability: - Room Temperature (20 -25°C): Not more than 2 hours. - Refrigerated (2 - 8°C): 24 hours.	Room Temperature or Refrigerated	Daily basis	Urgent: 1 hour Non–urgent: 2 hours

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
					Urine that is not satisfy or not meet the acceptance criteria, will be rejected.			

MICROBIOLOGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
1	Culture and Sensitivity & Fungal Culture	Abscess or pus aspirate Culture plates	Anaerobic transport media: Cooked Meat Broth (CMB) or Swab with gel or in sterile container (for fungal culture) Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chcolate agar (CA) & Schaedler agar (Sch)	Culture and Sensitivity	Do not submit sample in needle and syringe. *Indicate empirical therapy on ordering requisition.* **Cooked meat Broth** Incubated at 35-37ºCfor 24 hours before transportation. **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24r hours before transportation.	**Raw sample:** <24 hrs, hold at room temperature. If delay in transportation, keep at 2-8ºC **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 24 hours before transportation **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
2	Mycobacterium culture and sensitivity	Abscess or pus aspirate	Sterile, screw capped specimen container.	Culture and Sensitivity	Do not submit sample in needle and syringe.	Keep at 2-8ºC	Daily (Exclude weekend and public Holiday)	8 weeks

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
3	Culture and Sensitivity & Fungal Culture	Swab (Abscess, pus, Wound) Bacterial culture: Culture plates	Swab with gel Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA) & Schaedler agar (Sch)	Culture and Sensitivity	If request more than one test on a swab i.e. bacterial culture aerobes, anaerobes and fungus culture, please ensure that a separate swab sample is submitted for each test requested. *Indicate empirical therapy on ordering requisition.* **Schaedler agar** Incubated at 35-37°C with anaerobic gas pack for 24 hours before transportation **BA, Mac & CA** incubated at 35-37°C for 18-24r hours before transportation.	**Raw sample:** <24 hrs, hold at room temperature. If delay in transportation, keep at 2-8°C **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
4	Culture and Sensitivity & Fungal Culture	Bartholin Cyst Fluid	Sterile, screw capped specimen container. **OR** Anaerobic transport media: Cooked Meat Broth (CMB) **OR** Swab with gel	Culture and Sensitivity	Do not submit sample in needle and syringe. *Indicate empirical therapy on ordering requisition.*	**Raw sample** <24 hrs at room temperature If delay in transportation, keep at 2-8°C **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37°Cfor 24 hours before transportation	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive:

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
		Bacterial culture: Culture plates	Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA) & Schaedler agar (Sch)		**Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24r hours before transportation.	**Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)		2-3 weeks
5	Culture and Sensitivity & Fungal Culture	Bite Wound	Swab with gel **OR** Sterile, screw capped specimen container. **OR** Anaerobic transport media: Cooked Meat Broth (CMB)	Culture and Sensitivity	Do not culture animal bite wounds <12 hrs old as agents are usually not recovered unless bites are on the face or hand or there is evidence of infection. Indicate type of bite wound, i.e. human or animal, on the ordering requisition. *Indicate empirical therapy on ordering requisition.*	Swab, tissue or aspirated fluid – <24 hrs at room temperature. If delay in transportation keep at 2-8ºC **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 24 hours before transportation	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
		Bacterial culture: Culture plates	Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA) & Schaedler agar (Sch)		**Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24r hours before transportation.	**Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)		

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
6	Blood culture and sensitivity	Blood Culture plates	Volumes Adult: 20 mL - aerobic (10 mL) and anaerobic (10 mL) Pediatric bottle: 1mL-3mL. Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolat e agar (CA) & Schaedler agar (Sch)	Culture and Sensitivity	*Do not incubate blood culture prior to submitting to lab.* *Indicate empirical therapy on ordering requisition.* **Schaedler agar** Incubated at 35-37°C with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours before transportation.	<24 hrs, hold at room temperature.Do not refrigerate the bottle. **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)	Daily	2-3 days upon positive detection by automated blood culture system. 3-4 days upon positive (anaerobic & fastidious bacteria) detection by blood culture system. 5 days (Negative)
7	Culture and Sensitivity	Bone Marrow Culture plates	0.5-2 mL into a pediatric blood culture bottle. OR sterile, screw capped specimen container. Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolat e agar (CA) &	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition. **Schaedler agar** Incubated at 35-37°C with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours	<24 hrs, hold at room temperature **Schadler agar**: Anaerobic container with gas pack. **Culture plates**	Daily	3-5 days (Sterile container) 5 days in blood culture bottle

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			Schaedler agar (Sch)		before transportation.	≤ 2 hours at Room temperature (Do not refrigerate)		
8	Culture and Sensitivity & Fungal Culture & Mycobacterium culture and sensitivity	Bronchial Washing Bronchial Brushing Broncho-Alveolar Lavage (BAL) Culture plates	Sterile screw capped container. (Minimum volume at >1 mL for Bronchial Washing) **OR** Anaerobic transport media: Cooked Meat Broth (CMB) Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA) & Schaedler agar (Sch)	Culture and Sensitivity	As much sample as possible. *Indicate empirical therapy on ordering requisition.* **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs, Keep at 2-8ºC. **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 24 hours before transportation **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)	**Daily** for bacterial culture and sensitivity test and for fungal culture. **Working days** (Monday to Saturday) for Mycobacterium culture and sensitivity	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks 8 weeks (TB culture)
9	Culture and Sensitivity	Specimen Burn (tissue or exudate swab)	Tissue: Anaerobic transport media:	Culture and Sensitivity	Surface cultures of burn wounds may be misleading. *Indicate empirical therapy	**Raw sample** <24 hrs at room temperature If delay in	Daily	Negative 3-4 days Positive

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
		Culture plates	Cooked Meat Broth (CMB) Exudate swab: Swab with gel Cultured on: Blood Agar (BA),MacConkey Agar (MacA),Chocolate agar (CA) & Schaedler agar (Sch A		on ordering requisition.* **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation. .	transportation, keep at 2-8ºC **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 24 hours before transportation **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)		Aerobic: 3-5 days Positive (Anaerobic): 4-6 days
10	Fungal Culture	Specimen Burn (tissue or exudate swab)	Tissue: Sterile screw capped container. Exudate swab: Swab with gel	Fungal Culture		<24 hrs at room temperature If delay in transportation, keep at 2-8ºC	Daily	Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
11	Culture and Sensitivity	Catheter (intravenous or intra-arterial) Culture plates	Sterile screw capped container Blood Agar (BA),MacCo	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours	<24 hrs, in sterile saline to prevent drying ≤ 2 hours at room	Daily	3-5 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			nkey Agar (Mac),Chocol ate agar (CA)		before transportation. .	temperature (Do not refrigerate)		
12	Culture and Sensitivity	Cerebrospin al Fluid (CSF) Culture plates	Bacteria: >1 mL Sterile screw capped container. **OR** Anaerobic transport media: Cooked Meat Broth (CMB) Cultured on: Blood Agar (BA),MacCo nkey Agar (Mac),Chocol at e agar (CA) & Schaedler agar (Sch)	Culture and Sensitivity	Avoid the use of larger capacity sterile containers. Do not submit samples for microbiologic investigation on ice *Indicate empirical therapy on ordering requisition.* **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation. **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs at room temperature. Do not refrigerate the sample. **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 18-24 hours before transportation **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days
13	Fungal Culture	Cerebrospin al Fluid (CSF)	Fungi: >1 mL sterile screw capped container	Culture	Avoid the use of larger capacity sterile containers. Do not submit in ice.	<24 hrs at room temperature.	Daily	2 weeks
14	Mycobacterium culture and sensitivity	Cerebrospin al Fluid (CSF)	AFB: >2 mL sterile screw	Culture and Sensitivity	Avoid the use of larger capacity sterile containers. Do not submit in ice.	<24 hrs at room temperature. Do not	Daily (Exclude weekend	8 weeks

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			capped container.			refrigerate the sample.	and public holiday)	
15	Culture and Sensitivity for *N. gonorrhoeae*	Cervical Swab Culture plates	Swab with gel Cultured on: Blood Agar (BA), Chocolate agar (CA) or Modified Thayer Martin Agar (MTM)	Culture and Sensitivity	Do not use calcium alginate swab or cotton swabs as they may be inhibitory to *N. gonorrhoeae*. Transport as soon as possible to the lab. Viability of *N. gonorrhoeae* held in transport medium decreases substantially after prolonged storage. Direct inoculation of patient sample to appropriate bacteriologic media at the bedside (if available) has been shown to increase the sensitivity of culture. *Indicate empirical therapy on ordering requisition.* **BA, Mac, CA or MTM** incubated at 35-37ºC for 18-24hrs hours before transportation.	storage: <24 hrs at room temperature. ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days
16	Culture and Sensitivity & Fungal culture	Corneal Scrapings	Direct culture at bedside using blood agar, MacConkey agar, chocolate	Culture and Sensitivity	Anesthetics may be inhibitory to some etiologic agents, a conjunctival sample may be collected prior to collecting corneal scrapings. *Indicate empirical therapy	Local: Transport fungal culture plates as soon as possible, store plates at room temperature.	Daily	Bacteria: 3-5 days Fungal: 2 weeks

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			agar and sabouraud dextrose agar for fungal culture. Slides of sample should also be prepared.		on ordering requisition.* **BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours before transportation. **SDA :** incubated at 28°C for 18-24 hrs, If delay in transportation	≤ 2 hours at room temperature (Do not refrigerate)		
17	Culture and Sensitivity	Ulcer Biopsy	sterile screw capped container with sterile saline or in Cooked Meat Broth (CMB)	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.*	<24 hrs, store at room temperature **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37°Cfor 18-24 hours before transportation (Do not refrigerate)	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days
18	Culture and Sensitivity	Device Culture (orthopedic hardware, heart valve, etc)	Sterile screw capped specimen container with sterile saline.	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.*	<2 hrs at room temperature, <24 hrs at 2-8°C.	Daily	3-5 days
19	Bacterial Culture and Sensitivity & Fungal culture	Ear (inner and outer)	**Fluid sample:** Send in	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.*	Fluid or swab - transport as soon as	Daily	Bacteria: 3-5 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
		Culture plates	sterile screw capped container as much sample as possible. **Swab:** send in transport medium (with gel). Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolat e agar (CA)		**BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	possible (<2 hrs), store at room temperature. Fluid or swab - <24 hrs, store fluid at 2-8°C **Culture plates** ≤ 2 hours at room temperature (Do not refrigerate)		Fungal: 2 weeks
20	Bacterial Culture and Sensitivity & Fungal culture	Eye (conjunctiva) Culture plates	Swab in transport medium (with gel). Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs, hold at room temperature. If delay in transportation keep at 2-8ºC **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	Bacteria: 3-5 days Fungal: 2 weeks
21	Culture and Sensitivity and	Faeces (stool)	Sterile screw capped container, > 5 gm (> 5 mL).	Culture and Sensitivity	Avoid contaminating sample with urine. Transport the sample promptly to the laboratory (< 1 hour). If transport is delayed, transfer a portion of the sample to an enteric	Transport, unpreserved sample: <1 hr at room temperature, <24 hrs at 4ºC.	Daily	3-5 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
		Stool in enrichment Broth	Alkaline peptone water, Selenite F broth & Tryptone Soy Broth (TSB)		pathogen transport medium such as Cary Blair. Rectal swabs for routine pathogens are not recommended except in infants. Peptone water: Incubated at 35-37 ºC, 6-8 hours before transportation. Selenite F Broth : Incubated at 35-37 ºC 8-12 hours before transportation. Tryptone Soy Broth: Incubated at 35-37 16-24 hours before transportation.	Transport, sample in transport medium: <48 hrs at 4ºC or room temperature. Enrichment Broth ≤ 2 hours at room temperature prior incubation OR ≤ 1 hour at room temperature if not incubated.		
22	*Clostridium difficile* Toxin Assay	Faeces (stool)	sterile screw capped container, volume: > 5 mL.	Immunoenzymatic (Rapid test)	Formed stool will not be tested unless there is an indication that the patient has toxic megacolon. Samples on infants (<1 year of age) will not be tested. Formed stool (no diagnosis of toxin megacolon) will not be processed - stool sample must be liquid, i.e. take the shape of the container.	<1 hr at room temperature, <3 days at 2-8^{o}C.	Daily	24 hours
23	Stool microscopy (Ova & Parasites)	Faeces (stool)	sterile screw capped container, > 5 gm	Microscopy		<24 hrs, hold at room temperature.	Daily	24 hours

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
	Stool Occult Blood	Faeces (stool)	sterile screw capped container, > 5 gm	Immunochemical chromatographic		Transport to the laboratory as soon as possible. Do not refrigerate.	Daily	24 hours
24	Culture and Sensitivity Fungal culture Mycobacteria culture	Fluids (Includes all aseptically obtained fluids such as: abdominal, amniotic, ascites, bile, joint, paracentesis, pericardial, peritoneal, pleural, synovial, continuous ambulatory peritoneal. Or Blood culture bottle aerobic and anaerobic for routine bacterial culture) Culture plates	Sterile screw capped transport container. Volume as follows: Bacterial Culture >1 mL or transport using Cooked Meat Broth. Fungal Culture: >10ml AFB (Mycobacteria Culture): >10 mL Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocol	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation.	<24 hrs at room temperature. If delay in transportation keep at 2-8ºC **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-37ºCfor 18-24 hours before transportation (Do not refrigerate) **Schadler agar**: Anaerobic container with gas pack.	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks 8 weeks (Mycobacterium culture)

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			ate agar (CA) & Schaedler agar (Sch)		**BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours before transportation.	**Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)		
25	Mycobacterium culture and sensitivity	Gastric Wash or Lavage	Sterile screw capped transport container.	Culture and Sensitivity	Collect first thing in the morning before patient eats. If delay is more than 4 hours add 100 mg of sodium carbonate to neutralize acidity.	<24 hrs at room temperature.	Daily	8 Weeks
26	Fungal Culture	Hair	Sterile screw capped specimen container.	Culture	Minimum of 10 hairs.	<24 hrs, at room temperature	Daily	Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
27	Fungal Culture	Nail	Sterile screw capped specimen container.	Culture		<24 hrs, at room temperature	Daily	Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
28	Culture and Sensitivity	Nasal Swab Culture plates	Swab in transport medium (Swab with gel). Cultured on: Blood Agar	Culture and Sensitivity	**BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours	<24 hrs, store at room temperature. If delay in transportation keep at 2-8°C **Culture plates:** ≤ 2 hours at	Daily	3-5 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			(BA) and MacConkey Agar (Mac A)		before transportation.	room temperature (Do not refrigerate)		
29	Culture and Sensitivity	Nasopharyn-geal Aspirate Culture plates	Sterile, screw capped specimen container. Cultured on: Blood Agar (BA),MacConkey Agar (Mac) & Chocolate agar (CA)	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8ºC **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days
30	Fungal Culture	Skin Scraping	Sterile, screw capped specimen container.	Culture		<24 hrs, at room temperature	Daily	Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks
31	Culture and Sensitivity & Fungal Culture	Sputum – Expectorated / Induced Culture plates	Sterile, screw capped specimen container, no preservatives. Cultured on: Blood Agar (BA),MacCo	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	Local: <24 hrs, store at room temperature. If delay in transportation keep at 2-8ºC **Culture plates:** ≤ 2 hours at room	Daily	3-5 days Fungal Negative: 2 weeks Fungal Positive: 2-3 weeks

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			nkey Agar (Mac) & Chocolate agar (CA)			temperature (Do not refrigerate)		
32	Mycobacterium culture and sensitivity	Sputum – Expectorated / Induced	Sterile, screw capped specimen container, no preservatives.	Culture and Sensitivity	Optimal volume is 5-10 mL, minimum volume at 3 mL.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8°C	Daily (Exclude weekend and public holiday)	8 weeks
33	Culture and Sensitivity	Throat Swab Culture plates	Swab in transport medium for culture (Swab with gel). Cultured on: Blood Agar (BA),MacConkey Agar (Mac) & Chocolate agar (CA)	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37°C for 18-24hrs hours before transportation.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8°C **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days
34	Culture and Sensitivity & Fungal Culture	Tissue Culture plates	Sterile, screw capped specimen container, with 1 mL saline. **OR** Anaerobic transport media:	Culture and Sensitivity	Always sent as much tissue as possible. *Indicate empirical therapy on ordering requisition.*	<24 hrs, store at room temperature. **CMB :** <24 hrs at room temperature If delay in transportation Incubate at 35-	Daily	Negative 3-4 days Positive Aerobic: 3-5 days Positive (Anaerobic): 4-6 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			Cooked Meat Broth Cultured on: Blood Agar (BA),MacConkey Agar (Mac),Chocolate agar (CA) & Schaedler agar (Sch)		**BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation. **Schaedler agar** Incubated at 35-37ºC with anaerobic gas pack for 24 hours before transportation.	37ºCfor 18-24 hours before transportation (Do not refrigerate) **Schadler agar**: Anaerobic container with gas pack. **Culture plates** ≤ 2 hours at Room temperature (Do not refrigerate)		Fungal Negative: 2 weeks Fungal Positive: (2-3 weeks)
35	Mycobacterium culture and sensitivity	Tissue	Sterile, screw capped specimen container, with 1 mL saline.	Culture and Sensitivity	Always submit as much tissue as possible.	<24 hrs, Keep at 2-8ºC.	Daily (Exclude weekend and public holiday)	8 weeks
36	Culture and Sensitivity & Fungal Culture	Tracheal Secretion Culture plates	Sterile, screw capped specimen container. Cultured on: Blood Agar (BA),MacConkey Agar (Mac) & Chocolate agar (CA)	Culture and Sensitivity	Increased volume of sample facilitates the isolation of fungi. *Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8ºC **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days Fungal Negative: 2 weeks Fungal Positive: (2-3 weeks)

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
37	Mycobacterium culture and sensitivity	Tracheal Secretion	Sterile, screw capped specimen container.	Culture and Sensitivity	Increased volume of sample facilitates the isolation of mycobacteria.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8ºC	Daily (Exclude weekend and public holiday)	8 weeks
38	Culture and Sensitivity (For *Neisseria gonorrhoeae*)	Urethral Swab (male)	Swab in transport medium. (Swab with gel)	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.*	<24 hrs at room temperature	Daily	3-5 days
39	Culture and Sensitivity	Urine (Indwelling Catheter) Culture plates	Sterile, screw capped specimen container. Cultured on: Blood Agar (BA), or CNA Blood Agar (CNA) and MacConkey Agar (Mac)	Culture and Sensitivity	Minimum volume >1 mL *Indicate empirical therapy on ordering requisition.* **BA, MAC & CNA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<2 hrs at room temperature, <24 hrs at 2-8ºC. **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days
40	Culture and Sensitivity & Fungal Culture	Urine – Midstream Culture plates	Sterile, screw capped specimen container. Cultured on: Blood Agar (BA), or	Culture and Sensitivity	Minimum volume >1 mL **BA, MAC & CNA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<2 hrs at room temperature, <24 hrs at 2-8ºC. . **Culture plates:** ≤ 2 hours at room	Daily	3-5 days Fungal Negative: 2 weeks Fungal Positive:

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			CNA Blood Agar (CNA) and MacConkey Agar (Mac)		.	temperature (Do not refrigerate)		(2-3 weeks)
41	Mycobacterium culture and sensitivity	Urine – Midstream	Sterile, screw capped specimen container.	Culture and Sensitivity	Sample volume of at least 40 mL.	<2 hrs at room temperature, <24 hrs at 2-8ºC.	Daily (Exclude weekend and public holiday)	8 weeks
42	Culture and Sensitivity	Urine - Straight Catheter Culture plates	Sterile, screw capped specimen container. Cultured on: Blood Agar (BA), or CNA Blood Agar (CNA) and MacConkey Agar (Mac)	Culture and Sensitivity	Minimum volume >1 mL *Indicate empirical therapy on ordering requisition.* **BA, MAC & CNA** incubated at 35-37ºC for 18-24hrs hours before transportation.	<2 hrs at room temperature, <24 hrs at 2-8ºC. **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days
43	Culture and Sensitivity	High Vaginal Swab and Cervical Swab Culture plates	Swab in transport medium. (Swab in gel) Cultured on: Blood Agar (BA),MacConkey Agar (Mac), Chocolate	Culture and Sensitivity	*Indicate empirical therapy on ordering requisition.* **BA, MAC, CA or MTM** agar incubated at 35-37ºC for 18-24hrs hours before transportation.	<24 hrs, store at room temperature. If delay in transportation keep at 2-8ºC **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
*Preliminary result will be produced within 24 hours for culture and sensitivity testing. *Preliminary result will be produce within 1 week for Mycobacterium tuberculosis culture and sensitivity testing and fungal culture.								
			agar (CA) Or MTM Agar					
44	Culture and Sensitivity & Fungal Culture	Wound Swab Culture plates	Swab in transport medium.(Swab with Gel) Cultured on: Blood Agar (BA),MacConkey Agar (Mac) & Chocolate agar (CA)	Culture and Sensitivity	If requests more than one test on a swab taken from a specific site, i.e. bacterial culture aerobes, bacterial culture anaerobes and fungus culture, please ensure that a separate swab sample is submitted for each test requested. *Indicate empirical therapy on ordering requisition.* **BA, Mac & CA** incubated at 35-37^{o}C for 18-24hrs hours before transportation.	<24 hrs at room temperature. If delay in transportation keep at 2-8^{o}C (For fungal culture only) **Culture plates:** ≤ 2 hours at room temperature (Do not refrigerate)	Daily	3-5 days Fungal Negative: 2 weeks Fungal Positive: (2-3 weeks)

ALLERGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
MIX INDIVIDUAL ALLERGENS (ELISA-FEIA: QUANTITATIVE)								
1	Phadiatop Inhalant Screen [s]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
2	House Dust Mix [hx2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
3	Mould Spore Mix [mx2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
4	Pet Dander Mix [ex2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
5	Feather Mix [ex71]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
6	Occupational Chemical Mix [pax6]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
7	Common Food Mix [fx5E]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
8	Nuts Mix [fx1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
9	Seafood Mix [fx2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
10	Cereal Mix [fx3]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
11	Spice Mix [fx72]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
PROFILE (ELISA-FEIA: QUANTITATIVE)								
1	Allergy Panel (Food) [GP94A]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
2	Allergy Panel (Inhalant) [GP94B]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
3	Malaysian Allergy Panel 1 (Food & Inhalant) [GP94C]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
4	Domestic Allergy Panel [GP94D]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
5	Seafood Allergy Panel [GP94E]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
6	Pediatric Food Allergy Panel [GP94F]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
7	Malaysian Allergy Panel 2 (Food, Inhalant, Seafood, Mould) [GP94G]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
PROFILE (IMMUNOBLOT: SEMI-QUANTITATIVE)								
1	Atopy Allergy Panel [GP94H]	Serum	Plain tube	Immunoblot	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
2	Food Allergy Panel [GP94J]	Serum	Plain tube	Immunoblot	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
3	Paediatric Allergy Panel (Food & Inhalant) [GP94K]	Serum	Plain tube	Immunoblot	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
4	Inhalation Allergy Panel [GP94L]	Serum	Plain tube	Immunoblot	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
INDIVIDUAL (ELISA-FEIA: QUANTITATIVE)								
1	Oil Palm Pollen [p]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
2	Dermatophagoides pteronyssinus [d1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
3	Dermatophagoides farinae [d2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
4	Blomia tropicalis [Rd201]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
5	Cat Dander [e1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
6	Dog Dander [e5]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
7	Cockroach [i6]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
8	Egg White [f1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
9	Egg [f245]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
10	Egg Yolk [f75]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
11	Cow's Milk [f2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
12	Fish Cod [f3]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
13	Wheat [f4]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
14	Peanuts [f13]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
15	Soybean [f14]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
16	Rice [f9]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
17	Chicken [f83]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
18	Beef [f27]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
19	Cocoa [f93]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
20	Cheese [f81]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
21	Mutton [f88]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
22	Cashew Nuts [f202]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
23	Mushroom [Rf212]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
24	Curry [Rf281]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
25	Goat's Milk [Rf300]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
26	Crab [f23]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
27	Shrimp [f24]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
28	Tuna [f40]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
29	Sardine/Philchard [f61]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
30	Pacific Squid/Sotong [f58]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
31	Lobster [f80]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
32	Oyster [f290]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
33	Ikan Bilis [f313]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
34	Orange [f33]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
35	Banana [f92]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
36	Pineapple [f210]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
37	Lemon [f208]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
38	Papaya [Rf293]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
39	Latex [k82]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
40	Bermuda Grass [g2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
41	Johnson Grass [g10]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
42	Penicillium chrysogenum [m1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
43	Cladosporium herbarum [m2]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
44	Aspergillus fumigatus [m3]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
45	Mucor racemosus [m4]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
46	Candida albicans [m5]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
47	Alternaria alternata [m6]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
48	Clam [f207]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week
49	Greer Labs [H1]	Serum	Plain tube	ELISA-FEIA	Schedule Test	2 to 8 °C	Wednesday *Cut-off at 11.00am	1 week

HISTOPATHOLOGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
1	HPE (Histopathological Examination)	Human tissue/body parts	Clean container with appropriate size with 10% buffered formalin Volume of Formalin : at least 10 times the volume of specimen (10:1) Large specimen must be entirely submerged in formalin to ensure proper fixation Note : Do not put large specimen in small containers as this would prevent proper fixation and distort the specimen	Microscopic examination of FFPE (formalin fixed paraffin embedded) tissue sections Hematoxylin and Eosin (H&E) staining	Specimens unable to be sent on the same day as removal should be left at room temperature in formalin. No refrigeration is needed. Write the patient's details, specimen type and anatomical site on each container label. Do not label on the lid of container. Specimen from different anatomical sites should be sent in separate containers and must be itemized in the same request form. For specimen where orientation is important, mark or tag the specimen e.g., axillary tail of mastectomy specimen with important margins. Multiple small specimens such as gastrointestinal biopsies should ideally be mounted on a piece of filter paper and immediately put in formalin. If more than one specimen container is submitted for the same patient at the same operation/procedure, please use only one request form	Tissue specimen should be placed in a container with 10% neutral buffered formalin (NBF) immediately after removal to prevent drying and autolysis artefact. Fasten the lid securely to prevent leakage in transit.	Daily basis	Small to Medium specimen Routine : 1 – 4 working days Urgent : 1 - 2 working days. Large to Complex specimen Routine : 4 – 7 working days Urgent : 3 working days Requisitions marked as “URGENT” will be processed for the earliest diagnostic reading. If any additional investigation or test needed for

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
					and clearly itemized in the request form			urgent cases, Pathologist will inform clinician.
2	Frozen Section (FS)	Human tissue/body parts	Appropriate size of container suitable with specimen size and type (i.e sterile specimen container, biohazard specimen transport bag). Specimen should be sent fresh WITHOUT formalin or any other preservatives.	Microscopic examination	Contact Histopathology Laboratory at least 24 hours (03 4027 2806) in advance to confirm scheduling. Record time of collection /removal from operation theatre on the request form	Frozen specimens must be transported immediately after collection in a sterile container surrounded by an ample amount of dry ice to keep the specimen frozen until it reaches the laboratory.	Daily basis	Verbal report: 20 minutes to 45 minutes (single to multiple blocks) measured from the time the pathologists received the frozen section specimens to the time that pathologists returned FS diagnosis to surgeons. Complete H&E report : 3 to 5 working days
3	Immunohistochemical (IHC) stain studies List of Antibodies: Please refer Table 1. List of Antibodies for IHC Stain	Tissue block	N/A	Microscopic examination of FFPE (formalin fixed paraffin embedded) tissue sections	N/A	Room Temperature	Daily basis	2 – 3 working days upon request and completion of HPE reporting

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
4	Special stain studies	Tissue block	N/A	Microscopic examination of FFPE (formalin fixed paraffin embedded) tissue sections	On request by histopathologist only	Room Temperature	Daily basis	2 – 3 working days
5	Second opinion	H&E stained or unstained slides Tissue blocks	N/A	Microscopic examination of FFPE (formalin fixed paraffin embedded) tissue sections.	Provide primary HPE report together with the second opinion request.	Room Temperature	Daily basis	3 – 5 working days

Note:

i. The TAT (Turnaround Time) might be extended for the case needs additional procedures such as decalcification (bone specimen), special stains, immunohistochemistry, discussion or second opinion depending on the complexity of the cases.
ii. Hence, the diagnostic accuracy should not be compromised for the sake of speed.
iii. Safety Notes: It is essential that all fresh tissue MUST be treated as though it is potentially infectious, regardless of the clinical history.

1. ALK-1	23. CD 117 (c-kit)	45. Inhibin Alpha
2. Alphafetoprotein (AFP)	24. CD 138 / Syndecan-1	46. Ki 67
3. AMACR (p504s)	25. CDX-2	47. Mammaglobin
4. Bcl-2 MAb	26. CEA	48. Myogenin
5. Bcl 6	27. Cerb2 (Her2/neu)	49. Napsin A
6. CA 125	28. Chromogranin A	50. Oct-4
7. Calretenin	29. CK AE1/AE3	51. p16
8. CD1a	30. CK 5/6	52. p53
9. CD 3 (T-Cell)	31. CK 7	53. p63
10. CD 5	32. CK 20	54. PLAP
11. CD 10	33. Cyclin D1	55. Progesterone Receptor (PR)
12. CD 15	34. Desmin	56. PSA
13. CD 20 (B-Cell)	35. EBV (Epstein-Barr virus)	57. S100
14. CD 21	36. EMA	58. SMA
15. CD 23	37. Estrogen Receptor (ER)	59. Synaptophysin
16. CD 30	38. E- Cadherin	60. Tdt
17. CD 34	39. EP-CAM (Ber Ep4)	61. Thyroglobulin
18. CD 45 (LCA)	40. GCDFP-15	62. TTF-1
19. CD 56	41. GFAP	63. Vimentin
20. CD 68	42. Glypican 3	64. WT-1
21. CD 79a	43. HMB45 (melanosome)	
22. CD 99	44. HMWCK (anti-CK)	

Table 2. List of Antibodies for IHC Stain

CYTOPATHOLOGY

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
1	Conventional Pap (ps5)	Fixed smear	Slide casing	Pap stain	Fix slide immediately with 95% alcohol or fixative spray	Insert slide into slide casing	Daily basis	3 working days Urgent : 1 to 2 working days
2	Liquid Based Cytology (cylc3)	Surepath Vial (Commercial)	Surepath vial	Pap stain	Tip off the brush into the vial for optimum result	Tighten cap and dispatch to lab	Daily basis before 12pm	3 working days Urgent : 1 to 2 working days
3	Body Fluids Cytology (cy1)	Peritoneal; Pericardial; Pleural	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Send immediately, if delay more than 12 hours, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
4	Urine Cytology (cy1)	Urine	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Send immediately, if delay more than 12 hours, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
5	CSF Cytology (cy1)	CSF	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis *treat as urgent sample	1 to 2 working days
6	Fine Needle Aspiration Cytology (FNA1)	FNA Slides (eg: Thyroid, Lymph Node, Breast, Salivary gland, any body lumps)	Slide casing	Pap stain	Fix slide immediately with 95% alcohol or fixative spray	Insert slide into slide casing	Daily basis	3 working days Urgent : 1 to 2 working days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
7	Fine Needle Aspiration Cytology (FNA1)	FNA Fluids (eg: Thyroid, Lymph Node, Breast, Salivary gland, any body lumps)	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
8	Bronchial Brushing Cytology (cy1)	Fixed smear	Slide casing	Pap stain	Fix slide immediately with 95% alcohol or fixative spray	Insert slide into slide casing	Daily basis	3 working days Urgent : 1 to 2 working days
9	Bronchial washing Cytology (cy1)	Bronchial washing	Sterile container	Pap Stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
10	Bronchial alveolar lavage Cytology (cy1)	Bronchial alveolar lavage	Sterile container	Pap Stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
11	Cyst Fluid Cytology (cy1)	Cyst fluid	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days

No	Test	Specimen	Container	Method	Special Instruction	Transportation Requirement	Test Schedule	TAT
12	Eye fluids/ Eye Washing Cytology (cy1)	Eye fluids/ Eye washing	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
13	Oesophageal washing Cytology (cy1)	Oesophageal washing	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
14	Oesophageal brushing cytology (cy1)	Fixed smear	Slide casing	Pap stain	Fix slide immediately with 95% alcohol or fixative spray	Insert slide into slide casing	Daily basis	3 working days Urgent : 1 to 2 working days
15	Sputum cytology (cy1)	Sputum	Sterile container	Pap stain	Tighten the cap and separate sample if sharing with other tests	Sent immediately, if delay anticipated, refrigerate at 2-8ºC	Daily basis	3 working days Urgent : 1 to 2 working days
16	Nipple discharge (cy1)	Fixed smear	Slide casing	Pap stain	Fix slide immediately with 95% alcohol or fixative spray	Insert slide into slide casing	Daily basis	3 working days Urgent : 1 to 2 working days

MOLECULAR DIAGNOSTICS

Please refer Appendix 4 – Molecular Diagnostics Catalogue

APPENDICES

APPENDIX 1 – FORMS

LL.7-001 - Integrated Diagnostics Laboratory (IDL) Request Form

LAB BARCODE

LABLINK MEDICAL LABORATORY

LABLINK MEDICAL LABORATORY
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel. : +603 40234588
Fax.: +603 40234298
Web: www.kpjlablink.com

INTEGRATED DIAGNOSTICS LABORATORY REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy)

Time of Collection (hh/mm) AM / PM

Fasting (at less 8 hours prior) ☐ YES ☐ NO

Requesting Doctor's Name, Signature and Address

STAMP HERE

Doctor's Signature: _____

URGENT: ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

RELEVANT CLINICAL INFORMATION *Please include drug therapy if any

TEST REQUEST *Please check (✓) the test(s) required

PROFILE

✓	TEST NAME	LIS CODE
	Anaemia Biochemical Profile	P GP2
	Antenatal Profile	E P GP4E
	Arthritis Profile	E P GP12
	Dialysis Profile	E P U GP40C
	Executive Profile	E E P U GP61M
	Febrile Studies	E P U GP26
	Female Cancer Marker	P GP71A
	Full Blood Count	E GP1C
	Full Blood Picture	E GP1
	Hepatitis B Screening	P GP31
	Infertility Studies	P GP35
	Iron Studies	P GP2D
	Lipid Profile	P GP24
	Liver Function Test	P GP36A
	Male Cancer Marker	P GP71Q
	Menopausal Hormone Studies	P GP62
	Renal Profile	P GP40A
	Thalassemia Studies	E P GP43
	Thyroid Function Studies	P GP46A
	Urine FEME	U uFEME
	Venereal Disease Antibodies Profile	P GP51A

HAEMATOLOGY

✓	TEST NAME	LIS CODE
	Blood Group & Rhesus	E Bgrp
	Bone Marrow Aspirate	E BoneMEx
	G6PD	BS / E G6PD
	Malarial Parasite - Antigen	E MPAg
	Malarial Parasite - Blood Film	E BFMP
	Peripheral Blood Film	E PBF
	Peripheral Blood Film – Haematologist Report	E PBFhm1
	Reticulocyte	E Retic

BIOCHEMISTRY

✓	TEST NAME	LIS CODE
	Amylase	P Amy
	Bilirubin, Direct	P Dbili
	C-Reactive Protein	P CRP
	Creatinine Kinase	P CK
	Fructosamine	P Fructo
	Glucose, Fasting	F GluF
	Glucose, Random	F Glu
	Glucose Tolerance Test, 2 Point	F U GTT2
	Glycosylated Hb - A1C	E HbA1c
	Lactate Dehydrogenase	P LDH
	Parathyroid Hormone	P PTH

FLUIDS & EXCRETIONS

✓	TEST NAME	LIS CODE
	Urine 24 Hours Protein	U u24Prot
	Urine Microalbumin	U uMalb
	Urine Pregnancy Test	U uPT

SEROLOGY / IMMUNOLOGY

✓	TEST NAME	LIS CODE
	Antistreptolysin O Titre	P ASOT
	Dengue IgM & IgG Antibody	P DenAb
	Dengue NS1 Antigen	P DenNS1Ag
	EBV VCA IgA	P EBVcaA
	Free PSA	P fPSA
	Helicobacter pylori Antibody	P HPAbgn
	Hepatitis A Antibody (Total)	P HAVAB
	Hepatitis A IgM	P HAVM
	Hepatitis C Antibody	P HCVAb
	HIV I/II Screen	P HIV
	Immunoglobulin E (IgE)	P IgE
	T. pallidum Hemagglutination Assay	P TPHA
	VDRL / RPR	P VDRL

CANCER MARKER

✓	TEST NAME	LIS CODE
	Alpha-Fetoprotein	P AFP
	Cancer Antigen 125	P CA125
	Cancer Antigen 15-3	P CA153
	Cancer Antigen 19-9	P CA199
	Carcinoembryonic Antigen	P CEA
	Prostate-Specific Antigen	P PSA

ADDITIONAL / OTHER TEST (Please specify)

LEGEND: C Citrated Tube | E EDTA Tube | F Fluoride Tube | H Heparin Tube | P Plain Tube | U Urine
HP Heel Prick | NS Nasal Swab | TS Throat Swab | BS Blood Spot | CL Call Lab

LL.7-001
Version 1
28-02-2018

Page 1 of 1

LL.7-002 - Histopathology Laboratory Request Form

LAB USE ONLY

LABLINK
MEDICAL LABORATORY

Histopathology Laboratory
Makmal Perubatan Lablink
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel.: +603 4023 4588 Ext: 4010, 4142
Fax.: +603 4023 4298

HISTOPATHOLOGY LABORATORY REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy) | Time (hh/mm) AM / PM

No. of Specimen/Container Submitted:

FOR LABORATORY USE

Specimen Received Date (dd/mm/yy) | Time (hh/mm) AM / PM

Pathologist In Charge:

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT: (Please tick) ☐ PHONE _____ ☐ FAX _____ ☐ EMAIL _____

Patient Type: ☐ Inpatient ☐ Outpatient

Payment Type: ☐ Bill ☐ Cash

CLINICAL INFORMATION

NATURE AND SITE OF SPECIMEN :

DIAGNOSIS :

RELEVANT CLINICAL INFORMATION :

ANY PREVIOUS EXAMINATION WITHIN OR OUTSIDE LABLINK? :

☐ YES ; Details (e.g. Date, Case No.,Results etc.): _____

☐ NO

TEST REQUEST

*Please check (✓) the appropriate box

HISTOPATHOLOGY EXAMINATION FOR:			
☐	ALL BIOPSIES	☐	OTHERS LARGE ORGANS (TUMOUR)
☐	APPENDIX	☐	OTHERS SMALL ORGANS
☐	BIOPSIES / ADDITIONAL SITE	☐	OTHERS SMALL ORGANS (TUMOUR)
☐	BONE MARROW BIOPSY / TREPHINE	☐	PARTIAL GASTRECTOMY
☐	CERVICAL POLYPS	☐	PROSTATIC CHIPS
☐	CONE BIOPSY	☐	RADICAL MASTECTOMY
☐	ENDOMETRIAL CURRETTING	☐	RENAL BIOPSY
☐	FALLOPIAN TUBE	☐	SINGLE OVARY
☐	FIBROIDS	☐	SKIN BIOPSY
☐	GALLBLADDER	☐	TWO OVARIES
☐	GUT RESECTION	☐	UTERUS & APPENDAGES
☐	LYMPH NODES	☐	UTERUS ALONE
☐	NEPHROTOMY	☐	UTERUS / DYSPLASIA
☐	OTHERS LARGE ORGANS	☐	VAS DEFERENS

ADDITIONAL TEST	
☐	ER / PR
☐	HER-2 DUAL IN SITU HYBRIDISATION (ISH)
☐	IMMUNOFLUORESCENCE
☐	IMMUNOHISTOCHEMISTRY (IHC)

	MISCELLANEOUS
☐	

NO RESULT WILL BE REPORTED UNLESS THE ABOVE PARTICULARS ARE GIVEN

LL.7-002
Version 1
10-01-2019

LL.7-003 - Cytology Request Form

LAB USE ONLY

LABLINK
MEDICAL LABORATORY

Bangunan Lablink
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel. +603 4023 4588
Fax. +603 4023 4298
Email inquiry@kpjlablink.com
Web www.lablink.com.my

CYTOLOGY REQUISITION FORM

Patient's Name

IC/Passport No.

Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) Age Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Address _____

Specimen Collection Date (dd/mm/yy)

Time (hh/mm) AM / PM

Volume of Specimen Submitted: ml

No. of Slides Submitted:

Requesting Doctor's Name and Address

Doctor's Signature: _____

URGENT ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

GYNAECOLOGICAL CYTOLOGY

Date of LMP (dd/mm/yy)

Collection Method
☐ Liquid Base (LBC) (61120029 - CyLC1)
☐ Conventional/Slide (61120001 - PS1/PS5)

Site
☐ Cervical ☐ Combined ☐ Endocervical ☐ Vaginal ☐ Vault

Collection Instrument
☐ Brush ☐ Broom ☐ Spatula

Cervix
☐ Normal ☐ Suspicious ☐ Erosion

Contraception
☐ BCP ☐ IUD

Clinical Status
☐ Pregnancy (#weeks)_____ ☐ Post Partum (#weeks)_____
☐ Post Menopausal ☐ Post Menopausal Bleeding
☐ Hormone Replacement Therapy

Hysterectomy
☐ Yes ☐ No
If Yes :- ☐ Total – No Cervix ☐ Partial – Cervix Present

Patient History
Biopsy Concurrently Submitted? ☐ Yes ☐ No
Is Patient Vaccinated for HPV? ☐ Yes ☐ No
☐ Previous Abnormal Cytology
Result/Date:
☐ Biopsy
Result/Date:

HPV
☐ HPV/DNA Test ☐ HPV/DNA Test (If ASCUS)

NON GYNAECOLOGICAL CYTOLOGY

FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) (61120007)

Breast
☐ Left ☐ Right

Thyroid
☐ Left Lobe ☐ Right Lobe

Salivary Gland
☐ Left ☐ Right Specify Gland:

Lymph Node
☐ Site (Specify):

OTHER CYTOLOGY (61120003)

Respiratory Tract
☐ Sputum
☐ BAL Site:
☐ Bronchial Brushing Site:

Body Cavity
☐ Pleural ☐ Peritoneal ☐ Pericardium ☐ Synovial

Urine
☐ Voided ☐ Catheterized

Other
☐ Semen
☐ Other Sites (Specify):

CLINICAL HISTORY

LL.7-003
Version 2
17-03-2016

LL.7-004 - Prenatal Risk Screen Form

LAB USE ONLY

LABLINK
MEDICAL LABORATORY

Makmal Perubatan Lablink
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel. +603 4023 4588
Fax. +603 4023 4298
Email inquiry@kpjlablink.com
Web www.kpjlablink.com

PRENATAL RISK SCREEN FORM

Patient's Name

IC/Passport No.

Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) Age Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Diabetes: ☐ Yes ☐ No Smoker: ☐ Yes ☐ No

Address _____

Referring Doctor's Name and Address

URGENT ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

Specimen Collection Date (dd/mm/yy)

Specimen Collection Time (hh/mm) AM / PM

Maternal Weight kg

IVF Pregnancy ☐ Yes ☐ No

Previous History of T21, T18, T13, NTD ☐ Yes ☐ No

Foetus ☐ Single ☐ Twin ☐ _____

LMP Date (dd/mm/yy)

EDD (dd/mm/yy)

TEST REQUEST
(Specimen Requirement 5 ml Blood in Plain Container)

☐ **FIRST TRIMESTER SCREENING**
(Free Beta-HCG & PAPP-A)

Required timing for blood collection is **11 weeks 0 days to 13 weeks 6 days.**

CRL mm Gestation Weeks Day(s)

NT Measurement mm By FMF certified sonographer, Code No.: _____

SECOND TRIMESTER SCREENING

☐ **DOUBLE TEST** (AlphaBeta Test - AFP and Beta-HCG)

☐ **TRIPLE TEST** (Down Triple Test - Free Beta-HCG and u-Estriol)

Required timing for blood collection is **14 weeks 0 days to 19 weeks 6 days.**

By Ultrasound performed on (dd/mm/yy) (Trans-vaginal / Abdominal scan) Gestation Weeks Day(s)

By Dates of LMP (dd/mm/yy) Gestation Weeks Day(s)

By Clinical Assessment Gestation Weeks Day(s)

CLINICAL HISTORY

Doctor's Signature: _____ Date: _____

LL.7-004
Version 4
11-08-2017

LL.7-005 - Quantiferon TB Gold Request Form

LAB USE ONLY

LABLINK
MEDICAL LABORATORY

Makmal Perubatan Lablink,
Lablink (M) Sdn. Bhd.
14 (129) Jalan Pahang Barat,
Off Jalan Pahang,
53000 Kuala Lumpur, Malaysia.
Tel.: +603 4023 4588 Ext: 6002, 6005
Fax.: +603 4023 4298

QUANTIFERON TB GOLD REQUEST FORM

Patient's Name

IC/Passport No.

Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) Age Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

CLINICAL INFORMATION
(Please provide drug therapy if any including date & time given)

SPECIMEN DETAILS
(Compulsory to fill by sender)

Specimen Collection Date: (dd/mm/yy)

Time of Collection: (hh/mm) AM / PM

Taken by: _____

FOR LABORATORY USE ONLY
(Compulsory to fill by lab staff)

DATE & TIME TUBE RECEIVED: (dd/mm/yy) @ (hh/mm) AM / PM

INCUBATION:

Start Date & Time: @ AM / PM

End Date & Time: @ AM / PM

Lab Staff Signature

LL.7-005
Version 2
17-03-2016

LAB BARCODE

LABLINK
MEDICAL LABORATORY

Microbiology Laboratory
Makmal Perubatan Lablink
14 (1/2B) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel.: +603 4023 4588 Ext: 5000, 5007
Fax.: +603 4023 4296

MICROBIOLOGY LABORATORY REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy)

Time of Collection (hh/mm) AM / PM

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT: (Please tick) ☐ PHONE _____ ☐ FAX _____ ☐ EMAIL _____

RELEVANT CLINICAL INFORMATION *Please include antimicrobial therapy if any

SPECIMEN DETAILS *Please check (✓) the specimen(s) sent

- ☐ Abscess[1,2]
- ☐ Acilla swab
- ☐ Bartholin Cyst / Abscess[2]
- ☐ Bile Fluid / Swab
- ☐ Blood or Bone Marrow
- ☐ Bone[1,2]
- ☐ Bronchial Lavage
- ☐ Bronchial Washing
- ☐ Catheter Tip[1]
- ☐ CSF
- ☐ Cervical Swab
- ☐ Colon Biopsy
- ☐ CVL Tip
- ☐ Cyst[1]
- ☐ Discharge[1,2]
- ☐ Ear Swab[1]
- ☐ Environmental Screen[1]
- ☐ ETT Secretion
- ☐ Eye Swab[1]
- ☐ Gastric Biopsy
- ☐ Groin Swab
- ☐ Hair
- ☐ High Vaginal Swab
- ☐ Knee Aspirate[1,2]
- ☐ Low Vaginal Swab
- ☐ Nail Scrapping[1]
- ☐ Nasal Swab
- ☐ Penile Swab
- ☐ Peritoneal Fluid[1]
- ☐ Pleural Fluid[1]
- ☐ Pus Aspirate[1,2]
- ☐ Pus Swab[1,2]
- ☐ Rectal Swab
- ☐ Semen
- ☐ Skin Scrapping[1]
- ☐ Skin Swab[1]
- ☐ Sputum
- ☐ Stool/Faeces
- ☐ Synovial Fluid[1,2]
- ☐ Throat Swab
- ☐ Sterile Body Fluid in Blood Culture Bottle (Aerobic)[1]
- ☐ Sterile Body Fluid in Blood Culture Bottle (Anaerobic)[1]
- ☐ Tip[1]
- ☐ Tissue[1,2]
- ☐ Tracheal Aspirate
- ☐ Urethral Swab
- ☐ Urine
- ☐ Wound Swab[1]
- ☐ Other: _____

[1]OTHER SPECIMEN DETAILS
Site: ☐ Left ☐ Right From what/which organ/body area: _____

NOTE: Please refer the details of specimen mark "1" and "2" at the back of this form

TEST REQUEST *Please check (✓) the test required

CULTURE & SENSITIVITY TEST

✓	Charge code	TRC test	LIS code
☐	01020102	*Alert Organism Surveillance Culture	
☐	01020101	Bacteria ID & Sensitivity	
☐	01020102	Bacteria ID	
☐	01020103	Bacteria Susceptibility Testing	
☐	01020004	Blood Culture & Sensitivity, Aerobic	
☐	01020004	Blood Culture & Sensitivity, Anaerobic	
☐	01020004	Blood Culture & Sensitivity, Paediatric	
☐	01020170	Blood Fungal Culture	
☐	01020144	*CRE Culture	
☐	01020003	Culture & Sensitivity, Aerobic	
☐	01020004	Culture & Sensitivity, Anaerobic	
☐	01020105	Culture & Sensitivity, Aerobic & Anaerobic	
☐	01020104	Ear Specimen Culture & Sensitivity	
☐	01020035	Environmental Culture	
☐	01020154	Comprehensive Environmental Culture	
☐	01020106	Eye Specimen Culture & Sensitivity	
☐	01020005	*Fungal Culture	
☐	01020183	*Fungal Culture, Extended	
☐	01020096	Fungal ID	
☐	01020155	Group B Streptococcus Screening by Culture	
☐	01020171	Helicobacter pylori Culture & Sensitivity	
☐	01020196	HVS Culture & Sensitivity	
☐	01020108	MRSA Infection Control Screen	
☐	01020173	Yeast Culture & Sensitivity	
☐	01020096	Yeast Identification	
☐	01020097	Yeast Sensitivity	
☐	01020174	Sensitivity, Anaerobic	
☐	01020115	*Stool Culture & Sensitivity, Basic - Panel 1	

MYCOBACTERIUM TEST

✓	Charge code	TRC test	LIS code
☐	01020133	Atypical Mycobacterium Culture	
☐	01020167	MTB Liquid Culture	
☐	01020168	MTB Liquid Sensitivity - 1st Line Agents	
☐	01020063	MTB Liquid Culture & Sensitivity - 1st Line Agents	
☐	01020094	Non-Tuberculosis Mycobacterium (NTM) Culture & Sensitivity	
☐	01020169	Non-Tuberculosis Mycobacterium (NTM) Sensitivity	
☐	01020154	PCR for MTB & Extensive Drug Resistance (XDR) Detection	
☐	01020153	PCR for MTB & Multi Drug Resistance (MDR) Detection	
☐	01020152	PCR for MTB & Non-Tuberculosis Mycobacterium (NTM) Detection	
☐	01020155	PCR MTB, Multi-Drug & Extensive Drug Resistance Detection	
☐	01020190	PCR MTB & NTM Detection for FFPE Tissue Block	
☐	01020115	Rapid PCR for Detection of MTB DNA and Rifampicin Resistance	

RAPID TEST

✓	Charge code	TRC test	LIS code
☐	01020040	Adenovirus Antigen, Stool	

MICROSCOPY TEST

✓	Charge code	TRC test	LIS code
☐	01020014	AFB Stain	
☐	01020046	Direct Microscopy (Wet Preparation)	
☐	01020048	Gram Stain	
☐	01020013	Indian Ink Stain	
☐	01020007	KOH Preparation for Fungal	
☐	01060007	Stool Ova & Cyst	
☐	01020175	TB Auramine O Fluorescent Stain	

OTHER TEST (Please specify):

*Please refer the details of each panel test marked (*) at the back of this form

DETAILS

*Details of Culture & Sensitivity Test

Fungal Culture (CF)	*Fungal Culture (CFT)*
Ear & Eye specimen; Environmental sampling (ENV); Nasal, Axilla, Groin & Rectal swab; Skin, Hair & Nails; Throat, Genital & Urine	Sputum, Bronchial Lavage, Tracheal Aspirate; Sterile Body Sites:- Maxillary Sinus, Biopsy, Polyps, Cystic Masses, Tissue, Wound Specimen, CSF, Peritoneal Fluid, Pleural Effusion, Synovial Fluid, Knee Aspirate, Blood Culture, Bone, Pus, Abscess, Aspirate etc.

Stool Culture & Sensitivity Panel 1
(Basic Bacterial Enteric Pathogen)

Salmonella species;
Salmonella typhi;
Shigella species;
Vibrio cholerae;
Vibrio parahaemolyticus

Carbapenem Resistant Enterobacteriaceae (CRE)

Carba-NP enzymatic detection;
Etest to determine minimum inhibitory concentration

Alert Organism Screening

Methicillin Resistant *Staphylococcus aureus* (MRSA);
Extended Spectrum Beta-Lactamase (ESBL) microorganism;
Carbapenem Resistant Enterobacteriaceae (CRE);
Multidrug Resistant (MDR) *Acinetobacter baumannii/Pseudomonas aeruginosa*;
Extremely Drug Resistant (XDR) *Acinetobacter baumannii/Pseudomonas aeruginosa*;
Vancomycin Resistant Enterococcus (VRE)

Specimen Details (Marked with "2" and "3")

Sterile Body Fluid:	*Kindly use anaerobic transport media:*
Bone marrow Knee aspirate Liver abscess Peritoneal fluid Pleural fluid Pus aspirate Pericardial fluid Synovial fluid	Cooked Meat Broth

FOR LAB USE ONLY

Lab. No.
Barcode Here

Primary Receiving Information	Secondary Receiving Information
Date Received:_____	Date Received:_____
Time Received:_____	Time Received:_____
	Sample Temp (°C) upon Receiving:_____
Received by:_____	Received by:_____

Additional Information:

FOR LAB USE ONLY

*Please check (√) and fill in the appropriate box

Specimen Registration by:_____

Specimen Batch Registration by: _____

Specimen Processed by: _____

MACROSCOPIC EXAMINATION

Urine Specimen

Colour: ◯Yellow ◯Brown ◯Blood Stain ◯Amber ◯Green ◯Other: _____
Turbidity: ◯Clear ◯Cloudy

Sputum Specimen

Appearance: ◯Purulent ◯Mucoid ◯Salivary ◯Mucopurulent ◯Mucosalivary ◯Contains Blood

Stool Specimen

Consistency (Based on Bristol Stool Chart):

◯Type 1 ◯Type 2 ◯Type 3

◯Type 4 ◯Type 5 ◯Type 6

◯Type 7

Blood Stain: ◯Not Seen ◯Seen
Mucous: ◯Not Seen ◯Seen

MICROSCOPIC EXAMINATION

Wet Preparation:

WBC: _____: Unit: ◯/uL/mL ◯/hpf
RBC: _____: Unit: ◯/uL/mL ◯/hpf
Epithelial Cell: ◯Not Seen ◯Occ. ◯1+ ◯2+ ◯3+
Bacteria: ◯Not Seen ◯Occ. ◯1+ ◯2+ ◯3+
Monilia: ◯Not Seen ◯Seen
Trichomonas vaginalis: ◯Not Seen ◯Seen

Gram Stain:

Polymorph: _____ /hpf
Epithelial Cell (Sputum, B. Lavage, Tracheal Asp.): _____ /hpf
Epithelial Cell (Genital Specimen):
◯Not Seen ◯Occ. ◯1+ ◯2+ ◯3+
Gram Negative Intracellular Diplococci: ◯Not Seen ◯Seen
Clue Cell: ◯Not Seen ◯Seen
Monilia: ◯Not Seen ◯Seen
Gram Positive Cocci: ◯Not Seen ◯Seen
Gram Positive Rod: ◯Not Seen ◯Seen
Gram Negative Rod: ◯Not Seen ◯Seen

AFB Stain:

◯Not Seen (0 AFB /300 hpf)
◯_____ /100 hpf (1 - 9 AFB /100 hpf)
◯1+ (10 - 99 AFB /100 hpf)
◯2+ (1 - 10 AFB in each hpf /50 hpf)
◯3+ (>10 AFB in each hpf /20 hpf)

INCUBATION INFORMATION

Date & Time Start: _____
Date & Time End: _____
Duration (Hours): _____

LL 7-006
Version 7
19-03-2021

Page 2 of 2

LL.7-008 - Molecular Diagnostics Laboratory (MDL) Request Form

LAB BARCODE

LABLINK
MEDICAL LABORATORY

Molecular Diagnostics Laboratory
Makmal Perubatan Lablink
14 (1/29) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel.: +603 4023 4588 (Ext: 6002, 6005
Fax.: +603 4023 4296

MOLECULAR DIAGNOSTICS LABORATORY (MDL) REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy) | Time of Collection (hh/mm) ☐☐ AM / PM

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT: ☐ PHONE _____ ☐ FAX _____ ☐ EMAIL _____

RELEVANT CLINICAL INFORMATION *Please include antimicrobial therapy if any

SPECIMEN DETAILS *Please check (✓) the specimen(s) sent

☐ SurePath	☐ Blood in Plain Tube	☐ CSF	☐ NP Aspirate	☐ Nasal Washes	☐ NOS Swab
☐ LBC	☐ Blood in EDTA	☐ Sputum	☐ Nasal Swab	☐ OP Swab	☐ Other: _____
☐ Cervical Swab	☐ Serum	☐ BAL	☐ Throat Swab	☐ Stool	
☐ Genital Swab	☐ Plasma	☐ Tracheal Aspirate	☐ NP Swab	☐ Urine	

TEST REQUEST *Please check (✓) the test(s) required

RESPIRATORY INFECTIONS

- ☐ 61020181 PCR for Covid-19 SARS-CoV-2 RNA Detection (PCRcovid19)
- ☐ 61020173 PCR for Respiratory Pathogen Panel; 33 Targets (PCR33rppl2)
- ☐ 61020160 PCR for Respiratory Bacterial Pathogen Panel; 7 Targets (PCRRB1)
- ☐ 61020107 PCR for MERS-CoV RNA Detection (PCRmerCoV)

MENINGITIS, CENTRAL NERVOUS SYSTEM (CNS) INFECTIONS

- ☐ 61020145 Rapid PCR for Meningitis/Encephalitis Panel; 14 Targets (PCRmeniR1)
- ☐ 61020160 PCR for Meningitis Viral Pathogen Panel; 12 Targets (PCRmenI2)
- ☐ 61020166 PCR for Meningitis Bacterial Pathogen Panel; 6 Targets (PCRmenI3)

GASTROINTESTINAL INFECTIONS

- ☐ 61020157 Rapid PCR for Gastrointestinal Panel; 22 Targets (PCRGI1)
- ☐ 61020162 PCR for Gastrointestinal Viral Pathogen Panel; 6 Targets (PCRGI2)
- ☐ 61020163 PCR for Gastrointestinal Bacterial Pathogen Panel; 7 Targets (PCRGI3)

HEPATITIS & HIV-1 INFECTIONS

- ☐ 61020136 Rapid PCR for HCV Viral Load (PCRhcvVLR)
- ☐ 61040060 Rapid PCR for HBV Viral Load (PCRhbvQR)
- ☐ 61020134 Rapid PCR for HIV-1 Qualitative (PCRhivQLR)
- ☐ 61020135 Rapid PCR for HIV-1 Viral Load (PCRhivVLR)

BLOOD DONOR SCREENING

- ☐ 61020070 Nucleic Acid Testing (NAT) for Blood Donor Screening (NAATI , NATbd)

TROPICAL AND EMERGING INFECTIOUS DISEASES

- ☐ 61020146 PCR for Tropical Fever Pathogen Panel; 7 Targets (PCRtfr1)
- ☐ 61020148 PCR for Dengue Differentiation Panel; 4 Targets (PCRdenDF1)
- ☐ 61020071 PCR for Leptospira DNA Detection (PCRlepto)
- ☐ 61020168 PCR for Zika Virus RNA Detection (PCRzikV1)
- ☐ 61020149 PCR for Plasmodium (Malaria) Differentiation Panel; 5 Targets (PCRmpDF1)

SEXUALLY TRANSMITTED INFECTIONS

- ☐ 61020159 PCR for STI Essential Screening Panel; 7 Targets (PCRsti1)
- ☐ 61020175 PCR for STI Genital Ulcer Panel; 7 Targets (PCRsti4)
- ☐ 61020127 PCR for Human Papilloma Virus (HPV) Genotyping; 28 Genotypes (PCRhpv1)

THALASSEMIA

- ☐ 61030060 PCR for Alpha-Thalassemia DNA Detection; 15 Deletional Mutations (PCRaThal)

MYCOBACTERIUM TUBERCULOSIS INFECTIONS

- ☐ 61020115 Rapid PCR for Detection of MTB DNA and Rifampicin Resistance (PCRtbRIFRp)
- ☐ 61020153 PCR for MTB and Multi Drug Resistance Detection (PCRmtbMDR1)
- ☐ 61020152 PCR for MTB and Non-Tuberculosis Mycobacterium Detection (PCRmtbNTM1)
- ☐ 61020155 PCR for MTB and Multi Drug Resistance & Extensively Drug Resistance Detection (PCRmtbXMR1)
- ☐ 61020154 PCR for MTB & Extensively Drug Resistance Detection (PCRmtbXDR1)
- ☐ 61020180 PCR for MTB and Non-Tuberculosis Mycobacterium Detection for FFPE Tissue Block (PCRmtbNTM2)

OTHER

- ☐ _____

NOTE: Please refer the details of each panel at the back of this form

LL.7-008
Version 5
20-06-2022

DETAILS OF TEST PANEL

MENINGITIS, CENTRAL NERVOUS SYSTEM (CNS) INFECTIONS

Rapid PCR for Meningitis/Encephalitis Panel, PCRmenR1 (81020145)

Bacterial Targets - *Escherichia coli K1, Haemophilus influenzae, Listeria monocytogenes, Neisseria meningitidis, Streptococcus agalactiae & Streptococcus pneumoniae.*

Viral Targets - Cytomegalovirus, Enterovirus, Herpes Simplex virus 1 & 2, Human Herpes virus 6, Human Parechovirus & Varicella Zoster virus.

Fungal Target - *Cryptococcus neoformans/Cryptococcus gattii*

PCR for Meningitis Viral Pathogen Panel, PCRmen2 (81020160)

Cytomegalovirus (CMV), Epstein-Barr virus (EBV), Adenovirus, Herpes Simplex virus 1 & 2 (HSV1&2), Varicella Zoster virus (VZV), Enterovirus, Parechovirus, Human Herpes virus 6 & 7 (HHV6&7) & Parvovirus B19 (B19), Mumps virus.

PCR for Meningitis Bacterial Pathogen Panel, PCRmen3 (81020166)

Neisseria meningitidis, Streptococcus pneumoniae, Haemophilus influenzae, Streptococcus agalactiae (Group B Streptococcus/GBS), Listeria monocytogenes & Escherichia coli K1

SEXUALLY TRANSMITTED INFECTIONS

PCR for STI Essential Screening Panel, PCRsti1 (81020159)

Bacterial Targets - *Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma hominis, Mycoplasma genitalium, Ureaplasma urealyticum & Ureaplasma parvum*

Parasitic Target - *Trichomonas vaginalis*

PCR for STI Genital Ulcer Panel, PCRsti4 (81020175)

Viral Targets - Cytomegalovirus (CMV), Herpes Simplex Virus Type 1 (HSV1), Herpes Simplex Virus Type 2 (HSV2), Varicella-Zoster Virus (VZV)

Bacterial Targets - *Chlamydia trachomatis serovar L, Haemophilus ducreyi, Treponema pallidum*

PCR for HPV Genotyping, PCRhpv1 (81020127)

19 High-risk HPV genotype: 16, 18, 26, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68, 69, 73, 82

9 Low-risk HPV genotype: 6,11, 40, 42, 43, 44, 54, 61, 70

MYCOBACTERIUM TUBERCULOSIS INFECTIONS

Rapid PCR MTB/RIF, PCRtbRIFlp (81020115)

Detect *Mycobacterium tuberculosis* complex (MTBC) and resistance to Rifampicin (RIF) in *rpoB* gene.

PCR for MTB & Multi Drug Resistance (MDR) Detection, PCRmtbMDR1 (81020153)

Detect *Mycobacterium tuberculosis* complex (MTBC), detect 7 mutations causing isoniazid resistant in *katG* gene and *inhA* promoter region and detect 18 mutations causing rifampicin resistant in *rpoB* gene.

PCR for MTB & NTM, PCRmtbNTM1 (81020152)

Detect *Mycobacterium tuberculosis* complex (MTBC) and also Non-tuberculous mycobacterium (NTM) DNA.

PCR for MTB & Extensively Drug Resistance (XDR) Detection, PCRmtbXDR1 (81020154)

Detect *Mycobacterium tuberculosis* complex (MTBC) DNA, detect 7 mutations causing fluoroquinolone resistant in *gyrA* gene, 6 mutations causing injectable drugs resistant in *rrs* gene and *eis* promoter region.

PCR for MTB & Multi Drug Resistance (MDR) & Extensively Drug Resistance Detection, PCRmtbXMR1 (81020155)

Detect *Mycobacterium tuberculosis* complex (MTBC) DNA, detect 7 mutations causing isoniazid resistant in *katG* gene and *inhA* promoter region, detect 18 mutations causing rifampicin resistant in *rpoB* gene, detect 7 mutations causing fluoroquinolone resistant in *gyrA* gene, 6 mutations causing injectable drugs resistant in *rrs* gene and *eis* promoter region.

PCR for MTB & NTM Detection for FFPE Tissue Block, PCRmtbNTM2 (81020180)

Detect *Mycobacterium tuberculosis* complex (MTBC) and also Non-tuberculous mycobacterium (NTM) DNA using Formalin-Fixed Paraffin-Embedded (FFPE) tissue.

BLOOD DONOR SCREENING

NAT for Blood Donor Screening (NAATI, NATbd) (81020070)

HIV-1 RNA, HIV-2 RNA, HBV DNA & HCV RNA.

RESPIRATORY INFECTIONS

PCR for Respiratory Pathogen Panel, PCR33rpp2 (81020173)

Viral Targets - Influenza A, Influenza B, Influenza C, Influenza A(H1N1) swl, Human Rhinovirus, Human Coronaviruses (NL63, 229E, OC43, HKU1), Human Parainfluenza (1, 2, 3, 4), Human Metapneumoviruses A/B, Human Bocavirus, Human Respiratory Syncytial Viruses A/B, Human Adenovirus, Enterovirus, Human Parechovirus

Bacterial Targets - *Chlamydophila pneumoniae, Streptococcus pneumoniae, Haemophilus influenzae B, Staphylococcus aureus, Klebsiella pneumoniae, Legionella pneumophila/Longbeachae, Salmonella spp., Moraxella catarrhalis, Bordetella spp. (except Bordetella parapertussis), Haemophilus influenzae, Mycoplasma pneumoniae*

Fungal Target - *Pneumocystis jirovecii*

PCR for Respiratory Bacterial Pathogen Panel, PCRRB1 (81020150)

Chlamydophila pneumoniae, Haemophilus influenzae, Streptococcus pneumoniae, Bordetella pertussis, Bordetella parapertussis, Mycoplasma pneumoniae, Legionella pneumophila.

GASTROINTESTINAL INFECTIONS

Rapid PCR for Gastrointestinal Panel, PCRGI1 (81020157)

Bacterial Targets - *Campylobacter sp. (jejuni/coli/upsaliensis)- Clostridium difficile* (toxin A/B), *Plesiomonas shigelloides, Salmonella sp. Vibrio sp. (parahaemolyticus/vulnificus/cholerae)* including specific identification of *Vibrio cholerae, Yersinia enterocolitica, Enteroaggregative Escherichia coli* (EAEC), *Enteropathogenic Escherichia coli* (EPEC), *Enterotoxigenic Escherichia coli* (ETEC) *lt/st, Shiga-like toxin-producing Escherichia coli* (STEC) *stx1/stx2* (including specific identification of *E.coli O157* serogroup within STEC), *Shigella/Enteroinvasive Escherichia coli* (EIEC)

Viral Targets - Adenovirus F 40/41, Astrovirus, Norovirus GI/GII, Rotavirus A & Sapovirus (I,II, IV & V)

Parasitic Targets - *Cryptosporidium sp., Cyclospora cayetanensis, Entamoeba histolytica & Giardia lamblia* (also known as *G.intestinalis, G.duodenalis*)

PCR for Gastrointestinal Viral Pathogen Panel, PCRGI2 (81020162)

Norovirus GI, Norovirus GII, Rotavirus A, Adenovirus F, Astrovirus, Sapovirus

PCR for Gastrointestinal Bacterial Pathogen Panel, PCRGI3 (81020163)

Campylobacter spp., Clostridium difficile toxin B, Salmonella spp., Enteroinvasive E. coli (EIEC)/ Shigella spp., Vibrio spp., Yersinia enterocolitica, Aeromonas spp.

TROPICAL AND EMERGING INFECTIOUS DISEASES

PCR for Tropical Fever Pathogen Panel, PCRfv1 (81020146)

Viral Targets - Chikungunya virus, West Nile virus, Dengue virus

Bacterial Targets - *Salmonella spp., Rickettsia spp., Leptospira spp.*

Parasitic Target - *Plasmodium spp.*

PCR for Dengue Differentiation Panel, PCRdenDF1 (81020145)

Dengue virus serotype 1, 2, 3 & 4

PCR for Plasmodium (Malaria) Differentiation Panel, PCRmpDF1 (81020149)

P. falciparum, P. vivax, P. ovale, P. malariae & P. knowlesi

THALASSEMIA

PCR for Alpha-Thalassemia DNA Detection, PCRaThal (81030090)

7 deletions: $--^{SEA}$, $--^{MED}$, $--^{FIL}$, $--^{THAI}$, $-(\alpha)^{20.5}$, 3.7 kb, 4.2 kb

8 mutations: Hb - CD142, CD125, CD59, CD95, CD142
HBA2 - c.300+34C>A
A2 - gene initiation codon mutation
3 bp deletion - CD30

LL.7-017 - Immunology Request Form

LAB BARCODE

LABLINK
MEDICAL LABORATORY

Integrated Diagnostics Laboratory
Makmal Perubatan Lablink
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel.: +603 4023 4588 Ext: 3009
Fax.: +603 4023 4298

IMMUNOLOGY REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy)

Time of Collection (hh/mm) AM / PM

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT: ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

RELEVANT CLINICAL INFORMATION *Please include drug therapy if any

SPECIMEN DETAILS *Please check (✓) the specimen(s) sent

☐ Serum (Separated from Plain Tube) S ☐ Cerebrospinal Fluid (CSF) C ☐ Other: _____

TEST REQUEST *Please check (✓) the test(s) required

CONNECTIVE TISSUE DISEASES & RHEUMATOLOGY AUTOIMMUNE PROFILES

✓	TEST NAME	LIS CODE
☐	Connective Tissue Disease Autoimmune Profile 1	S AiCTDp1
☐	Connective Tissue Disease Autoimmune Profile 4	S AiCTDp4
☐	Connective Tissue Disease Autoimmune Profile 5	S AiCTDp5
☐	Inflammatory Myopathies/Myositis Profile	S AiMyoP1

ENDOCRINE AUTOIMMUNE PROFILES

✓	TEST NAME	LIS CODE
☐	Diabetes Mellitus Profile	S AiDMp1
☐	Thyroid Autoantibody Screen Profile	S AiThyP1

GASTROENTEROLOGY AUTOIMMUNE PROFILES

✓	TEST NAME	LIS CODE
☐	Liver Autoimmune Profile	S AiGasP1
☐	Liver Autoimmune Immunofluorescence Assay Profile	S AiGasP2
☐	Liver Autoimmune Specific Autoantibody Profile	S AiGasP3

NEUROLOGY & ENCEPHALITIS AUTOIMMUNE PROFILES

✓	TEST NAME	LIS CODE
☐	Encephalitis Autoimmune Profile 1	S AiNeuroP1
☐	Encephalitis Autoimmune Profile 2	C S AiNeuroP2
☐	Encephalitis Autoimmune Profile 3	S AiNeuroP3
☐	Encephalitis Receptors Autoimmune Profile 4	S AiNeuroP4
☐	Encephalitis Receptors Autoimmune Profile 5	C AiNeuroP5
☐	Paraneoplastic Antigen Autoimmune Profile 6	S AiNeuroP6
☐	Encephalitis Autoimmune Profile 7	S AiNeuroP7
☐	Ganglioside Autoimmune Profile 8	C S AiNeuroP8
☐	Neuromyelitis Optica Autoimmune Profile 9	C S AiNeuroP9

TITRATION TEST

✓	TEST NAME	LIS CODE
☐	Anti-Neutrophil Cytoplasmic Antibody (ANCA)	S ANCAti
☐	Aquaporin 4 (AQP4)	S AQP4ti
☐	Aquaporin 4 (AQP4)	C AQP4CSti
☐	Myelin Oligodendrocyte Glycoprotein Ab (MOG) - Serum	S MOGti
☐	Myelin Oligodendrocyte Glycoprotein Ab (MOG) - CSF	C MOGCSFti
☐	Anti-Mitochondrial Antibody (AMA)	S AMAti
☐	Anti-Smooth Muscle Antibody (SMA)	S SMAti
☐	Liver Kidney Microsomal Antibody (LKM)	S LKMti
☐	Parietal Cell Antibody (PCA)	S Parcelti

VASCULITIS & IMMUNE NEPHRITIS AUTOIMMUNE PROFILES

✓	TEST NAME	LIS CODE
☐	Vasculitis Autoimmune Profile 1	S AiVasP1
☐	Vasculitis Autoimmune Profile 2	S AiVasP2
☐	Vasculitis Autoimmune Profile 3	S AiVasP3
☐	Vasculitis Autoimmune Profile 4	S AiVasP4
☐	Nephritis Autoimmune Profile	S AiVasP5

INDIVIDUAL TEST

✓	TEST NAME	LIS CODE
☐	Anti-Nuclear Antibody (ANA)	S ANAIF
☐	Double Stranded DNA (ds-DNA)	S DNAab
☐	Anti-Neutrophil Cytoplasmic Ab (ANCA) Screen	S ANCAIF
☐	Myeloperoxidase (MPO) pANCA Antibody	S MPO
☐	Proteinase 3 (PR3) cANCA Antibody	S PR3
☐	Glomerular Basement Membrane (GBM) Ab	S GBM
☐	N-methyl-D-aspartate Receptor Ab (NMDAR) - Serum	S NMDARab
☐	N-methyl-D-aspartate Receptor Ab (NMDAR) - CSF	C NMDARcsf
☐	Aquaporin 4 (AQP4) - Serum	S AQP4ab
☐	Aquaporin 4 (AQP4) - CSF	C AQP4csf
☐	Myelin Oligodendrocyte Glycoprotein Ab (MOG) - Serum	S MOGab
☐	Myelin Oligodendrocyte Glycoprotein Ab (MOG) - CSF	C MOGcsf
☐	Anti-Phospholipase-A2 Receptor (PLA2R) Ab Screen	S PLA2Rab
☐	Anti-Phospholipase-A2 Receptor (PLA2R) Ab Quantitative	S PLA2RQn
☐	Islet Cell Cytoplasmic Autoantibody (ICA)	S ICA
☐	Glutamic Acid Decarboxylase Autoantibody (GADA)	S GADA
☐	Insulinoma-Associated-2 Autoantibody (IA-2A)	S IA2A
☐	Insulin Autoantibody (IAA)	S IAA
☐	Acetylcholine Receptor Antibody (AChRAb)	S AChRAb
☐	Anti-Mitochondrial Antibody (AMA)	S AMA
☐	Anti-Smooth Muscle Antibody (SMA)	S SMA
☐	Liver Kidney Microsomal Antibody (LKM)	S LKMab
☐	Parietal Cell Antibody (PCA)	S ParCellAb
☐	Thyrotropin Receptor Antibody	S TSHRepAb
☐	Anti-Thyroid Peroxidase (TPO/AMC)	S AMC
☐	Anti-Thyroglobulin (Anti-TG)	S Thyreglo

ADDITIONAL / OTHER TEST (Please specify)

NOTE: Please refer the details of each panel at the back of this form

LL.7-017
Version 2
20-01-2021

Page 1 of 2

DETAILS OF TEST PROFILE

CONNECTIVE TISSUE DISEASES & RHEUMATOLOGY AUTOIMMUNE PROFILES	TEST CODE
CONNECTIVE TISSUE DISEASE AUTOIMMUNE PROFILE 1 *Anti-nuclear Antibody (ANA), double-stranded DNA (dsDNA)*	AiCTDp1
CONNECTIVE TISSUE DISEASE AUTOIMMUNE PROFILE 4 *Anti-nuclear Antibody (ANA), double-stranded DNA (dsDNA), AMA-M2, CENP-B (Centromere Protein B), Histones, Jo-1, nRNP, Nucleosome, PCNA, Sm, SS-A, SS-B, Scl-70, PM-Scl-100, Ro-52, Ribosomal P-protein, DFS70*	AiCTDp4
CONNECTIVE TISSUE DISEASE AUTOIMMUNE PROFILE 5 / EXTRACTABLE NUCLEAR ANTIGENS (ENA) *AMA-M2, CENP-B (Centromere Protein B), Histones, Jo-1, nRNP, Nucleosome, PCNA, Sm, SS-A, SS-B, Scl-70, PM-Scl-100, Ro-52, Ribosomal P-protein, DFS70*	AiCTDp5
INFLAMMATORY MYOPATHIES/MYOSITIS PROFILE *Jo-1, PM-Scl-100, Ku, Ro-52, OJ, EJ, PL-12, PL-7, SAE1, NXP2, MDA5, TIF1γ, SRP, Mi-2α, Mi-2β, PM-Scl-75*	AiMyoP1

VASCULITIS AND IMMUNE NEPHRITIS AUTOIMMUNE PROFILES	TEST CODE
VASCULITIS AUTOIMMUNE PROFILE 1 *Anti-Neutrophil Cytoplasmic Antibody (ANCA), Myeloperoxidase (MPO), Proteinase 3 (PR3), Glomerular Basement Membrane (GBM)*	AiVasP1
VASCULITIS AUTOIMMUNE PROFILE 2 *Anti-nuclear Antibody (ANA), Anti-Neutrophil Cytoplasmic Antibody (ANCA), Myeloperoxidase (MPO), Proteinase 3 (PR3), Glomerular Basement Membrane (GBM)*	AiVasP2
VASCULITIS AUTOIMMUNE PROFILE 3 *Anti-nuclear Antibody (ANA), Anti-Neutrophil Cytoplasmic Antibody (ANCA)*	AiVasP3
VASCULITIS AUTOIMMUNE PROFILE 4 *Myeloperoxidase (MPO), Proteinase 3 (PR3), Glomerular Basement Membrane (GBM)*	AiVasP4
NEPHRITIS AUTOIMMUNE PROFILE *Anti-nuclear Antibody (ANA), double-stranded DNA (dsDNA), Anti-Neutrophil Cytoplasmic Antibody (ANCA), Myeloperoxidase (MPO), Proteinase 3 (PR3), Glomerular Basement Membrane (GBM), Anti-Phospholipase-A2 receptor (PLA2R) Antibody Screening*	AiVasP5

NEUROLOGY & ENCEPHALITIS AUTOIMMUNE PROFILES	TEST CODE
NEUROLOGY AUTOIMMUNE PROFILE 1 *Anti-nuclear Antibody (ANA), NMDARab*	AiNeuroP1
NEUROLOGY AUTOIMMUNE PROFILE 2 *Anti-nuclear Antibody (ANA), NMDARab, NMDARcsf*	AiNeuroP2
NEUROLOGY AUTOIMMUNE PROFILE 3 *Anti-nuclear Antibody (ANA), NMDARab, AMPA1/2ab, CASPR2ab, LGI1ab, DPPXab, GABAab*	AiNeuroP3
NEUROLOGY AUTOIMMUNE PROFILE 4 *NMDARab, AMPA1/2ab, CASPR2ab, LGI1ab, DPPXab, GABAab*	AiNeuroP4
NEUROLOGY AUTOIMMUNE PROFILE 5 *NMDARcsf, AMPA1/2csf, CASPR2csf, LGI1csf, DPPXcsf, GABAcsf*	AiNeuroP5
NEUROLOGY AUTOIMMUNE PROFILE 6 *Amphiphysin, CV2, Hu, Yo, Ri, PnMA2, Recoverin, SOX1, Titin*	AiNeuroP6
NEUROLOGY AUTOIMMUNE PROFILE 7 *Anti-nuclear Antibody (ANA), NMDARab, AMPA1/2ab, CASPR2ab, LGI1ab, DPPXab, GABAab, Amphiphysin, CV2, Hu, Yo, Ri, PnMA2, Recoverin, SOX1, Titin*	AiNeuroP7
NEUROLOGY AUTOIMMUNE PROFILE 8 *Sulfatide IgM, GM1 IgM, GM2 IgM, GM3 IgM, GM4 IgM, GD1a IgM, GD1b IgM, GD2 IgM, GD3 IgM, GT1a IgM, GT1b IgM, GQ1b IgM* *Sulfatide IgG, GM1 IgG, GM2 IgG, GM3 IgG, GM4 IgG, GD1a IgG, GD1b IgG, GD2 IgG, GD3 IgG, GT1a IgG, GT1b IgG, GQ1b IgG*	AiNeuroP8
NEUROLOGY AUTOIMMUNE PROFILE 9 *Aquaporin 4 (AQP4), Myelin Oligodendrocyte Glycoprotein antibody (MOG)*	AiNeuroP9

GASTROENTEROLOGY AUTOIMMUNE PROFILES	TEST CODE
LIVER AUTOIMMUNE PROFILE 1 *Mitochondrial Antibody (AMA), Smooth Muscle Antibody (SMA), Liver Kidney Microsomal Antibody (LKM), Parietal Cell Antibody (PCA), AMA-M2, gp210, LKM-1, LC-1, M2-3E, PML, Ro-52, Sp100, SLA/LP*	AiGasP1
LIVER AUTOIMMUNE PROFILE 2 *Mitochondrial Antibody (AMA), Smooth Muscle Antibody (SMA), Liver Kidney Microsomal Antibody (LKM), Parietal Cell Antibody (PCA),*	AiGasP2
LIVER AUTOIMMUNE PROFILE 3 *AMA-M2, gp210, LKM-1, LC-1, M2-3E, PML, Ro-52, Sp100, SLA/LP*	AiGasP3

ENDOCRINOLOGY AUTOIMMUNE PROFILES	TEST CODE
DIABETES MELLITUS PROFILE *Islet Cell Cytoplasmic Autoantibody(ICA), Glutamic Acid Decarboxylase Autoantibody(GADA), Insulinoma Associated-2 Ag Autoantibody(IA-2A), Insulin Autoantibody(IAA)*	AiMDp1
THYROID AUTOIMMUNE PROFILE *Thyrotropin Receptor Antibody (TSHRepAb), Anti-Thyroid Peroxidase (TPO/AMC), Anti-Thyroglobulin (Anti-TG)*	AiThyP1

LL.7-018 - SteatoTest@Liverfast Form

LAB USE ONLY

LABLINK
MEDICAL LABORATORY

Integrated Diagnostics Laboratory
Makmal Perubatan Lablink,
14 (129) Jalan Pahang Barat,
Off Jalan Pahang,
53000 Kuala Lumpur, Malaysia.
Tel.: +603 4023 4588 Ext: 3008
Fax.: +603 4023 4298

STEATOTEST / LIVERFAST FORM

Patient's Name

IC/Passport No.

Clinic/Hospital Reference No.

Date of Birth (dd/mm/yyyy) | Age | Gender ☐ M ☐ F | Height ___ m | Weight ___ kg

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT ☐ PHONE _____
☐ FAX _____
☐ EMAIL _____

CLINICAL INFORMATION (Please provide drug therapy if any including date & time given)

SPECIMEN DETAILS (Compulsory to fill by sender)

Specimen Collection Date: (dd/mm/yyyy)

Time of Collection: (hh/mm) AM / PM

Fasting (at least 8 hours prior): Yes ☐ No ☐

PATIENT IS COMPULSORY TO FAST FOR AT LEAST 8 HOURS

Sample Requirement: 1 x 5mL Plain Tube & 1 x 2mL Fluoride Tube

LIVERFAST TEST (Compulsory to fill by sender)

STEATOTEST ☐
Test Code: SteatoT
Charge code: 61050970

LIVERFAST ☐
Test Code: LiverFAST
Charge code: 61050958

LL.7-018
Version 1
03-11-2020

LAB BARCODE

LABLINK
MEDICAL LABORATORY

Integrated Diagnostics Laboratory
Makmal Perubatan Lablink
14 (129) Jalan Pahang Barat
Off Jalan Pahang
53000 Kuala Lumpur, Malaysia
Tel.: +603 4023 4588 Ext: 3009
Fax.: +603 4023 4298

ALLERGY TEST REQUEST FORM

Patient's Name

IC/Passport No. | Clinic/Hospital Reference No.

Date of Birth (dd/mm/yy) | Age | Gender ☐ M ☐ F

Race
☐ Malay ☐ Chinese ☐ Indian ☐ Other _____

Specimen Collection Date (dd/mm/yy)

Time of Collection (hh/mm) AM / PM

Specimen Type ☐ Plain Tube P ☐ Serum (Separated from Plain Tube) Sr

Requesting Doctor's Name and Address

STAMP HERE

Doctor's Signature: _____

URGENT: (Please tick) ☐ PHONE _____ ☐ FAX _____ ☐ EMAIL _____

RELEVANT CLINICAL INFORMATION *Please include drug therapy if any

TEST REQUEST *Please check (✓) the test(s) required

[1] PROFILE (ELISA-FEIA: Quantitative)

✓	PROFILE NAME		LIS CODE
☐	Allergy Panel (Food)	P Sr	GP94A
☐	Allergy Panel (Inhalant)	P Sr	GP94B
☐	Malaysian Allergy Panel 1 (Foods & Inhalant)	P Sr	GP94C
☐	Domestic Allery Panel	P Sr	GP94D
☐	Seafood Panel	P Sr	GP94E
☐	Paediatric Food Allergy Panel	P Sr	GP94F
☐	Malaysian Allergy Panel 2 (Food, Inhalant, Seafood, Mould)	P Sr	GP94G

[2] PROFILE (IMMUNOBLOT: Semi-quantitative)

✓	PROFILE NAME		LIS CODE
☐	Atopy Allergy Panel	P Sr	GP94H
☐	Food Allergy Panel	P Sr	GP94J
☐	Paediatric Food Allergy Panel	P Sr	GP94K
☐	Inhalation Allergy Panel	P Sr	GP94L

[3] MIX INDIVIDUAL ALLERGEN (ELISA-FEIA: Quantitative)

✓	PROFILE NAME		LIS CODE
☐	Nut Mix	P Sr	fx1
☐	Seafood Mix	P Sr	fx2
☐	Cereal Mix	P Sr	fx3
☐	Common Food Mix	P Sr	fx5E
☐	Spice Mix	P Sr	fx72
☐	Mould Spore Mix	P Sr	mx2
☐	Pet Dander Mix	P Sr	ex2
☐	Feather Mix	P Sr	ex71
☐	House Dust Mix	P Sr	hx2
☐	Occupational Chemical Mix	P Sr	pax6
☐	Phadiatop Inhalant Mix	P Sr	s

INDIVIDUAL (ELISA-FEIA: Quantitative)

FOOD

✓	TEST NAME		LIS CODE
☐	Egg White	P Sr	f1
☐	Egg Yolk	P Sr	f75
☐	Egg	P Sr	f245
☐	Rice	P Sr	f9
☐	Beef	P Sr	f27
☐	Cheddar Cheese	P Sr	f81
☐	Chicken	P Sr	f83
☐	Mutton	P Sr	f88
☐	Milk	P Sr	f2
☐	Goat Milk	P Sr	Rf300
☐	Wheat	P Sr	f4
☐	Peanut	P Sr	f13
☐	Soybean	P Sr	f14
☐	Cashew Nut	P Sr	f202
☐	Mushroom	P Sr	Rf212
☐	Cocoa	P Sr	f93
☐	Curry	P Sr	Rf281

SEAFOOD

✓	TEST NAME		LIS CODE
☐	Fish	P Sr	f3
☐	Crab	P Sr	f23
☐	Shrimp	P Sr	f24
☐	Squid Pacific	P Sr	f58
☐	Sardine	P Sr	f61
☐	Lobster	P Sr	f80
☐	Clam Allergen	P Sr	f207
☐	Oyster	P Sr	f290
☐	Anchovy	P Sr	f313
☐	Tuna	P Sr	f40

FRUITS

✓	TEST NAME		LIS CODE
☐	Orange	P Sr	f33
☐	Banana	P Sr	f92
☐	Lemon	P Sr	f208
☐	Pineapple	P Sr	f210
☐	Papaya	P Sr	Rf293

EPIDERMAL & INSECTS

✓	TEST NAME		LIS CODE
☐	Cockroach	P Sr	i6
☐	Cat Dander	P Sr	e1
☐	Dog Dander	P Sr	e5

HOUSE DUST MITES

✓	TEST NAME		LIS CODE
☐	*D. pteronyssinus*	P Sr	d1
☐	*D. farinae*	P Sr	d2
☐	*B. tropicalis*	P Sr	Rd201
☐	Greer Labs	P Sr	h1

MOULD

✓	TEST NAME		LIS CODE
☐	*P. notatum*	P Sr	m1
☐	*C. hebarum*	P Sr	m2
☐	*A. fumigatus*	P Sr	m3
☐	*M. racemosus*	P Sr	m4
☐	*C. albicans*	P Sr	m5
☐	*A. alternata*	P Sr	m6

OTHERS

✓	TEST NAME		LIS CODE
☐	Bermuda Grass	P Sr	g2
☐	Johnson Grass	P Sr	g10
☐	Latex	P Sr	k82
☐	Oil Palm	P Sr	p

*Please refer the details of each panel test marked [1,2 & 3] at the back of this form

OTHER TEST (Please specify):

1. PROFILE (ELISA-FEIA: Quantitative)	LIS CODE
ALLERGY PANEL (FOOD) IgE, Egg White, Egg Yolk, Milk, Wheat, Peanut, Cashew nut, Cocoa, Rice, Cheddar cheese, Tuna, Anchovy, Crab, Shrimp, Clam, Chicken, Beef, Lemon, Orange, Banana, Pineapple	GP94A
ALLERGY PANEL (INHALANT) IgE, *D. pteronyssinus, D. farinae,* House dust (Greer Lab), Dog, Cat, Cockroach, Bermuda grass, Johnson grass, *A. fumigatus, A. alternata,* Mould Spore Mix, Latex	GP94B
MALAYSIAN ALLERGY PANEL 1 (FOOD & INHALANT) IgE, Egg White, Egg Yolk, Milk, Wheat, Peanut, Soybean, Squid, Crab, Anchovy, Chicken, Dog dander, Cat dander, Cockroach, *D. pteronyssinus , D. farinae, B. tropicalis*	GP94C
DOMESTIC ALLERGY PANEL IgE, *D. pteronyssinus , D. farinae, B. tropicalis,* House dust (Greer Lab), Cockroach	GP94D
SEAFOOD ALLERGY PANEL IgE, Squid, Crab, Shrimp , Clam, Anchovy	GP94E
PEDIATRIC FOOD ALLERGY PANEL IgE, Egg White, Egg Yolk, Milk, Wheat, Peanut, Soybean, Anchovy, Chicken	GP94F
MALAYSIAN ALLERGY PANEL 2 (FOOD, INHALANT, SEAFOOD, MOULD) IgE, Banana, Beef, Chicken, Orange, Milk, Crab, Egg white, Egg Yolk, Peanut, Shrimp, Soybean, Tuna, Anchovy, Clam, Wheat, *A. alternata, A. fumigatus ,* Bermuda Grass, *C. albicans,* Cat dander, *C. herbarum ,* Cockroach, Dog dander, House Dust (Greer Lab) , Johnson Grass , Latex, *D. farinae , D. pteronyssinus, M. racemosus, P. notatum*	GP94G

2. PROFILE (IMMUNOBLOT: Semi-quantitative)	LIS CODE
ATOPY ALLERGY PANEL IgE, Bermuda grass, Timothy grass, Grass mix 5 (sweet vernal-, Bermuda-, Timothy grass and cultivated rye), Acacia, Australian Pine, Oil palm, *D. pteronyssinus, D. farinae, D. microceras, T. putrescentiae, G. domesticus, B. tropicalis,* Kapok, Feather mix 1 (chicken-, duck-, goose down feathers) , Bovine serum albumin (BSA), Horse, Dog, Cat, *C. albicans,* Mould mix 1 *(P. notatum, C. herbarum, A. fumigatus, A. alternata),* Honey bee venom, Cockroach (German), Wheat flour, Gluten, Egg white, Cow's milk, α-lactalbumin, β-lactoglobulin, Casein, Chocolate, Peanut, Soybean , Hazelnut, Almond, Baker's yeast, Glutamate, Codfish, Tuna, Salmon, Crab, Prawn, Lobster, Duck meat, Beef (cooked), Pork (cooked), Chicken, Lamb meat, Cheddar cheese, Tomato, Garlic, Strawberry, Kiwi, Shellfish mix 1 (spiny lobster, oyster, clam), Coffee, Cross-reactive carbohydrate determinants	GP94H
FOOD ALLERGY PANEL IgE, Egg white, Egg yolk, Cow's milk, Wheat flour, Rice, Sesame, Soybean , Peanut , Hazelnut, Beef (cooked), Pork (cooked), Chicken, Shellfish mix 1 (spiny lobster, oyster, clam), Fish mix 1 (codfish, herring, mackerel, and plaice), Crab, Shrimp/Prawn, Lobster, Blue crab, Chocolate, Glutamate, Cross-reactive carbohydrate determinants	GP94J
FOOD ALLERGY ,PEDIATRIC PANEL IgE, Grass mix 2 (Timothy grass, cultivated rye), Birch, Mugwort, *D. pteronyssinus, D. farinae, Horse,* Dog, Cat, *C. herbarum, A. fumigatus, A. alternata,* Egg white, Egg yolk, Cow's milk, Codfish, α-lactalbumin, β-lactoglobulin, Casein, Bovine serum albumin (BSA), Wheat flour, Rice, Peanut, Soybean, Hazelnut, Carrot, Potato, Apple, Cross-reactive carbohydrate determinants	GP94K
INHALATION ALLERGY PANEL IgE, Tree mix 1 (melaleuca, Australian pine, acacia, eucalyptus and willow), Australian Pine, Acacia, Grass mix 1 (sweet vernal-, Bermuda-, Timothy grass and cultivated rye), Oil palm, House dust mite mix 1 *(D. pteronyssinus and D. farinae),* Cockroach (German), Kapok, Dog, Cat, Cage bird mix 2 (budgerigar-, canary-, parrot-, lorebird-, and finch feathers), Guinea pig, Mouse, Rabbit, Hamster, Mould mix 1 *(P. notatum, C. herbarum, A. fumigatus, A. alternata),* Mould mix 2 *(P. notatum, P. brevicompactum and P. roqueforti), C. albicans, A. pullulans, C. spicifera,* Cross-reactive carbohydrate determinants	GP94L

3. MIX INDIVIDUAL ALLERGEN (ELISA: Quantitative)	LIS CODE
NUT MIX Peanut, Hazel nut, Brazil nut, Almonds, Coconut	fx1
SEAFOOD MIX Fish, Shrimp, Blue mussel, Tuna, Salmon	fx2
CEREAL MIX Wheat, Oats, Maize, Sesame seed, Buckwheat	fx3
COMMON FOOD MIX Egg white, Milk, Fish, Wheat, Peanut, Soybean	fx5E
SPICE MIX Basil, Fennel seed, Ginger, Anise	fx72
MOULD SPORE MIX *P. chrysogenum, C. herbarum, A. fumigatus, A. alternate, C. albicans, S. rostrata*	mx2
PET DANDER MIX Cat Dander ,Dog dander, Guinea pig epithelium, Mouse, Rat	ex2
FEATHER MIX *Goose, Chicken, Duck, Turkey*	ex71
HOUSE DUST MIX *D. pteronyssinus, D. farinae, B. germanica (german cockroach), Hollister-Stier Labs.*	hx2
OCCUPATIONAL CHEMICAL MIX *Ethylene oxide, Phthalic anhydride, Formaldehyde, Chloramin T*	pax6
PHADIATOP INHALANT MIX *Pollens, Mould Spores, Mites, Dander, etc*	s

LABLINK MEDICAL LABORATORY	Histopathology Specimen Rejection Form	Lab No.

Patient's Name:_____

MRN/ID No./DOB:_____ Clinic/Hosp.:_____

Date & Time Received:_____ Requesting Doctor's Name:_____

To Whom It May Concern,

In order for us to comply to MS ISO 15189:2014 and to ensure the quality of results produced, we would like to inform that your request to perform testing on the specimen for the above patients is rejected/on hold due to the following reasons:

No	Rejection Criteria	Tick (/)	Remarks
	SECTION A : REQUEST FORM		
1.	Incomplete of two identifiers of patient on request form or/and specimen container; Name **AND** NRIC/MRN/D.O.B		
2.	No Requesting Physician Name/Signature		
3.	No nature of specimen stated on request form		
4.	Incomplete diagnosis/clinical details		
	SECTION B : SPECIMEN CONTAINER		
1.	Improper fixative		
2.	No Fixative in specimen container		
3.	Illegible information on request form		
4.	No specimen in container		
5.	Illegible information on specimen container		
6.	No label of nature and anatomical site of specimen on specimen container		
7.	Information on specimen label mismatch with request form		
8.	Information on specimen container does not match with specimen received		
9.	Number of specimen received do not match with the number of specimen stated on the request form		
10.	Specimen leaked from container (Describe fixative quality)		
11.	Others (*Please specify*)		

Please take note that the TAT for processing of orders that have been rejected will exceed established TAT. Request order will NOT be processed until corrective action has been taken. Specimen will be hold in non-conformance box at room temperature until rectification done.

Informed to (Sender): Informed by (Histopathology Personnel): Date & Time:

Corrective Action:_____

_____

***I affirm the accuracy of the corrected information provided and request that the specimen to be processed.**

Consultan/Surgeon/Lab Manager/Lab In Charge
(Name & Stamp):

Signature:

Date & Time:

LL.9-008
Version 1
30-05-2018

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LABLINK
MEDICAL LABORATORY

PHADIATOP ALLERGEN SCREEN

(S, 61040301)

ALLERGEN NAME

Phadiatop Allergen

Qualitative screening tests useful for identifying patients with a high likelihood of an allergic disease (so called atopic individuals).

Phadiatop utilize balanced mixtures of relevant allergens, often implicated in causing allergic diseases in adults and in young children, respectively.

Ref: Reference: Williams PB, et al. Ann Allergy Asthma Immunol. 2001;86:196-202

SPECIMEN

Minimum 1ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

ELISA-FEIA

"1 out of 3 Malaysians is currently suffering from some form of allergy " .
Assoc Prof Dr Ranbir Kaulsay (President of Malaysian Society of Allergy & Immunology, MSAI)

LABLINK
MEDICAL LABORATORY

DOMESTIC ALLERGY PANEL

(GP94D, 61050636)

ALLERGEN NAME

TOTAL IgE

INHALATION	
Mites	Dermatophagoides pter. Dermatophagoides farinae. House dust Blomia tropicalis
Animals/ Insects	Cockroach

SPECIMEN

Minimum 2ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

ELISA-FEIA

"1 out of 3 Malaysians is currently suffering from some form of allergy " .
Assoc Prof Dr Ranbir Kaulsay (President of Malaysian Society of Allergy & Immunology, MSAI)

LABLINK
MEDICAL LABORATORY

SEAFOOD FOOD ALLERGY PANEL

(GP94E, 61050637)

ALLERGEN NAME

TOTAL IgE

SEA FOOD	
Fish	Anchovy
Shellfish	Crab Shrimp Clam
Squid	

SPECIMEN

Minimum 2ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

ELISA-FEIA

"1 out of 3 Malaysians is currently suffering from some form of allergy " .
Assoc Prof Dr Ranbir Kaulsay (President of Malaysian Society of Allergy & Immunology, MSAI)

LABLINK
MEDICAL LABORATORY

PEDIATRIC FOOD ALLERGY PANEL

(GP94F, 61050638)

ALLERGEN NAME

TOTAL IgE

SEA FOOD	
Fish	Anchovy

FOOD	
Nuts	Peanut Soybean
Meats / Poultry	Chicken
Egg/Milk Yeast	Egg white Egg yolk Cow's Milk
Protein/ Grains/ Additiv./ Cooking Oil	Wheat

SPECIMEN

Minimum 2ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

ELISA-FEIA

"1 out of 3 Malaysians is currently suffering from some form of allergy " .
Assoc Prof Dr Ranbir Kaulsay (President of Malaysian Society of Allergy & Immunology, MSAI)

LABLINK
MEDICAL LABORATORY

MALAYSIAN ALLERGY PANEL

(GP94G, 61050651)

ALLERGEN NAME

INHALATION	
Grasses	Bermuda grass Johnsongrass
Tree	Rubber Tree (Latex)
Mites	Dermatophagoides pter. Dermatophagoides farinae. House dust
Animals/ Insects	Cat Dog Cockroach
Molds	Candida albicans Cladosporium herbarum Aspergillus fumigatus Alternaria alternate Mucor Racemosus Penicillium B

FOOD	
Nuts	Peanut Soybean
Meats / Poultry	Beef Chicken
Egg/Milk Yeast	Egg white Egg yolk Cow's Milk
Protein/ Grains/ Additiv./ Cooking Oil	Wheat
Vege. / Fruits	Banana Orange

SEA FOOD	
Fish	Tuna Anchovy
Shellfish	Crab Shrimp Clam

SPECIMEN

Minimum 2ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

ELISA-FEIA

"1 out of 3 Malaysians is currently suffering from some form of allergy " .
Assoc Prof Dr Ranbir Kaulsay (President of Malaysian Society of Allergy & Immunology, MSAI)

LABLINK
MEDICAL LABORATORY

ATOPY ALLERGY PANEL
(GP94H,61050887)

ALLERGEN NAME

INHALATION

Grasses	Bermuda grass Timothy grass Grass mix 5: Sweet vernal grass Bermuda grass Timothy grass Cultivated rye
Tree	Acacia Latex Kapok
Mites	Dermatophagoides pter. Dermatophagoides farinae. Dermatophagoides microceras Tyrophagus putrescentiae Glycyphagus domesticus Blomia tropicalis
Animals/ Insects	Cat Dog Horse Feather mix 1: Chicken feathers, Duck feathers, Goose feathers Coackroach (German)
Molds	Candida albicans Mould mix 1: Penicillium notatum Cladosporium herbarum Aspergillus fumigatus Alternaria alternata

FOOD

Nuts	Peanut Soybean Hazelnut Almond
Meats / Poultry	Duck meat Beef (cooked) Pork (cooked) Chicken Lamb
Egg/Milk Yeast	Egg white Cow's Milk nBos d4 alpha-lactalbumin (Milk) nBos d5 beta-lactoglobulin (Milk) nBos d8 Casein (Milk) nBos d6 BSA (Milk) Cheddar Cheese Baker's yeast
Protein/ Grains/ Additiv./ Cooking Oil	Wheat flour Gluten Chocolate Glutamate Coffee Oil palm
Vege. / Fruits	Tomato Garlic Strawberry Kiwi

SEA FOOD

Fish	Codfish Tuna Salmon
Shellfish	Crab Shrimp (Pacific) Lobster Shellfish mix 1 : Spiny lobster Oyster Clam

INSECT VENOMS

Insect	Honey bee

CROSS REACTIVITY

Marker	CCD Marker

TOTAL IgE

SPECIMEN

Minimum 1ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

Immunoblot

LABLINK
MEDICAL LABORATORY

FOOD ALLERGY PANEL

(GP94J, 61050947)

ALLERGEN NAME

FOOD	
Nuts	Peanut Soybean Hazelnut
Meats / Poultry	Beef (cooked) Pork (cooked) Chicken
Egg/Milk Yeast	Egg white Egg yolk Cow's Milk
Protein/ Grains/ Additiv./ Cooking Oil	Rice Wheat flour Chocolate Glutamate Sesame

SEA FOOD	
Fish	Fish mix 1 : Codfish Herring Mackerel Plaice
Shellfish	Crab Blue Crab Shrimp (Pacific) Lobster Shellfish mix 1 : Spiny lobster Oyster Clam

CROSS REACTIVITY	
Marker	CCD Marker

TOTAL IgE

SPECIMEN

Minimum 1ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

Immunoblot

LABLINK
MEDICAL LABORATORY

PEDIATRIC ALLERGY PANEL

(GP94K, 61050948)

ALLERGEN NAME

INHALATION	
Grasses	Grassmix: Timothy grass Cultivated rye
Tree	Birch Mugwort
Mites	Dermatophagoides pter. Dermatophagoides farinae.
Animals/ Insects	Cat Dog Horse
Molds	Cladosporium herbarum Aspergillus fumigatus Alternaria alternata

FOOD	
Nuts	Peanut Soybean Hazelnut
Egg/Milk Yeast	Egg white Egg yolk Cow's Milk nBos d4 alpha-lactalbumin (Milk) nBos d5 beta-lactoglobulin (Milk) nBos d8 Casein (Milk) nBos d6 BSA (Milk)
Protein/ Grains/ Additiv./ Cooking Oil	Rice Wheat flour
Vege. / Fruits	Apple Potato Carrot

SEA FOOD	
Fish	Codfish

CROSS REACTIVITY	
Marker	CCD Marker

TOTAL IgE

SPECIMEN

Minimum 1ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

Immunoblot

LABLINK
MEDICAL LABORATORY

INHALATION ALLERGY PANEL

(GP94L, 61050949)

ALLERGEN NAME

INHALATION	
Grasses	Grass mix: Sweet vernal grass Bermuda grass Timothy grass Cultivated rye
Tree	Acacia Pine (Australia) Oil palm Tree mix : Melaleuca Pine (Australia) Acacia Eucalyptus Willow
Animals/ Insects	Cat Dog Rabbit Hamster Mouse Guinea pig Cage bird mix: Budgerigar feathers Canary feather Parrot feathers Lorebird feathers Finch feathers Coackroach (German)

INHALATION	
Molds	Candida albicans Aureobasidium pullulans Curvularia spicifera Mould mix : Penicillium notatum Cladosporium herbarum Aspergillus fumigatus Alternaria alternata Penicillia mix : Penicillium notatum P. brevicompactum P. roqueforti
Mites	House dust mite mix: Dermatophagoides pter. Dermatophagoides farinae.

CROSS REACTIVITY	
Marker	CCD Marker

TOTAL IgE

SPECIMEN

Minimum 1ml Serum - Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Ship refrigerated (for Klang Valley) or frozen (compulsory for outstation). Sample to arrive Lablink Central within 24 hours.

TEST SCHEDULE

By Batch: Wednesday (Before 11 a.m)
Report on Thursday

TURNAROUND TIME (TAT)

7 working days

METHOD

Immunoblot

KIDNEY STONE ANALYSIS
(StoneAn, 61010066)

TEST DESCRIPTION

To understand the role of trace constituents responsible for stone formation, proper treatment management and to undertake measures to prevent formation and recurrence. An important component for the investigation of nephrolithiasis.

METHOD

Attenuated Total Reflection Fourier-Transform Infrared Spectroscopy (ATR-FTIR)

SPECIMEN

Kidney Stones in a sterile container.

TRANSPORTATION REQUIREMENT

Room Temperature.

TURNAROUND TIME (TAT)

3 working days upon receiving sample at Lablink Central.

LABLINK
MEDICAL LABORATORY

CONNECTIVE TISSUE DISEASES & RHEUMATOLOGY AUTOIMMUNE PROFILES

CONNECTIVE TISSUE DISEASES AUTOIMMUNE PROFILE 1 (AiCTDp1, 61050918)

TEST LIST	METHOD
• ANAIF - Anti-nuclear Antibody (ANA) IFA/IIFT	IFA/IIFT
• DNAAb - Ds-DNA Antibody	ELISA

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.
Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

1

CONNECTIVE TISSUE DISEASES AUTOIMMUNE PROFILE 4 (AiCTDp4, 61050921)

TEST LIST	METHOD
• ANAIF - Anti-nuclear Antibody (ANA) IFA/IIFT	IFA/IIFT
• DNAAb - Ds-DNA Antibody	ELISA
• Cell-nuclear and Cytoplasmic Antigens	
• Anti-nRNP/Sm	Immunoblot
• Anti-Sm	Immunoblot
• Anti-SS-A/Ro	Immunoblot
• Anti-Ro-52	Immunoblot
• Anti-SS-B/La	Immunoblot
• Anti-Scl-70	Immunoblot
• Anti-PM-Scl 100	Immunoblot
• Anti-Jo-1	Immunoblot
• Anti-CENP-B, Centromere protein B	Immunoblot
• Anti-PCNA	Immunoblot
• Anti-nucleosomes	Immunoblot
• Anti-Histones	Immunoblot
• Anti-Ribosomal P-Protein	Immunoblot
• Anti-AMA-M2	Immunoblot
• Anti-DFS70	Immunoblot

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.
Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

CONNECTIVE TISSUE DISEASES / EXTRACTABLE NUCLEAR ANTIGENS PROFILE 5 (AiCTDp5, 61050922)

TEST LIST

- Anti-nRNP/Sm
- Anti-Sm
- Anti-SS-A/Ro
- Anti-Ro-52
- Anti-SS-B/La
- Anti-Scl-70
- Anti-PM-Scl 100
- Anti-Jo-1
- Anti-CENP-B, Centromere protein B
- Anti-PCNA
- Anti-nucleosomes
- Anti-Histones
- Anti-Ribosomal P-Protein
- Anti-AMA-M2
- Anti-DFS70

METHOD

Immunoblot

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

SYSTEMIC SCLEROSIS NUCLEOLI AUTOIMMUNE PROFILE (AiSScP1 , 61050977)

TEST LIST

- Anti-Scl-70
- Anti-Fibrillarin (U3 RNP)
- Anti-NOR90
- Anti-TH/TO
- Anti-PM-Scl 75
- Anti-PM-Scl 100
- Anti-Ku
- Anti-CENP-A, Centromere protein A
- Anti-CENP-B, Centromere protein B
- Anti-PDGFR
- Anti- RP11 (RNA polymerase III)
- Anti- RP155 (RNA polymerase III)
- Anti Ro-52

METHOD

Immunoblot

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

VASCULITIS & IMMUNE NEPHRITIS AUTOIMMUNE PROFILES

VASCULITIS AUTOIMMUNE PROFILE 1 (AiVasP1, 61050923)

TEST LIST	METHOD
• ANCAIF - Anti-neutrophil cytoplasmic antibody	IFA/IFT
• Autoimmune Vasculitis Screening:	
• ANCApMPO - Myeloperoxidase (MPO) pANCA antibody	ELISA
• ANCAcPR3 - Proteinase 3 (PR3) cANCA antibody	ELISA
• GBM - Glomerular basement membrane (GBM) antibody	ELISA

SPECIMEN

2 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

VASCULITIS AUTOIMMUNE PROFILE 2 (AiVasP2, 61050924)

TEST LIST	METHOD
• ANAIF - Anti-nuclear antibody (ANA) IFA/IIFT	IFA/IIFT
• ANCAIF - Anti-neutrophil cytoplasmic antibody, ANCA IFA/IIFT	IFA/IIFT
• Autoimmune Vasculitis Screening:	
• ANCApMPO - Myeloperoxidase (MPO) pANCA antibody	ELISA
• ANCAcPR3 - Proteinase 3 (PR3) cANCA antibody	ELISA
• GBM - Glomerular basement membrane (GBM) antibody	ELISA

SPECIMEN

2 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

VASCULITIS AUTOIMMUNE PROFILE (AiVasP3, 61050925)

TEST LIST	METHOD
• ANAIF - Anti-nuclear antibody (ANA) IFA/IIFT	IFA/IIFT
• ANCAIF - Anti-neutrophil cytoplasmic antibody, ANCA IFA/IIFT	IFA/IIFT

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

VASCULITIS AUTOIMMUNE PROFILE 4
(AiVasP4, 61050926)

TEST LIST	METHOD
• ANCApMPO - Myeloperoxidase (MPO) pANCA antibody	ELISA
• ANCAcPR3 - Proteinase 3 (PR3) cANCA antibody	ELISA
• GBM - Glomerular basement membrane (GBM) antibody	ELISA

SPECIMEN

2 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

NEPHRITIS AUTOIMMUNE PROFILE 5 (AiVasP5, 61050927)

TEST LIST	METHOD
• ANAIF - Anti-nuclear Antibody (ANA) IFA/IIFT	IFA/IIFT
• ANCAIF - Anti-neutrophil cytoplasmic Antibody, ANCA IFA/IIFT	IFA/IIFT
• DNAAb - Ds-DNA Antibody	ELISA
• Autoimmune Vasculitis Screening:	
• ANCApMPO - Myeloperoxidase (MPO) pANCA Antibody	ELISA
• ANCAcPR3 - Proteinase 3 (PR3) cANCA Antibody	ELISA
• GBM - Glomerular basement membrane (GBM) Antibody	ELISA
• Autoimmune Renal Membranous Nephropathy Screening:	
• Anti-phospholipase-A2-receptor (PLA2R) Antibody	IFA/IIFT

SPECIMEN

2 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.
Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

ENCEPHALITIS AUTOIMMUNE PROFILE 1 (AiNeuroP1, 61050928)

TEST LIST	METHOD
• ANAIF - Anti-nuclear Antibody (ANA) IFA/IIFT	IFA/IIFT
• NMDAR - N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), blood	IFA/IIFT

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

ENCEPHALITIS AUTOIMMUNE PROFILE 2 (AiNeuroP2, 61050929)

TEST LIST	METHOD
• ANAIF - Anti-nuclear antibody (ANA) IFA/IIFT	IFA/IIFT
• NMDARcsf - N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), CSF	IFA/IIFT
• NMDAR - N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), blood	IFA/IIFT

SPECIMEN

1 ml of separated serum and 1 ml of CSF. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

ENCEPHALITIS AUTOIMMUNE PROFILE 3 (AiNeuroP3, 61050930)

TEST LIST		METHOD
• ANAIF - Anti-nuclear antibody (ANA) IFA/IIFT		IFA/IIFT
• Autoimmune Encephalitis Receptor Antibodies:		
• NMDAR	–N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), blood	IFA/IIFT
• AMPA12	–Glutamate receptor, type AMPA 1/2 Antibody (Anti-AMPA1/2), blood	IFA/IIFT
• CASPR2	–Contactin-associated protein 2 receptor Antibody (Anti-CASPR2), blood	IFA/IIFT
• LGI1	–Leucine-rich glioma-inactivated protein 1 receptor Antibody (Anti-LGI1), blood	IFA/IIFT
• DPPX	–Dipeptidyl aminopeptidase-like protein 6 receptor Antibody (Anti-DPPX), blood	IFA/IIFT
• GABA B	–GABA B receptor Antibody (Anti-GABAb), blood	IFA/IIFT

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.
Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 4 (AiNeuroP4, 61050931)

TEST LIST			METHOD
• Anti-NMDAR	–	N-methyl-D-Aspartate Receptor Antibody, blood	IFA/IIFT
• Anti-AMPA1/2	–	Glutamate receptor, type AMPA 1/2 Antibody, blood	IFA/IIFT
• Anti-CASPR2	–	Contactin-associated protein 2 receptor Antibody, blood	IFA/IIFT
• Anti-LGI1	–	Leucine-rich glioma-inactivated protein 1 receptor Antibody, blood	IFA/IIFT
• Anti-DPPX	–	Dipeptidyl aminopeptidase-like protein 6 receptor Antibody, blood	IFA/IIFT
• Anti-GABA B	–	GABA B receptor Antibody, blood	IFA/IIFT

SPECIMEN

1 ml of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

ENCEPHALITIS RECEPTORS AUTOIMMUNE PROFILE 5 (AiNeuroP5, 61050932)

TEST LIST			METHOD
• Anti-NMDAR	–	N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), CSF	IFA/IIFT
• Anti-AMPA1/2	–	Glutamate receptor, type AMPA 1/2 Antibody (Anti-AMPA1/2), CSF	IFA/IIFT
• Anti-CASPR2	–	Contactin-associated protein 2 receptor Antibody (Anti-CASPR2), CSF	IFA/IIFT
• Anti-LGI1	–	Leucine-rich glioma-inactivated protein 1 receptor Antibody (Anti-LGI1), CSF	IFA/IIFT
• Anti-DPPX	–	Dipeptidyl aminopeptidase-like protein 6 receptor Antibody (Anti-DPPX), CSF	IFA/IIFT
• Anti-GABA B	–	GABA B receptor Antibody (Anti-GABA B), CSF	IFA/IIFT

SPECIMEN

1 mL of CSF. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

PARANEOPLASTIC ANTIGEN AUTOIMMUNE PROFILE 6
(AiNeuroP6, 61050933)

TEST LIST	METHOD
• AmphiAb – Amphiphysin Antibody	Immunoblot
• CV2Ab - CV2 Antibody	Immunoblot
• PNMA2Ab - PNMA2 Antibody	Immunoblot
• RiAb – Ri Antibody	Immunoblot
• YoAb – Yo Antibody	Immunoblot
• HuAb – Hu Antibody	Immunoblot
• RecovAb – Recoverin Antibody	Immunoblot
• SOX1Ab - SOX1 Antibody	Immunoblot
• TitinAb – Titin Antibody	Immunoblot

SPECIMEN

1 mL of separated serum or CSF. Refrigerated or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

ENCEPHALITIS AUTOIMMUNE PROFILE 7 (AiNeuroP7, 61050934)

TEST LIST		METHOD
• ANAIF - Anti-nuclear antibody (ANA) IFA/IIFT		IFA/IIFT
• Autoimmune Encephalitis Receptor Antibodies:		
• Anti-NMDAR	– NMDARab - N-methyl-D-Aspartate Receptor Antibody, blood	IFA/IIFT
• Anti-AMPA1/2	– Glutamate receptor, type AMPA 1/2 Antibody	IFA/IIFT
• Anti-CASPR2	– Contactin-associated protein 2 receptor Antibody, Anti-CASPR2	IFA/IIFT
• Anti-LGI1	– Leucine-rich glioma-inactivated protein 1 receptor Antibody	IFA/IIFT
• Anti-DPPX	– Dipeptidyl aminopeptidase-like protein 6 receptor Antibody	IFA/IIFT
• Anti-GABA B	– GABA B receptor Antibody	IFA/IIFT
• Paraneoplastic Antigens Antibodies:		
• Amphiphysin • CV2 • PNMA2	• Ri • Yo • Hu	• Recoverin • SOX1 • Titin — Immunoblot

SPECIMEN

Preference is 1 mL of separated serum and 1mL of CSF, or minimum 1 mL of separated serum only. Refrigerated or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.
Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.

GANGLIOSIDE AUTOIMMUNE PROFILE 8
(AiNeuroP8, 61050935)

TEST LIST

- **Anti Ganglioside-monosialic Acid Autoimmune 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
- **Anti Ganglioside-monosialic Acid Autoimmune 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

METHOD

Immunoblot

SPECIMEN

1 mL of separated serum or 2 ml of CSF. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

NEUROMYELITIS OPTICA AUTOIMMUNE PROFILE 9
(AiNeuroP9, 61050936)

TEST LIST	METHOD
• Anti-Aquaporin 4, AQP4	IFA/IIFT
• Anti-Myelin oligodendrocyte glycoprotein, MOG	IFA/IIFT

SPECIMEN

1 ml of separated serum or 1 ml of CSF. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).

Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

ENDOCRINE AUTOIMMUNE PROFILE

DIABETES MELLITUS AUTOIMMUNE PROFILE 1 (AiDMp1, 61050917)

TEST LIST	METHOD
• Islet cell cytoplasmic Autoantibody, ICA	ELISA
• Glutamic acid decarboxylase Autoantibody, GADA	ELISA
• Insulinoma associated protein-2 Autoantibody, IA-2A	ELISA
• Insulin Autoantibody, IAA	ELISA

SPECIMEN

2 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).

Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

THYROID AUTOANTIBODY SCREEN PROFILE (AiThyP1, 61050941)

TEST LIST	METHOD
• Thyrotropin Receptor Antibody (TSH Receptor Antibody - TSHRepAb)	CLIA
• Thyroid Peroxidase (Anti-Thyroid peroxidase - Anti-TPO/AMC)	CMIA
• Thyroglobulin (Anti-Thyroglobulin - Anti-TG)	CMIA

SPECIMEN

2 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).

Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

LIVER AUTOIMMUNE PROFILE 1
(AiGasP1, 61050937)

TEST LIST

- **Liver Autoimmune Immunofluorescence Assay:**
  - Mitochondrial Antibody
  - Smooth Muscle Antibody
  - Liver Kidney Microsomal Antibody
  - Parietal Cell Antibody
- **Liver Autoimmune Specific Autoantibodies:**
  - Ro-52
  - AMA M2
  - M2-3E
  - Sp100
  - SLA/LP
  - gp210
  - PML
  - LKM-1
  - LC-1

METHOD

Liver Autoimmune Immunofluorescence Assay	- IFA/IIFT
Liver Autoimmune Specific Autoantibodies	- Immunoblot

SPECIMEN

1 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

LIVER AUTOIMMUNE IMMUNOFLUORESCENCE ASSAY PROFILE 2 (AiGasP2, 61050938)

TEST LIST	METHOD
• Mitochondrial Antibody	IFA/IIFT
• Smooth Muscle Antibody	IFA/IIFT
• Liver Kidney Microsomal Antibody	IFA/IIFT
• Parietal Cell Antibody	IFA/IIFT

SPECIMEN

1 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

LIVER AUTOIMMUNE SPECIFIC AUTOANTIBODY PROFILE 3 (AiGasP3, 61050939)

TEST LIST	METHOD
• Anti-Ro-52	Immunoblot
• Anti-AMA-M2	Immunoblot
• Anti-M2-3E	Immunoblot
• Anti-Sp100	Immunoblot
• Anti-gp210	Immunoblot
• Anti-PML	Immunoblot
• Anti-LKM-1	Immunoblot
• Anti-LC-1	Immunoblot
• Anti-SLA/LP	Immunoblot

SPECIMEN

1 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

INFLAMMATORY MYOPATHIES PROFILES (AiMyoP1, 61050946)

TEST LIST

- Anti-isoleucyl-tRNA synthetase (OJ)
- Anti-glycyl-tRNA synthetase (EJ)
- Anti-alanyl-tRNA synthetase (PL-12)
- Anti-threonyl-tRNA synthetase (PL-7)
- Anti-54 kDa recombinant signal recognition particle (SRP)
- Anti-histidyl-tRNA synthetase (Jo-1)
- Anti-PM-Scl75
- Anti-PM-Scl100
- Anti-Ku
- Anti-SUMO activating enzyme subunits 1 (SAE1)
- Anti-MJ-p140-MU 140 kD protein/MORC3 (NXP2)
- Anti-melanoma differentiation-associated gene 5 (MDA5)
- Anti-transcriptional intermediary factor 1-gamma (TIF1γ)
- Anti-chromodomain-helicase-DNA-binding protein 4 (Mi-2β)
- Anti-chromodomain-helicase-DNA-binding protein 3 (Mi-2α)
- Anti-Ro-52

METHOD

Immunoblot

SPECIMEN

1 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

INFLAMMATORY MYOPATHIES PROFILES 2 (AiMyoP2, 61050978)

TEST LIST

- Anti-isoleucyl-tRNA synthetase (OJ)
- Anti-glycyl-tRNA synthetase (EJ)
- Anti-alanyl-tRNA synthetase (PL-12)
- Anti-threonyl-tRNA synthetase (PL-7)
- Anti-54 kDa recombinant signal recognition particle (SRP)
- Anti-histidyl-tRNA synthetase (Jo-1)
- Anti-PM-Scl75
- Anti-PM-Scl100
- Anti HMG-CoA reductase (HMGCR)
- Anti-Ku
- Anti-SUMO activating enzyme subunits 1 (SAE1)
- Anti-MJ-p140-MU 140 kD protein/MORC3 (NXP2)
- Anti-melanoma differentiation-associated gene 5 (MDA5)
- Anti-transcriptional intermediary factor 1-gamma (TIF1γ)
- Anti-chromodomain-helicase-DNA-binding protein 4 (Mi-2β)
- Anti-chromodomain-helicase-DNA-binding protein 3 (Mi-2α)
- Anti-Ro-52
- Anti cytoplasmic 5'-nucleotidase 1A. (cN1A)

METHOD

Immunoblot

SPECIMEN

1 mL of separated serum. Refrigerated (2-8°C) or freeze (-20°C) immediately.

TRANSPORTATION REQUIREMENT

Refrigerated (for Klang Valley customer) or frozen (for outstation customer).
Sample shall arrive Lablink Central within 24 hours.

TURNAROUND TIME (TAT)

2 – 3 working days upon receiving sample at Lablink Central.

INDIVIDUAL TEST

NO	TEST	TEST CODE	SPECIMEN	TRANSPORTATION REQUIREMENT	METHOD	TAT
1	ANAIF - Anti-nuclear Antibody (ANA) IFA/IIFT	ANAIF, 61040602	1 mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central. Additional 2 – 3 working days for Positive Anti-nuclear antibody (ANA) IFA/IIFT for titration procedure.
2	Double Stranded DNA Antibody (Ds-DNA)	DNAAb, 61040009	1 mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
3	ANCAIF - Anti-Neutrophil Cytoplasmic Antibody, ANCA IFA/IIFT	ANCAIF, 61040216	1 mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
4	N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), CSF	NMDARcsf, 61040699	1mL CSF refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
5	N-methyl-D-Aspartate Receptor Antibody (Anti-NMDAR), Blood	NMDARab, 61040638	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
6	Acetylcholine receptor (AChR) antibody	AChRAb, 61040504	1 mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.

INDIVIDUAL TEST

NO	TEST	TEST CODE	SPECIMEN	TRANSPORTATION REQUIREMENT	METHOD	TAT
7	Aquaporin 4 Antibody, AQP4	AQP4, 61040639	1 ml of separated serum or 1 ml of CSF refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
8	Myelin oligodendrocyte glycoprotein, (MOG) Antibody	MOGAb, 61040733	1 ml of separated serum or 1 ml of CSF refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
9	ANCApMPO - Myeloperoxidase (MPO) pANCA Antibody	ANCApMPO, 61040546	2mL separated serum refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
10	ANCAcPR3 - Proteinase 3 (PR3) cANCA Antibody	ANCAcPR3, 61040547	2mL separated serum refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
11	Glomerular Basement Membrane (GBM) Antibody	GBM, 61040282	2mL separated serum refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
12	Anti-phospholipase-A2-receptor (PLA2R) Semiquantitative	PLA2RAb, 61040694	1mL separated serum refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.

INDIVIDUAL TEST

NO	TEST	TEST CODE	SPECIMEN	TRANSPORTATION REQUIREMENT	METHOD	TAT
13	Anti-phospholipase-A2-receptor (PLA2R) Quantitative	PLA2Qn 61040774	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
14	Islet Cell Cytoplasmic Autoantibodies, ICA	IsletAb, 61040079	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
15	Glutamic Acid Decarboxylase Autoantibodies, GADA	GADA, 61040618	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
16	Insulinoma-Associated-2 Autoantibodies, IA-2A	IA2A, 61040619	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
17	Insulin Autoantibodies, IAA	InsulinAb, 61040078	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	ELISA	2 – 3 working days upon receiving sample at Lablink Central.
18	TSH Receptor antibody	TSHRepAb, 61040636	2mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	CLIA	2 – 3 working days upon receiving sample at Lablink Central.

INDIVIDUAL TEST

NO	TEST	TEST CODE	SPECIMEN	TRANSPORTATION REQUIREMENT	METHOD	TAT
19	Anti-Mitochondrial Antibody (AMA)	AMA, 61040010	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
20	Anti-Mitochondrial Antibody (AMA) - Titration	AMAti, 61040806	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
21	Anti-Smooth Muscle Antibody (SMA)	SMA, 61040012	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
22	Anti-Smooth Muscle Antibody (SMA) - Titration	SMAti, 61040807	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
23	Liver-Kidney-Microsomal Antibody (LKM)	LKMab, 61040502	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
24	Liver-Kidney-Microsomal Antibody (LKM) - Titration	LKMti, 61040808	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
25	Anti-Parietal Cell Antibody (APCA)	PariCellAb, 61040507	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.

INDIVIDUAL TEST

NO	TEST	TEST CODE	SPECIMEN	TRANSPORTATION REQUIREMENT	METHOD	TAT
26	Anti-Parietal Cell Antibody (APCA) - Titration	PariCellti, 61040809	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
27	Anti-neutrophil cytoplasmic antibody, ANCA IFA/IIFT - Titration	ANCAIFti, 61040803	1mL separated serum refrigerated or freeze immediately	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IIFT	2 – 3 working days upon receiving sample at Lablink Central.
29	Aquaporin 4 Antibody, AQP4 – Titration (Serum)	AQP4ti, 61040805	1 ml of separated serum refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.
29	Aquaporin 4 Antibody, AQP4 – Titration (CSF)	AQP4CSti, 61040810	1 ml of CSF refrigerated or freeze immediately.	Refrigerated (for Klang Valley customer) or frozen (for outstation customer). Sample shall arrive Lablink Central within 24 hours.	IFA/IIFT	2 – 3 working days upon receiving sample at Lablink Central.

LABLINK

MEDICAL LABORATORY

MOLECULAR DIAGNOSTICS LABORATORY (MDL)

TEST BOOKLET

Version 8, March 2022

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MEDICAL LABORATORY

PCR FOR COVID-19
SARS-CoV-2 RNA DETECTION

(61028181, PCRcovid19)

SPECIMEN & CONTAINER

Nasopharyngeal Aspirate/ Bronchoalveolar lavage (BAL)/ Sputum/ Saliva
Sterile Container
(Volume: 3-5 mL)

Nasopharyngeal Swab/ Oropharyngeal (Throat) Swab/ Combo (Nasal+Oral) Swab
Universal/Viral Transport Medium (UTM/VTM)

TRANSPORTATION REQUIREMENT

2- 8 °C (Up to 3 days)
USE TRIPLE LAYER PACKAGING

METHOD

Multiplex Real-Time Reverse Transcription PCR

TEST SCHEDULE

Monday to Saturday
7.30am – 9.00pm

Sunday & Public Holiday
12.00pm – 9.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

FEATURES

Qualitative detection of COVID-19 and screening for the most reported variants in S gene.

DETECTION OF

1. Sarbecovirus Envelope Protein Gene **(E gene)**
2. SARS-CoV-2 Nucleocapsid Protein Gene **(N gene)**
3. SARS-CoV-2 RNA-dependent RNA Polymerase Gene **(RdRP gene)**/ SARS-CoV-2 Spike Protein Gene **(S gene)**
4. **Variants of S Gene:**
   - N501Y
   - HV69/70 deletion
   - P681H
   - E484K
   - Y144 deletion

LABLINK
MEDICAL LABORATORY

PCR FOR RESPIRATORY PATHOGEN PANEL (33 TARGETS)

(61028173, PCR33rpp2)

SPECIMEN & CONTAINER

Nasopharyngeal Swab/ Throat Swab/ Nasal Swab
Universal/Viral Transport Medium (UTM/VTM)

Bronchoalveolar lavage (BAL)/ Sputum
Sterile Container
(Volume: 3-5 mL)

TRANSPORTATION REQUIREMENT

2- 8 °C
(Up to 7 days)

METHOD

Multiplex Real-Time Reverse Transcription PCR

TEST SCHEDULE

Daily
(Monday to Saturday)
Cut off time: 12.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

VIRAL TARGETS

1. Influenza A
2. Influenza B
3. Influenza C
4. Influenza A (H1N1) swl
5. Human Parainfluenza 1
6. Human Parainfluenza 2
7. Human Parainfluenza 3
8. Human Parainfluenza 4
9. Human Coronavirus NL63
10. Human Coronavirus 229E
11. Human Coronavirus OC43
12. Human Coronavirus HKU1
13. Human Bocavirus
14. Human Rhinovirus
15-16. Human Metapneumovirus A/B
17-18. Human Respiratory Syncytial Virus A/B
19.Human Parechovirus
20.Human Adenovirus
21. Enterovirus

BACTERIAL TARGETS

1. *Mycoplasma pneumoniae*
2. *Chlamydophila pneumoniae*
3. *Streptococcus pneumoniae*
4. *Haemophilus influenzae B*
5. *Staphylococcus aureus*
6. *Moraxella catarrhalis*
7. *Bordetella* spp. (except *Bordetella parapertussis*)
8. *Klebsiella pneumoniae*
9. *Legionella pneumophila*
10. *Salmonella* spp.
11. *Haemophilus influenzae*

FUNGAL TARGET

1. *Pneumocystis jirovecii*

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MEDICAL LABORATORY

PCR FOR RESPIRATORY BACTERIAL PATHOGEN PANEL

(61020150, PCRRB1)

SPECIMEN & CONTAINER	**BACTERIAL TARGETS**
Nasopharyngeal Swab Universal/Viral Transport Medium (UTM/VTM) **Bronchoalveolar lavage (BAL)/ Sputum/ Nasopharyngeal Aspirate** Sterile Container (Volume: 3-5 mL) **TRANSPORTATION REQUIREMENT** 2- 8 ^{o}C (Up to 3 days) **METHOD** Multiplex Real-Time PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	1. *Mycoplasma pneumoniae* 2. *Chlamydophila pneumoniae* 3. *Streptococcus pneumoniae* 4. *Haemophilus influenza* 5. *Legionella pneumophila* 6. *Bordetella pertussis* 7. *Bordetella parapertussis*

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MEDICAL LABORATORY

RAPID PCR FOR COVID-19 SARS-CoV-2

(61028185, PCRcovidR1)

SPECIMEN

- **Nasopharyngeal Swab**
- **Oropharyngeal (Throat) Swab**
- **Anterior Nasal Swab**
- **Mid-Turbinate Swab**
- **Nasal Wash**
- **Nasal Aspirate**

TRANSPORTATION REQUIREMENT

2- 8 °C (Up to 3 days)
USE TRIPLE LAYER PACKAGING

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: iPonatic)

TEST SCHEDULE

Monday to Saturday
7.30am – 9.00pm

Sunday & Public Holiday
12.00pm – 9.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

FEATURES

Qualitative detection of nucleic acid from SARS-CoV-2 from individuals suspected of COVID-19 by their healthcare provider.

DETECTION OF

1. **N Gene**
2. **ORF1ab Gene**

AVAILABILITY

Offered in Lablink HQ & selected branches

LABLINK
MEDICAL LABORATORY

RAPID PCR FOR COVID-19 SARS-CoV-2

(61028187, PCRcovidR2)

SPECIMEN

- **Nasopharyngeal Swab**
- **Nasal Swab**
- **Nasal Wash**
- **Nasal Aspirate**

TRANSPORTATION REQUIREMENT

2- 8 °C (Up to 7 days)
USE TRIPLE LAYER PACKAGING

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: GeneXpert)

TEST SCHEDULE

Monday to Saturday
7.30am – 9.00pm

Sunday & Public Holiday
12.00pm – 9.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

FEATURES

Qualitative detection of nucleic acid from SARS-CoV-2 from individuals who are suspected of COVID-19 infection.

DETECTION OF

1. **E Gene**
2. **N2 Gene**

AVAILABILITY

Offered in Lablink HQ & selected branches

LABLINK
MEDICAL LABORATORY

RAPID PCR FOR RESPIRATORY PATHOGEN PANEL (22 TARGETS)

(61028182, PCRrppRp3)

SPECIMEN & CONTAINER

Nasopharyngeal Swab
Dry swab or in Universal/Viral Transport Medium (UTM/VTM)

TRANSPORTATION REQUIREMENT

2- 8 ^{o}C (Up to 3 days)

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: QIAstat-Dx)

TEST SCHEDULE

Daily

TURNAROUND TIME (TAT)

3 hours upon specimen arrival

AVAILABILITY

Offered in selected branches

VIRAL TARGETS

1. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
2. Influenza A
3. Influenza A, subtype H1N1/2009
4. Influenza A, subtype H1
5. Influenza A, subtype H3
6. Influenza B
7. Parainfluenza 1
8. Parainfluenza 2
9. Parainfluenza 3
10. Parainfluenza 4
11. Coronavirus NL63
12. Coronavirus 229E
13. Coronavirus OC43
14. Coronavirus HKU1
15. Human Metapneumovirus A/B
16. Bocavirus
17. Rhinovirus/ Enterovirus
18. Respiratory Syncytial Virus A/B
19. Adenovirus

BACTERIAL TARGETS

1. *Mycoplasma pneumoniae*
2. *Legionella pneumophila*
3. *Bordetella pertussis*

LABLINK
MEDICAL LABORATORY

RAPID PCR FOR RESPIRATORY PATHOGEN PANEL (23 TARGETS)

(61028183, PCRrppRp4)

SPECIMEN & CONTAINER

Nasopharyngeal Swab
Universal/Viral Transport Medium (UTM/VTM)

TRANSPORTATION REQUIREMENT

2- 8 °C
(Up to 3 days)

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: FilmArray)

TEST SCHEDULE

Daily

TURNAROUND TIME (TAT)

3 hours upon specimen arrival

AVAILABILITY

Offered in selected branches

VIRAL TARGETS

1. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
2. Influenza A
3. Influenza A, subtype H1-2009
4. Influenza A, subtype H1
5. Influenza A, subtype H3
6. Influenza B
7. Parainfluenza 1
8. Parainfluenza 2
9. Parainfluenza 3
10. Parainfluenza 4
11. Coronavirus NL63
12. Coronavirus 229E
13. Coronavirus OC43
14. Coronavirus HKU1
15. Human Metapneumovirus
16. Adenovirus
17. Human Rhinovirus/Enterovirus
18. Respiratory Syncytial Virus
19. Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

BACTERIAL TARGETS

1. *Mycoplasma pneumoniae*
2. *Chlamydia pneumoniae*
3. *Bordetella pertussis*
4. *Bordetella parapertussis*

LABLINK
MEDICAL LABORATORY

PCR FOR MIDDLE EAST RESPIRATORY SYNDROME - CORONAVIRUS (MERS-CoV) RNA DETECTION

(61020107, PCRmerCoV)

SPECIMEN & CONTAINER	
BAL (Bronchoalveolar lavage)/ Sputum/ Nasopharyngeal Aspirate/ Nasal Aspirate/ Tracheal Aspirate/ Nasal Washes Sterile Container (Volume: 3-5 mL) **Nasopharyngeal Swab/ Throat Swab/ Nasal Swab** Universal/Viral Transport Medium (UTM/VTM) Or **Serum** Plain tube with serum separator (Volume: 1-2 mL)	
TRANSPORTATION REQUIREMENT 2- 8 ^{o}C (Up to 7 days)	**METHOD** Real-Time Reverse Transcription PCR
TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm	**TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival
Note 1: Preferable specimen for detection test of MERS-CoV RNA is from lower respiratory tract e.g., Sputum, Tracheal Aspirate or BAL. *Note 2: ONLY IF respiratory tract specimens are not available, serum for virus detection should be considered.*	

CENTRAL NERVOUS SYSTEM (CNS) INFECTIONS

LABLINK

MEDICAL LABORATORY

LABLINK
MEDICAL LABORATORY

PCR FOR MENINGITIS VIRAL PATHOGEN PANEL

(61028160, PCRmeni2)

SPECIMEN & CONTAINER	VIRAL TARGETS
Cerebrospinal fluid (CSF) Bijou bottle/Sterile container (Volume: 1 mL)	1. Cytomegalovirus 2. Enterovirus 3. Herpes Simplex Virus type 1 4. Herpes Simplex Virus type 2 5. Human Herpesvirus 6 6. Human Herpesvirus 7 7. Parechovirus 8. Varicella-Zoster Virus 9. Adenovirus 10. Parvovirus B19 11. Epstein-Barr Virus 12. Mumps Virus
TRANSPORTATION REQUIREMENT 2- 8 ^{o}C (Up to 5 days)	
METHOD Multiplex Real-Time Reverse Transcription PCR	
TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm	
TURNAROUND TIME (TAT) 1-2 working days upon specimen arrival	

LABLINK
MEDICAL LABORATORY

PCR FOR MENINGITIS BACTERIAL PATHOGEN PANEL

(61028166, PCRmeni3)

SPECIMEN & CONTAINER	BACTERIAL TARGETS
Cerebrospinal fluid (CSF) Bijou bottle/Sterile container (Volume: 1 mL)	1. *Escherichia coli* K1 2. *Listeria monocytogenes* 3. *Neisseria meningitidis* 4. *Haemophilus influenzae* 5. *Streptococcus pneumoniae* 6. *Streptococcus agalactiae* (Group B Streptococcus/GBS)
TRANSPORTATION REQUIREMENT 2- 8 ^{o}C (Up to 5 days)	
METHOD Multiplex Real-Time PCR	
TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm	
TURNAROUND TIME (TAT) 1-2 working days upon specimen arrival	

LABLINK
MEDICAL LABORATORY

RAPID PCR FOR MENINGITIS/ENCEPHALITIS PANEL (14 TARGETS)

(61020145, PCRmeniR1)

SPECIMEN & CONTAINER

Cerebrospinal fluid (CSF)
Bijou bottle/Sterile container
(Volume: 0.5-1 mL)

TRANSPORTATION REQUIREMENT
2- 8 °C (Up to 7 days)

METHOD
Multiplex Real-Time Reverse Transcription PCR
(Platform: FilmArray)

TEST SCHEDULE
LABLINK HQ:
Daily (Monday to Saturday)
Cut off time: 2.00pm

LABLINK BRANCHES:
Daily

TURNAROUND TIME (TAT)
LABLINK HQ:
1-2 working days upon specimen arrival

LABLINK BRANCHES:
3 hours upon specimen arrival

AVAILABLE AT

Lablink HQ & selected branches

VIRAL TARGETS

1. Cytomegalovirus
2. Enterovirus
3. Herpes Simplex Virus 1
4. Herpes Simplex Virus 2
5. Human Herpesvirus 6
6. Human Parechovirus
7. Varicella-Zoster Virus

BACTERIAL TARGETS

1. *Escherichia coli* K1
2. *Haemophilus influenzae*
3. *Listeria monocytogenes*
4. *Neisseria meningitidis*
5. *Streptococcus agalactiae*
6. *Streptococcus pneumoniae*

FUNGAL TARGET

1. *Cryptococcus neoformans/gattii*

GASTROINTESTINAL INFECTIONS

LABLINK

MEDICAL LABORATORY

PCR FOR GASTROINTESTINAL VIRAL PATHOGEN PANEL

(61028162, PCRGI2)

SPECIMEN & CONTAINER	VIRAL TARGETS
Raw Stool Sterile container/ Stool container (preservative/media-free) (Volume: 2-3 mL) Or **Transport Media Preserved Stool** Cary Blair transport medium (liquid-based)/ eNAT (COPAN) **TRANSPORTATION REQUIREMENT** 2- 8 ^{o}C (Up to 2 days) **METHOD** Multiplex Real-Time Reverse Transcription PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	1. Norovirus GI 2. Norovirus GII 3. Rotavirus A 4. Adenovirus F (Serotype 40/41) 5. Astrovirus 6. Sapovirus (Genogroups I, II, IV, V)

LABLINK
MEDICAL LABORATORY

PCR FOR GASTROINTESTINAL BACTERIAL PATHOGEN PANEL

(61028163, PCRGI3)

SPECIMEN & CONTAINER	BACTERIAL TARGETS
Raw Stool Sterile container/ Stool container (preservative/media-free) (Volume: 2-3 mL) Or **Transport Media Preserved Stool** Cary Blair transport medium (liquid-based)/ eNAT (COPAN) **TRANSPORTATION REQUIREMENT** 2- 8 ^{o}C (Up to 2 days) **METHOD** Multiplex Real-Time PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	1. *Shigella* spp. / Enteroinvasive *E. coli* (EIEC) 2. *Campylobacter* spp. 3. *Yersinia enterocolitica* 4. *Vibrio* spp. 5. *Clostridium difficile* toxin B 6. *Aeromonas* spp. 7. *Salmonella* spp.

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MEDICAL LABORATORY

RAPID PCR FOR GASTROINTESTINAL PANEL (22 TARGETS)

(61028157, PCRGI1)

SPECIMEN & CONTAINER

Stool
Resuspend in liquid-based Cary Blair transport medium

TRANSPORTATION REQUIREMENT

2- 8 °C
(Up to 4 days)

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: FilmArray)

TEST SCHEDULE

LABLINK HQ:
Daily (Monday to Saturday)
Cut off time: 2.00pm

LABLINK BRANCHES:
Daily

TURNAROUND TIME (TAT)

LABLINK HQ:
1-2 working days upon specimen arrival

LABLINK BRANCHES:
3 hours upon specimen arrival

BACTERIAL TARGETS

1. *Campylobacter* (*C. jejuni, C. upsaliensis, C. coli*)
2. *Clostridium difficile* (Toxin A/B)
3. *Plesiomonas shigelloides*
4. *Salmonella*
5. *Yersinia enterocolitica*
6. *Vibrio (V. cholerae, V. parahaemolyticus, V. vulnificus)*
7. *Vibrio cholera*

DIARRHEAGENIC E.COLI/ SHIGELLA TARGETS

1. *E. coli* O157
2. Enteroaggregative *E. coli* (EAEC)
3. Enteropathogenic *E. coli* (EPEC)
4. Enterotoxigenic *E. coli* (ETEC) *lt/st*
5. Shiga-like toxin-producing *E. coli* (STEC) *stx1/stx2 E. coli* O157
6. Shigella/Enteroinvasive *E. coli* (EIEC)

VIRAL TARGETS

1. Adenovirus F 40/41
2. Astrovirus
3. Norovirus GI/GII
4. Rotavirus A
5. Sapovirus (I, II, IV, V)

PARASITIC TARGETS

1. *Cyclospora cayetanensis*
2. *Cryptosporidium* spp.
3. *Entamoeba histolytica*
4. *Giardia lamblia*

AVAILABILITY

Offered in Lablink HQ & selected branches

LABLINK
MEDICAL LABORATORY

RAPID PCR FOR GASTROINTESTINAL PANEL (24 TARGETS)

(61028178, PCRgiR4)

SPECIMEN & CONTAINER

Stool
Resuspend in liquid-based Cary Blair transport medium

TRANSPORTATION REQUIREMENT

2- 8 °C (Up to 3 days)

METHOD

Multiplex Real-Time Reverse Transcription PCR
(Platform: QIAstat-Dx)

TEST SCHEDULE

Daily

TURNAROUND TIME (TAT)

3 hours upon specimen arrival

AVAILABILITY

Offered in selected branches

BACTERIAL TARGETS

1. *Clostridium difficile* (tcdA/tcdB)
2. Enteroaggregative *E. coli* (EAEC)
3. Enteroinvasive *E. coli* (EIEC)/*Shigella*
4. Enteropathogenic *E. coli* (EPEC)
5. Enterotoxigenic *E. coli* (ETEC)
6. *Campylobacter* spp.
   (*C. jejuni, C. upsaliensis, C. coli*)
7. *Plesiomonas shigelloides*
8. *Salmonella* spp.
9. Shiga-like toxin producing *E. coli* (STEC)
10. Shiga-like toxin producing *E. coli* (STEC) serotype O157:H7
11. *Vibrio cholerae*
12. *Vibrio parahaemolyticus*
13. *Vibrio vulnificus*
14. *Yersinia enterocolitica*

VIRAL TARGETS

1. Human Adenovirus F40/F41
2. Astrovirus
3. Norovirus GI
4. Norovirus GII
5. Rotavirus A
6. Sapovirus (GI, GII, GIV, GV)

PARASITIC TARGETS

1. *Cyclospora cayetanensis*
2. *Cryptosporidium* spp.
3. *Entamoeba histolytica*
4. *Giardia lamblia*

HEPATITIS & HIV-1 INFECTIONS

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RAPID PCR FOR HEPATITIS C (HCV) VIRAL LOAD

(61020136, PCRhcvVLR)

SPECIMEN & CONTAINER

Plasma
EDTA collection tube
(Volume: 3 mL)

Or

Serum
Plain tube with serum separator
(Volume: 3 mL)

TRANSPORTATION REQUIREMENT
2- 8 °C (Up to 3 days)

METHOD
Quantitative Real-Time Reverse Transcription PCR
(Platform: GeneXpert)

TEST SCHEDULE
Daily
(Monday to Saturday) Cut off time: 2.00pm

TURNAROUND TIME (TAT)
1-2 working days upon specimen arrival

AVAILABILITY
Offered in Lablink HQ & selected branches

FEATURES

The assay quantifies HCV genotypes 1–6 over the range of 10 to 100,000,000 IU/mL.

INTENDED USE

- As an aid in the management of HCV infected patients undergoing antiviral therapy:
  - measures HCV RNA levels at baseline and during treatment, and
  - can be utilized to predict sustained and non-sustained virological responses to HCV therapy
- May also be used to confirm HCV infection in anti-HCV positive individuals.

Note 1:
*The assay is **not intended** to be used as a donor screening test for HCV.*

Note 2:
If use as a supplementary test for diagnosis, kindly provide the result of anti-HCV and/or HCV LIA (immunoblot).

Note 3:
Refer to Lablink Medical Laboratory Testing Algorithm for the Diagnosis of HCV.

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RAPID PCR FOR HEPATITIS B (HBV) VIRAL LOAD

(61040060, PCRhbvQR)

SPECIMEN & CONTAINER

Plasma
EDTA collection tube
(Volume: 2 mL)

Or

Serum
Plain tube with serum separator
(Volume: 2 mL)

TRANSPORTATION REQUIREMENT
2- 8 ^{o}C (Up to 3 days)

METHOD
Quantitative Real-Time PCR
(Platform: GeneXpert)

TEST SCHEDULE
Daily
(Monday to Saturday)
Cut off time: 2.00pm

TURNAROUND TIME (TAT)
1-2 working days upon specimen arrival

AVAILABILITY
Offered in Lablink HQ & selected branches

FEATURES

The assay quantifies HBV genotypes A–H over the range of 10 to 1,000,000,000 IU/mL.

INTENDED USE

- For use in conjunction with clinical presentation and other laboratory markers as an indicator of disease prognosis.
- As an aid in assessing viral response to antiviral treatment as measured by changes in plasma or serum HBV DNA levels.

Note:
*The assay is **not intended** to be used as a donor screening test for HBV, or as a diagnostic test to confirm the presence of HBV infection.*

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RAPID PCR FOR HIV-1 VIRAL LOAD

(61020135, PCRhivVLR)

SPECIMEN & CONTAINER

Plasma
EDTA collection tube
(Volume: 3 mL)

TRANSPORTATION REQUIREMENT

2- 8 ^{o}C (Up to 3 days)

METHOD

Quantitative Real-Time Reverse Transcription PCR
(Platform: GeneXpert)

TEST SCHEDULE

Daily
(Monday to Saturday)
Cut off time: 2.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

AVAILABILITY

Offered in Lablink HQ & selected branches

FEATURES

The assay quantifies Human Immunodeficiency Virus type 1 (HIV-1) from HIV-1 infected individuals over the range of 40 to 10,000,000 copies/mL.

The assay is validated for specimens across Group M subtypes A, B, C, D, AE, F, G, H, AB, AG, J, K and Group N and Group O.

INTENDED USE

- For use in conjunction with clinical presentation and other laboratory markers for disease prognosis.
- As an aid in assessing viral response to antiretroviral treatment as measured by changes in plasma HIV-1 RNA levels.

Note 1:
*The assay is **not intended** to be used as a donor screening test for HIV-1 or as a diagnostic test to confirm the presence of HIV-1 infection.*

Note 2:
If use as a supplementary test for diagnosis, this test must be ordered together with serology test: HIV-1 p24 Ag & HIV-1/2 IgG/IgM and HIV-1/2 PA.

Note 3:
Refer to Lablink Medical Laboratory Testing Algorithm for the Diagnosis of HIV.

RAPID PCR FOR HIV-1 QUALITATIVE

(61020134, PCRhivQLR)

SPECIMEN & CONTAINER

EDTA Whole Blood
EDTA collection tube
(Volume: 1 mL)

TRANSPORTATION REQUIREMENT
2- 8 ^{o}C (Up to 3 days)

METHOD
Qualitative Real-Time Reverse Transcription PCR
(Platform: GeneXpert)

TEST SCHEDULE
Daily
(Monday to Saturday)
Cut off time: 2.00pm

TURNAROUND TIME (TAT)
1-2 working days upon specimen arrival

FEATURES

For qualitative detection of Human Immunodeficiency Virus Type 1 (HIV-1) total nucleic acids from individuals suspected of HIV-1 infection.

INTENDED USE

- To aid in the diagnosis of HIV-1 infection in conjunction with clinical presentation and other laboratory markers.

Note 1:
*The assay is **not intended** to be used as a donor screening test for HIV-1.*

Note 2:
This test must be ordered together with serology test: HIV-1 p24 Ag & HIV-1/2 IgG/IgM and HIV-1/2 PA.

Note 3:
Refer to Lablink Medical Laboratory Testing Algorithm for the Diagnosis of HIV.

SEXUALLY TRANSMITTED INFECTIONS

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PCR FOR SEXUALLY TRANSMITTED INFECTIONS (STI) ESSENTIAL SCREENING PANEL

(61028159, PCRsti1)

SPECIMEN & CONTAINER **Genital Swab** Universal/Viral Transport Medium (UTM/VTM) Or **Urine** ~first morning void~ Sterile Container (Volume: 5-10 mL) Or **Liquid Based Cytology (LBC) Specimen** SurePath/ThinPrep vial **TRANSPORTATION REQUIREMENT** 2- 8 ^{o}C (Up to 7 days), (Up to 2 weeks for LBC) **METHOD** Multiplex Real-Time PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	**BACTERIAL TARGETS** 1. *Chlamydia trachomatis* 2. *Neisseria gonorrhoeae* 3. *Mycoplasma hominis* 4. *Mycoplasma genitalium* 5. *Ureaplasma parvum* 6. *Ureaplasma urealyticum* **PARASITIC TARGET** 1. *Trichomonas vaginalis*

PCR FOR SEXUALLY TRANSMITTED INFECTIONS (STI) GENITAL ULCER PANEL

(61028175, PCRsti4)

SPECIMEN & CONTAINER

Genital Swab
Universal/Viral Transport Medium (UTM/VTM)

Or

Urine
~first morning void~
Sterile Container
(Volume: 5-10 mL)

Or

Liquid Based Cytology (LBC) Specimen
SurePath/ThinPrep vial

TRANSPORTATION REQUIREMENT

2- 8 ^{o}C (Up to 7 days),
(Up to 2 weeks for LBC)

METHOD

Multiplex Real-Time Reverse Transcription PCR

TEST SCHEDULE

Daily (Monday to Saturday)
Cut off time: 12.00pm

TURNAROUND TIME (TAT)

1-2 working days upon specimen arrival

VIRAL TARGETS

1. Herpes Simplex Virus type 1
2. Herpes Simplex Virus type 2
3. Cytomegalovirus
4. Varicella zoster virus

BACTERIAL TARGETS

1. *Chlamydia trachomatis* serovar L
2. *Treponema pallidum*
3. *Haemophilus ducreyi*

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PCR FOR HPV GENOTYPING

(61020127, PCRhpv1)

PCR FOR HPV GENOTYPING WITH LIQUID BASED CYTOLOGY (LBC) REPORT

(61020128, PCRhpvLC1)

SPECIMEN & CONTAINER		
PCRhpv1: **Cervical Swab** Universal/Viral Transport Medium (UTM/VTM)	Or	PCRhpv1 & PCRhpvLC1: **Liquid based cytology (LBC) Specimen** SurePath/ThinPrep vial

TRANSPORTATION REQUIREMENT	
Cervical swab: 2- 8 ^{o}C (Up to 7 days)	LBC Specimen: Room Temperature (Up to 4 weeks)

METHOD	
PCRhpv1: Multiplex Real-Time PCR	PCRhpvLC1: Multiplex Real-Time PCR & Liquid Based Cytology

TEST SCHEDULE
Daily (Monday to Saturday); Cut off time: 12.00pm

TURNAROUND TIME (TAT)	
PCRhpv1: 1-2 working days upon specimen arrival	PCRhpvLC1: 3-4 working days upon specimen arrival

DETECTION OF HUMAN PAPILLOMAVIRUS	
19 HIGH-RISK GENOTYPES	**9 LOW-RISK GENOTYPES**
○ 16 ○ 35 ○ 53 ○ 68 ○ 18 ○ 39 ○ 56 ○ 69 ○ 26 ○ 45 ○ 58 ○ 73 ○ 31 ○ 51 ○ 59 ○ 82 ○ 33 ○ 52 ○ 66	○ 6 ○ 42 ○ 54 ○ 11 ○ 43 ○ 61 ○ 40 ○ 44 ○ 70

TROPICAL & EMERGING INFECTIOUS DISEASES

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PCR FOR TROPICAL FEVER PATHOGEN PANEL

(61020146, PCRfv1)

SPECIMEN & CONTAINER **EDTA Whole Blood** EDTA collection tube (Volume: 1 mL) Or **Urine** ~first morning void~ Sterile container (Volume: 5-10 mL) **TRANSPORTATION REQUIREMENT** 2- 8 °C (Up to 3 days) **METHOD** Multiplex Real-Time Reverse Transcription PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	**VIRAL TARGETS**
	1. Chikungunya virus 2. West Nile virus 3. Dengue virus (DEN-1, DEN-2, DEN3, DEN-4)
	BACTERIAL TARGETS
	1. Salmonella spp. *2. Rickettsia* spp. *3. Leptospira* spp.
	PARASITIC TARGET
	1. *Plasmodium* spp.

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PCR FOR LEPTOSPIRA DNA DETECTION

(61020071, PCRlepto)

SPECIMEN & CONTAINER	
ACUTE SEPTICEMIC PHASE ~within 5 days of onset~	IMMUNE PHASE ~>7 days after beginning of symptoms~
EDTA Whole Blood EDTA collection tube (Volume: 1 mL) Or **Urine** ~first morning void~ Sterile Container (Volume: 5-10 mL)	**Urine** ~first morning void~ Sterile Container (Volume: 5-10 mL)
Note 1: If patient already subjected to antibiotic therapy, then URINE is the preferred specimen.	
TRANSPORTATION REQUIREMENT 2- 8 ^{o}C (Up to 3 days)	
METHOD Real-Time PCR	
TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm	
TURNAROUND TIME (TAT) 1-2 working days upon specimen arrival	
Note 2: The best practice is to send serum for Leptospiral MAT to IMR (acute and convalescent sera). *Note 3: Refer to Lablink Medical Laboratory Testing Algorithm for Molecular Detection of Leptospira DNA.*	

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PCR FOR DENGUE DIFFERENTIATION PANEL

(61020148, PCRdenDF1)

SPECIMEN & CONTAINER	VIRAL TARGETS
Plasma EDTA collection tube (Volume: 1-2 mL) Or **Serum** Plain tube with serum separator (Volume: 1-2 mL) **TRANSPORTATION REQUIREMENT** 2- 8 ^{o}C (Up to 3 days) **METHOD** Multiplex Real-Time Reverse Transcription PCR **TEST SCHEDULE** Daily (Monday to Saturday) Cut off time: 12.00pm **TURNAROUND TIME (TAT)** 1-2 working days upon specimen arrival	1. Dengue Virus Serotype 1 (DENV-1) 2. Dengue Virus Serotype 2 (DENV-2) 3. Dengue Virus Serotype 3 (DENV-3) 4. Dengue Virus Serotype 4 (DENV-4)

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PCR FOR PLASMODIUM (MALARIA) DIFFERENTIATION PANEL

(61020149, PCRmpDF1)

SPECIMEN & CONTAINER	PARASITIC TARGETS
EDTA Whole Blood EDTA collection tube (Volume: 1 mL)	
TRANSPORTATION REQUIREMENT 2- 8 ^{o}C (Up to 3 days)	1. *Plasmodium falciparum*
METHOD Multiplex Real-Time PCR	2. *Plasmodium vivax*
TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm	3. *Plasmodium ovale*
TURNAROUND TIME (TAT) 1-2 working days upon specimen arrival	4. *Plasmodium malariae* 5. *Plasmodium knowlesi*

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PCR FOR ZIKA VIRUS RNA DETECTION

(61028168, PCRzikV1)

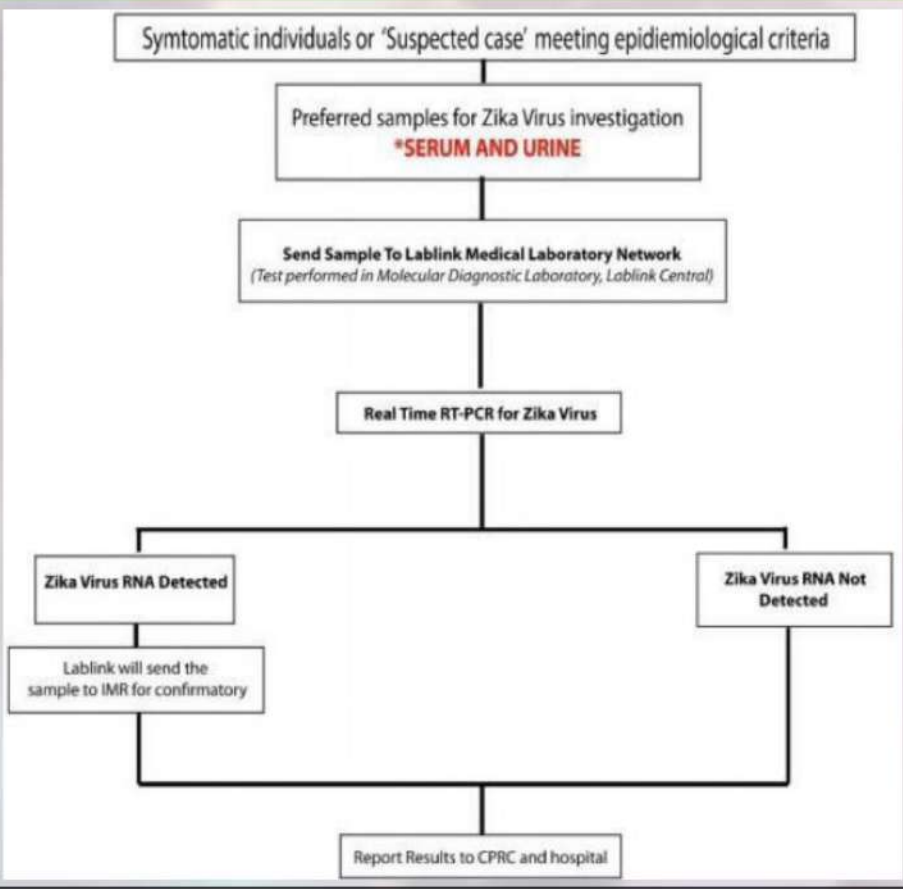
SPECIMEN & CONTAINER

Serum		**Urine**
Plain tube with serum separator (Volume: 2-3 mL)	**AND**	~first morning void~ Sterile Container (Volume: 5-10 mL)

Note 1: Kindly send both serum and urine sample for completion of Zika PCR testing as recommended by Ministry of Health Malaysia.

TRANSPORTATION REQUIREMENT	METHOD
2- 8 ^{o}C (Up to 3 days)	Real-Time Reverse Transcription PCR
TEST SCHEDULE	**TURNAROUND TIME (TAT)**
Daily (Monday to Saturday) Cut off time: 12.00pm	1-2 working days upon specimen arrival

Note 2: Lablink Testing Algorithm for Molecular Detection of Zika Virus RNA, is as below:



BLOOD DONOR SCREENING

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NUCLEIC ACID TESTING (NAT) FOR BLOOD DONOR SCREENING

(61020070, NAATt & NATbd)

SPECIMEN & CONTAINER	DETECTION OF
Plasma EDTA collection tube (Volume: 3-5 mL) TRANSPORTATION REQUIREMENT 2- 8 °C (Up to 3 days) METHOD Qualitative Multiplex Real-Time Reverse Transcription PCR TEST SCHEDULE Daily (Monday to Saturday) Cut off time: 12.00pm TURNAROUND TIME (TAT) 1-2 working days upon specimen arrival	1. HIV-1 RNA 2. HIV-2 RNA 3. HCV RNA 4. HBV DNA **INTENDED USE** To screen donor samples for HIV-1 Group M RNA, HIV-1 Group O RNA, HIV-2 RNA, HCV RNA and HBV DNA from individual human donors. *Note:* *This test is **not intended** for use as an aid in diagnosis of infection with HIV, HCV or HBV.*

THALASSEMIA

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PCR FOR ALPHA-THALASSEMIA DNA DETECTION

(61030090, PCRaThal)

SPECIMEN & CONTAINER

EDTA Whole Blood
EDTA collection tube
(Volume: 1 mL)

TRANSPORTATION REQUIREMENT

2- 8 ^{o}C (Up to 7 days)

METHOD

Multiplex PCR & Flow-Through Hybridization

TEST SCHEDULE

Once a week
Cut off time:
Tuesday, 12.00pm

TURNAROUND TIME (TAT)

3-7 working days after cut off time

Note 1:
Normal result may not totally exclude the presence of other mutations on alpha globin gene that are not listed here. This situation may occur if the patient carry rare Thalassemia mutation types.

Note 2:
Results should be interpreted with consideration of all the clinical and laboratory findings.

FEATURES

Simultaneous detection of 15 types of common deletions and mutations of alpha-thalassemia in Malaysia.

The detection serves as basis for population screening and genetic counselling. It is suggested for pre-marital screening, ante-natal screening and cases with family history of thalassemia.

DELETIONS

1. Southeast Asian double gene deletion (--^{SEA})
2. 3.7 kb deletion
3. Mediterranean double gene deletion (-- ^{MEDI})
4. Filipino double gene deletion (--^{FIL})
5. Thai double gene deletion (--^{THAI})
6. 20.5 kb double gene deletion (-(α)$^{20.5}$)
7. 4.2 kb deletion

MUTATIONS

1. Hb Constant Spring (CD142)
2. Hb Quong Sze (CD125)
3. Hb Adana (CD59)
4. Hb Evora (CD35)
5. Hb Paksé (CD142)
6. Alpha 2-globin gene initiation codon mutation
7. 3 bp deletion (CD30)
8. HBA2:c.300+34G>A

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MOLECULAR DIAGNOSTICS LABORATORY (MDL)

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