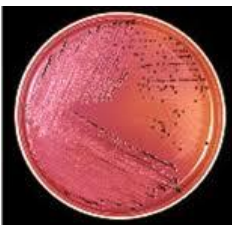
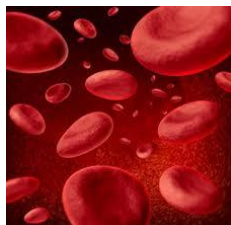




HANDBOOK OF PATHOLOGY SERVICES



**DEPARTMENT OF PATHOLOGY & TRANSFUSION HOSPITAL SULTAN ISMAIL PETRA
KELANTAN
2021**

KATA-KATA ALUAN KETUA JABATAN

Assalamualaikum W.B.T

Sekalung tahniah kepada Jabatan Patologi dan Transfusi Hospital Sultan Ismail Petra kerana kejayaan mengeluarkan Buku Panduan Patologi versi 2021.

Jabatan Patologi dan Transfusi merupakan salah satu unit sokongan klinikal yang penting bagi sesebuah hospital. Perkhidmatan yang efisien dapat membantu para doktor membuat keputusan yang tepat dan seterusnya memberi rawatan yang terbaik kepada semua pesakit. Bagi mencapai hasrat tersebut, pendidikan berterusan kepada kakitangan disamping pematuhan kepada panduan-panduan yang dikeluarkan dari masa ke semasa diharap dapat menghasilkan kakitangan yang kompeten dalam semua aspek.

Seiring dengan perkembangan teknologi semasa, adalah menjadi tanggungjawab pengurusan makmal dan tabung darah supaya peka terhadap keperluan penggunaan teknologi terkini bagi memastikan segala ujian yang dijalankan memenuhi atau mencapai standard yang dikehendaki. Selain daripada peka terhadap teknologi terkini, aktiviti-aktiviti kualiti di peringkat unit hendaklah dijalankan dari masa ke semasa supaya semua isu dapat diselesaikan dengan lebih cepat disamping dapat mengembangkan bakat dan kemahiran di kalangan kakitangan.

Pertambahan beban tugas dengan kemudahan yang terhad menuntut pengorbanan dari semua kakitangan. Tugasan dalam keadaan tidak selesa boleh menyumbang kepada berlakunya kemalangan ditempat kerja yang boleh memudaratkan pesakit dan kakitangan sendiri. Oleh yang demikian, semua faktor-faktor keselamatan hendaklah dipatuhi setiap masa.

Akhir kata, saya berharap Buku Panduan Patologi yang dihasilkan dapat dimanfaatkan oleh semua kakitangan bagi memberikan perkhidmatan yang terbaik kepada pesakit disamping dapat membantu jabatan mengelakkan pembaziran kepada ujian-ujian yang tidak diperlukan.

TERIMA KASIH



PERKHIDMATAN PATOLOGI & TRANSFUSI HOSPITAL SULTAN ISMAIL PETRA

MISI

Unit Patologi akan memberikan perkhidmatan yang cemerlang dengan menggunakan kaedah teknologi yang sesuai dan terkini dan dianggotai kakitangan berjiwa murni dan terlatih serta peka terhadap keperluan pelanggan. Perkhidmatan yang disampaikan berteraskan budaya kualiti dan kerja berpasukan serta profesionalisme demi kecemerlangan rawatan kepada pesakit.

VISI

Menyediakan perkhidmatan yang cekap, tepat dan berinovasi berlandaskan sistem kualiti yang memenuhi kepuasan pelanggan

OBJEKTIF JABATAN

- 1) Menyediakan perkhidmatan diagnostik yang efektif dan komprehensif untuk para pelanggan.
- 2) Menyediakan perkhidmatan 24 jam termasuk bekalan darah dan produk darah yang selamat serta mencukupi bagi penjagaan pesakit berkualiti.
- 3) Memberi nasihat teknikal mengenai ujian-ujian makmal kepada jabatan lain di hospital.
- 4) Memastikan perkhidmatan makmal yang berkualiti diberikan dengan berpandukan kepada The Code of Professional Conduct for Medical Laboratory Technologists dan piawai-piawai etika lain yang berkaitan.

MATLAMAT

Menyediakan perkhidmatan patologi yang cekap dan moden selaras dengan kemajuan teknologi perubatan merangkumi perkhidmatan makmal patologi serta penyediaan bekalan darah dan komponen hasil darah.

PIAGAM PELANGGAN

1. Setiap pelanggan akan dilayan secara sopan, profesional dan prihatin.
2. Setiap pelanggan akan diberi penjelasan mengenai ujian jika perlu.
3. Setiap spesimen akan dikendalikan dan diuji mengikut prosedur yang telah ditetapkan.
4. Ujian-ujian segera akan dilakukan serta merta mengikut piawaian yang ditetapkan
5. Setiap pelanggan diberi jaminan segala maklumat pelanggan dan penyakit adalah sulit dan akan dirahsiakan
6. Setiap penderma darah akan menjalani pemeriksaan kesihatan yang ditetapkan sebelum menderma darah dan darah yang dibekalkan adalah 100% sesuai dan selamat.
7. Penderma-penderma darah berhak untuk mendapat keistimewaan khas mengikut PPDK 9/Pin 3/97.

Jawatankuasa Penerbitan:

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Dr Nabilah Rameli
Pn Siti Nabila Mohamed Hassan

Ahli-ahli : Dr Alyaa Farhan Zulkefli
Pn Shalihah Mahamad
Pn Nik Nur Azma Nordin
Pn Mardiani Mohd Ghazali
En Muhamad Ariffin
Pn Rosmawati Jusoh
Cik Razlinawati Mat Zain

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1. GENERAL OPERATING PROCEDURES

1.1 INTRODUCTION

Department of Pathology & Transfusion is one of the Clinical Support Services in Hospital Sultan Ismail Petra (HSIP). It is located at Level 2 between Record Unit and Daycare. The aim is to deliver a good quality of services that are able to provide accurate and precise results. However, proper collection of specimens is one of the most important factors, which can influence laboratory results. This handbook is designed to be a comprehensive guideline for medical practitioners and healthcare workers, and must be adhered to during specimen collection.

Department of Pathology & Transfusion HSIP comprises of the following units:

- Chemical Pathology Unit
- Haematology Unit
- Microbiology Unit
- Transfusion Medicine Unit

The list of tests offered by Department of Pathology & Transfusion HSIP include the tests that are outsourced to other centers (Refer section 3).

1.2 SERVICE HOURS

Laboratory provide 24 hours service

Normal working hours:

Sunday –Wednesday : 8.00 am-5.00 pm

Thursday : 8.00 am-3.30 pm

(* Public holidays will change according to Government of Malaysia circular).

List of tests that is provided as 24 hours services as stated in section 1.11.

1.3 CONTACT NUMBERS

LOCATION	EXTENSION
Head of Department	2225
Receiving Counter	2228
Core Lab	2227
Senior MLT (Pathology)	2222/2223
Chemical Pathology Unit	
Chemical Pathologist	2219
Scientific Officer (Biochemist)	2224
Chemical Pathology Lab	2239
Haematology Unit	
Haematologist	2220
Haematology Lab	2238
Microbiology Unit	
Science Officer (Microbiologist) 1	2216
Science Officer (Microbiologist) 2	2217
Microbiology Lab	2241
Serology Lab	2237
Blood Bank (Transfusion) Unit	
Blood Bank Lab	2229
Bleeding Room	2231
Senior MLT (Blood Bank)/ Pegawai Seranta	2235
Pegawai Seranta	

Postal address of Department of Pathology & Transfusion, Hospital Sultan Ismail Petra are as follows:
 Department of Pathology & Transfusion,
 Hospital Sultan Ismail Petra,
 18000 Kuala Krai, Kelantan

Telephone Number : 09 - 9611666
 Fax Number : 09 – 9666076

1.4 TEST REQUEST INSTRUCTION

1. Laboratory request are made manually using laboratory request forms PER-PAT 301 and other special forms related to the tests.
2. All forms must be completely filled and should be signed by the doctors and accompanied by properly labeled specimens. Relevant information on clinical history, provisional diagnosis and treatment should be provided. The type of test requested (and type of specimen if necessary) must be clearly indicated. In addition, site of tissue specimen taken should be stated for Medical Microbiology, Histopathology and Cytology.

1.5 SPECIMEN COLLECTION INSTRUCTIONS

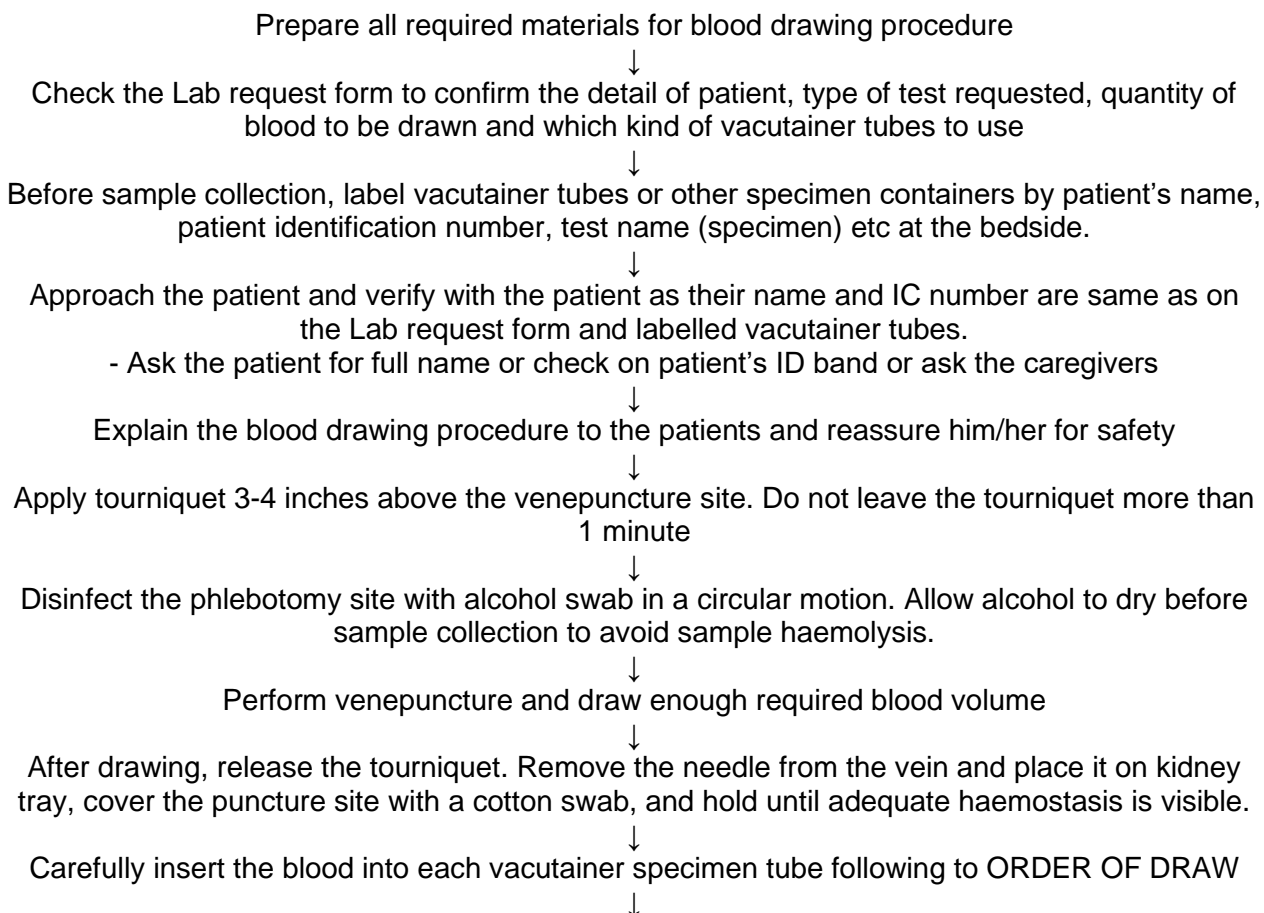
1. Specimen must be properly labelled. The label shall include, but limited to:
 - a. Two unique identifiers – patient's name and patient's identification number
 - b. Test request
 - c. Date and time of sampling
2. Specimen must be dispatched to the laboratory in appropriate container or blood collection tube as specified and according to transport requirement for the test. Make sure the containers are not expired.
3. Specimen container or blood collection tube must be placed in a biohazard plastic bag with the request form (where applicable) inserted into the pocket of the plastic bag.
4. Do not put more than one patient's sample into one biohazard plastic bag. Specimen must be send immediately to the laboratory after collection either by pneumatic tube or porter system. ONLY blood specimens can be dispatched through pneumatic tube system (EXCEPT Blood C&S and blood bank service).
5. Outsource specimens will be dispatched out to Hospital Raja Perempuan Zainab II by 10.00 am and to other respective referral centres by 1.00 pm during working days. Specimens must reach the laboratory one hour earlier for packaging. Inability to comply will result in delay of samples delivery (will be delivered to the respective laboratory on the next working day).
6. Porters are required to echoprint every request form at the main counter.

1.6 BLOOD COLLECTION PROCEDURES

1. Venous blood is preferred.
2. To ensure consistent and accurate result, follow strictly the volume of blood required for the type of test specified or fill blood till the mark on the tube label.
3. Site to avoid for venepuncture:
 - a. Arm on side of mastectomy
 - b. Edematous area
 - c. Hematomas

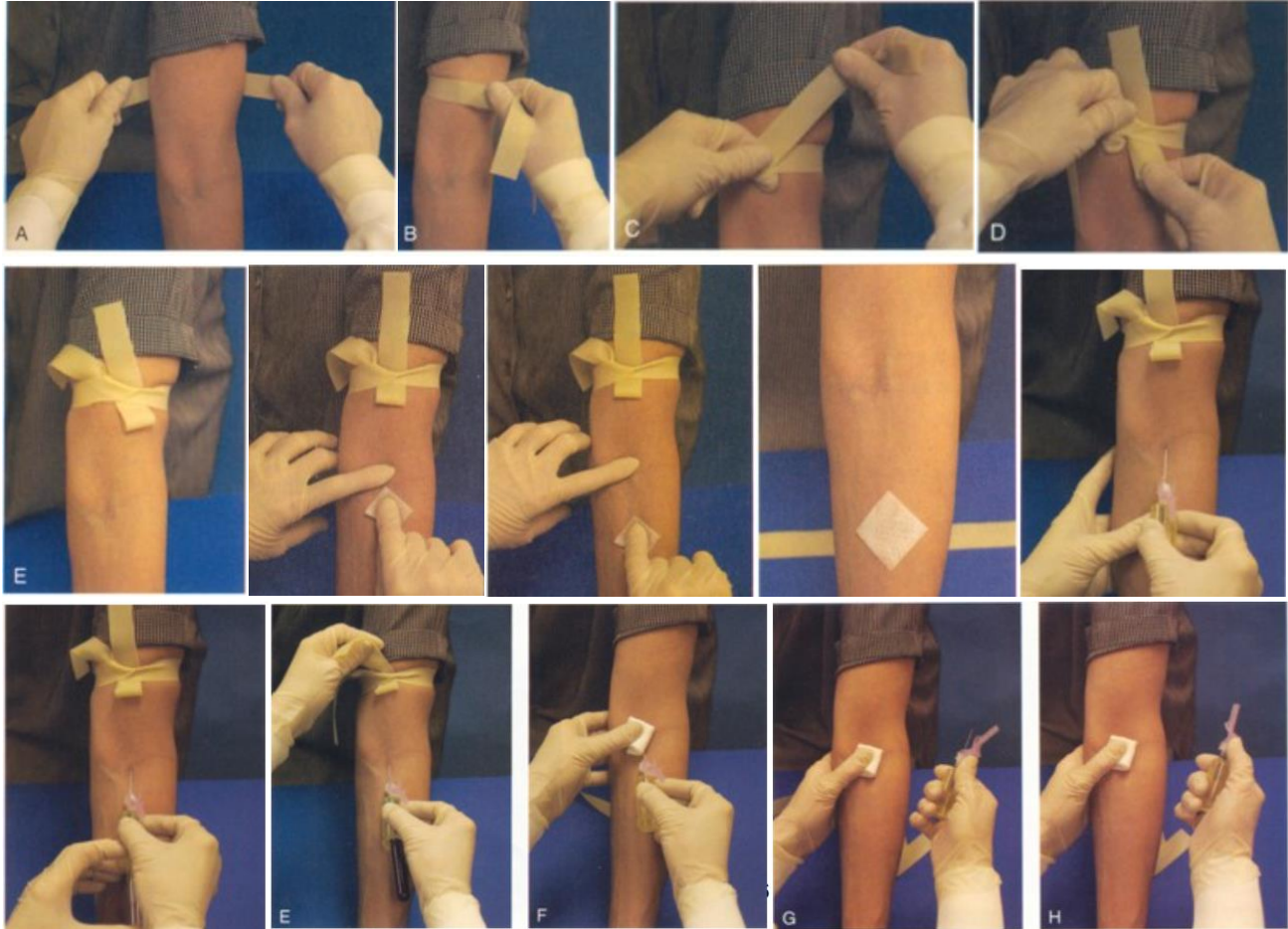
- d. Damaged veins (e.g thromboses, non-elastic veins)
 - e. Scarred areas
 - f. Arm with fistulas or vascular grafts
 - g. Site above the IV cannula
 - Where this is absolute necessary, an appropriate clinician must be informed and infusion stopped by them at least 30 minutes prior to blood sampling, and restart immediately after.
4. To prevent hemolysis :
 - a. The site of collection should be allowed to air dry after cleansing with 70% isopropyl or ethyl alcohol.
 - b. Ensure smooth venipuncture and steady flow of blood into the syringe.
 - c. Do not force blood through needle while transferring blood into collection tube.
 5. Strict aseptic technique should be practiced when performing blood collection for culture and sensitivity.
 6. Draw of blood should be in a correct order beginning with blood culture followed by other routine blood collection tubes.
 7. Immediately and gently mix blood collection tube by inverting several times. Do not mix vigorously.

SIMPLIFIED FLOWCHART for PHLEBOTOMY



Gently mix the blood in tube by inverting the tubes several times (Refer TYPES OF SPECIMEN CONTAINER)

↓
After finish, dispose used needle and syringe into sharp disposal container.



ORDER OF DRAW



1.7 RESULT / REPORTS

1. All laboratory results for in-house tests can be reviewed by requestors via eDelphyn Lab Information System (LIS) (except for confidential/medicolegal results)
2. Hardcopy of confidential/medicolegal results will be dispatch by PPK in the formal envelope to the authorized personnel.
3. Critical results will be notified to the requester (within 30 minutes).
4. Enquiry of test results can be made via telephone at extension of every unit, but this should be kept to the minimum.

1.8 REJECTION CRITERIA

1. Request which do not fulfil the requirement will be rejected and criteria for rejection included:
 - a. Incomplete information on request form (including doctor's name, signature and chop)
 - b. Incomplete information on specimen label
 - c. Request form not tally with specimen label
 - d. No relevant clinical history/indication provided (especially for outsource tests)
 - e. Specimen: lysed, clotted, preparation unsatisfactory, jelly-like, leaking, broken slide
 - f. Inappropriate specimen volume (insufficient or overfill (particularly specimen for coagulation testing))
 - g. No specimen/smear
 - h. Specimen not labelled
 - i. Wrong specimen
 - j. Wrong container/ without preservative or wrong preservative used
 - k. Inappropriate retesting interval / redundant request
 - l. Test not offered
 - m. Unsealed specimen (Medico-legal Case)
2. The laboratory procedure for rejection is as follows:
 - a. The specimen will be rejected in the LIS and/or rejection form (HKK/BK/005/34 (PIN 1/16)) will be filled by the laboratory staff.
 - b. The laboratory staff will call the ward/clinic staff and inform about the reasons for rejection (for test request in which a new specimen is needed). The rejection report/form can be reviewed in LIS or will be despatch to the designated pigeon hold.
 - c. If the specimen is blood or urine, a new specimen will be requested. If it is a precious specimen e.g. CSF, tissue and etc., the ward staff would be informed to come to the laboratory to rectify the problem.

1.9 URGENT/ STAT REQUEST

1. Urgent request must be justified by clinical history, diagnosis and reasons for urgency.
2. The word URGENT/ STAT must be use special form (RED Form) - HKK/BK/005/33 (Pind.1/2016).
3. Urgent request must be separated from the non-urgent (other) requests.
4. List of tests that can be requested as URGENT as per stated in "PERMOHONAN UJIAN SEGERA" form.

1.10 CRITICAL LIMIT OF LABORATORY VALUES

Chemical Pathology

BIL	TEST	ABNORMAL RESULT ADULT	ABNORMAL RESULT PAEDIATRIC
1	Potassium (K)	< 2.8 OR > 6.0 mmol/L	
2	Sodium (Na)	< 125 OR > 155 mmol/L	
3	Calcium (Ca)	< 1.5 OR > 3.0 mmol/L	< 1.7 OR > 3.1 mmol/L
4	Bilirubin – SB (Paed only)	-	> 300 µmol/L

Haematology

BIL	TEST	ABNORMAL RESULT ADULT	ABNORMAL RESULT PAEDIATRIC
1	Haemoglobin	< 6.0 OR >19.0 g/dL	< 7.0 OR >20.0 g/dL Neonate < 8.0 or >22 g/dL
2	Haematocrit (%)	< 20 % OR > 60 %	< 20 OR >40 Neonate <25 OR > 70
3	Platelet	< 20x10 ³ OR > 1000x10 ³ /µL	< 50x10 ³ OR > 1000x10 ³ /µL
4	Total WBC (Paed only)	-	< 1x10 ⁹ OR >50x10 ⁹ /L

Microbiology

BIL	TEST	CRITICAL FINDING
1	Cerebrospinal fluid Culture & Sensitivity	Microscopy result (Normal or abnormal)
2	Cerebrospinal fluid antigen detection	Positive rapid antigen detection
3	Blood Culture	Positive result from gram stain or/ and culture
4	Sterile body fluids	Positive result from gram stain or culture
5	Acid Fast Bacilli	Positive smear result or/ and culture

6	Blood Film Malaria Parasite	Presence of Malaria Parasite
7	Stool Culture	Salmonella typhi, Vibrio Cholerae, Shigella
8	Any type culture	ESBLs producer organism, MRSA, Multi-Resistant Organism (MRO), VRE, VRSA

1.11 SERVICE AFTER OFFICE HOUR (ONCALL)

Test offered 24 hours:

Test	Section
<ol style="list-style-type: none"> 1. BUSE 2. Creatinine 3. LFT 4. Glucose 5. CKMB, CK 6. Calcium, phosphate, magnesium 7. Amylase 8. Bilirubin (Paediatric) 9. CRP 10. Pre-eclamsia profile (PE Profile) 11. Renal Profile 12. Arterial and venous Blood Gases (ABG, VBG) 13. Urine Biochemistry (UFEME) 14. UPT (For suspected ectopic pregnancy) 15. CSF Biochemistry (CSF Protein & Glucose) <p>*Please inform the lab 1 hour earlier before the specimen was sent.</p> <ol style="list-style-type: none"> 16. TDM (Gentamicin and Amikacin) 17. TFT (*After discussed with Pathologist oncall) 18. Beta-HCG (*After discussed with Pathologist oncall) 19. Ferritin (*After discussed with Pathologist oncall) 	Chemical Pathology
<ol style="list-style-type: none"> 1. Full Blood Count (FBC) 2. FBP (* After discussed with Pathologist oncall) 3. PT/PTT 4. Fibrinogen 5. D-Dimer 6. Reticulocyte count 7. ESR 	Hematology
<ol style="list-style-type: none"> 1. Blood cross matching (GXM) 2. GSH 3. Coomb's test 	Blood Bank/ Transfusion Medicine

<ol style="list-style-type: none">4. Blood Grouping5. Antibody identification (Sample sent to HRPZ II)	
<ol style="list-style-type: none">1. Dengue Rapid Test2. Lepto Rapid Test3. BFMP4. CSF Microbiology (Microscopic Result) *Please inform 1 hour earlier before sending the sample.5. Medico-legal case (Spermatozoa)6. RTK Antigen/ RTK Antibody	Microbiology

2. LIST OF TESTS OFFERED

TESTS AVAILABLE AT DEPARTMENT OF PATHOLOGY & TRANSFUSION, HOSPITAL SULTAN ISMAIL PETRA

Chemical Pathology

NO	TEST	CONTAINER/ INSTRUCTION	SPESIMEN/ VOLUME	TAT (Min/Hr/Day)	INSTRUCTION
1	Amylase, Serum	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine) 1 hr (STAT)	
2	Arterial Blood Gas (ABG)	Heparinised Syringe	Blood/ 2ml	1 hr (STAT)	Sample should be sent immediately in ice slurry
3	Blood Urea & Electrolytes (BUSE) 1) Sodium 2) Potassium 3) Chloride 4) Urea	Plain Tube	Blood/ 3-5ml	4 hrs (Routine) 1 hr (STAT)	
4	Calcium, ionized	Heparinised syringe	Blood/ 1 ml	1 hr	Sample should be sent immediately in ice box
5	Calcium, Total	Plain tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine)	
6	CK-MB activity (CKMB)	Plain Tube	Blood/ 3-5ml	4 hrs (Routine) 1 hr (STAT)	
7	Creatine Kinase (CK)	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	
8	C-Reactive Protein (CRP)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine) 1 hr (STAT)	
9	Fasting Lipid Profile (FLP) 1) Cholesterol, Total 2) Triglycerides 3) HDL Cholesterol 4) LDL Cholesterol	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	Fasting sample. Consuming no food or liquids other than water, for 9-12 hours before sampling
10	Glucose	Fluoride Oxalate tube	Blood/ 3-5ml	4 hrs (Routine) 1 hr (STAT)	
11	Iron Profile/ Studies 1) Iron, Total 2) Unsaturated Iron Binding Capacity (UIBC) 3) Total Iron Binding Capacity (TIBC)	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	
12	Lactate Dehydrogenase (LDH)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine)	
13	Liver Function Test (LFT) 1) Protein, Total 2) Albumin 3) Globulin 4) A/G Ratio 5) Bilirubin, Total 6) Aspartate Transaminase (AST)	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	

	7) Alanine Transaminase (ALT)				
14	Magnesium	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine)	
15	Oral Glucose tolerance test (OGTT) 1) Glucose, Fasting 2) Glucose, 2hours Post Prandial (2HPP)	Fluoride Oxalate tube	Blood/ 3-5ml	4 hrs (Routine)	Fasting at least 8 hours
16	Phosphate Inorganic	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	
17	Pre Eclampsia (PE) Profile 1) Aspartate Transaminase (AST) 2) Alanine Transaminase (ALT) 3) Creatinine 4) Uric Acid	Plain Tube	Blood/ 3-5ml	4 hrs (Routine) 1 hr (STAT)	
18	Renal Profile (RP) 1) Sodium 2) Potassium 3) Chloride 4) Urea 5) Creatinine	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	
19	Serum Bilirubin (SB) 1) Bilirubin-Total 2) Bilirubin-Direct	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	4 hrs (Routine) 1 hr (STAT)	Protect from direct sunlight
20	Uric Acid	Plain Tube	Blood/ 3-5ml	4 hrs (Routine)	
21	Thyroid Stimulating Hormone (TSH)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	With clinical history
22	Thyroxine, Free (Free T4)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	With clinical history
23	Tri-iodothyronine, Free (Free T3)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	With clinical history
24	Beta Human Chorionic Gonadotrophin (hCG)	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	
25	Ferritin	Plain Tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	
26	TSH Cord Blood	Plain Tube	Cord blood/ 3-5ml	2 working days	
27	HbA1c	EDTA tube	Blood/ 3-5ml	1 week	With clinical history of DM
28	Osmolality, Serum	Plain tube	Blood/ 3-5ml 0.5-1ml (paed)	3 working days	
32	Amylase, Urine (Diastase)	Universal container	Random urine / 10ml	4 days	Adjust pH to 7.0 before storage
33	Amylase, Body Fluid	Universal container	Body fluid / 10ml	4 days	
	Calcium, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case

34		24H urine container	24H urine/ ≥ 500ml		Acidified with 10 ml 6M HCl
35	Chloride CSF	Sterile container / Bijou bottle	CSF / 2ml	4 hrs (Routine) 1 hour (STAT)	
36	Chloride, Urine	Universal container	Random urine/ 10 ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
37	Chloride, Body Fluid	Universal container	Body fluid / 10ml	4 days	
38	Creatinine, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
39	Creatinine, Body Fluid	Universal container	Body fluid / 10ml	4 days	
40	Creatinine Clearance, Urine	Pain tube	Blood/ 3-5mL	4 days	Urine sample MUST be accompanied by serum sample
		24H urine container	24H urine/ ≥ 500ml		
41	Glucose, CSF	Sodium Flouride tube / Sterile container / Bijou bottle	CSF / 2ml	4 hrs (Routine) 1 hour (STAT) Informed lab 1 hour before send sample	If CSF sample collected in sterile container, sent immediately to lab. A plasma glucose should be sent at the same time.
42	Glucose, Urine	Universal container	Random urine / 10ml	4 days	
43	Glucose, Body Fluid	Universal container	Body fluid / 10ml	4 hrs (Routine) 1 hour (STAT)	Send immediately to lab
44	Lactate Dehydrogenase, CSF	Sterile container	CSF / 2ml	4 hrs (Routine) 1 hour (STAT)	Send immediately to lab
45	Lactate Dehydrogenase, Body Fluid	Universal container	Body fluid / 10ml	4 days	
46	Magnesium, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
47	Osmolality, Urine	Universal container	Random urine/ 10ml	3 working days	
48	Phosphate Inorganic, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		

49	Potassium, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
50	Potassium, Body Fluid	Universal container	Body fluid / 10ml	4 days	
51	Protein Creatinine Index, Urine (UPCI)	Universal container	Random urine/ 10ml	4 days	First morning urine specimen is preferred.
52	Protein Total, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
53	Protein, CSF	Sterile container / Bijou bottle	CSF / 2ml	4 hrs (Routine) 1 hour (STAT)	Informed lab 1 hour before send sample
54	Protein, Body Fluid	Universal container	Body fluid / 10ml	4 days	
55	Sodium, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
56	Sodium, Body Fluid	Universal container	Body fluid / 10ml	4 days	
57	Urea, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
58	Uric Acid, Urine	Universal container	Random urine/ 10ml	4 days	Volume 24H urine ≥500mL, except for ESRD and Paediatric case
		24H urine container	24H urine/ ≥ 500ml		
59	Urine Biochemistry (Qualitative) UFEME	Universal container	Random urine/ 10ml	4 hrs (Routine) 1 hour (STAT)	
60	Urine Drugs, Screening (Opiates, Cannabinoids & ATS)	Universal container	Random urine/ 30ml (2 containers, 15-20ml each)	3-5 days	Use Borang Permintaan Pengesanan Dadah Dalam Air Kencing, UPD-1 (Pindaan 2020) - 3 copies
61	Urine Pregnancy Test (UPT)	Urine	Random	4 hrs (Routine)	Fresh morning urine is preferred
62	Gentamicin	Plain tube without gel (Red-capped) / Bullet (Paed)	Blood/ 3-5ml 0.5-1ml (paed)	1 hour	Use TDM Request form (2 copies). Please refer to TDM Sampling Guide. Inform lab before sending sample.

63	Amikacin	Plain tube without gel (Red-capped) / Bullet (Paed)	Blood/ 3-5ml 0.5-1ml (paed)	1 hour	Use TDM Request form (2 copies). Please refer to TDM Sampling Guide. Inform lab before sending sample.
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** Specific test request as single test instead of profile is encouraged

Haematology

NO	TEST	CONTAINER	SPESEMEN/ VOLUME	TAT (Min/Hr/Day)	INSTRUCTION
1	D-Dimer	Trisodium Citrate Tube	Blood / 3 ml	60 min (Urgent) 4 hrs (Routine)	Mix well
2	Erythrocyte Sedimentation Rate (ESR)	0.5ml Sodium citrate	Blood/ 3 ml	Within 24 hrs	Mix well
3	Full Blood Count (FBC)	EDTA Tube	Blood/ 3 ml Paed 0.5ml	60 min (Urgent) 24 hrs (Routine)	Mix well
4	Full Blood Picture (FBP)	EDTA Tube	Blood/ 3 ml Paed 0.5ml	<48hrs (Urgent) 2 weeks (Routine)	Mix well For Health Clinic-prepared slide
5	Glucose 6 Phosphate Dehydrogenase (G6PD) Screening	Filter paper with blood spot	Blood A minimum of 1.5 cm diameter of dried blood	Within 24 hours	
6	Bone Marrow [May Granwald Giemsa (MGG) stain and PEARL stain	Smear on slide	Bone marrow aspirate	7 days	Request by Appointment. Patient need to be prepared for bone marrow aspiration Procedure. Procedure preferably done before 10 am
7	Prothrombin Time/ Activated Thromboplastin Time (PT/APTT)	Trisodium Citrate tube	Blood/ 3 mls	60 min (Urgent) 4 hrs (Routine)	Fill blood to the mark at container. Mix well.
8.	Serum Fibrinogen	Trisodium citrate tube	Blood /3 mls	4hrs	Fill blood to the mark at container. Mix well

9	Reticulocyte count	EDTA tube	Blood/ 3mls Paed: 0.5ml	Within 24 hours	
10	Mixing Test	Trisodium citrate (2 bottles)	Blood/ 3ml	2 days	Request by appointment
11.	Kleiheaur test	EDTA tube	Mother's blood 3mls	2 days	

Microbiology

NO	TEST	CONTAINER	SPECIMEN VOLUME	TAT (Min/Hr/Day)	INSTRUCTION
1	AFB Direct Smear	Sterile container	Sputum/BAL/ tracheal aspirate/body fluids 3 – 4 mL	24 hours	Deep cough sputum. If delay in transportation to lab, keep specimens in refrigerator.
2	Anti-streptolysin O titre (ASOT)	Plain tube	Blood/ 3mL	5 working days	With clinical history
3	Attest for Autoclave	Biological Indicator	Autoclave	2 working days	
4	Blood C&S – Adult (Aerobic)	Aerobic Blood Culture Bottle	Blood/ 5 – 10 mL	5 – 7 working days	Comply to aseptic technique CRBSI- Central sample/tip must be taken together with peripheral sample within 1 hour
5	Blood C&S – Adult (Anaerobic)	Anaerobic Blood Culture Bottle	Blood/ 5 – 10 mL	5 – 7 working days	
6	Blood C&S – Paediatric	Paeds Blood Culture Bottle	Blood/ 1 – 3 mL	5 – 7 working days	
7	Blood C&S – Fungal	Myc F lytic	Blood/ 3 – 5 mL	Up to 14 days Up to 42 days (suspected Mycobaterium avium complex @ MAC)	The bottle must be requested from the lab prior to use. Please state on the request form if MAC was suspected
8	Blood Film for Malaria Parasite (BFMP)	EDTA tube Labelled glass slide with smear	Blood/ 3 mL Thick and thin blood smear	4 hours	Thick smear: size of 10 cent coin Thin smear: spread smear
	Blood Film for Filaria (Microscopy)	EDTA tube	Blood/ 3 mL	2 days	Blood taken between 6pm-12am
9	Body Fluid C&S (Pleural, Pericardial, Synovial, Bile etc)	Sterile container	Body Fluids/ 3 mL	3 – 5 working days	Please mention the type of specimen taken.
10	Bone C&S	Sterile container	Bone	3 – 5 working days	Please mention the site of specimen taken
11	CSF for bacterial antigen test	Sterile bijou bottle	CSF	1 hour	Sterile bijou bottle must be

					requested from the lab
12	CSF for C&S	Sterile bijou bottle	CSF	3 – 5 working days	Sterile bijou bottle must be requested from the lab
13	CSF Indian Ink/Gram Stain/Cell count	Sterile bijou bottle	CSF	1 hour	Sterile bijou bottle must be requested from the lab
14	Dengue/ Chikugunya Rapid Test ~Dengue (NS1 Ag, IgG, IgM) ~Chikugunya (IgM, IgG)	Plain tube	Blood/ 3 mL	1 hour	
15	Ear Swab C&S	Swab in Amies Transport Medium	Ear swab	3 – 5 working days	
16	Environmental sampling (Air sampling)	Blood Agar/ Nutrient agar	Air sample	3 working days	Media plates must be requested from the lab prior to sampling
17	Corneal Scrapping C&S/ for fungal	Media plates: (BA, Choc, Mac, SDA) & 2 slides	Scrapping from the eye	3 – 5 working days (C&S) 14 days (for fungal)	Media plates/slides must be requested from the lab
18	Eye Swab C&S	Swab in Amies Transport Medium	Eye swab/pus	3 – 5 working days	
19	Genitalia Specimens for C&S (HVS, vaginal swab, endocervical swab, Cervical swab, Urethral swab)	Amies transport medium with Charcoal.	Swab from the genital	3 – 5 working days	
20	Gram Stain/FEME	Sterile Container	Any sample	1 working day	
21	HIV Rapid Test	Plain tube	Blood/ 3mL	1 working day	
22	HBs Ag	Plain tube	Blood/ 3 mL	7 working days	With clinical history.
23	Anti-HBS	Plain tube	Blood/ 3 mL	7 working days	With clinical history.
24	Anti-HCV	Plain tube	Blood/ 3 mL	7 working days	With clinical history.
25	HIV Ag/Ab	Plain tube	Blood/ 3 mL	7 working days	Please fill in Borang Ujian ELISA
26	Leptospira Rapid Test	Plain tube	Blood/ 3mL	1 hour	Please use form MKAK-BPU-U01/Rev2018
	Leptospiral serology	Plain tube	Blood/3mL	3 working days	
27	MRSA Screening (Axilla/ Nasal)	Amies transport medium	Swab	3 – 5 working days	
28	Nasopharyngeal Swab or Aspirates C&S	Amies Transport Medium/ Sterile Container	Swab or aspirates from the perinasal	3 – 5 working days	

29	Nail/Hair/ Skin scrapping C&S (for fungal)	Sterile container	Nail clipping/ Hair/ skin scrapping in a sterile container	14 days	
30	Pus/ Swab C&S	Pus in sterile container Swab in Stuarts/Amies Transport Medium	3 – 5 mL Pus Pus swab in Stuart/Amies transport media	3 – 5 working days	Please mention the site of specimen taken
31	Pneumocystis carinii, Giemsa Stain	Sterile container	Induced sputum, Bronchial lavage 3 ml	2 working days	
32	RPR Syphilis (VDRL)	Plain tube	Blood/ 3mL	5 working days	
34	RTK Antigen	Nasal swab (nasopharynx)	Flocked swab	3 hours	Send in triple layer packaging
35	RTK Antibody	Plain tube	Serum/3ml	3 hours	Send in triple layer packaging
36	Seminal Fluid Analysis (SFA)	Sterile container	Seminal fluid 2 – 5 mL	1 working day	Request by Appointment Submit specimen to the lab immediately after collection.
37	Slough C&S	Sterile container	Aspirate/ 3 – 5 mL	3 – 5 working days	
38	Sputum C&S	Sterile Container	Sputum/ 3 – 5 mL	3 – 5 working days	
39	Sterility/ In-Used Test	Sterile containers/ Swab in Stuarts/Amies Transport Medium	Any sample from pharmacy or ward/ Swab from clean area	3 – 5 working days	Must inform lab 1 day earlier prior to sampling
40	Stool FEME (Ova & cyst)	Sterile container	Fresh stool: 1 cm in diameter (formed stool); 5 mL (liquid stool)	1 working day	
41	Stool Occult Blood	Sterile container	Fresh stool: 1 cm in diameter (formed stool); 5 mL (liquid stool)	1 working day	
42	Stool C&S/ Rectal Swab for CRE Screening	Cary-Blair Transport Medium	Stool/ Rectal swab	3 – 5 working days	
43	Swab C&S	Swab in Stuarts/Amies Transport Medium	Swab	3 – 5 working days	Please mention the location of specimen taken
44	Throat Swab C&S	Stuarts/Amies Transport Media	Swab from the throat	3 – 5 working days	

45	Tissue C&S	Sterile Container	Tissue	3 – 5 working days	Mention the site of specimen taken
46	Tracheal Aspirate/ BAL C&S	Sterile Container	Tracheal Aspirates, BAL/ 3 mL	3 – 5 working days	
47	Treponema Pallidum Hemagglutination Assay (TPPA/ TPHA)	Plain tube	Blood/ 3mL	5 working days	
48	Urine C&S Urine for GBS	Sterile Container/Boric Acid Container	Early morning mid-stream urine 30 mL	3 – 5 working days	Send specimen to lab immediately after collection

Transfusion/ Blood Bank

NO	TEST	CONTAINER	SPESEMEN/ VOLUME	TAT (Min/Hr/Day)	INSTRUCTION
1	ABO/Rhesus Grouping	EDTA Tube	Blood/ 3ml	Within 24 Hrs	
2	Coomb's Test	EDTA Tube	Blood/ 3ml	Within 24 Hrs	
3	Cross-Matching (GXM)	EDTA Tube	Blood/ 3ml	30 min (Emergency) 1 hr (Routine)	Emergency GXM -send specimen directly to lab and wait for blood supply Use Blood Transfusion Request Form (PPDK-5)
4	Group, Screen & Hold (GSH)	EDTA Tube	Blood/ 3ml	Within 24 Hrs	Send one day earlier before elective operation Use Blood Transfusion Request Form (PPDK-5) Form
5	Investigation for Transfusion Reaction	EDTA Tube for blood grouping, GXM, Coomb's Test	Blood/ 3ml	Within 2 days	Send Post Transfusion Sample 1 & Post Transfusion sample II (24hr after Post Transfusion Sample I)

3. LIST OF OUTSOURCE TESTS

OUTSOURCING OF TESTS

The Department of Pathology & Transfusion will be outsourcing certain tests which are not offered by this laboratory.

For outsource tests, the following procedures must be followed:

- Use a set of PER-PAT 301 request form (in double)
- All request forms should be filled in completely and should be accompanied by properly collected specimens
- Test that must be send quickly to referral centre or need appointment should be informed to lab staff before sending the test to laboratory.
- Specimens that need to be sent to the HRPZ II must be registered online via iLab system.
- Requestor must apply for the username and password online and submit the complete form to the lab (Borang Permohonan Kata Laluan; PATH/IT/2013-1/B).

Note:

- Transportation of specimen to the outsource laboratory and handling of the result/ reports will be managed by Department of Pathology & Transfusion.
- Result of outsourcing test will be obtained within period according to turn around time (TAT) of the respective reference lab.
- Outsource specimens will be dispatched out to Hospital Raja Perempuan Zainab II (HRPZ II) by 10.00 am and to other respective referral centres by 1.00 pm during working days. Specimens must reach the laboratory one hour earlier for packaging. Inability to comply will result in delay of specimens' delivery (will be delivered to the respective laboratory on the next working day).
- For urgent test request to HRPZ II after 10.00 am on working days or during public holiday, requestor need to arrange the transport and send the specimen by themselves.

GENERAL PROCEDURE FOR SUBMISSION OF SPECIMENS (REFERRAL LABORATORY)

No	Specimen	General procedure
1	PAP Smears	<ul style="list-style-type: none"> • Specimen to be collected prior to bimanual examination • No sexual intercourse prior to specimen collection • Patient should be advised to refrain from douching or using vaginal suppositories for a period of 24 hours before a specimen collection. • Avoid collecting specimen during menstrual bleeding • Ideally, smears should be made and fixed on clean glass slides immediately after specimen collection to prevent cellular distortion. For routine Papanicolau (PAP) staining, fix the smears first by immediately placing the slides in 95% alcohol for 15-30 minutes. <p>If more than one slide is to be placed in the same container, ensure that they are not placed face to face.</p> <ul style="list-style-type: none"> • 'Spray fixed' method also can be used
2	Body Fluid	Specimen is collected into a normal clean plain container. No fixatives or heparin to be added. The specimen should be brought fresh without delay to the laboratory.
3	Sputum	<p>Morning specimen is required, before breakfast. Rinse mouth with water. Saliva and post-nasal discharge should be discarded.</p> <ol style="list-style-type: none"> i. Deep cough specimen is required ii. Cough into wide mouth receptacle and despatch for immediate processing
4	Histopathology specimen	<ul style="list-style-type: none"> • All specimens for routine histological examination are to be fixed in 10% formalin in a suitable clean leak-proof container. • The containers should have wide opening and if possible with screw cap to prevent leakage. • The volume of formalin used must be at least 10 times the volume of specimen to be fixed. • Do not put large specimen in small containers as this would prevent proper fixation of the tissue and also distort the specimen. • For skin biopsy, the specimen should be transported in Phosphate buffer solution • For renal biopsy, 2 specimens are needed. One specimen should be fixed in 10% formalin and another one should be transported in Phosphate buffer solution

5	Non-gynae cytology specimen	<ul style="list-style-type: none">• Adequate volume specimen: e.g CSF, sputum, peritoneal fluid, pleural fluid, bronchial washing, urine<ul style="list-style-type: none">○ Maximum volume not restricted○ Send in urine container x 2 bottles • Minimal volume specimen<ul style="list-style-type: none">○ Synovial fluid, blister content, nipple discharge<ul style="list-style-type: none">▪ Specimen should be smeared onto 2 glass slides▪ One smear should be fixed in 95% alcohol for 15-30 minutes▪ Another one smear should be air-dried▪ Label method of fixation on each slide○ Brushing specimen (bronchial, gastric, duodenal)<ul style="list-style-type: none">▪ Specimen should be smeared onto few glass slides▪ Fix all slides in 95% alcohol for 15-30 minutes, or rinse the slides with cytolyte solution provided in bijou bottle
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LIST OF OUTSOURCE TESTS FOR REFERRAL LABORATORIES

1. Chemical Pathology

Test No	Test_Name	Specimen	Tube/Container	Test Volume	Test Preparation	Test Performing Lab
1	17 Hydroxy Progesterone (17-OHP)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Use PER-PAT 301 form Note for referring lab: Keep the specimen frozen or within 2-8 °C during transportation.	Diabetes and Endocrine Unit (CDNRC), IMR
2	5-Hydroxyindoleacetic Acid (5-HIAA), Urine	24-Hour urine specimen	24-Hour urine container with 10 ml of 25% HCL	5 ml of 24 hour urine specimen	Record 24 hour urine volume on the request form. Transport frozen in ice. Indication: Carcinoid tumour. Use PER-PAT 301 form	Biochemistry Unit IMR
3	Acetaminophen	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
4	Acid Alpha Glucosidase	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature Indication : Suspected Pompe: hypotonia, myopathy, cardiomyopathy, hepatomegaly, respiratory problem Use IEM REQUEST FORM	Biochemistry Unit, IMR
5	Acid Amino	Plasma or serum	Lithium heparin tube (plasma) or Plain tube (serum)	2 ml	Collect 4 hours after meals. Centrifuge and freeze immediately. Transport frozen in ice if delayed. Indication : Selective screening - hyperammonemia, amino acid disorder, epileptic encephalopathy Use IEM REQUEST FORM	Biochemistry Unit IMR
6	Acid Amino, CSF	CSF	Sterile container	1 ml	MUST send together with plasma. Freeze immediately. Transport frozen in ice. Indication: Epileptic encephalopathy. Use IEM REQUEST FORM	Biochemistry Unit IMR
7	Acid Organic, Urine	Urine	Sterile container	2 ml	Collect during urine crisis, freeze immediately and transport frozen in ice. Indication: Selective screening: unexplained metabolic crisis, organic aciduria, amino aciduria, FAOD, mitochondria disorder, neurological/neuromuscular disorder, epileptic encephalopathy, multisystem disorder, unexplained mental retardation. Use IEM REQUEST FORM	Biochemistry Unit IMR
8	Acid Orotic, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected Urea Cycle Defect, hyperammonemia, purine and pyrimidine disorder, suspected OTC carrier and allopurinol test. Use IEM REQUEST FORM	Biochemistry Unit IMR
9	Acute Intermittent Porphyria (HMBS) MLPA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR

10	Acute Intermittent Porphyrin (HMBS) Sequencing	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube.	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
11	Acylcarnitines	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Neonatal screening of IEM diseases : amino acid disorder, organic acid disorder and FAOD, hypoglycemia and SIDS. Use IEM REQUEST FORM	Biochemistry Unit IMR
12	Adrenocorticotropic Hormone (ACTH)	Plasma	K2 EDTA tube in ice, Paediatric patient: K2 EDTA Paediatric tube in ice	2-3 ml (adult), 0.5-1 ml (paediatric)	Send specimen in ice immediately to lab. Cortisol level should be provided with the request. Use PER-PAT 301 form Note to referring lab: Spin and separate immediately and keep plasma frozen.	Hospital Kuala Lumpur
13	Alagille Syndrome	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
14	Albumin Creatinine Ratio, Urine (UACR)	Urine	Universal container	10 ml	Please refer instruction for sample collection in Laboratory Investigation Guidelines for CKD and utilisation of eGFR in Adults 2012 page 13. Use PER-PAT 301 form	HRPZ II
15	Albumin, Body Fluid	Body Fluid	Universal container	10 ml	No established reference range for fluid available Use PER-PAT 301 form	HRPZ II
16	Albumin, CSF	CSF	Sterile container	2 ml	No special preparation Use PER-PAT 301 form	HRPZ II
17	Albumin, Urine	Random Urine	Universal container	10 ml	No special preparation Use PER-PAT 301 form	HRPZ II
18	Alcohol (Ethanol)	Serum or Plasma	Plain Tube without gel (serum) or Sodium Fluoride tube (plasma)	3 ml	No special preparation Use PER-PAT 301 form	Hospital Kuala Lumpur
19	Aldosterone	Plasma	K2 EDTA tube, Paediatric patient : K2 EDTA Paediatric tube	3 ml (adult), 0.5-1 ml (paediatric)	Hypokalemia and certain drugs need to be avoided. Clinical history and drug history are MANDATORY. Test should be requested by Specialist or Endocrine Specialist only. <u>Refer Protocol for Requesting Plasma Renin and Aldosterone (for Clinician)</u> Use PER-PAT 301 form	Hospital Putrajaya
20	Alexander Disease (GFAP)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
21	Alpha 1-Antitrypsin Deficiency (SERPINA1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician	Unit of Molecular Diagnostics and Protein (UMDP), IMR

					Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	
22	Alpha 2 Macroglobulin	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
23	Alpha Feto-Protein (AFP)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma). Paediatric patient: Paediatric tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
24	Alpha-1-Acid Glycoprotein (Orosomucoids)	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
25	Alpha-1-Antitrypsin (Quantitation)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	3 ml (adult), 1.5 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 2 days. Use PER-PAT 301 form	Hospital Ampang
26	Alpha-1-Antitrypsin- (Phenotyping)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	3 ml (adult), 1.5 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 2 days. Use PER-PAT 301 form	Hospital Ampang
27	Ammonia	Plasma	K2 EDTA tube or Paediatric patient: K2 EDTA Paediatric tube	5 ml (adult), 0.5 ml (paediatric)	Send immediately in ice bath Use PER-PAT 301 form	HRPZ II
28	Amphetamine Type Stimulants (ATS), screening & confirmation	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
29	Angelman Syndrome	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
30	Anti islet cells (ICA)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	Anti islet cells (ICA) is part of Diabetes Autoantibodies panel Use PER-PAT 301 form	Unit Endocrine, IMR
31	Anti-Glutamic acid decarboxylase (GAD)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	Anti-Glutamic acid decarboxylase (GAD) is part of Diabetes Autoantibodies panel Use PER-PAT 301 form	Unit Endocrine, IMR
32	Anti-Insulinoma-Associated Antigen 2 (IA2)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	Anti-insulinoma associated antigen 2(IA2) is part of Diabetes Autoantibodies panel Use PER-PAT 301 form	Unit Endocrine, IMR
33	Anti Mullerian Hormone	Serum	Plain tube (serum)	5 ml (adult)	Should not be used for screening purposes in healthy individuals. Must be requested by Specialist from Infertility Clinic/O&G Clinic Use PER-PAT 301 form	Unit Endocrine, IMR
34	Anti-Thyroglobulin	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Pulau Pinang
35	Anti-Thyroid Peroxidase (TPO)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Pulau Pinang
36	Anti-Thyroid Receptor (TRAb)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	5 ml (adult), 3 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Kuala Lumpur

37	Argininosuccinate Lyase Deficiency (ASL)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
38	Argininosuccinate Synthase Deficiency (ASS1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
39	Aromatic Amino Acid Decarboxylase Deficiency (DDC)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
40	Arsenic	Serum	Plain Tube without gel	3 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
41	Arsenic, urine	Random urine	Sterile Container	20 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
42	Benzodiazepines	Serum	Plain Tube without gel	3 ml	No special preparation Use TDM form	Hospital Kuala Lumpur
43	Benzodiazepines	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
44	Berardinelli Congenital Lipodystrophy	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
45	Beta Cross Laps (CTX)	Plasma	K2 EDTA tube	2-3 ml	Refer to performing lab Use PER-PAT 301 form	Hospital Tengku Ampuan Rahimah (internal only)
46	Beta-2 Microglobulin	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
47	Beta-2 Microglobulin, Urine	Random Urine	Sterile Container	10ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
48	Bile acid	Serum	Plain tube	5 ml (adult), 0.5 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Selayang
49	Biogenic Amines, CSF	CSF	Sterile container	0.5 ml	Protect from light. Freeze immediately. Transport frozen in ice. Indication: Suspected neurotransmitter disorder. Use IEM REQUEST FORM	Biochemistry Unit IMR
50	Biogenic Amines, Urine	Random urine	Sterile container	2 ml	Protect from light. Transport frozen in ice. Indication: Suspected neurotransmitter disorder. Use IEM REQUEST FORM	Biochemistry Unit IMR
51	Biotinidase Deficiency (BTD)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR

52	Biotinidase Enzyme Activity	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Suspected biotinidase deficiency. Use IEM REQUEST FORM	Biochemistry Unit IMR
53	CADASIL (NOTCH3) - hotspots	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
54	Cadmium	Whole Blood	K2 EDTA tube	3 ml	No special preparation Use BORANG PERMOHONAN UJIAN MAKMAL (UMUM) MKA	MKAK Sungai Buloh
55	Cadmium, urine	Random urine	Sterile Container	20 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
56	Caeruloplasmin	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	3 ml (adult), 1.5 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 2 days. Use PER-PAT 301 form	Hospital Ampang
57	Canavan Disease (ASPA)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
58	Cancer Antigen 125 (CA 125)	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
59	Cancer Antigen 15-3 (CA 15-3)	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Kuala Lumpur
60	Cancer Antigen 19-9 (CA 19-9)	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Kuala Lumpur
61	Cannabinoids (screening) & THC (confirmation)	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
62	Carbamazepine	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. Please refer to TDM Sampling Guide	HRPZ II
63	Carbamoylphosphate Synthetase 1 Deficiency (CPS1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
64	Carboxyhemoglobin	Whole Blood	Heparanized syringe	3 ml	Send immediately in ice bath	Hospital Kuala Lumpur (Internal Only)
65	Carcinoembryonic Antigen (CEA)	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
66	Carnitine (Total & Free plasma)	Plasma	Lithium heparin tube	2 ml	Freeze immediately. Transport frozen in ice. Indication: Carnitine deficiency (Primary or secondary), Fatty acid oxidation defect, organic aciduria. Use IEM REQUEST FORM	Biochemistry Unit IMR

67	Carnitine Palmitoyltransferase 1A (CPT1) Deficiency (CPT1A)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
68	Carnitine Palmitoyltransferase II (CPT 2) Deficiency (CPT2)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
69	Carnitine Update Deficiency (OCTN2)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
70	Carnitine-Acylcarnitine Translocase Deficiency (SLC25A20)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
71	Catecholamines, Urine	24-hour urine specimen	24-hour urine container with 10 mls of 18% HCL	Minimum urine volume: 750 mls (adult)	Refer Section Special Collection. All cases should be discussed and approved by Endocrinologist/ regional Paed Endocrinologist. Use PER-PAT 301 form	Hospital Kuala Lumpur
72	Cholinesterase	Serum	Plain Tube	3 ml	No special preparation Use PER-PAT 301 form	Hospital Kuala Lumpur
73	Chromium, urine	Random urine	Sterile Container	20 ml	No special preparation Use BORANG PERMOHONAN UJIAN MAKMAL (UMUM) MKA	MKAK Sungai Buloh
74	Citrin Deficiency (SLC25A13)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
75	CK - MB mass (CKMB)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma)	5 ml (adult)	No special preparation Use PER-PAT 301 form	HKL, H. Pulau Pinang and H. Selayang
76	Classical Homocystinuria (CBS)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
77	Codeine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
78	Complement 3 (C3)	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
79	Complement 4 (C4)	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
80	Copper	Serum	Plain Tube without gel	3 ml	No special preparation Use PER-PAT 301 form	Toxicology Unit, IMR

81	Copper, urine	Random urine	Sterile Container	20 ml	No special preparation Use PER-PAT 301 form	Toxicology Unit, IMR
82	Cortisol	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Random cortisol is not acceptable for interpretation. Time of sample collection must be stated. Use PER-PAT 301 form	HRPZ II
83	Cortisol, Free, Urine	24-hour urine specimen	24-hour urine container without preservative	Minimum urine volume: 500 mls (adult)	1. Incomplete 24 hours urine collection may affect validity of the results 2. Patients' hydration status and renal disease also influence urine cortisol excretion. 3. Cortisol production and therefore urinary excretion may increase during stress, surgery, acute illness and trauma. 4. The use of any glucocorticoid preparation should be avoided during the collection of urine. Use PER-PAT 301 form	HRPZ II
84	C-Peptide	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Glucose result should be provided with the request. Use PER-PAT 301 form	Hospital Kuala Lumpur
85	Creatine and Guanidinoacetate, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected for creatine deficiency (Creatine Transport Defect, guanidinoacetate methyltransferase deficiency and Arginine: glycine amidinotransferase deficiency). Use IEM REQUEST FORM	Biochemistry Unit IMR
86	Cryoglobulin	Refer to performing laboratory	Refer to performing laboratory	Refer to performing laboratory	Test offered by appointment (03 4279 6000 Ext 6216). Only patient referred to H. Ampang, HKL & IJN <u>Refer Cryoglobulin: Patient preparation and collection procedure</u> Use PER-PAT 301 form	Hospital Ampang
87	Cryoglobulin screening	Refer to performing laboratory	Refer to performing laboratory	Refer to performing laboratory	Refer to performing laboratory Use PER-PAT 301 form	Hospital Selayang (internal only)
88	CSF Oligoclonal band	CSF and Serum	Sterile Bijou bottle (CSF) and Plain tube (Serum)	3ml (CSF) and 5ml (Serum)	CSF sample must paired with serum sample within 4hours of collection. CSF must be frozen immediately after collection and shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
89	Cyclosporin	Whole Blood	K2 EDTA tube	2 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
90	Cystine, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected for cystinuria, screening for potential kidney donor. Use PER-PAT 301 form	IEM Lab Paediatric Institute HKL
91	Dehydroepiandrosterone Sulphate (DHEAS)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation. Use PER-PAT 301 form	Hospital Kuala Lumpur
92	Delta-aminolevulinic acid (ALA), Urine	Random urine or 24-Hour urine specimen	Sterile container (Random urine) or 24-Hour urine container without preservative.	5 ml	Protect from light. Transport frozen in ice. Record 24 hour urine volume on the request form. Indication: Suspected Tyrosinemia type I, porphyrias. Use IEM REQUEST FORM	Biochemistry Unit IMR
93	Dextromethorphan	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur

94	Dihydropyrimidinase (DHP) Deficiency (DPYS)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
95	DNA Extraction & Storage	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
96	Ephedrine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
97	Estradiol	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation. Use PER-PAT 301 form	HRPZ II
98	Ethylmalonic Encephalopathy (ETHE1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
99	Everolimus	Whole Blood	K2 EDTA tube	2 ml	Use TDM form. Send in 2-8°C within 3 days.	Hospital Kuala Lumpur
100	Fat globules (Qualitative), Stool	Stool	Stool Container	1 g	No special preparation Use PER-PAT 301 form	PPUM (Need payment)
101	Fat globules (Qualitative), Urine	Urine	Universal container	10 ml	No special preparation Use PER-PAT 301 form	PPUM (Need payment)
102	Floating-Harbor Syndrome (FHS) (SRCAP)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
103	Fluconazole	Plasma	Lithium heparin tube	3 ml	Use TDM form	Hospital Ampang
104	Folate	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation Use PER-PAT 301 form	HRPZ II
105	Follicle Stimulating Hormone (FSH)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Sample taken at day 2- 5 of menses is preferable (for fertility test) Use PER-PAT 301 form	HRPZ II
106	Fragile X Syndrome (FRAXA)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
107	Free Kappa Light Chain	Serum	Plain Tube	5ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang

108	Free Kappa Light Chain, Urine	Random Urine	Sterile Container	20ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
109	Free Lambda Light Chain	Serum	Plain Tube	5ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
110	Free Lambda Light Chain, Urine	Random Urine	Sterile Container	20ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
111	Free light chain Quantitation	Serum	Plain Tube	5ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
112	Free light chain Quantitation, Urine	Random Urine	Sterile Container	20ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
113	Fructosamine	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult)	No special preparation Use PER-PAT 301 form	Hospital Ampang
114	Fructose-1,6-Bisphosphatase Deficiency (FBP1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
115	Fucosidosis (FUCA1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
116	G6PD quantitation	Whole Blood	K2 EDTA Tube, Paediatric patient: K2 EDTA Paediatric tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
117	Galactokinase Deficiency (GALK1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
118	Galactosemia Screening, Blood Spot	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Suspected disorder of galactose metabolism Use IEM REQUEST FORM	Biochemistry Unit IMR
119	Galactose Epimerase Deficiency (GALE)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
120	Galactose Total	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Suspected disorder of galactose metabolism, acute liver failure, cataract, prolonged jaundiced. Use IEM REQUEST FORM	Biochemistry Unit IMR
121	Galactose-1-Uridyl Transferase (GALT)	Dried Blood Spot	Special filter paper.eg: Whatman 904	4 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature.	Biochemistry Unit IMR

					Indication: Suspected disorder of galactose metabolism, acute liver failure, cataract, prolonged jaundiced. Use IEM REQUEST FORM	
122	Gamma Glutamyl Transferase (GGT)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma). Paediatric patient: Paediatric tube	5 ml (adult), 0.5 ml (paediatric)	No special preparation Use PER-PAT 301 form	HRPZ II
123	Gaucher Disease (GBA)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
124	Globulin (Calculated), CSF	CSF	Sterile container	2 ml	Calculated value	Some State Hospitals and some Major Specialist Hospitals.
125	Globulin (Qualitative), CSF	CSF	Sterile container	2 ml	No special preparation Use PER-PAT 301 form	Some State Hospitals and some Major Specialist Hospitals.
126	Glutaric Aciduria Type 1 (GCDH)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
127	Glycogen Storage Disease Type Ia (GSDI) (G6P6)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
128	Glycogen Storage Disease Type Ib (GSDI) (SLC37A4)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
129	Glycogen Storage Disease Type III (GSDIII) (AGL)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
130	Growth Hormone (Somatotrophin)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Refer to performing lab Use PER-PAT 301 form	Hospital Kuala Lumpur
131	Haptoglobin	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	3 ml (adult), 1.5 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 2 days. Use PER-PAT 301 form	Hospital Ampang
132	Hemoglobin, Urine	Random Urine	Universal container	10 ml	No special preparation Use IEM REQUEST FORM	Biochemistry unit, IMR
133	Hereditary Orotic Aciduria (UMPS)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR

134	Homocysteine	Plasma	EDTA tube	2 ml	Freeze immediately. Transport frozen in ice. Indication: Suspected Homocystinuria, Marfan like syndrome, Cobalamine disorder, sulphur amino acid disorder. Use IEM REQUEST FORM	Biochemistry Unit IMR
135	Homocysteine, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected Homocystinuria, Marfan like syndrome, Cobalamine disorder, sulphur amino acid disorder. Use PER-PAT 301 form	IEM Lab Paediatric Institute HKL
136	Hypophosphatasia (ALPL)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
137	Immunoglobulin A (IgA)	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
138	Immunoglobulin E (IgE) specific	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Allergy and Immunology Research centre (AIRC),IMR
139	Immunoglobulin E (IgE) Total	Serum	Plain tube. Paediatric patient: Paediatric plain tube	5ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Allergy and Immunology Research centre (AIRC),IMR
140	Immunoglobulin G (IgG)	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
141	Immunoglobulin M (IgM)	Serum	Plain tube. Paediatric patient: Paediatric plain tube	3 ml (adult), 0.5-1 ml (paediatric)	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	HRPZ II
142	Inborn Error Metabolism (IEM) Screening, Blood Spot	Dried Blood Spot	Special filter paper e.g Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Suspected disorder of galactose metabolism, acute liver failure, cataract, prolonged jaundice Use IEM REQUEST FORM	Biochemistry Unit IMR
143	Insulin	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Glucose level should be provided with the request Use PER-PAT 301 form	Hospital Kuala Lumpur
144	Insulin-like Growth Factor 1 (IGF-1)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Fasting sample is preferable Use PER-PAT 301 form	Hospital Putrajaya
145	Iodine, urine	Random urine	Sterile Container	5 ml	Note to referring lab: Send in 2-8°C or keep at -20°C if delay Use BORANG PERMOHONAN UJIAN MAKMAL (UMUM) MKA	MKAK Sungai Buloh
146	Isolated Methyl Malonic Aciduria (MMA) (MUT)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
147	Ketamine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
148	Ketone	Serum	Plain tube	5 ml (adult), 0.5 ml (paediatric)	Centrifuge the sample at 3500 RPM at 5 minutes and separate the serum. Transport in dry ice as soon as possible to the lab	Test temporarily unavailable in Ministry of Health hospitals

149	Lactate	Plasma	Sodium Fluoride tube or Paediatric Patient: Sodium Fluoride Paediatric tube	5 ml (adult), 0.5 ml (paediatric)	Send immediately in ice bath Use PER-PAT 301 form	HRPZ II
150	Lactate, CSF	CSF	Bijou bottle	2 ml	Send immediately in ice bath Use PER-PAT 301 form	HRPZ II
151	Lead	Plasma	Lithium heparin tube	3 ml	No special preparation Use PER-PAT 301 form	Toxicology Unit, IMR
152	Lead, urine	Random urine	Sterile Container	20 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
153	Leber's hereditary optic neuropathy (LHON)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
154	Leigh Syndrome (SURF1)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
155	Leopard Syndrome (PTPN11)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
156	Lesch-Nyhan Syndrome (HPRT)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
157	Lipoprotein (a) Electrophoresis	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
158	Lissencephaly (LIS1)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
159	Lithium	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
160	Long-Chain 3-Hydroxyacyl-CoA Dehydrogenase (HADHA)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
161	Luteinising Hormone (LH)	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Sample taken at day 2- 5 of menses is preferable (for fertility test) Use PER-PAT 301 form	HRPZ II

162	Lysinuric Protein Intolerance (SLC7A7)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
163	Lysosomal Storage Disease (LSD) Enzyme assay	Whole Blood	EDTA tube	6 ml	Do not separate whole blood. Do not freeze. Transport in ice. Must arrive to the referral lab within 3 days. Indication: Positive from LSD/Oligosaccharide screening or strongly suspected for LSD Use IEM REQUEST FORM	Biochemistry Unit IMR
164	Lysosomal Storage Disease (LSD) Screening	Dried Blood Spot	Special filter paper.eg: Whatman 903	3 circles of dried blood spot	Properly dried at room temperature for 4 hours before putting in sealed plastic bag. Transport at room temperature. Indication: Screening for 5 LSD (Pompe, Fabry, Gaucher, Krabbe, Niemann Pick). Use IEM REQUEST FORM	Biochemistry Unit IMR
165	Macroprolactin	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 1 ml (paediatric)	Refer to performing lab Use PER-PAT 301 form	Few State hospitals (Pulau Pinang - H. Pulau Pinang and Johor - H. Sultanah Aminah)
166	Maple Syrup Urine Disease (BCKDHA)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
167	Maroteaux-Lamy Syndrome, MPS VI (ARSB)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
168	MCT8-Specific Thyroid Hormone Cell Transporter Deficiency (SLC16A2)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
169	Medium Chain Acyl-CoA Dehydrogenase (MCAD) Deficiency (ACADM)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
170	Mercury, urine	Random urine	Sterile Container	20 ml	No special preparation Use BORANG PERMOHONAN UJIAN MAKMAL (UMUM) MKA	MKAK Sungai Buloh
171	Metabolic Screening, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Screening for organic acid disorder and amino acid disorder Use IEM REQUEST FORM	Biochemistry Unit IMR
172	Metachromatic Leukodystrophy (MLD) (ARSA)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR

173	Metanephrines, urine	24-hour urine specimen	24-hour urine container with 10 mls of 25% HCL	Minimum urine volume: 750 mls (adult)	Refer Section Special Collection. After consultation with Regional Endocrinologist Use PER-PAT 301 form	Hospital Putrajaya
174	Methadone	Serum	Plain Tube without gel	3 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
175	Methadone, urine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
176	Methamphetamine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
177	Methanol	Plasma	Sodium Fluoride tube	3 ml	No special preparation	Forensic Department, H. Sg Buloh (Internal Only)
178	Methemoglobin	Whole Blood	Heparanized syringe	3 ml	Send immediately in ice bath	Hospital Kuala Lumpur (Internal Only)
179	Methotrexate (MTX)	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
180	Methylenedioxyamphetamine (MDA)	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
181	Methylenedioxyethylamphetamine (MDEA)	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
182	Methylenetetrahydrofolate Reductase Deficiency (MTHFR)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
183	Methylmalonic Aciduria and Homocystinuria Type D (MMADHC)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
184	Methylmalonic Aciduria and Homocystinuria, cbIC Type (MMACHC)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
185	Methylmalonyl-CoA Epimerase Deficiency (MCEE)	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
186	Microalbumin (Qualitative), Urine	Urine	Universal container	10 ml	First morning urine is preferred Use PER-PAT 301 form	HRPZ II
187	Microalbumin (Quantitative) Urine	Urine	Universal container	10 ml	First morning urine is preferred Use PER-PAT 301 form	HRPZ II
188	Mitochondrial Encephalomyopathy, Lactic Acidosis, and Stroke-Like Episodes	Whole Blood	K2 EDTA tubes (1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/Paediatrician	Unit of Molecular Diagnostics and Protein (UMDP), IMR

	(MELAS) Syndrome (3243 hotspot)				Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	
189	Mitochondrial Encephalomyopathy, Lactic Acidosis, and Stroke-Like Episodes (MELAS) Syndrome (full panel)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
190	Mitochondrial Short-Chain Enoyl-CoA Hydratase 1 Deficiency (ECHS1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
191	Monoacetylmorphine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
192	Morquio A Disease (MPS IVA) - GALNS	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
193	mtDNA Deletion Syndromes Chronic Progressive External Ophthalmoplegia (CPEO) MLPA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
194	mtDNA Deletion Syndromes - Kearns-Sayre Syndrome (KSS) MLPA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
195	mtDNA Deletion Syndromes - Pearson Syndrome MLPA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
196	mtDNA Depletion Syndrome (MDS) Panel - ANT1	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
197	mtDNA Depletion Syndrome (MDS) Panel - DGUOK	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
198	mtDNA Depletion Syndrome (MDS) Panel - MPV17	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR

199	mtDNA Depletion Syndrome (MDS) Panel - POLG	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
200	mtDNA Depletion Syndrome (MDS) Panel - RRM2B	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
201	mtDNA Depletion Syndrome (MDS) Panel SUCLA2	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
202	mtDNA Depletion Syndrome (MDS) Panel SUCLG1	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
203	mtDNA Depletion Syndrome (MDS) Panel TWINKLE	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
204	mtDNA Depletion Syndrome (MDS) Panel TYMP	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
205	Mucopolysaccharides(MPS) - Confirmation(Enzyme assay)	Whole Blood	EDTA tube	6 ml	Do not separate whole blood. Do not freeze. Transport in ice. Must arrive to the lab within 3 days. Indication: Positive from MPS screening or strongly suspected for MPS Use IEM REQUEST FORM	Biochemistry Unit IMR
206	Mucopolysaccharides(MPS) - Screening	First morning urine	Sterile container	5 ml	First morning urine. Transport frozen in ice. Indication: Suspected MPS- Coarse facies, hepatosplenomegaly, dystosis multiplex, scoliosis, soft tissue and joint problem, mental retardation, corneal cloudy, short stature. Use IEM REQUEST FORM	Biochemistry Unit IMR
207	Multiple Respiratory Chain Deficiencies (Mitochondrial Translation Defect) (GFM1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form..	Unit of Molecular Diagnostics and Protein (UMDP), IMR
208	Mycophenolic Acid (MPA)	Plasma	K2 EDTA tube	3 ml	Use TDM form. Send in 2-8°C within 7 days. Please refer to TDM Sampling Guide	Hospital Kuala Lumpur
209	Myoclonic Epilepsy with Ragged-Red Fibers (MERRF) Syndrome	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician	Unit of Molecular Diagnostics and Protein (UMDP), IMR

					Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	
210	Myoglobin	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	5ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
211	Myoglobin Urine (Qualitatif)	Random Urine	Sterile Container	10ml	Fresh sample. Transport immediately in ice Use PER-PAT 301 form	Unit of Molecular Diagnostics and Protein (UMDP), IMR
212	Myoglobin urine (Quantitatif)	Random Urine	Sterile Container (add with 200mg sodium bicarbonate for each 10ml)	10ml	Transport immediately in ice Use PER-PAT 301 form	Hospital Ampang
213	N-Acetylglutamate Synthase (NAGS) Deficiency (NAGS)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
214	Neuropathy, Ataxia and Retinitis Pigmentosa (NARP) Syndrome	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
215	Nimetazepam	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
216	Nitrazepam	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
217	N-methyl-1,3-benzodioxolylbutanamine (MBDB)	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
218	Non Ketotic Hyperglycinemia (NKH)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
219	Noonan Syndrome (PTPN11)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
220	Norephedrine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Duchess of Kent
221	Norketamine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
222	Occult Blood (Qualitative)	Stool	Stool Container	1 g	No special preparation Use PER-PAT 301 form	HRPZ II
223	Occult Blood (Qualitative)	Stool	Stool Container	1 g	No special preparation Use PER-PAT 301 form	HRPZ II
224	Oligosaccharide / tetrasaccharide, Urine	First morning urine	Sterile container	5 ml	First morning urine. Transport frozen in ice. Indication: Suspected LSD (Fucosidosis, Gangliosidosis, Mannosidosis, Aspartylglycosaminuria, Schindler): dysmorphism,	Biochemistry Unit IMR

					seizure, neurological regression, cherry red spot, mental retardation, cerebral atrophy. Use IEM REQUEST FORM	
225	Opiate (screening) & Morphine (confirmatory)	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	HRPZ II
226	Ornithine Transcarbamylase (OTC) Deficiency (OTC)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
227	Paraquat, urine	Random urine	Sterile Container	10 ml	No special preparation Use BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK/ TOKSIKOLOGI	Jabatan Kimia Kuala Terengganu
228	Parathyroid Hormone (PTH)	Plasma	K2 EDTA tube in ice, Paediatric sample: K2 EDTA Paediatric tube in ice	2-3 ml (adult), 0.5-1 ml (paediatric)	Send sample immediately to the lab. Fasting sample is preferable. Use PER-PAT 301 form	Hospital Pulau Pinang
229	Phenobarbital	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
230	Phentermine	Random urine	Sterile Container	30 ml	Use Borang Permintaan Ujian Pengesanan Dadah Dalam Air Kencing	Hospital Kuala Lumpur
231	Phenytoin (Dilantin)	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
232	Phosphomannomutase 2 Deficiency (PMM2-CDG) (PMM2)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
233	Pipecolic Acid	Plasma	Lithium heparin tube	2 ml	Collect 4 hours after meals. Centrifuge and freeze immediately. Transport frozen in ice. Indication: To differentiate between peroxisomal biogenesis disorder and peroxisomal beta oxidation Use IEM REQUEST FORM	Biochemistry Unit IMR
234	POLG-Related Disorders	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
235	Pompe Disease (GAA)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
236	Porphyrin/Porphobilinogen, Urine	Random urine	Sterile container	5 ml	Protect from light. Transport frozen in ice. Indication: Suspected porphyrias. Use IEM REQUEST FORM	Biochemistry Unit IMR
237	Prader-Willi Syndrome (SNRPN) MS-PCR	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR

238	Pre Albumin	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
239	Primary Dystonia	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
240	Procalcitonin	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 1 ml (paediatric)	Please consult Chemical Pathologist at National Cancer Institute for the request Use PER-PAT 301 form	Institut Kanser Negara (Receive samples from Wilayah Persekutuan Kuala Lumpur, Putrajaya and Selangor only. Receive from other state if indicated)
241	Progesterone	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Sample taken at Day 21 of menses is preferrable (for fertility test). Use PER-PAT 301 form	HRPZ II
242	Prolactin	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation. Use PER-PAT 301 form	HRPZ II
243	Prostate Specific Antigen (PSA), Total	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be kept at -20 degree if not analysed within 24 hours Use PER-PAT 301 form	HRPZ II
244	Prostate Spesific Antigen (PSA), Free	Serum or Plasma	Plain Tube (serum) or Lithium Heparin Tube (plasma)	3 ml	Aliquoted sample shall be kept at -20 degree if not analysed within 24 hours Use PER-PAT 301 form	Hospital Kuala Lumpur
245	Protein Electrophoresis	Serum	Plain Tube	5ml	Sample serum must paired with urine. Aliquoted sample shall be send in 2-8°C within 7 days. Use PER-PAT 301 form	Hospital Ampang
246	Protein Electrophoresis, Urine	Random Urine (preferred early morning)	Sterile Container	20ml	Sample urine must paired with serum. Sample must reach within 7days of collection at 2-8 degree C Use PER-PAT 301 form	Hospital Ampang
247	Pseudorheumatoid Dysplasia (WISP3)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
248	PTEN-associated Diseases (PTEN) Sequencing	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
249	Pterins, CSF	CSF	Special microtube with preservative(K2 EDTA and DTE) provided by IMR	0.5 ml	Protect from light, freeze immediately. Transport frozen in ice. Indication: Suspected neurotransmitter disorders, BH4 deficiencies(GTPCH,PTPS,DHPR and PCD deficiency) Use IEM REQUEST FORM	Biochemistry Unit IMR
250	Pterins, Urine	Random urine	Sterile container	2 ml	Protect from light. Transport frozen in ice.	Biochemistry Unit IMR

					Indication: Suspected neurotransmitter disorders, BH4 deficiencies(GTPCH,PTPS,DHPR and PCD deficiency) Use IEM REQUEST FORM	
251	Purine & Pyrimidine, Urine	Random urine	sterile container	2 ml	Transport frozen in ice. Indication: Purine & Pyrimidine disorder. Use PER-PAT 301 form	IEM Lab Paediatric Institute HKL
252	Purine Nucleoside Phosphorylase Deficiency (PNP)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
253	Pyruvate	Plasma	Conical tube added with 4ml 8% of perchloric acid	2 ml	Draw 2 ml of blood and dispense into conical tube containing cold 4ml 8% of perchloric acid solution as preservative. Cap the tube and mix gently until entire solution turns brown. Immediately place in ice pack and send to the lab. Use PER-PAT 301 form	Paediatric Lab, Paediatric Institute HKL
254	Pyruvate Dehydrogenase Deficiency (PDHA1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
255	Pyruvate, CSF	CSF	Conical tube added with 4ml 8% of perchloric acid	2 ml	Draw 2 ml of blood and dispense into conical tube containing cold 4ml 8% of perchloric acid solution as preservative. Cap the tube and mix gently until entire solution turns brown. Immediately place in ice pack and send to the lab. Use PER-PAT 301 form	Paediatric Lab, Paediatric Institute HKL
256	Reducing Sugar (Qualitative), Stool	Stool	Stool Container	1 g	No special preparation	HUSM
257	Reducing Sugar (Qualitative), Urine	Urine	Universal container	10 ml	No special preparation	HUSM
258	Renin	Plasma	K2 EDTA tube, Paediatric patient:K2 EDTA Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Hypokalemia and certain drugs need to be avoided. Clinical history and drug history are MANDATORY. Test should be requested by Specialist or Endocrine Specialist only. <u>Refer Protocol for Requesting Plasma Renin and Aldosterone (for Clinician)</u> Use PER-PAT 301 form	Hospital Putrajaya
259	Retinoblastoma (RB1) MLPA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
260	Retinoblastoma (RB1) Sequencing	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
261	Salicylate	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II

262	Schinzel Giedion Syndrome (SETBP1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
263	SCN1A-Related Seizure Disorders (SCN1A)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
264	Selenium	Plasma	Plain Tube without gel	3 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
265	Selenium, urine	Random urine	Sterile Container	20 ml	No special preparation	Test temporarily unavailable in Ministry of Health hospitals
266	Serum-Ascitic Albumin Gradient (SAAG), Blood and Ascitic Fluid	Serum or Plasma and Body Fluid	Plain tube (serum) or Lithium heparin tube (plasma), For Paediatric patient: Paediatric tube and Universal Container (ascitic fluid)	5 ml (adult), 0.5 ml (paediatric) and 2ml fluid	Calculated value. Send paired serum or plasma and fluid specimen maximum 30 minutes apart Use PER-PAT 301 form	HRPZ II
267	Severe Congenital Neutropenia (ELANE)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
268	Sex Hormone Binding Globulins (SHBG)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Testosterone result needs to be provided if Free Androgen Index (FAI) report is required. Use PER-PAT 301 form	Hospital Putrajaya
269	Short-Chain 3-Hydroxyacyl-CoA Dehydrogenase (SCHAD) Deficiency (HADH)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
270	Sialic Acid (Total & Free), Urine	Random urine	sterile container	2 ml	Freeze immediately. Transport frozen in ice. Indication: Sialic acid storage disease. Use IEM REQUEST FORM	Biochemistry Unit IMR
271	Sirolimus	Whole Blood	K2 EDTA tube	2 ml	Use TDM form. Send in 2-8°C within 7 days. Please refer to TDM Sampling Guide	Hospital Kuala Lumpur
272	Spinal Muscular Atrophy (SMA) Sequencing	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
273	Succinylacetone, Urine	Random urine	sterile container	1 ml	Transport frozen in ice. Indication: Tyrosinemia type I. Use IEM REQUEST FORM	Biochemistry Unit IMR
274	Sugar and Polyol, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected for sugar and carbohydrate disorder Use IEM REQUEST FORM	Biochemistry Unit IMR

275	Sulfite Oxidase (SUOX) Deficiency (SUOX)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
276	Sulfocysteine, Urine	Random urine	Sterile container	1 ml	Transport frozen in ice. Indication: Suspected Sulphite Oxidase or molybdenum co- factor deficiency, dystonia, seizure.	Biochemistry Unit IMR
277	Sulphite, Urine	Random urine	Sterile container	2 ml	Transport frozen in ice. Indication: Suspected Sulphite oxidase or molybdenum co factor deficiency, dystonia, seizure Use PER-PAT 301 form	IEM Lab Paediatric Institute HKL
278	Sweat Test	Sweat	Sweat collector	15ul	Indication: Suspected Cystic Fibrosis - recurrent chest infection, malabsorption syndrome. Can only be requested by Respiratory Paediatrician. By appointment only. Sample collection and analysis done by laboratory staff. Use PER-PAT 301 form	Paed Lab Paediatric Institute HKL
279	Tacrolimus	Whole Blood	K2 EDTA tube	2 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	Hospital Kuala Lumpur
280	Testosterone	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation. Use PER-PAT 301 form	HRPZ II
281	Theophylline	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II
282	Thyroglobulin	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	Note to referring lab: Keep the specimen frozen or within 2-8°C during transportation Use PER-PAT 301 form	Hospital Pulau Pinang
283	Transferrin	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma), Paediatric patient: Paediatric tube	2-3 ml (adult), 1.5 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Ampang
284	Transferrin (Phenotyping)	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use FORM FOR MULTIPLE MYELOMA AND SPECIFIC PROTEINS, IMR	Unit of Molecular Diagnostics and Protein (UMDP), IMR
285	Transferrin (Quantitation)	Serum	Plain Tube	3ml	Aliquoted sample shall be send in 2-8°C within 7 days. Use FORM FOR MULTIPLE MYELOMA AND SPECIFIC PROTEINS, IMR	Unit of Molecular Diagnostics and Protein (UMDP), IMR
286	Troponin I high sensitive	Serum or Plasma	Plain tube (serum), Lithium heparintube (plasma) or K2EDTA tube (plasma)	5 ml (adult)	No special preparation Use PER-PAT 301 form	Some State Hospitals (except H. Pulau Pinang) and some Major Specialist Hospitals.
287	Troponin T high sensitive	Serum or Plasma	Plain tube (serum) or Lithium heparin tube (plasma)	5 ml (adult)	No special preparation Use PER-PAT 301 form	HRPZ II
288	Tyrosine Hydroxylase Deficiency (TH)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
289	Valproic acid	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. <u>Please refer to TDM Sampling Guide</u>	HRPZ II

290	Vancomycin	Serum	Plain Tube without gel	3 ml	Use TDM form. Send in 2-8°C within 7 days. Please refer to TDM Sampling Guide	HRPZ II
291	Very Long Chain Acyl-CoA Dehydrogenase (VLCAD) Deficiency (ACADVL)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
292	Very Long Chain Free Fatty Acid (VLCFA) and Phytanic acid	Plasma	K2 EDTA tube	2 ml	Freeze immediately. Transport frozen in ice. Indication: Suspected peroxisomal disorder, mental retardation, developmental delay, neuroregression Use IEM REQUEST FORM	Biochemistry Unit IMR
293	Vitamin B1 (Thiamine)	Whole Blood	K2 EDTA tubes	4 ml (adult), 0.5-1 ml (paediatric)	Fasting overnight (12-14 hours). For infant: draw prior to next feeding. Water can be taken as needed. Protect from light. Keep and transport specimen frozen. Use MKAK form (BORANG PERMOHONAN UJIAN MAKMAL (SPESIMEN KLINIKAL))	Biochemistry Unit (Nutritional Related Disease), MKAK Sg. Buloh
294	Vitamin B12 (Cobalamin)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation Use PER-PAT 301 form	HRPZ II
295	Vitamin D, Total (25-OH Vitamin D)	Serum	Plain tube (serum), Paediatric patient: Paediatric tube	4 ml (adult), 0.5-1 ml (paediatric)	No special preparation Use PER-PAT 301 form	Hospital Putrajaya
296	Whole mitochondrial DNA	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
297	X-Chromosome Inactivation	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
298	X-linked Adrenoleukodystrophy (ABCD1)	Whole Blood	K2 EDTA tubes(1-2 tubes)	2.5 ml blood for each tube	Keep sample chilled at all time. All Molecular testing can only be requested by Clinical geneticist/Neurologist/Physician/ Paediatrician Use MOLECULAR DIAGNOSTICS SERVICES form and accompanied by consent form.	Unit of Molecular Diagnostics and Protein (UMDP), IMR
299	Zink Level	Serum/ Plasma	Plain tube (serum), Paediatric patient: Paediatric tube	2-3 ml (adult), 0.5-1 ml (paediatric)	No special preparation Use BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK/ TOKSIKOLOGI	Jabatan Kimia (Kelantan)

2. Haematology

NO	TEST	CONTAINER / SPESIMEN	REQUEST FORM	INSTRUCTION	REFERENCE
1	Anticardiolipin Ab	Plain tube	PER-PAT 301	With clinical history	IMR
2	BCR/ABL (Diagnostic)	EDTA/ Blood 5.0mls Marrow 2mls	Hospital Ampang Special Haematology Form	With clinical history	Hospital Ampang
3	BCR/ABL (Quantitative,Monitoring)	EDTA/ Blood 6mls	PER-PAT 301	With clinical history	HTA,KL
4	CD4 & CD8	2 tube EDTA Blood 3 ml	PER-PAT 301	*Tuesday only	HRPZ II
5	Chromosome Analysis (Peripheral Blood)	Sodium Heparin , Blood 3 ml	Cytogentik HKL	(By appointment)	HTA,KL
6	Chromosome Analysis, Cytogenetic (Bone marrow)	Bone marrow culture media/3 ml	Husm Chromosomal studies for bone marrow	(By appointment)	HUSM
7	Thrombophilia screening	5 tube PT/APTT (3.2% Trisodium Citrate) Blood 3ml	PDN/HA/QP- 01/01	With clinical history	PDN
8	Cytogenetic (adult) -Bone Marrow aspiration -peripheral blood	Sodium Heparin	Cytogenetic Form,IMR	With clinical history	IMR
9	Cytogenetic (paediatric) -Peripheral blood	Sodium Heparin	Husm Chromosomal studies for peripheral blood form	Appointment	HUSM
10	DNA Analysis for Alpha- Thalassemia	EDTA, Blood Adult ~2.5mls Paeds ~0.5mls	DNA Ana for Thal Synd&Hbpathy REQform: ver 3.0	With clinical history	HKL
11	DNA Analysis for Beta Thalassemia	EDTA tube, Blood Adult ~ 2.5ml / Paed 0.5ml	DNA Ana for Thal Synd&Hbpathy REQform: ver 3.0	Paed (<12y.o) sample must be accompanied with parent's sample To attach with Hb analysis result	IMR
12	Factor VIII & IX	2 tube PT/APTT (3.2% Trisodium Citrate) Blood 3 ml	ILAB HRPZ II	With clinical history	HRPZ II
13	G6PD Assay	EDTA 2 tube / Blood 2.5 ml	PER-PAT 301	Appointment HUKM (03-91455835)	HUKM
14	Hb analysis	EDTA tube/ Blood 3 ml	ILAB HRPZ II	With clinical history	HRPZ II
15	HAMS's test (Acidified Test)	Plain tube. Blood 3 ml	ILAB HRPZ II	With clinical history	HRPZ II
16	Immunophenotyping	EDTA/ Bone Marrow or peripheral blood	ILAB HRPZ II	With clinical history	HRPZII
17	JAK 2	EDTA/ Blood 2.5ml	H.Ampang Special hematology request form	With clinical history	Hosp. Ampang

18	Flowcytometry for PNH	EDTA , 2 Tubes	PER-PAT 301	With clinical history	HKL
19	LE Cell (Lupus Erythematous)	Plain tube. Blood 5 ml	ILAB HRPZ II	With clinical history	HRPZ II
20	Lupus Anti-Coagulant (LA)	2 tube PT/APTT (3.2% Trisodium Citrate) Blood 3ml	ILAB HRPZ II	With clinical history	HRPZ II
21	Molecular study <ul style="list-style-type: none"> Inherited Metabolic Disorder Mitochondrial Disorders Genetic Syndrome Neurogenetic Disorder 	EDTA tube/ Blood 3 ml	Refer to the form IMR/SDC/UMDP/ MOLDX/Request form	With clinical history	IMR
22	NAP Score (Neutrophil Alkaline Phosphatase)	EDTA, Blood 3 ml	ILAB HRPZ II	With clinical history	HRPZ II
23	Osmotic Fragility Test	Heparinised tube. Blood 3ml	ILAB HRPZ II	Get Appointment. With clinical history	HRPZ II
24	Protein C/ Protein S	6 tube PT/APTT(3.2% Trisodium Citrate)	PDN/HA/QP-01/01	With clinical history	PDN
25	Platelet Aggregation Test	4 tube (3.2% Trisodium Citrate) Blood 3ml	PDN/HA/QP-01/01	Get appointment With clinical history	HUSM/PDN
26	Von Willibrand Factor (VWF)	5 tube PT/APTT (3.2% Trisodium Citrate) Blood 3ml	PDN/HA/QP-01/01	With clinical history	PDN
27	Molecular test for Hemophilia A	3 tube WB in Trisodium citrate for each subject Dihantar pada suhu 2-8°C	PDN/HA/QP-01/01 & Consent form for DNA test	Get appointment Sample taken for patient, both parent & female sibling	PDN
28	Molecular test for Hemophilia B	2 tube EDTA per each subject	Molecular Analysis for hemophilia (IMR form)	With clinical history	IMR
29	Immature Platelet Fraction (IPF)	EDTA, 1 Tube	H.Ampang Special hematology request form	With Clinical History	H.Ampang
30	Calreticulin	EDTA, 2 Tube	H.Ampang Special hematology request form	With Clinical History	H.Ampang
31	PML-RARA	EDTA, 2 Tube	H.Ampang Special hematology request form	With Clinical History	H.Ampang
32	RUNXI-RUNXI TI	EDTA, 2 Tube	H.Ampang Special hematology request form	With Clinical History	H.Ampang
33	CBFB-MYHI I	EDTA, 2 Tube	H.Ampang Special	With Clinical History	H.Ampang

			hematology request form		
34	FLT-ITD/NPM1	EDTA, 2 Tube	H.Ampang Special hematology request form	With Clinical History	H.Ampang
35	FISH for BCR/ABL	Sodium Heparin, 2 tube	Husm Chromosomal studies for bone marrow/peripheral	By appointment	HUSM
36	SRY gene	Sodium Heparin, 2 tube	Cytogenetic HKL	To get appointment	HTA,KL
37	CGH array	Sodium Heparin, 2 tube	Cytogenetic HKL	To get appointment	HTA,KL
38	Serum Erythropoietin	Plain Tube, 2 mls	PER-PAT 301	With Clinical History	H.Ampang

3. Microbiology

No.	Tests	Referral Centre	Request Form	Instruction	Container	Specimen/ Volume	TAT
1	Acanthamoeba/ Naegleria Culture	Parasitology, IMR	PER-PAT 301	By Appointment at least 3 days before the sample is taken. Medium in container: sterile distilled water or saline	sterile, air tight or contact lens storage	Corneal scraping, Contact lens, Contact lens suspension, Cerebrospinal fluid	10 days
2	Acanthamoeba/ Naegleria Microscopy	Parasitology, IMR	PER-PAT 301	By Appointment at least 3 days before the sample is taken. Medium in container: sterile distilled water or saline	sterile, air tight or contact lens storage	Corneal scraping, Contact lens, Contact lens suspension, Cerebrospinal fluid	3 days
3	Acanthamoeba/ Naegleria Multiplex PCR	Parasitology, IMR	PER-PAT 301	Medium in container: sterile distilled water or saline	sterile, air tight or contact lens storage	Corneal scraping, Contact lens, Contact lens suspension, Cerebrospinal fluid	7 days
4	Acetylcholine - receptor Antibody	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain / GEL tube	Blood /5 mL	21 days
5	Adenovirus (qRT-PCR)	Virology, IMR	PER-PAT 301	Send sample in ice	i) NPA: Sterile plastic vial contain 2-3ml of VTM , ii) NPS: Sterile plastic vial contain 2-3ml of VTM , iii) TS: Sterile plastic vial contain 2-3ml of VTM , iv) Throat gargle: sterile plastic container v) BAL: sterile plastic tube container vi) Sputum: sterile plastic container vii) Nasal swab :Sterile plastic vial contain 2-3ml VTM viii) Biopsy: Sterile containers containing VTM to keep tissue moist	i) NPA: Mucous secretion in VTM ii) NPS: A flexible, fine shafter polyester swab. Use different swab for each nostrils iii) TS: Sterile swab iv) Throat gargle v) BAL vi) Sputum vii) Nasal swab: Sterile swab. Use different swabs for each nostrils viii) Biopsy: remove portions, about 1.5cm cube of various parts of affected organs	14 - 28 days
6	Amoebiasis Serology	Unit Parasitology, NIH, Setia Alam	PER-PAT 301	Send sample in ice	Plain tube/ EDTA tube	Blood/ 2 mL	5 days
7	ANA (iLab test code: ANA)	Serology, HRPZ II	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 mL	1 week
8	Anti - Aquaporin 4 (Anti-Aq4)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain gel tube/ Bijou bottle	Blood/ Serum/ CSF	10 days
9	Anti - Beta 2 glycoprotein 1 IgG/IgM	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain gel tube	Blood/ 5 mL	10 days

10	Anti - Cyclic Citrullinated Protein (CCP/ACPA)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days
11	Anti - Deamidated-Gliadin Antibody IgA/IgG	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ Serum 5 mL	21 days
12	Anti - dsDNA (iLab test code: DNA)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
13	Anti - gastric parietal cell	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days
14	Anti - Glomerular Basement Membrane (GBM)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	10 days
15	Anti - Liver-Kidney Microsome (LKM)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days
16	Anti - Mitochondrial Antibody (AMA)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days
17	Anti - N-Methyl-D-Aspartate Receptor (NMDAR)	Autoimmune, IMR	PER-PAT 301	Send Immediately to the lab.	Plain gel tube/Bijou bottle	Blood/ Serum/ CSF	7 days
18	Anti - Smooth Muscle Antibody (ASMA)	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days
19	Anti-fungal susceptibility testing	Bacteriology, IMR	PER-PAT 301	Identify the fungus first and results sent together with pure isolate and clinical history. Transport condition: ambient temperature	Pure isolate in media that support growth	Pure fungal isolate. Mixed growth will be rejected	10 days
20	Anti-yeast susceptibility testing	Microbiology, Hospital Tanah Merah	PER-PAT 301	Identify the yeast first and results sent together with pure isolate and clinical history. Transport condition: ambient temperature	Pure isolate in media that support growth (Sabouraud Dextrose Agar)	Pure yeast isolate. Mixed growth will be rejected	7 days
21	Aspergillus fumigatus Antibody	Hospital Sg. Buloh	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 mL	1 – 2 days
22	Aspergillus Galactomannan Ag	Hospital Sg. Buloh	PER-PAT 301	Transport at ambient temperature; if delayed keep at 2-8°C	Sterile Plain Tube	Serum/ CSF (Volume as much as possible)	7 days
23	BK virus (PCR)	Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history, packed with ice	Plain tube	Blood 4 mL	7 days
24	Blastocystis PCR	Parasitology, MKAK Sg. Buloh	PER-PAT 301	Send immediately after collection at ambient temperature. If delay, please send in ice.	Sterile container/ Carry Blair Transport media	Fresh stool (2 - 3 gram)/ rectal swab in transport media.	3 days
25	Bordetella pertussis PCR	Bacteriology, IMR	PER-PAT 301	For nasopharyngeal swabs do not use calcium alginate or cotton swabs. Transport nasopharyngeal aspirate in ice.	Sterile Container	Nasopharyngeal aspirates, nasopharyngeal swabs/ 1 - 2 mL	5 days
26	Brucella PCR	Bakteriology, IMR	IMR/IDRC/BA CT/BRUCE/0 1	Transport at 2-8°C. Must be fresh specimen, taken prior to antibiotic treatment. Laboratory must be informed prior to sending sample.	EDTA tube	Blood/ 5 mL	5 days

27	Borellia burgdorferi antibody detection (Lyme's disease)	Microbiology, Hospital Sg. Buloh	PER-PAT 301	Transport at 2-8°C	Plain tube	Serum/ 3 mL	9 days
28	Brucella serology (IgM & IgG)	Bacteriology, IMR	IMR/IDRC/BA CT/BRUCE/01	Transport at 2-8°C	Plain tube	Serum/ 2 mL	10 days
29	Bruton's tyrosine kinase (BTK)	PID, IMR	PER-PAT 301	By appointment only	EDTA	Blood/ 2 mL	14 days
30	C. diphtheria toxin PCR	Molecular, MKA Kota Bharu	MKAK-BPU-U01	Inoculate pure single colony onto Blood agar. Send at 2-8°C	Blood Agar	Pure isolate	7 days
31	cANCA - pANCA	Hospital Sultanah Nur Zahirah/ Autoimmune IMR	PER-PAT 301	Send Immediately to the lab.	Plain tube	Blood/ Serum (5 mL)	14 working days (HSNZ). 21 days (IMR)
32	Candida Mannan Ag	Microbiology, Hospital Sg. Buloh	PER-PAT 301	Transport at 2-8°C	Plain tube	Blood/ 5 mL	1 – 2 days
33	Chikugunya virus (PCR)	Virology, IMR	PER-PAT 301	Transport in ice ASAP. If delayed, keep at 4°C or frozen at or below -70oC until transported.	Plain tube	i) Blood: 5-10mls ii) Serum: 1-3mls	1 – 10 days
34	Chikungunya IgG/IgM	Virology, MKAK Sg. Buloh	MKAK-BPU-U01	Transport in ice ASAP. If delayed, keep at 4oC. Do not freeze whole blood as this causes haemolysis. Sample should be collected within 5 days after onset of illness. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	Plain tube	Serum: 1-3mls,	24 hours
35	Chlamydia pneumoniae serology	Microbiology, Hospital Kuala Lumpur	PER-PAT 301	Transport at 2-8°C	Plain tube	Blood / 3 mL	3 days
36	Chlamydia trachomatis (Smear) - IF	Microbiology, Hospital Kuala Lumpur	PER-PAT 301	Transport at ambient temperature	Smear on slide	Genital discharge, Eye discharge	7 days
37	Clostridium difficile (CD) toxin assay (iLab test code: SCD)	Serology, HRPZ II	PER-PAT 301	With clinical history	Sterile container	Fresh stool: 1 cm in diameter (Formed stool), 5 mL (Liquid stool)	1 hour
38	CMV (PCR) (iLab test code: CMVP)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
39	CMV IgM (iLab test code: CMVM)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
40	CMV IgG	Virology, Hospital Sg. Buloh	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Blood/ 3 - 5mL	1 – 2 days
41	Coeliac Antibodies	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ Serum 5 mL	21 days

42	Coxiella serology	Bacteriology, IMR	PER-PAT 301	Transport at 2-8°C	Plain tube	Serum/ 2 mL	5 days
43	Coxsackie virus (Coxsackie A16) PCR	Virology, MKA Sg. Buloh	Borang Permohonan Ujian Makmal HFMD	Sample should be collected within 5 days after onset of illness. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	VTM/ Sterile screw capped container/ Plain tube	Mouth ulcer swab, rectal swab, vesicle swab, throat swab (2.0 - 2.5 mL VTM); stool (5g, sterile screw capped container); pleural fluid/csf (1 - 3 mL, sterile screw capped container); serum (1 - 3 mL, plain tube)	3 days
44	Covid-19 (RT-PCR) – iLab test code: NCOV	Makmal Molekular, HRPZ II	PER-PAT 301	If transportation of sample is within 72 hours, store at 2 - 8°C. Transport specimen in ice (triple packaging)	VTM	Nasopharyngeal & oropharyngeal swabs / Sputum, BAL, tracheal aspirate, pleural fluid, lung tissue	1 – 2 days
45	Covid-19 Gene Expert – iLab test code: RMC	Makmal Molekular, HRPZ II	PER-PAT 301	Need to spoken to CM (HRPZ) prior sending sample. Transport specimen in ice (triple packaging)	VTM	Nasopharyngeal & oropharyngeal swabs / Sputum, BAL, tracheal aspirate, pleural fluid, lung tissue	1 – 2 days
46	Cryptococcal Ag (CSF/Serum) (iLab test code: CRYP)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube/ Sterile container	Blood/ CSF	3 days
47	CSF VDRL	Microbiology, Hospital Sg. Buloh/ Hospital Kuala Lumpur	PER-PAT 301	Indicated if past history of Syphilis. Transport at 2-8°C	Plain tube	Serum/ 2 mL	1 – 2 days
48	Cysticercosis/ Taeniasis serology IgG	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube/ EDTA tube	Serum/ Anti coagulated blood 2 mL	5 days
49	Dengue Serology (IgM) (iLab test code: DENS)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	3 days
50	Dengue/ Serotyping (PCR)	MKA Kota Bharu	PER-PAT 301.	Maklumat /sejarah pesakit dan physical findings yang lengkap pada borang terutamanya tarikh mula jangkitan dan tarikh spesimen diambil. Nyatakan keputusan ujian NS1 (jika ada). Ujian ditawarkan kepada kes severe dan mortality sahaja. Empar darah dan simpan spesimen pada suhu 2-8°C. Sampai di makmal dalam tempoh 24 jam (selepas pengambilan spesimen). Spesimen diambil ≤5 hari selepas mula jangkitan.	Plain tube	Blood/ CSF 1 – 3 mL	7 working days
51	Diabetes mellitus Antibodies	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ 5 mL	14 days

52	Dihydrorhodamine assay (DHR)	PID, IMR	PER-PAT 301	By appointment only	Lithium heparin	Blood/ 2 mL	10 days
53	EBV Antibody - EBV IgM (iLab test code: EBVM)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	3 days
54	Echinococcus/ Hydatid disease Serology	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	5 days
55	ELEK test for toxigenity testing	Bacteriology, MKAK Sg. Buloh	MKAK-BPU-U01	Inoculate pure single colony onto Blood agar. Send at 2-8°C	Blood Agar	Pure isolate	7 days
56	Enterovirus (PCR) iLab test code: ENTP	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube/ Universal container/ VTM	Blood/ Stool/ Swab	2 weeks
57	Enterovirus Isolation/ HFMD (Enterovirus 71, Coxsackie A and Coxsackie B, Echovirus, Other non enteroviruses)	Virology, IMR	PER-PAT 301	Send sample in ice	<ul style="list-style-type: none"> i) NPA: Sterile plastic vial contain 2-3ml of VTM ii) NPS: Sterile plastic vial contain 2-3ml of VTM iii) TS: Sterile plastic vial contain 2-3ml of VTM iv) Throat gargle: sterile plastic container v) BAL: sterile plastic tube container vi) Sputum :sterile plastic container vii) Nasal swab :Sterile plastic vial contain 2-3ml VTM viii) organ biopsy: Sterile containers containing VTM to keep tissue moist ix) Pericardial aspirate: sterile plastic vial contain 2-3ml VTM x) Rectal swab: Sterile plastic vial contain 2-3ml of VTM xi) Stool: Sterile bottle, xii) Vesicular swab/scraping: Sterile plastic vial 	<ul style="list-style-type: none"> i) NPA: Mucous secretion in VTM ii) NPS: A flexible, fine shafter polyester swab. Use different swab for each nostrils iii) TS: Sterile swab iv) Nasal swab: Sterile swab. Use different swabs for each nostrils v) Biopsy: remove portions, about 1.5cm cube of various parts of affected organs x) Rectal swab: Stool on sterile swab moistened with distilled water xi) Stool: >5gm (thumbsize) xii) Vesicular swab/scrapings: Swabs to be put into 2-3mls of VTM 	14 - 28 days

58	Enterovirus qRT-PCR/HFMD (Inclusive of Pan Entero, EV 71, CA 16)	Virology, IMR	PER-PAT 301	Send sample in ice	<p>i) NPA: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>ii) NPS: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>iii) TS: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>iv) Throat gargle: sterile plastic container ,</p> <p>v) BAL: sterile plastic tube container</p> <p>vi) Sputum: sterile plastic container</p> <p>vii) Nasal swab : Sterile plastic vial contain 2-3ml VTM</p> <p>viii) Biopsy: Sterile containers containing VTM to keep tissue moist</p>	<p>Specimen:</p> <p>i) NPA: Mucous secretion in VTM</p> <p>ii) NPS: A flexible, fine shafter polyester swab. Use different swab for each nostrils</p> <p>iii) TS: Sterile swab iv) Throat gargle</p> <p>v) BAL</p> <p>vi) Sputum</p> <p>vii) Nasal swab: Sterile swab. Use different swabs for each nostrils</p> <p>viii) Biopsy: remove portions, about 1.5cm cube of various parts of affected organs</p> <p>Volume</p> <p>NPA: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>ii) NPS: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>iii) TS: Sterile plastic vial contain 2-3ml of VTM ,</p> <p>iv) Throat gargle: sterile plastic container ,</p> <p>v) BAL: sterile plastic tube container</p> <p>vi) Sputum: sterile plastic container</p> <p>vii) Nasal swab : Sterile plastic vial contain 2-3ml VTM</p> <p>viii) Biopsy: Sterile containers containing VTM to keep tissue moist</p>	1 – 10 days
59	Eosinophilic Cationic Protein	Allergy, IMR	PER-PAT 301	Send Immediately to the lab.	Plain tube	Blood 3 mL/ Serum 0.5 mL	14 days
60	Epstein-Barr virus EBV (PCR) iLab test code: EBVP	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube/ Bijou bottle	Serum/ 3 mL, CSF/ 1mL	2 weeks
61	Extractable Nuclear Antigen (ENA)	Hospital Sultanah Nur Zahirah	PER-PAT 301	Done if ANA positive with specific pattern	Plain tube	Serum/ 3.5 mL	14 days
62	Filariasis PCR	Parasitology, IMR	PER-PAT 301	Blood taken between 6pm-12am	EDTA tube or slide mailer or seal plastic bag	Whole Blood in EDTA (2.5 mL), blood on slides or filter paper	7 days
63	Filariasis Serology	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	1 days
64	Fungal PCR	Bacteriology, IMR	PER-PAT 301	For better sensitivity, blood samplings should be repeated 2 or 3 times, at 3-4 hours interval. Transportation at ambient temperature. If delayed keep at 2-8°C	Blood in EDTA, sterile body fluids, CSF, bronchial lavage, tissue biopsies, sinus aspirates	2 mls blood; other samples as much as possible	5 days

65	Gangliosides Antibodies	Autoimmune, IMR	PER-PAT 301	Send Immediately to the lab.	Plain tube/ Bijou bottle	Blood/ Serum (5 mL)/ CSF	14 days
66	Giardia lamblia PCR	Parasitology, MKAK Sg. Buloh	PER-PAT 301	Transported in a cold chain (4°C)	Sterile container	Fresh stool: 2-3 gram (peanut size)	3 days
67	Haemophilus influenzae Serotyping	Bacteriology, MKAK Sg. Buloh	PER-PAT 301	Test need to be request online through ELBIS system (http://elbis.moh.gov.my/login.php). Transport at 4 - 8°C.	Chocolate agar slant	Bacterial culture/ Pure culture	7 days
68	HAV Antibody (IgM) iLab test code: HAVM	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
69	HBc Antibody - HBc IgM	Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 – 5 mL	1 – 2 days
70	HBc Antibody - HBc Total Antibody	Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 – 5 mL	1 – 2 days
71	HBe Antibody	Hospital Sg. Buloh/ Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 – 5 mL	1 – 2 days
72	HBe Antigen	Hospital Sg. Buloh/ Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 – 5 mL	1 – 2 days
73	HBV DNA Viral Load (iLab test code: HBVD)	Makmal Molecular, HRPZ II/ Microbiology, Hospital Sg. Buloh	PER-PAT 301	With clinical history. Spin tube and keep it frozen. Send sample in ice	EDTA tube	Blood/ Plasma; Adults: 3mL x 4 tubes, Pead: 3 mL x 2 tubes	1 – 2 days
74	HCV Antigen (iLab test code: HCVAG)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
75	HCV genotyping	Virology, Hospital Kuala Lumpur/ Virology, IMR	PER-PAT 301	With clinical history. Transport at 2-8°C. To state result HCV Viral Load or HCV Core Ag in request form. Only offered to gastroenterologist and hepatologist.	plain tube (HKL/IMR)/ EDTA (IMR)	Blood (4 mL)/ Plasma	14 days (HKL)/ 6 - 8 weeks (IMR)
76	HCV RNA Viral Load iLab test code: HCVL	Makmal Molecular, HRPZ II/ Microbiology, Hospital Sg. Buloh	PER-PAT 301	With clinical history. Spin tube and keep it frozen. Send sample in ice	EDTA tube	Blood/ Plasma; Adults: 3mL x 4 tubes, Pead: 3 mL x 2 tubes	1 – 2 days
77	Helminth Culture	Parasitology, IMR	PER-PAT 301	Fresh specimen. Adult worm/Larvae in sterile saline (specimen to reach lab within 24hr at room temperature) (Before REFERRAL, Initial ID parasite to determine by customer)	Screw lid, air tight container	Fresh stool not Fixed	14 days
78	Helminth Macroscopy	Parasitology, IMR	PER-PAT 301	Fresh stool in plain container (specimen to reach lab within 24hr at room temperature)	Screw lid, air tight container	Fresh stool/Adult worm/Larvae/Fixed stool	5 days

79	Herpes Simplex Virus (PCR) iLab test code: HSVP	Serology, HRPZ II	PER-PAT 301	Send specimen in ice	Plain tube/ EDTA bottle/ Bijou bottle/ Sterile container	Serum/ Plasma 3 mL/ CSF 1 mL/ Stool	2 weeks
80	HFMD (Enterovirus) – VI (sporadic)	Unit Virology, MKAK Sg Buloh	Borang Permohonan Ujian makmal HFMD	Transport at 2-8°C Enterovirus Screenig Panel (Enterovirus 71, Coxsackie A16 &A24, Coxsackie B, Enterovirus 70, Echovirus type 4,6,9,11 &30 and Poliovirus type 1,2 & 3)	i. Sterile container with 2.0 - 2.5 ml VTM ii. Sterile Screw capped container iii. Plain tube with serum separator iv. Sterile Screw capped container	i. Mouth Ulser Swab, Vesicle swab, Rectal Swab, Throat Swab ii. Stool/ 5g or pea size, Pleural Fluid/ 1- 3ml, CSF/ 1-3ml iii. Serum/ 1-3ml iv. Tissue biopsy/autopsy (post mortem)/ 1.5cm cube in a few drops of VTM.	21 days
81	HFMD (Enterovirus) – qPCR (Outbreak)	Unit Virology, MKAK Sg Buloh	Borang Permohonan Ujian makmal HFMD	Transport at 2-8°C Sample should be collected within 5 days after onset of illness. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	i. Sterile container with 2.0 - 2.5 ml VTM ii. Sterile Screw capped container iii. Plain tube with serum separator iv. Sterile Screw capped container	i. Mouth Ulser Swab, Vesicle swab, Rectal Swab, Throat Swab ii. Stool/ 5g or pea size, Pleural Fluid/ 1- 3ml, CSF/ 1-3ml iii. Serum/ 1-3ml iv. Tissue biopsy/autopsy (post mortem)/ 1.5cm cube in a few drops of VTM.	3 days
82	HHV6 Antibody - HHV6 IgG/IgM	Microbiology, Hospital Sg. Buloh	PER-PAT 301	With clinical history. Transport at 2-8°C	EDTA tube/Bijou bottle	Plasma (5 mL) / CSF	1 - 2 days
83	HIV - Drug Resistant Genotyping	Virology, IMR	IMR/Viro/HIV/ 24	Please fill in IMR/Viro/HIV/24 form in IMR Handbook, Treatment failure patient, patient's viral load must be >1000, transport in DRY ICE	EDTA	Blood/Plasma (5 - 10 mL)	40 working days
84	HIV p24 Ag (EIA)	Virology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Blood/ 3 - 5 mL	7 days
85	HIV RNA Viral Load (iLab test code: VL)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	EDTA tube	Blood; Adults: 3mL x 4 tubes, Pead: 3 mL x 2 tubes	1 month
86	HIV-1 RNA RT PCR for babies (0-18 months)	Virology, IMR	IMR/Viro/HIV/ 2 form	Please fill IMR/Viro/HIV/2 form in IMR handbook, Mother must be HIV positive, Transport in ice	EDTA	Blood/ Plasma 2.5 mL	5 days
87	HSV Antibody – IgM (iLab test code: HSVM)	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	2 weeks
88	HTVL Antibody - HTVL Ab	Microbiology, Hospital Kuala Lumpur	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Blood/ 3 - 5 mL	7 days
89	IgE specific allergen (RAST)	Allergy, IMR	PER-PAT 301	Send immediately to the lab	Plain tube	< 5 tests: Blood 5ml/Serum: 3ml; > 5 tests: Blood 10 ml/Serum: 5 ml	5 days
90	IgE total, serum	Allergy, IMR	PER-PAT 301	Send immediately to the lab	Plain tube	Adult: Blood 10 ml/ Serum 5 ml; Infant: Blood 3 ml/ Serum 1 ml	5 days

91	Japanese encephalitis IgG/IgM	Virology, MKAK Sg. Buloh	MKAK-BPU-D02-rev_Nov_2015	A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	Plain tube/ Bijou bottle	Serum/ CSF 1 - 3 mL	7 days
92	Japanese Encephalitis virus	Virology, MKAK Sg. Buloh	MKAK-BPU-D02-rev_Nov_2015	A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	Plain tube/ Bijou bottle	Serum/ CSF 1 - 3 mL	3 days
93	Legionella pneumophila Ag (Urine)	Microbiology, Hospital Sg. Buloh/ Hospital Kuala Lumpur	PER-PAT 301	With clinical history	Sterile container	Urin/ 5 mL	1 – 2 days (HSB)/ 3 days (HKL)
94	Legionella pneumophila (Culture & ID)	Bacteriology, MKAK Sg. Buloh	MKAK-BPU-U01	Send immediately after collection at 2°C – 8°C	Sterile container	Sputum/ Tracheal aspirate/ BAL 1-3 mL	14 days
95	Leishmaniasis ELISA	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain Tube, EDTA tube (2 mL)	Serum, anti-coagulated blood	5 days
96	Leishmaniasis Giemsa stain	Parasitology, IMR	PER-PAT 301	Send sample in ice (Before REFERRAL, Initial ID parasite to determine by customer)	Slide mailer or EDTA Tube (2.5 mL)	Whole Blood in EDTA, Lymph biopsy film, Bone marrow film	3 days
97	Leishmaniasis PCR	Parasitology, IMR	PER-PAT 301	Send sample in ice	EDTA Tube, filter paper, sterile container (2.5 mL)	Whole blood in EDTA, skin / tissue scrappings	7 days
98	Lepto spira (MAT)	MKA Kota Bharu	MKAK-BPU-U01/Rev2018	With clinical history	Plain tube	Blood /3 mL	7 days
99	Leptospira PCR	MKA Kota Bharu	PER-PAT 301 Maklumat / clinical summary yang lengkap pada borang terutamanya tarikh mula jangkitan dan tarikh spesimen diambil.	Spesimen diambil ≤7 hari selepas mula jangkitan. Ujian ditawarkan kepada kes severe dan kematian sahaja. Simpan spesimen pada suhu 2-8 °C Sampai di makmal dalam tempoh 24 jam selepas pengambilan spesimen	EDTA tube	Whole Blood/ 1 – 3 mL	7 days
100	LPA (Line Probe Assay)	MKA Kota Bharu	TBIS 20C	Send sample in ice	Sterile container	Sputum (Induction or expectoration), Bronchoalveolar lavage (BAL), Aspirates (e.g. pleural aspirates)	7 days
101	Malaria PCR	MKA Kota Bharu	PER-PAT 301	Hantar bersama slaid BFMP dan nyatakan keputusan BFMP pada borang permohonan.	slide mailer and EDTA tube	Blood (2.5mL), Thick/thin blood film (Giemsa stained)	7 days
102	Malaria Serology (IgM, IgG)	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	5 days
103	Measles Antibody - IgG/IgM	MKA Kota Bharu	Measles: Borang Permohonan dan Keputusan Ujian Makmal	Blood/serum should be taken any time up to 28 days of rash onset.	Plain tube	Serum, 1 – 3 mL	4 days

104	Measles virus PCR/ Virus isolation (VI)	MKA Sg. Buloh	Measles: Borang Permohonan dan Keputusan Ujian Makmal	Respiratory secretion should be taken 1 – 5 days of rash onset. Respiratory secretion (nasopharyngeal specimen) should be taken 1 – 7 days of rash onset.	Sterile container with 2.0-2.5 ml of VTM/ Sterile container	Throat swab (VTM)/ Urine (10 ml early morning specimen), Nasopharyngeal secretion (1-3 mL), Tracheal aspirate (1-3mL)	3 days – PCV 21 days- VI
105	Melioidosis IgM (B. pseudomalli IgM)	Bacteriology, IMR	PER-PAT 301	Transport at 2-8°C	Plain tube	Blood /3 mL	5 days
106	Melioidosis qPCR (<i>Burkholderia pseudomallei</i>)	MKA Kota Bharu	PER-PAT 301	Simpan dan hantar spesimen pada suhu 2-8 °C.	Tiub EDTA	Whole blood 3 – 5 mL	7 working days
107	MTB culture and sensitivity (MTB C&S)	MKA Kota Bharu	TBIS 20C	Penghantaran pada suhu bilik. Sampai di makmal dalam tempoh 24 jam selepas pengambilan spesimen. Jika kelewatan penghantaran tidak dapat dielakkan, simpan pada suhu 2-8 °C	Kahak, Bronchial washing, Gastric lavage, Laryngeal swab, Pus, Urine, CSF, Bone marrow aspirate, Body fluids, post-mortem specimens. Blood	Sterile container: 3 – 5 mL/ For Bronchial washing & Gastric lavage: Min 5 mL/ For CSF: As much as possible/ For post mortem specimens: 3 – 5 gm with added saline 2 – 5 mL. Positive Culture bottle Myco-F lytic (3 – 10 ml)	45 - 60 days
108	MTB Identification	MKA Kota Bharu	TBIS 20C	Simpan pada suhu bilik, terima di makmal dalam tempoh 1 minggu selepas pertumbuhan.	LJ/ Ogawa media	Pure culture on egg based medium (>20 colonies)	5 days
109	MTB PCR	MKA Kota Bharu	TBIS 20C	Simpan spesimen pada 2-8°C. Sampai di makmal dalam tempoh 24 jam selepas pengambilan.	Sterile container/ EDTA tube	Sputum, bronchial washing, body fluids (e.g. pleural, CSF, etc.), Pus, Urine, Tissue, Bone marrow aspirates/ Blood (3 – 5 mL)	7 days
110	Mumps (Viral isolation)	Virology, MKAK Sg. Buloh	MKAK-BPU-U01	Sample should be collected within 5 days after onset of illness. 2. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of	Sterile container with 2.0-2.5 ml of VTM	Oral or buccal swab	21 days
111	Mumps Antibody - IgM/IgG	Virology, Hospital Sg. Buloh	PER-PAT 301	Transport in ice	Plain tube	Blood 3 - 5 mL	IgM (3 days), IgG (7 days)
112	Mumps virus PCR	Virology, MKAK Sg. Buloh	MKAK-BPU-U01	Sample should be collected within 5 days after onset of illness. 2. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of	Sterile container with 2.0-2.5 ml of VTM	Oral or buccal swab	3 days
113	Mycoplasma pneumoniae serology	Serology, HRPZ II	PER-PAT 301	With clinical history. Transport at 2-8°C	Plain tube	Serum/ 3 mL	1 week
114	Neisseria meningitidis serotyping	Bacteriology, MKAK Sg. Buloh	PER-PAT 301	Test need to be request online through ELBIS system (http://elbis.moh.gov.my/logi n.php). Transport at 4 - 8°C.	Chocolate agar slant	Bacterial culture/ Pure culture	7 days
115	Nipah IgG/IgM	Virology, IMR	PER-PAT 301	Send sample in ice	Plain tube/ Sterile container/ EDTA	Serum/ CSF/ Plasma (1 - 3 mL)	5 - 14 days

116	Parvovirus B 19 Antibody - Parvovirus B 19 IgM/IgG	Virology, Hospital Kuala Lumpur	PER-PAT 301	Transport in ice	Plain tube	Blood/ 3 – 5 mL	7 days
117	Parvovirus PCR	Virology, MKAK Sg. Buloh	MKAK-BPU-D02-rev_Nov_2015	Sample should be collected within 5 days after onset of illness. 2. A brief concise history of illness and physical findings is required especially the date of onset of illness and date of sample collection.	Plain tube, sterile container	Serum: 1 – 3 mL, CSF: 1 mL	5 days
118	PCR for viral meningitis (CMV, EBV, Enterovirus, HSV and VZV)/ CSF for viral study	Serology, HRPZ II	PER-PAT 301	Send specimen in ice	Plain tube/ EDTA bottle/ Bijou bottle/ Sterile container	Serum/ Plasma 3 mL/ CSF 1 mL/ Stool	2 weeks
119	Pneumocystis jirovecii oocyst detection	Bacteriology, IMR	PER-PAT 301	Must be fresh specimen	sterile container	Induced sputum or bronchoalveolar lavage	5 days
120	Poliovirus Viral isolation/ AFP	Virology, IMR	AFP Case Investigation Form	i) Stool(preferred)*(to collect within 14 days of onset, 2 adequate sample to collect in 24-48hrs apart) ii)Rectal swab iii)Throat swab iv)CSF	i)Stool: Sterile bottle, ii) Rectal swab: Sterile plastic vial contain 2-3ml of VTM, iii) Throat Swab :Sterile plastic vial contain 2-3ml of VTM vi) CSF: sterile container	i) Stool: >5gm (thumb size) , ii) Rectal swab: Stool on sterile swab moistened with distilled water , iii) TS: Sterile swab iv) CSF: 0.5mls in sterile container	14 - 28 days
121	Respiratory viruses (IF) - FluA / Flu B/ RSV, Parainfluenza 1, Parainfluenza 2, Parainfluenza 3, Adenovirus (iLab test code: RVS)	Serology, HRPZ II	PER-PAT 301	With clinical history. All specimens must be carried in ice	Sterile container or swab in VTM	Respiratory sample (bronchiol alveolar lavage atau tracheal aspirate), Nasopharyngeal swab (please use Dacron swab – request from the laboratory)	2 days
122	Respiratory viruses (PCR) - MERS CoV/ Flu A/ Flu B (iLab test code: UPE)	Serology, HRPZ II	PER-PAT 301	With clinical history. All specimens must be carried in ice	Sterile container or swab in VTM	Respiratory sample (bronchiol alveolar lavage atau tracheal aspirate), Nasopharyngeal swab (please use Dacron swab – request from the laboratory)	2 days
123	Rickettsial Serology/ Scrub typhus (Indirect Immunoperoxidase (IIP))	Hospital Sultanah Nur Zahirah (HSNZ)/ Bacteriology, IMR	PER-PAT 301	With clinical history	Plain tube	Blood /3 mL	4 weeks
124	Rotavirus/Adenovirus Antigen detection (iLab test code: ROTA)	Serology, HRPZ II	PER-PAT 301	With clinical history	Sterile container	Stool: 1 cm in diameter (formed stool); 5 mL (Liquid stool), Max less than 2/3 of the container	3 days
125	Rubella Antibody – IgM (iLab test code; RUBE)	Serology, HRPZ II	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 mL	2 weeks
126	Salmonella serotyping	Bacteriology, MKAK Sg. Buloh	PER-PAT 301	Test need to be request online through ELBIS system	Nutrient agar slant	Bacterial culture/ Pure culture	7 days

				(http://elbis.moh.gov.my/login.php). Transport at 4 - 8°C.			
127	Schistosomiasis serology	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	5 days
128	Skin Antibodies - Anti - desmoglein 1, Anti - desmoglein 3	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ Serum 5 mL	14 days
129	Skin Antibodies - Anti BP 180, Anti BP 230	Autoimmune, IMR	PER-PAT 301	With clinical history, send immediately to the lab	Plain tube	Blood/ Serum 5 mL	14 days
130	Stool for Cryptosporidium spp	Bacteriology, HRPZ II	PER-PAT 301	With clinical history	Sterile container	Fresh stool: 1 cm in diameter (formed stool); 5 ml (liquid stool)	1 day
131	Stool for Isospora belli/Coccidia	Bacteriology, HRPZ II	PER-PAT 301	With clinical history	Sterile container	Fresh stool: 1 cm in diameter (formed stool); 5 ml (liquid stool)	1 day
132	Stool for Microsporidium spp	Bacteriology, HRPZ II	PER-PAT 301	With clinical history	Sterile container	Fresh stool: 1 cm in diameter (formed stool); 5 ml (liquid stool)	1 day
133	TORCHES (Toxoplasmosis, Rubella and Cytomegalovirus) – iLab test code: TORC	Serology, HRPZ II	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 mL	2 weeks
134	Toxocariasis serology	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	5 days
135	Toxoplasma serology (IgG)	Hosp. Sultanah Nur Zahirah, Kuala Terengganu	PER-PAT 301	Send sample in ice	Plain tube	Blood/ 3 - 5 mL	7 days
136	Toxoplasma serology (IgM) iLab test code: TOXM	Serology, HRPZ II	PER-PAT 301	With clinical history	Plain tube	Blood/ 3 mL	2 weeks
137	Trichinellosis serology	Parasitology, IMR	PER-PAT 301	Send sample in ice	Plain tube, EDTA tube	Serum, anti-coagulated blood	5 days
138	Trypanosomiasis Giemsa stain	Parasitology, IMR	PER-PAT 301	Send sample in ice (Before REFERRAL, Initial ID parasite to determine by customer)	EDTA tube, Slide Mailer or Sterile air tight lid container	Whole blood in EDTA, Thick blood film, Lymph node film/ 2.5 mL	3 days
139	Trypanosomiasis PCR	Parasitology, IMR	PER-PAT 301	Send sample in ice (Before REFERRAL, Initial ID parasite to determine by customer)	EDTA tube, Slide Mailer or Sterile air tight lid container	Whole blood in EDTA, Thick blood film, Lymph node film/ 2.5 mL	7 days
140	Tuberculosis GeneXpert (TBGE)	Microbiology, HRPZ II	TBIS 20C	With clinical history and the request should be from specialist.	Sterile container	Sputum, BAL, CSF	24 hours
141	Varicella zoster Virus (PCR) iLab test code: VZVP	Serology, HRPZ II	PER-PAT 301	Send specimen in ice	Plain tube/ EDTA bottle/ Bijou bottle/ Sterile container	Serum/ Plasma 3 mL/ CSF 1 mL/ Stool	2 weeks
142	Verification of Antibiotic resistance	Bacteriology, IMR	PER-PAT 301/ IMR/IDRC/BA CT/ID FORM	Preliminary tests must be performed first and results sent together with pure isolate and clinical history.	culture media which support the growth/ Pure culture	Bacterial culture	7 days

				Transport in ambient temperature			
143	Vibrio cholerae serotyping	Bacteriology, MKAK Sg. Buloh	PER-PAT 301	Test need to be request online through ELBIS system (http://elbis.moh.gov.my/login.php). Transport at 4 - 8°C.	Nutrient agar slant	Bacterial culture/ Pure culture	7 days
144	VZV Antibody - VZV IgG/IgM	Microbiology, Hospital Kuala Lumpur	PER-PAT 301	Send sample in ice	Plain tube	Blood/ 3 - 5 mL	IgG (14 days) / IgM (7 days)
145	Zika Virus (RT-qPCR)	MKA Kota Bharu	PER-PAT 301	Simpan dan hantar spesimen pada suhu 2-8 °C. Sampai di makmal dalam tempoh 24 jam (selepas pengambilan spesimen). Pembungkusan mengikut kaedah three layer packaging. Rujuk Standard Operating Procedure for transport of Biological specimens in Malaysia.	Plain tube, bekas sterile	Serum : 3-5 ml Urin : 5-20 ml	7 hari bekerja (Wabak : 24-48 jam)

4. Cytology & Histopathology

NO	TEST	CONTAINER / SPESIMEN	REQUEST FORM	INSTRUCTION	REFERENCE LAB
1	Histopathology Examination	Container with 10% Neutral buffered Formalin (use HPE request form) Tissue/Organ (Ratio 1:10 specimen to formalin)	PER-PAT 301	With clinical history (Detail refer to section GENERAL PROCEDURE FOR SUBMISSION OF SPECIMENS (REFERRAL LABORATORY))	HRPZ II
2	Non Gynae cytology examination Body fluid Sputum Bronchial brushing Aspirates	Sterile container Sterile container Glass slide Glass slide (use cytology request form)	PER-PAT 301	With clinical history (Detail refer to section GENERAL PROCEDURE FOR SUBMISSION OF SPECIMENS (REFERRAL LABORATORY))	HRPZ II
3	Pap Smear	Alcohol fixed slide	PAP SMEAR REQUEST FORM	Smear (on Slide)	HRPZ II
4	Fine Needle Aspiration (FNAC)	Cell Aspiration	PER-PAT 301 and KKM/FNA Rep/0	Smear (on Slide)	HRPZ II

5. Toxicology

NO	TEST	CONTAINER/SPECIMEN	REQUEST FORM	INSTRUCTION	REFERENCE LAB
1	Toxicology test Blood Urine Stomach wash out	Fluoride oxalate Fluoride Universal bottle	Use BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK / TOKSIKOLOGI (KIMIA 15-Pin. 2/2016)	Details refer to guide attached with the request form	Jabatan Kimia Kuala Terengganu
2	Blood alcohol	Na F + EDTA/ Fluoride oxalate Blood 3 ml			
3	Blood DNA Profile/ Fingerprinting	EDTA tube/ Blood 3-5 ml			
4	Pubic hair & nail clipping	Sterile container			
5	Paraquat level assay	Plain Container/Urine			

7. Transfusion/ Blood Bank

NO	TEST	CONTAINER / SPESIMEN	REQUEST FORM	INSTRUCTION	REFERENCE LAB
1	Antibody Identification	2 EDTA tube /Blood	PER-PAT 301	With clinical history	HRPZ II
2	RBC Phenotyping	2 EDTA tube /Blood	PER-PAT 301	With clinical history	HRPZ II
3.	RBC Genotyping	2 EDTA tube /Blood	PER-PAT 301	With clinical history	PDN

REGISTER OF REFERRAL LABORATORIES YEAR 2021


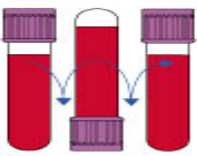



NO	ADDRESSES	PHONE NUMBER
1	Hospital Raja Perempuan Zainab II (HRPZ II), Pathology Department, 15586 Kota Bharu, Kelantan	09-7452000
2	Institute for Medical Research (IMR), 50588 Jalan Pahang, Kuala Lumpur	03-26162787
3	Hospital Kuala Lumpur (HKL), Pathology Department, , 50586 Jalan Pahang, Kuala Lumpur	03-26155598/5609
4	Makmal Kesihatan Awam Kebangsaan (MKAK), Lot 1853, Kg Melayu, 47000 Sg Buloh, Selangor	03-61565109
5	Hospital Universiti Sains Malaysia (HUSM), 16150 Kubang Kerian, Kelantan	09-7604045
6	Makmal Kesihatan Awam Perol (MKAKB) Lot 522, KM 10, Jalan Kuala Krai 16010 Kota Bharu, Kelantan	09-7138000






7	Hospital Putrajaya, Pathology Department, Presint 7, Wilayah Persekutuan, Putrajaya	03-83124200
8	Hospital Queen Elizabeth, Pathology Department, 88586 Kota Kinabalu, Sabah	088-577555 (ext.7353)
9	Jabatan Kimia Malaysia, Cawangan Kuala Terengganu, Jln Cherong Lanjut, 20300 Kuala Terengganu, Terengganu	09-6203077
11	National Blood Centre, (PDN) 50400 Jalan Tun Razak, Kuala Lumpur	03-26933888
12	Gribbles Pathology (Malaysia) SDN BHD, 2 nd Floor, Wisma KT, No. 14, Jalan 19/1, 46300 Petaling Jaya, Selangor Darul Ehsan, Malaysia. Collection Centre: Kelantan	03-7957 7752 09-743 9126
13	Hospital Sultanah Nur Zahirah (HSNZ) Jalan Sultan Mahmud 20400 Kuala Terengganu Terengganu	09-6212121
14	Hospital Pulau Pinang (HPP), Jabatan Patologi, Jalan Resideni, 10990 George Town, Pulau Pinang	04-2225333
15	National Institutes of Health (NIH), Persiaran Setia Murni, Setia Alam, 40170 Shah Alam, Selangor	03-3362 7400




4. TYPE OF SPECIMEN CONTAINER

TYPES OF SPECIMEN CONTAINER






BLOOD CONTAINERS




Tube	Additives	Number of inversions after collecting blood	Laboratory used
Orange/Yellow 	Clot activator and gel for serum separation	6-8 times  "1 inversion"	<ol style="list-style-type: none"> 1. Serology tests – e.g anti HIV, anti Hbe, Hbe Ag 2. Immunoassay – e.g Neonatal TSH, TSH, BHCG, Ferritin and tumor markers 3. Routine biochem – e.g LFT/FLP/RP/CKMB/CRP/ Amylase 4. Microbiology tests – Leptorapid, Dengue Combo, ASOT, VDRL, TPHA, Dengue PCR
Red 	Plain tube without gel	6-8 times	<ol style="list-style-type: none"> 1. TDM (except for Cyclosporine, Tacrolimus, Everolimus and Sirolimus)
Green 	Lithium heparin	6-8 times	For plasma determination in chemistry test <ol style="list-style-type: none"> 1. BUSE
	Sodium heparin	6-8 times	For cytogenetic study
Grey 	Potassium oxalate/ sodium fluoride Sodium fluoride/ Na ₂ EDTA	6-8 times	For glucose determinations <ol style="list-style-type: none"> 1. Glucose testing (RBS, FBS) 2. Lactate
Lavender	K ₂ EDTA tube	6-8 times	<ol style="list-style-type: none"> 1. GSH/GXM 2. Investigation of transfusion reaction

			<ol style="list-style-type: none"> 3. FBC, HbA1c, Intact PTH, ACTH 4. Ammonia 5. Lead 6. Some TDM tests (refer list of test) 7. BFMP 8. HBV Viral Load/ HCV Viral Load
<p>Light Blue</p> 	<p>Buffered sodium citrate 0.105M glass / 0.109M plastic</p>	<p>3-4 times</p>	<p>For coagulation determinations. Must be completely filled according to volume required on the tube due to the amount of additive in the tube</p> <ol style="list-style-type: none"> 1. PT, APTT 2. D dimer 3. Mixing test 4. Fibrinogen 5. Von Willibrand 6. Thrombophilia screening 7. Factor assay
<p>Pink</p> 	<p>0.5ml Sodium citrate</p>	<p>6-8 times</p>	<p>ESR test</p>
	<p>0.5ml Sodium citrate</p>	<p>6-8 times</p>	<p>ESR test</p>
<p>Aerobic Bottle (Adult) (Gray Cap/Blue Ring)</p> 	<p>NA</p>	<p>Invert gently to mix</p>	<p>For Blood C&S Aerobic</p> <p>Optimal Volume: 8 – 10 ml</p> <p>DO NOT write on or place any labels over the vial barcode.</p>

<p>Anaerobic Bottle (Adult) (Purple Cap)</p> 	NA	Invert gently to mix	<p>For Blood C&S Anaerobic</p> <p>Optimal Volume: 8 – 10 ml</p> <p>DO NOT write on or place any labels over the vial barcode.</p>
<p>Peads Bottle (Pink Cap/Silver Ring)</p> 	NA	Invert gently to mix	<p>For Blood C&S (Peads)</p> <p>Optimal Volume: 1 – 5 ml</p> <p>Minimum volume for neonates: 0.5 ml</p> <p>DO NOT write on or place any labels over the vial barcode.</p>
<p>Myco/F lytic (White cap/Red Ring)</p> 	NA	Invert gently to mix	<p>For Blood for Fungal</p> <p>Optimal Volume: 3 – 5 ml</p> <p>Minimum volume in paediatric patients: 1 ml</p> <p>DO NOT write on or place any labels over the vial barcode.</p>

OTHER CONTAINERS/ TRANSPORT MEDIA

Container	Test	Remarks
Sterile Bijou Bottle 	CSF for C&S CSF for Gram stain/Indian Ink/Bacterial Antigen Latex/Cell Count	Please send separate bottle for C&S. Optimal volume: 3 – 5 ml
Universal container 	Urine C&S/ Sputum C&S/ Sputum for AFB/ Body fluid C&S Urine/other body fluid for biochemistry analysis Stool for analysis (EXCEPT for stool C&S)	For urine: Collect 10 – 20 ml Mid-stream urine/ catheter (for C&S)
24 hours urine container 	24 hours urine collection	Volume 24H urine \geq 500mL, except for ESRD and Paediatric case
Amies transport medium 	Pus C&S, Swab C&S	NA
Amies transport medium (with charcoal) 	HVS C&S	NA

<p>Carry Blair transport medium</p> 	<p>Stool C&S/ Rectal Swab</p>	<p>NA</p>
<p>Viral Transport Medium (VTM)</p> 	<p>Mers CoV, ILI, Covid-19, etc</p>	<p>Please transport in ice</p>
<p>FLOQswabs</p> 	<p>RTK-Ag</p>	<p>NA</p>

5. CHEMICAL PATHOLOGY UNIT

CHEMICAL PATHOLOGY UNIT

INTRODUCTION

The Chemical Pathology Unit services cover pre-analysis, analysis and interpretation of biochemical changes in serum/plasma, urine and other body fluids for diagnostic, monitoring and screening of diseases. We also provides consultative laboratory services to Hospital Sultan Ismail Petra for patient management.

Chemical Pathology unit provides the following services:

- Routine chemistry, endocrinology, special protein, Therapeutic Drug Monitoring (TDM)

SERVICES

- a) Emergency (STAT/URGENT) service - 24 hour service
- b) Routine Service

REQUEST FORM

- 1 All request for Biochemical tests should use PER PAT 301 form
- 2 Exception is given to request form URGENT ('PERMOHONAN UJIAN SEGERA' (Red Color)
- 3 All request for Therapeutic Drug Monitoring testing should use Therapeutic Drug Monitoring (TDM) Request Form
- 4 All request for Drug Abuse Testing should use Borang Permintaan Pengesanan Dadah Dalam Air Kencing, UPD-1 (Pindaan 2) in 3 copies.
- 5 Special form should be used for certain request for IMR and some referral laboratories test.

SPECIMEN COLLECTION, STORAGE AND DESPATCH

- a) Specimen should be collected in appropriate containers (Refer types of specimen container) and dispatched immediately to avoid haemolysis.
- b) Any test that is needed urgently for management of ill cases, the URGENT form must be used.
- c) For test that required appointment, kindly contact the respective laboratory personnel to ensure that specimen is not rejected unnecessarily.
- d) All specimens must be sent in their respective containers as the use of inappropriate containers will cause inaccurate results.

SPECIAL COLLECTION

1. 24-hours urine collection

- The 24-hour urine bottle containing preservative for the required test is available from the Laboratory Counter and is provided upon request.
- Procedure

- Day 1: Instruct the patient to void at 8am and discard the sample. Note down date and time start of collection on the container (e.g 22/5/20, 8 am). Collect all subsequent voided urine in a 24-hour urine container for the next 24 hours.
- Day 2: Include the final sample voided at 8am into the urine container.
- Keep sample in the refrigerator or in a cool place during the collection period.
- For male patient, it is advisable NOT to void the urine directly into the 24-hour urine container. This is to avoid possible chemical burns.
- Label the container with:
 - Two identifiers (Name and NRIC)
 - Date and time collection started
 - Date and time collection completed
- Send the sample immediately to the laboratory.
(Reference: Laboratory Investigation Guidelines for Chronic Kidney Disease and Utilisation of eGFR in Adult, 2012)

2. 24-hours urine catecholamines

- All cases for urinary catecholamines should be discussed with Endocrinologist/ regional Paed Endocrinologist.
- Approved cases by Endocrinologist should go through Chemical Pathologist before sending to referral lab.
- Indication:
 1. For ADULT patient to fulfil **at least 2** out of the criteria stated below:
 - i. Age onset of hypertension < 40 years old
 - ii. Require more than 3 anti-hypertensives (resistant hypertensive)
 - iii. Exhibit paroxysms of headache, sweating and tachycardia.
 - iv. Hypertensive with paroxysmal postural hypotension
 2. Adrenal mass/ incidentaloma work-up
 3. Multiple Endocrine Neoplasia (MEN) 2 work-up
 4. Investigation for Neuroblastoma
 5. Suspected Pheochromocytoma
- Collect 24-hour urine in a specially prepared urine container that can be requested from laboratory. Please note that 10mls of 25 18% HCL has been added to the urine bottle to preserve the analytes.
- Instruction on patient preparation and specimen collection
 1. Avoid stress and vigorous exercise
 2. Drugs or metabolites that may cause possible interference include alpha-methyldopa, Isoproterenol, Labetolol, Mandelamine, Metoclopramide, Acetaminophen metabolites and Cimetidine. It is advisable to stop such medications at least 24 hours prior to urine sampling. Medication/drugs history should be provided in the request form
 3. Incomplete 24 hours urine collection may affect validity of the results
- Procedure
 1. Collection procedure same as 24-hour urine collection. Discard first voided urine and note down date and time on the 24-hour urine container (e.g: 22/5/20, 8 am)
 2. Collect all subsequent voided urine for the next 24 hours and mixed well every time added urine into the container

3. Do not void urine directly into the container. Please use sterile urine container provided to avoid spillage and chemical burns.
 4. Keep the closed urine container in cool and dry area.
 5. At the end of the period, add the last voided urine and note the finishing date and time (e.g 23/5/20, 8 am).
- Rejection criteria
 1. Inadequate urine collection (Adult < 750 ml)
 2. Urine pH >3
 3. Request not approved by Chemical Pathologist/ Endocrinologist
 (Reference: Chemical Pathology Laboratory, Hospital Kuala Lumpur)

3. 24-hours urine metanephrines

- Collect 24-hour urine in a specially prepared urine container that can be requested from laboratory. Please note that 10mls of 25 % 1M HCL has been added to the urine bottle to preserve the analytes.
- Instruction on patient preparation and specimen collection
 - Abstain from taking chilies, nuts, caffeine (e.g coffee, tea etc.), chocolate/cocoa, brinjal, tomato, avocado, bananas, pineapple and watermelon at least 2 days prior to and during the 24-hour urine collection.
 - Certain drugs such as Alpha2 agonists, Calcium channel blockers, ACE inhibitors, Bromocriptine, Methyldopa, Monoamine oxidase inhibitors, Alpha blockers and Beta blockers, Phenothiazines and Tricyclic antidepressants alter the metabolism of catecholamines. It is advisable to stop such medications at least 7 days prior to urine sampling (please get advice from treating doctors prior to stop).
 - Please advise patient to avoid stress, exercise and smoking prior to and during urine collection.
 - Incomplete 24 hours urine collection may affect validity of the results
- Procedure
 - Collection procedure same as 24-hour urine catecholamines.
- Rejection criteria
 - Inadequate urine collection (Adult < 750 ml)
 - Urine pH >5
 - No specialists' signature and stamp - the test can be requested ONLY by Specialist
 (Reference: Chemical Pathology Laboratory, Hospital Putrajaya)

4. Blood Gases samples

- Write down time of arterial/venous puncture in the request form
- Use a 2ml disposable syringe which has been rinsed earlier with heparin (5000 units per ml)
- Draw 1 ml of blood and expel the air bubbles; mix well by invert the syringe upward and rolling between palms for 5 seconds.
- Discard the needle to prevent needle stick injury incidence and recap with special stopper provided to avoid specimen exposure to air.

- Put the syringe into a plastic, then into container/ icebox which contained ice-slurry and ensure the syringe is surrounded with the ice water.
- The sample must reach the laboratory for analysis no later than 30 minutes after drawing of blood (sample analysis will be rejected if this time is exceed).

5. Oral Glucose Tolerance Test

- Indications
 - i. **Suspected Diabetes Mellitus:** An oral glucose tolerance test is not required if the diagnosis of diabetes is not in doubt or if patient's fasting plasma glucose is greater than 7.8 mmol/L or random plasma glucose is greater than 11.1 mmol/L.
 - ii. **Acromegaly:** To establish the diagnosis and to follow patients after treatment with surgery or irradiation.
- Procedure
 - i. Diabetes
 - After overnight fast (8 - 12 hours), take fasting blood glucose at time 0 hour and then give oral glucose load (75g anhydrous glucose in 250 - 350 mL water, consume within 5 minutes). Repeat blood sampling for 2HPP blood glucose at 2nd hour after glucose load. For children, 1.75 g/kg of body weight to a maximum of 75 g.
 - ii. Acromegaly
 - After overnight fast (8 - 12 hours), take fasting blood glucose and Growth Hormone at time 0 hour and then give oral glucose load. Repeat blood samples (Blood Glucose and Growth Hormone) at 1st and 2nd hour after glucose load.

- Interpretation

- i. Diabetes

Diagnosis	Fasting Blood Glucose (mmol/L)	2HPP Blood Glucose (mmol/L)
Normal	< 6.1	< 7.8
Impaired Fasting Glycaemia	6.1 – 6.9	-
Impaired Glucose Tolerance	-	7.8 – 11.0
Diabetes mellitus	≥ 7.0	≥ 11.1
Gestational Diabetes Mellitus	≥ 5.1	≥ 7.8

(Reference: Malaysia CPG Management of Diabetes in Pregnancy 2017, Malaysia CPG Management of Type 2 Diabetes Mellitus 2015)

- ii. Acromegaly

- In normal people, Growth Hormone will be suppressed to less than 2 µg/L with a glucose load.
- Acromegaly patient fails to show this suppression and sometimes shows a paradoxical increase in Growth Hormone level. Patient with liver disease, uraemia, or heroin addiction may give false positive results.

Notes:Dietary Preparation:

- i. The oral carbohydrate intake should be adequate (> 150 gm) on each of the three days immediately preceding the test. No food or energy supplying substances in any form should be consumed for at least 8 hours prior to the test but patient not allowed to fasting longer than 16 hours. Plain water is permitted throughout this period and during the test.
- ii. The patient must rest for 30 minutes before and also during the test and smoking is not allowed
- iii. Drugs such as steroid, oral contraceptives, diuretics, nicotinic acid, thyroid hormones and Dilantin, which may affect the test, should not be taken.
- iv. No smoking during the procedure.
- v. No alcohol intake 36 hours prior to the test.

(Reference: Chemical Pathology Laboratory, Hospital Putrajaya)

6. Creatinine Clearance Test

- Patient preparation
 - Avoid taking interfering medications: Cephalosporin and aminoglycoside antibiotics, Flucytosine, Cisplatin, Cimetidine and Trimethoprim. If possible, drugs should be stopped beforehand.
 - Ensure patient drink sufficient water before start collecting and continue good hydration throughout the procedure.
 - A meat free diet is recommended.
- Requirements
 - 24-hour urine collection for Creatinine measurement (follow 24-hour urine collection procedure)
 - Blood specimen for serum/plasma Creatinine must be taken within 24-hour urine collection (but not within 1-3 hours after a large meal).
 - Send both specimens to the laboratory (Please ensure the total volume of urine stated in the request form especially for inpatient).

(Reference: Laboratory Investigation Guidelines for Chronic Kidney Disease and Utilisation of eGFR in Adult, 2012)

7. Plasma Renin and Aldosterone

- Indication
 - Screening for primary hyperaldosteronism in hypertensive patients with spontaneous or diuretic- induced hypokalemia. Suggested candidates for screening:
 1. Patients with hypertension and hypokalemia
 2. Patients with resistant hypertension
 3. Young hypertensive (age < 40)
 4. Patients with adrenal incidentaloma

- Patient preparation
 - Drugs to avoid: *Spironolactone, ACE inhibitors, ARB, beta-blockers, cyclic progestogens, estrogens and licorice.
 - Drugs that **do not** interfere with the renin-aldosterone axis include: Prazosin, verapamil and terazosin.
 - Subject should be normally hydrated and has an adequate oral intake of sodium.
 - Avoid hypokalaemia as it suppresses aldosterone secretion. Give potassium replacement (Slow K tabs) sufficient to raise plasma potassium >4.0 mmol/L.

*Spironolactone **MUST** be stopped for 6 weeks to be certain that any elevation in plasma renin activity is not due to inhibition of aldosterone by the drug.

Ideally all interfering drugs should be stopped at least 2 weeks prior to sampling. Please refer to table below

Drug	Physiological effect	Time to remove interference
ACE inhibitors	Increase PRA & reduce aldosterone	2 weeks
beta-blockers	Reduce PRA more than aldosterone	2 weeks
Calcium channel blockers	Reduce aldosterone and stimulate renin production	2 weeks
Diuretics	Increase PRA and aldosterone	2 weeks
hypokalaemia	Inhibits aldosterone secretion	
NSAIDs	Retain sodium & reduce PRA? effect on aldosterone	2 weeks
Oestradiol	Increase renin substrate	6 weeks
Spironolactone	increase PRA, variable effect on aldosterone	6 weeks

- Requirements
 - Potassium EDTA (K₂EDTA) tube for renin (DRA).
 - Potassium EDTA (K₂EDTA) tube for aldosterone.
 - Blood samples should be sent rapidly to the laboratory but not in ice (within 30 minutes) as cooling would cause cryoactivation of prorenin to renin, leading to falsely raised renin.
- Procedure
 - The patient should remain seated for 10 minutes prior to venepuncture.
 - Collect samples into 2 tubes of EDTA. (Please use different tubes for Renin and Aldosterone).
 - Fill-up the **PER. PAT 301** form. Only single form is required for requesting Aldosterone Renin Ratio (ARR).
 - Patient's **clinical history** and **drug history** are **MANDATORY**.
 - Test should be requested by **Specialist / Endocrine Specialist only**.
 - Please record patient's posture whether supine **or** upright.
 - Supine sample: Sample taken in the early morning before the subject arises (If feasible).
 - Upright sample: Subject should be upright for ≥ 2 hours prior to sampling.
 - Samples should be taken between 8am to 10am.

- Interpretation
 - High aldosterone and suppressed plasma renin indicates primary hyperaldosteronism.
 - Some patients with renal disease may give similar results.
 (Reference: Chemical Pathology Laboratory, Hospital Putrajaya)

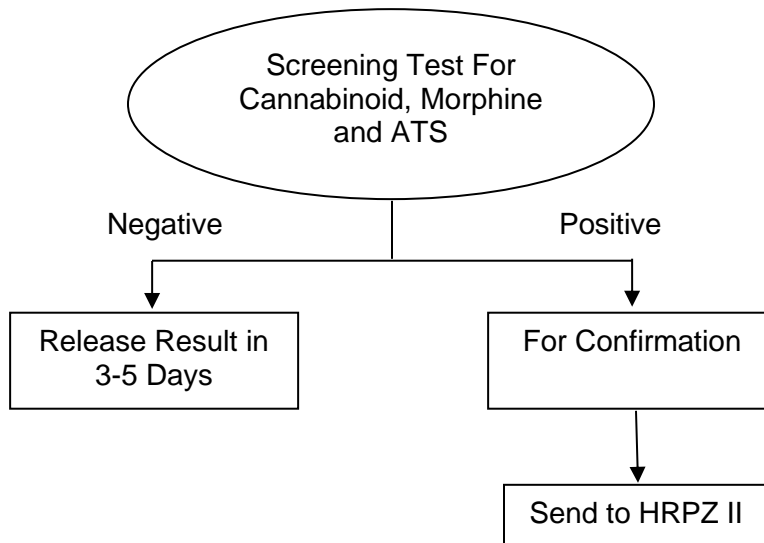
8. Plasma Ammonia/Lactate

- Requirement
 - Flouride tube for plasma lactate.
 - Potassium EDTA (K2EDTA) for plasma ammonia.
- Procedure
 - a. Patient should be fasting at least 6 hours and at complete rest.
 - b. A venous specimen is best drawn without tourniquet or immediately after the tourniquet has been applied briefly. If the tourniquet has been applied very long, it should be removed after the puncture has been performed and blood allowed circulating for at least 2 minutes before blood is withdrawn.
 - c. Send immediately to the laboratory in icebox containing ice-slurry as the plasma need to be separated within 30 minutes after venepuncture.

9. Detection of Drugs of Abuse in urine.

- Urine specimen should be collected into clean leak-proof universal container (in 2 containers).
- After the urine is collected, the container should be securely sealed and labelled as follows:
 - Name
 - I/C Number
 - Date
 - Time Collection
 - Signature of person:
 - Supervising the collection process
 - Suspect/ donor
- Labelling of specimen container should be made in front of suspect/donor.
- The personnel authorized to request for drug analysis should be a qualified Medical Officer.
- All test results will be validated by Biochemist before they are reported and released.
- Test result will be ready according to the laboratory Turn Around Time (LTAT).

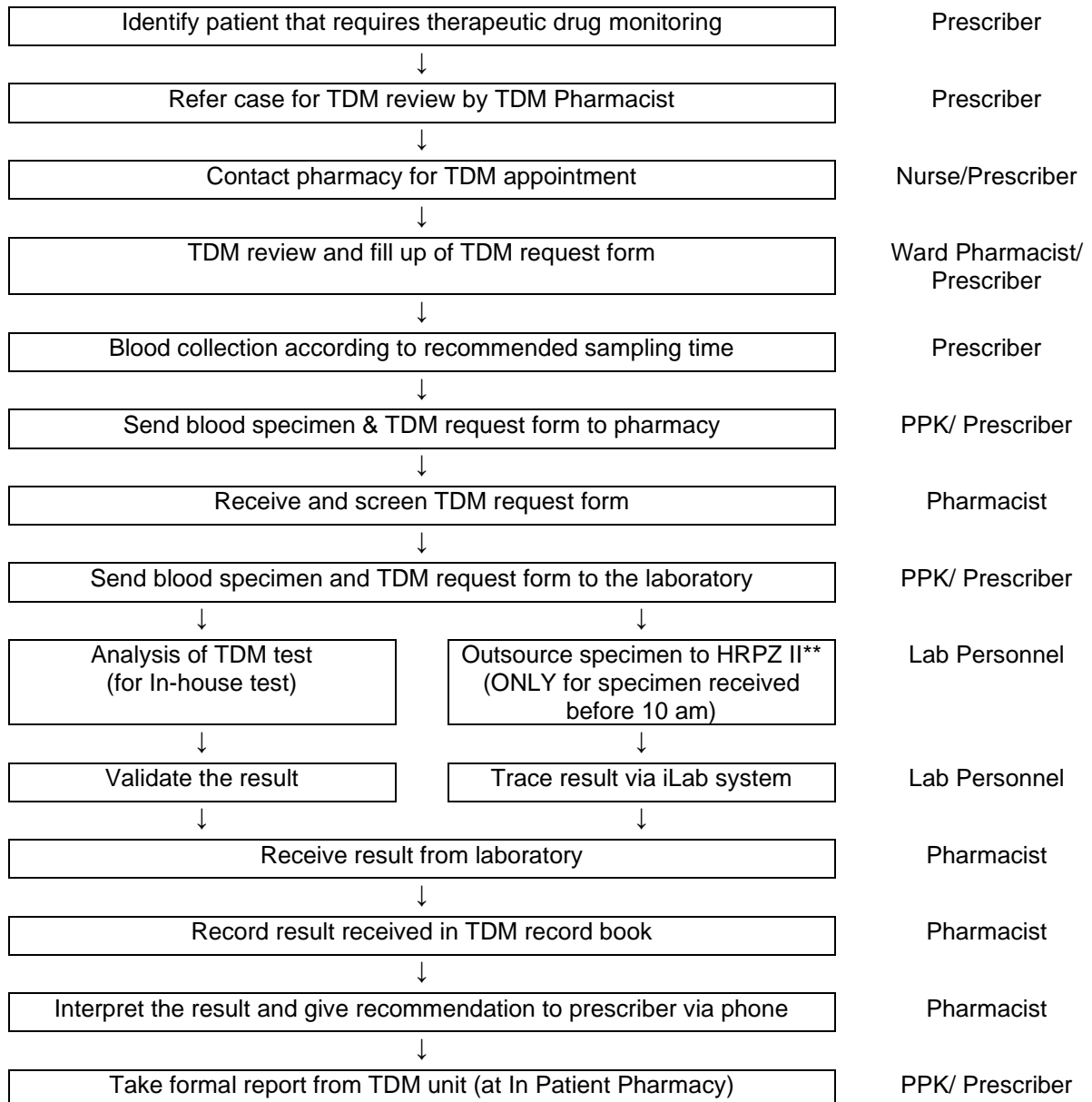
Flow Chart for Urine Drug Confirmation



10. Therapeutic Drug Monitoring

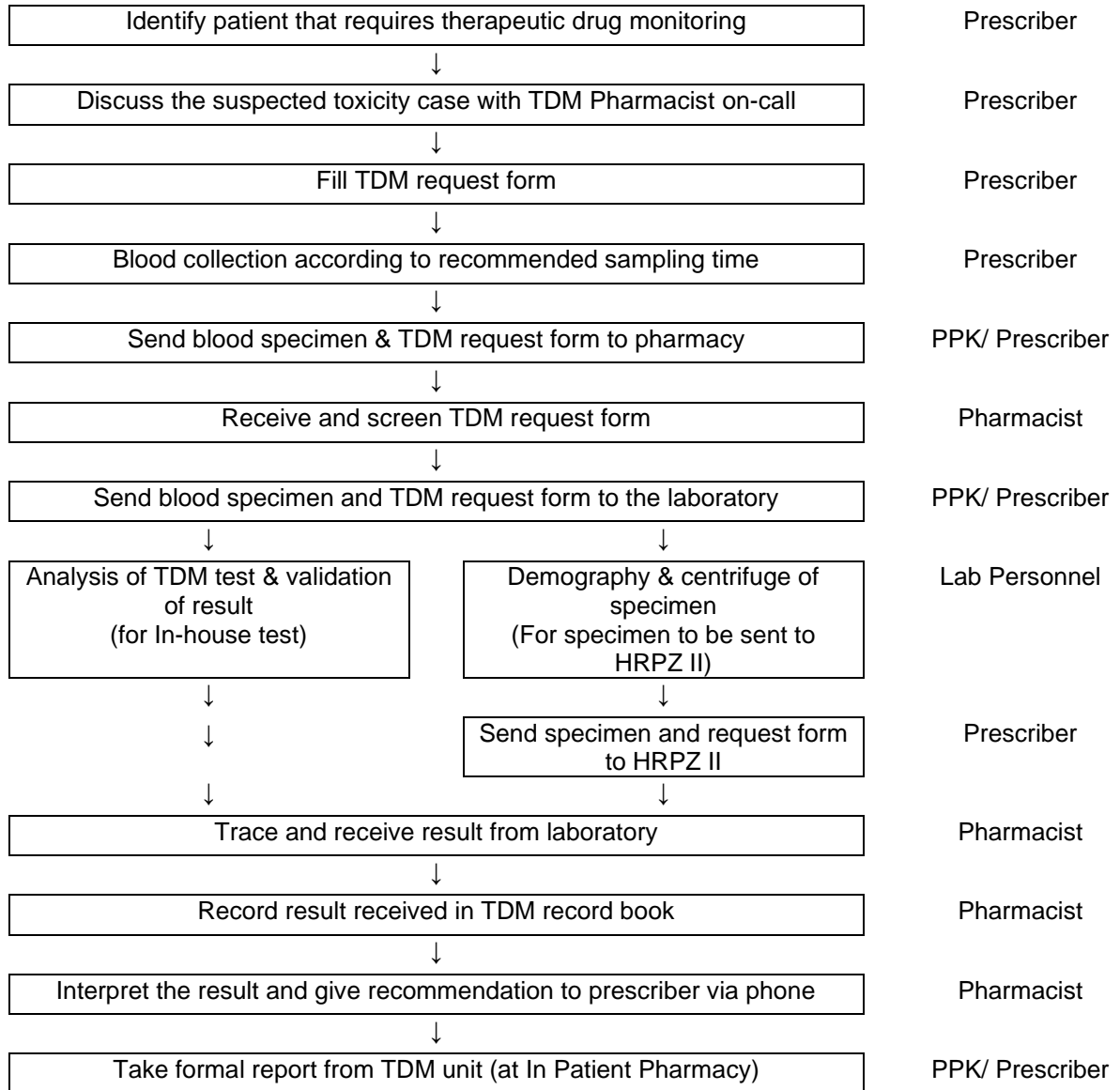
- Many of these specimens require to be taken at a specific time pre(trough) or post (peak) dose (refer table on the TDM request form)
- Failure to collect the blood at the appropriate time will lead to inappropriate interpretation of the result.
- Strictly NO haemolysed serum specimens as it will interfere with the TDM test result.

WORKFLOW 1: TDM TEST REQUEST DURING OFFICE HOUR/ IN-HOUSE TEST
(Therapeutic Confirmation & Toxicity Cases)



** Any samples to HRPZ II that received after 10 am, prescriber need to arrange transport by themselves (Refer Workflow 2).

WORKFLOW 2: TDM TEST REQUEST AFTER OFFICE HOUR/ PUBLIC HOLIDAY
(Toxicity Cases)



** Any samples to HRPZ II, prescriber need to arrange transport by themselves.

6. HAEMATOLOGY

UNIT

HAEMATOLOGY UNIT

INTRODUCTION

Haematology unit provides service in patients, out-patients, Klinik Kesihatan in Kuala Krai and also referring centre for Hospital Gua Musang. We also provide consultation service for haematology field.

Our services cover analysis and interpretation of haematological changes in body fluids for screening, diagnostic and monitoring of diseases.

REQUEST FORM

1. All request should use PER PAT 301 form except for tests that stated must use special request form :
 - 1.2 CYTOGENETIC REQUEST FORM FOR BLOOD SAMPLE (APPENDIX 22)
 - 1.3 CYTOGENETIC ANALYSIS USING BONE MARROW ASPIRATION (APPENDIX 22)
 - 1.4 CYTOGENETIC ANALYSIS USING PERIPHERAL BLOOD FORM (APPENDIX 27)
 - 1.5 PUSAT DARAH NEGARA HEMATOLOGY/SEROLOGY REQUEST FORM (APPENDIX 29)
 - 1.6 HOSPITAL AMPANG SPECIAL HEMATOLOGY LAB REQUISITION (APPENDIX 21)
 - 1.7 DNA ANALYSIS FOR THALASSAEMIA SYNDROME & HEMOGLOBINOPATHIES REQUEST FORM (APPENDIX 20)
2. All request form must be filled completely.
3. Patient diagnosis must be provided in the diagnosis column to enable proper result interpretation and explanation.

Note :

For all referral request :

1. to HUSM, Ampang Hospital, Pusat Darah Negara and IMR, the specific ward/clinic need to get appointment date from the respective hospital before sending the sample.
2. The tube and request forms are available at the Hematology lab.

SPECIMEN COLLECTION, STORAGE AND DESPATCH

1. Specimen collected should be put in appropriate containers, follow sample volume that required for each test (Refer types of specimen container), and dispatched immediately to laboratory (result may be invalid due to stored sample).
2. Any test that is needed urgently for management of ill cases, need to use URGENT form.
3. Request for bone marrow aspiration must be inform to Haematology specialist incharge and appointment for cytogenetic test need to be done prior to procedure. Haematology lab will arrange for the shipment of the sample to the respective referral lab.

4. For test that required appointment (send to referral laboratories), kindly contact the correct laboratory personnel early to ensure that specimen is not rejected unnecessarily. On the appointment date, please send sample before the time that stated.
5. Clinician is encouraged to discuss with Haematology specialist for special haemostasis request (ie Factor assay, Lupus Anticoagulant and Thrombophilia screening) to avoid unnecessary request.
6. Sample for haemostasis (ie PT/APTT) need to be sent to the lab within 4 hours from the specimen collection. If patient is on heparin treatment, the sample must be sent within 1 hour.
7. Plasma (after centrifuge and separated) will be stored for 15 days at -20°C or longer at -80°C.
8. Interference for haemostasis test:
 - a. Hemolysis
 - b. Icteric sample
 - c. Lipaemia
 - d. Insufficient sample in tube
 - e. Polycythaemia
 - f. Difficult blood taking
9. Indication for Lupus Anticoagulant Test:
 - a. ≥ 3 unexplained consecutive miscarriages before 10 weeks.
 - b. ≥ 1 morphologically normal fetal death after 10 weeks.
 - c. ≥ 1 preterm birth before 34 weeks due to severe pre-eclampsia, eclampsia, or placental insufficiency.
 - d. Young adult (< 50 years old) with ischaemic stroke.
 - e. Unexplained arterial thrombosis in young adult (< 50 yrs old).
 - f. Unprovoked DVT or pulmonary embolism (< age 50 yrs old).
 - g. History of thrombosis or pregnancy morbidity in patient with autoimmune disease (SLE, RA, AIHA, autoimmune thrombocytopenia).
10. Indication for Inherited Thrombophilia screening:
 - a. Patient < 40 year old who have unprovoked DVT or PE and had 1st degree relative with DVT or PE and plan to stop medication.
 - b. Neonate and children with purpura fulminant.
 - c. Adult who develop skin necrosis in association with VKAs.
 - d. Oestrogen – provoked venous thrombosis under the age of 50 years.
 - e. Asymptomatic pregnant women with family history of unprovoked thrombosis; or past history of provoked thrombosis from pregnancy, combined-oral contraceptive pills or travel.
 - f. First episode of venous thrombosis (unprovoked or provoked by minor risk factor (eg Travel) under age 50 years old.
 - g. Venous thrombosis at unusual site (cerebral, mesenteric).
11. Sample which needs to be sent immediately to referral laboratory, prior arrangement has to be made (at least 3 days earlier).

RESULT

1. All result can be reviewed in LIS e-delphin except for referral test to other hospital.
2. Result for test that sent to HRPZ II can be reviewed in I-LAB HRPZ II web base.

7. MICROBIOLOGY

UNIT

MICROBIOLOGY UNIT

Microbiology is an essential component in the infectious disease field and knowledge in this area is vital to the clinical management of infections. Microbiology unit is particularly involved in isolation or establishing the causative agents as well as monitoring and screening of disease.

LIST OF SERVICES

Microbiology unit provides the following services:

- Diagnostic microbiological and consultancy services which comprise of bacteriology, mycology, parasitology, serology and immunology.
- Please refer table in section list available for tests offer in Microbiology Unit (page 23 - 26):
 - a) STAT/URGENT test
 - b) Routine test

SERVICE HOURS

- a) Office hour (Sun – Wed): 8.00 am - 1.00 pm; 2.00 pm-5.00 pm
- b) Office hour (Thurs): 8.00 am- 1.00 pm; 2.00 pm-3.30 pm
- c) Weekend/ Public Holiday: 9.00 am – 1.00 pm

REQUEST FORM

- a) A standard laboratory request form i.e. PER-PAT 301 is used for all categories or otherwise stated.
- b) All request forms shall be filled legibly. The completed forms shall be signed by requesting doctor and accompanied by a properly collected specimens.
- c) The request forms should be sent in duplicate.

SPECIMEN COLLECTION, TRANSPORT AND HANDLING

General Consideration:

- a) Use universal precaution for collecting and handling all specimens.
- b) Whenever possible, collect all culture specimens prior to administration of any antimicrobial agents. Utilize appropriate collection devices, sterile equipment, and aseptic technique to collect specimens.
- c) Avoid contamination with indigenous flora.
- d) All swabs are to be kept moist in a transport medium after the specimen is collected.
- e) Specimens for bacterial culture should be transported at room temperature. Specimens for viral culture must be transported to the laboratory immediately on ice.

- f) Specimens should be tightly sealed, leaked proof containers and transported in sealable leak-proof plastic bags. Specimens should not be externally contaminated. Specimens grossly contaminated or compromised may be rejected.
- g) The entire specimen container should be placed in one biohazard plastic bag and the label sticker should be fixed correctly to the container.
- h) Please put the request form into another compartment in biohazard plastic bag. Do not staple request form together.
- i) The following are minimum information that must be provided on the labels of specimens:

Name of patient: I/C or MRN: Ward: Name of test: Date:
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- Note:
- Use new I/C number for Malaysian Patient (12 digits)
 - Passport number should be used for non-Malaysia patient.
 - Nombor tentera or nombor polis can be used when necessary
 - For paediatric patient whom myKid is not yet available, mother's I/C number can be used and must be clearly stated.
- j) Deliver all specimens to the laboratory as soon as possible after collection. This ensures the survival and isolation of fastidious organisms and prevents overgrowth by more hardy bacteria. It also shortens the duration of specimen contact with some local anaesthetics used in collection procedures that may have antibacterial activity.

SPECIMEN COLLECTION GUIDELINES

No	Specimen	Collection Procedures
1	Blood C&S	<p>Blood cultures should only be taken when there is a clinical reason to suspect a septicaemia. Blood cultures should not be taken for routine assessment or for the investigation of a localised infection.</p> <p>The emphasis should be on obtaining specimens of adequate volume, the performance of suitable numbers of blood cultures, and the use of strict aseptic technique. Blood cultures should be taken before administration of antibiotics.</p> <p>Collecting blood culture:</p> <ol style="list-style-type: none"> a) Prepare blood collection set using aseptic non-touch technique. b) Position the patient's that provides adequate exposure of the planned venepuncture area. c) Thoroughly clean the site. d) Remove the cap of blood culture bottle and clean the rubber, allowing the alcohol to evaporate for 30 seconds before proceeding with bottle inoculation. e) Inject the blood into each bottle through the rubber cap with the needle. f) Please send the inoculated bottle as soon as possible, ideally within 48 hours of collection, keep in room temperature, do not refrigerate the bottle. g) Label the blood culture bottles accurately and make sure the request tally. h) Do not cover barcode on bottles with patient labels.
2	CSF C&S	<p>Cerebrospinal fluid (CSF) should be processed in a microbiology laboratory within 1 hour after collection.</p> <p>Collecting CSF:</p> <ol style="list-style-type: none"> a) In view of the danger of iatrogenic bacterial meningitis, thorough disinfection of the skin is mandatory. b) Approximately 1.5 - 2 ml of CSF should be collected in sterile container or bijou bottle (available at Microbiology lab) for microbiological examination including culture. The CSF for another unit examination needs different container. c) The specimen should be delivered to the laboratory at once, and processed immediately, since cells disintegrate rapidly. Any delay may produce a cell count that does not reflect the clinical situation of the patient. d) Test include: <ol style="list-style-type: none"> i. Cell count ii. India Ink's iii. Gram stain iv. Latex agglutination for CSF antigen
3	Body fluid	<ol style="list-style-type: none"> a) The specimens include synovial, pleural, pericardial and peritoneal. b) Send specimen immediately to the lab for processing. c) Specimen received more than 4 hours is not suitable for processing.

4	Respiratory specimens	<p>a) Nasal Swab For detection of Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA) carrier. Usually advised to swab the mucosal lining of the anterior nares.</p> <p>b) Throat Swab</p> <ol style="list-style-type: none"> i. This is obtained to recover Group A β-hemolytic streptococcus or <i>Corynebacterium diphtheriae</i>. ii. Site to take the specimen is the tonsillar area and the mucosa on the post pharyngeal wall behind the uvula. iii. Ideally to ask patient to rinse mouth with water before sampling. <p>c) Sputum: Sputum is best collected early in the morning; if possible. Do make sure the patient gargle with water immediately prior to obtaining the specimen to reduce the number of contaminating orals pharyngeal bacteria.</p> <p>d) Bronchial alveolar lavage (BAL)/ brushing/ biopsies</p> <ol style="list-style-type: none"> i. Obtained via bronchoscopy. More representative of lower respiratory tract. ii. Besides C&S, BAL also is the best specimen looking for pneumocystis carinii pneumoniae.
5	Urine C&S	<p>Careful attention to proper collection of urine sample is vital in ensuring the optimal recovery of bacteria from the urinary tract and the elimination of potential contamination. Urine is an excellent nutrient medium for supporting the rapid growth of many microorganisms, specimen of urine should therefore, be sent to the laboratory without delay.</p> <p>If delay is unavoidable, urine specimen may be stored in the refrigerator (2-8°C) for up to 2 hours. Early morning urine is preferable. This is to enable the organism to multiply in the bladder before collection. If this is not possible, a period of 3 hours must elapse after the last micturition. The specimen is MID-STREAM urine, whether from a male or a female.</p> <p>Submit the mid-stream urine sample in a sterile screw-capped container. Specimen should be sent immediately after collection; the best is within ½ hour-1 hour after collection.</p> <p>a) Midstream Urine</p> <p>Male Patients</p> <ol style="list-style-type: none"> i. Before actual sampling, withdraw the prepuce and clean the glans penis thoroughly with water. ii. Pass the first few millilitres of urine to flush out the bacteria from the urethra, and then collect the mid-stream portion (about 2-5 ml) in a sterile container. iii. Close the container tightly and send immediately to laboratory.

		<p>Female Patients</p> <ol style="list-style-type: none"> i. Before actual sampling, clean the perineum thoroughly with water. ii. Hold the labia apart, voiding and pass the first few millilitres of urine to flush out the bacteria from the urethra and collect the midstream portion (about 2-5 ml) in a sterile container. iii. Close the container tightly and send immediately to laboratory. <p>Note: When culture for tubercle bacilli is required to collect as least 50ml of early morning midstream urine on 3 consecutive mornings into sterile universal bottles. Label the specimens and store them in refrigeration. Transport the specimens packed with ice to the laboratory.</p> <p>b) Catheterized urine</p> <ol style="list-style-type: none"> i. Clamp the foley's catheter for ½ hour. ii. Unclamp the foley's, discard the initial urine. iii. Catheterized urine specimen should be taken by aseptic puncture of the catheter conduit and syringe out into a sterile container. iv. Urine from catheter bags is generally unsuitable for culture. v. Urinary catheter tip will not be processed as a specimen. <p>c) Bladder urine specimen</p> <ol style="list-style-type: none"> i. This obtained via suprapubic aspiration or cystoscopically under aseptic technique. ii. Urine is collected in sterile container.
6	Genital specimens	<p>a) Collection of urethral discharge for <i>N.gonorrhoea</i> from male patients.</p> <ol style="list-style-type: none"> i. Cleanse around the urethral opening using a swab moistened with sterile saline. ii. Gently massage the urethra from above downwards. Using a swab, collect a sample of discharge. Make a smear of the discharge on a microscope slide by gently rolling the swab on the slide. iii. Spread the exudates over an area about 1-2 cm in diameter, in the middle of a clean microscope slide. iv. Make sure the slide is air-dried before sending to the lab (if patient recently passed urine, allow 2-4 hours before collecting the specimen). v. For culture, collect a sample of pus on a sterile cotton-wool swab, insert the swab in a transport medium, and send to the lab. <p>b) Collection of cervical specimen for <i>N.gonorrhoea</i> from female patients.</p> <ol style="list-style-type: none"> i. The best specimen is from endocervical canal. ii. Use a speculum to examine the cervix and collect the specimen (do not use lubricate with a gel that may be bactericidal). iii. Pass a sterile swab 20-30mm into the endocervical canal and gently rotate the swab. iv. Slide and culture as from male patient above.

		<p>c) High Vaginal Swab</p> <ol style="list-style-type: none"> i. This is the specimen for other diagnosis of candidiasis and other causes of vaginitis but NOT gonorrhoea in the female. ii. Using a sterile speculum lubricated with sterile normal saline and not antiseptic cream, collect the vaginal exudates by simple swabbing from posterior fornix. iii. Insert the swab into Amies transport media and send the specimen to the lab as soon as possible.
7	Stool C&S	<p>a) Container / Transport media Use the following transport media:</p> <ol style="list-style-type: none"> i. Cary Blair Medium - suitable for most enteropathogenic bacteria. ii. Sterile container- for Campylobacter detection. <p>b) Collection and Dispatch</p> <ol style="list-style-type: none"> i. Using a small spoon or swab, collect a portion of faeces (about 1 gm), taking care to include material containing mucus, pus or blood if any present. ii. Place the spoon or swab with faeces into a sterile universal container and screw on the cap tightly. iii. Sent it promptly for processing. Prolonged storage will cause the drop in pH which will be sufficient to inhibit the growth of most Shigella sp. and some Salmonella spp. If a delay is anticipated, place the stool specimen in transport media. Store transport media at room temperature. iv. If faeces are not available, a rectal swab may be taken but this provides a less satisfactory specimen. v. Insert a sterile swab into the anus beyond the anal sphincter. vi. Rotate the swab to ensure contact with faecal material within the rectum and replace it at once in the appropriate transport media. A satisfactory rectal swab is one which shows some faecal staining. vii. If stool is collected in a sterile bedpan, it must not be contaminated with urine or residual soap or disinfectant. <p>c) Stool Ova and Cysts</p> <ol style="list-style-type: none"> i. Collect faeces into a clean wide-mouth container with a tight-fitting lid to prevent accidental spillage and maintain moisture. The specimen should not be contaminated with water and urine. ii. Place in the plastic bag, label properly, accompanied by a request form and should be sent to the lab within 1 hour. iii. If rectal swab used for <i>E.histolytica</i> detection, it should be moistened with physiological saline. <p>Note: Fecal specimen from patient on antacids, barium and bismuth oil or antibiotics may not be suitable for identifying protozoa.</p>

8	Pus/ Tissue/ Wound C&S	<p>a) Pus / Tissue / Swab Specimen Collection</p> <ol style="list-style-type: none"> i. The surfaces of cutaneous or decubitus ulcers are frequently colonized with bacteria. ii. Clean and decontaminate the area as much as possible with water and disinfectant. iii. Using a sterile disposable needle and syringe, aspirate the purulent material from the depths of the wound. iv. Either leaves the aspirated material in the syringe without its needle or transfers the contents into a sterile container, screw the cap tightly and dispatch immediately to the laboratory. v. When little exudates are available and cannot be obtained with a needle and syringe, a sterile swab may be used. vi. Soak the swab thoroughly in the exudates and replace it at once in the transport medium. vii. Send immediately to the laboratory for processing. DO NOT STORE IN THE REFRIGERATOR. viii. Tissue should be sent in a sterile container and please make sure the moist is taken care of. <p>Note: A 'dry' swab may fail to yield organisms in smear or culture.</p> <p>b) Ear</p> <ol style="list-style-type: none"> i. External <ul style="list-style-type: none"> • Clean the external meatus with mild detergent or sterile normal saline. • Obtain specimen (swab, scraping or fluid aspiration) from active margin, preferably including fresh secretions from deeper areas. ii. Internal <ul style="list-style-type: none"> • Clean the external meatus with mild antiseptic or sterile normal Saline. • Using a sterile swab collect specimen through sterile Funnel from ear drum or beyond. <p>c) Eye</p> <ol style="list-style-type: none"> i. Eye discharge <ul style="list-style-type: none"> • Clean skin around eye with mild antiseptic. • Make sure no makeup / ointment left. • Collect the exudates with a sterile swab. • For isolation of Neisseria gonorrhoeae, 2 swabs are preferable. 1 to inoculate into transport media, the other are to make a glass slide smear, air dried and send to the laboratory. • For isolation of other organism, inoculate into transport media and send to the laboratory. ii. Corneal scrapping
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		<ul style="list-style-type: none"> • Use local anaesthetic and spatula with a thin blunt end, scrap the whole of the conjunctiva. • If the media is available, lawn the specimen onto the media, make sure do not break the agar so that the specimen will be on the surface not inside the media. • After streaking onto the media, the residual specimen should be spread onto the glass slide, and send to the lab after complete air dry. <p>iii. Aqueous tap</p> <ul style="list-style-type: none"> • This is especially for endophthalmitis cases. • Collect specimen aseptically in a sterile tube. • Label carefully. • Another eye specimen: These include contact lens, iris, foreign body, all should be send in a sterile container and make sure the moist is taken care. <p>Note: <u>Specimen for anaerobic culture</u></p> <ul style="list-style-type: none"> • Any specimen suspicious for anaerobic organism should be collected properly. • Do not send swab specimen for anaerobic culture. • Specimen may be send using a syringe (approximately 10cc) or more, send immediately to the lab without the needle.
9	Autopsy material	<p>a) Blood :</p> <ol style="list-style-type: none"> i. Aspirate 10 ml of right heart blood from the right heart either through the skin and chest wall or (through unopened heart) from right ventricle after removal of sternum into a set of blood culture broths. ii. Avoid contamination with bacteria from the water faucet and with enteric bacteria. A block of splendid tissue may be submitted in lieu of a blood culture. <p>b) Tissue :</p> <ol style="list-style-type: none"> i. Best collected before body is handled too much or opened. ii. Decontaminate skin or sear surface of heart or other organ before inserting needle or cutting out tissue block. iii. Collect 6ml (if possible) with one serosal or other surface and place in a sterile container. Large piece is preferred because aseptic collection is difficult in the laboratory. iv. 1 cm cube will be aseptically from the suspicious area including some normal tissue for processing.
10	Mycology Specimens	<p>Skin, nails and hair</p> <p>Clean cutaneous and scalp lesion with 70% alcohol prior to sampling as this will improve the chances of detecting fungus on microscopic examination, as well as reducing the likelihood of bacterial contamination of cultures. Prior cleaning is essential if ointments, creams or powders have</p>

		<p>been applied to the lesion. Skin, nails and hair specimens should be collected into folded squares of paper or directly onto on agar plate.</p> <p>a) Nails</p> <ol style="list-style-type: none"> i. Nail specimen should be taken from any discolored, dystrophic or brittle parts of the nail. ii. Specimen should be cut as far as possible from the edge of the nail and should include the full thickness of the nail. <p>b) Skin</p> <p>Materials should be collected from cutaneous lesions by scraping outwards from the margin of the lesion with the edge of a glass microscope slide or a blunt scalpel.</p> <p>c) Hair</p> <ol style="list-style-type: none"> i. Specimen from the scalp should include hair roots, the contents of plugged follicles and skin scales. ii. Hairs should be plucked from the scalp with forceps or the scalp is brushed with a plastic hairbrush and collected onto an agar plate. <p>d) Ear</p> <p>Scraping of material from the ear canal is to be preferred although swabs can also be used.</p> <p>e) Ocular specimen</p> <ol style="list-style-type: none"> i. Material from patients with suspected fungal infection of the cornea (keratomycosis) should be collected by scraping the ulcer. The entire base of the ulcer, as well as the edges, should be scrapped. (Swabs are not suitable for sampling corneal lesion). ii. The material is collected directly onto agar plates for culture and to a glass slide for microscopic examination. <p>f) Blood</p> <p>Blood culture for fungal is collected in the same manner as for blood culture for bacterial using a specified blood culture bottle.</p> <p>g) Cerebrospinal fluid</p> <p>CSF specimen (3-5ml) should be collected in a bijoux bottle for microscopy and culture.</p> <p>h) Bone marrow</p> <ol style="list-style-type: none"> i. This specimen is helpful for making the diagnosis in a number of deep fungal infections, including histoplasmosis and cryptococcosis.
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		<ul style="list-style-type: none"> ii. 3-5 ml of aspirated material should be collected and transferred into blood culture bottle. <ul style="list-style-type: none"> i) Pus <ul style="list-style-type: none"> i. Pus from undrained subcutaneous abscesses or sinus tracts should be collected with aseptic technique using sterile needle and syringe. ii. If grains are visible in the pus (as in mycetoma), these must be collected and sent for culture and sensitivity. In mycetoma, if the crusts at the opening of the sinus tracts are lifted, grains can often be found in the pus underneath. j) Tissue <ul style="list-style-type: none"> i. If possible, materials should be obtained from both the middle and the edge of the lesions. ii. Small cutaneous, subcutaneous or mucosal lesions can often be excised completely. iii. Tissue specimen should be placed in a sterile container without formalin. k) Sputum <ul style="list-style-type: none"> i. Collect the sputum in a sterile container and send it immediately to the laboratory. ii. Do not refrigerate sputum to prevent suppression of temperature sensitive organism". Example : Streptococcus penumoniae and Haemophilus influenza l) Urine and other body fluids <ul style="list-style-type: none"> Collect the specimen in a sterile container and sent it immediately to the laboratory. <p>Note : Delayed specimens may not yield reliable results because</p> <ul style="list-style-type: none"> i. Bacterial overgrowth including normal flora reduce the chances of isolation of true pathogens. ii. Some sensitive fungi may not remain viable even sent less than 24hrs e.g : Histoplasma
11	BFMP	<ul style="list-style-type: none"> a) Blood film for Malaria Parasite <ul style="list-style-type: none"> i. Clean a new glass slides with absolute alcohol. ii. Select the third finger from the thumb (big toe can be used for infant). Clean the finger with cotton wool pledge soak in 70% alcohol. Dry the finger with cotton towel. iii. With a sterile lancet, puncture the ball of the finger using quick rolling action. iv. By applying gentle pressure to the finger, express the first drop of blood and wipe it away with dry cotton wool. <p>How to prepare thick blood film:</p> <ul style="list-style-type: none"> i. Apply gently pressure to the finger and collect a single drop of blood on the surface of clean slide. ii. Using the corner of another glass slide as a spreader quickly spread the blood to make an even, thick film. The blood is

		<p>spread in a circular motion with 3-6 movements, and spread over 20mm diameter.</p> <ol style="list-style-type: none"> iii. Label the slide with patient's registration number and date of collection with grease pencil. iv. Place the blood film in a slide tray to air dry at room temperature. <p>How to prepare thin blood film:</p> <ol style="list-style-type: none"> i. With another gentle pressure to the finger and collect a small drop of blood on the surface of clean glass, about 5 mm away from the edge of the slide. ii. Rest the blood slide on a firm, flat surface. Use another slide as a spreader. Touch the drop of blood with a spreader and allow the blood to run along its edge. Keep the spreader at an angle of 30-45° and in steady movement, firmly push the spreader forward to prepare a thin smear. iii. Label the slide with patient's registration number and date of collection with grease pencil. iv. Place the blood film in a slide tray to air dry at room temperature. <p>b) Blood for Microfilaria Preparation of smear:</p> <ol style="list-style-type: none"> i. Collect a big drop of blood by pricking a finger or ear lobe. Blood collection must be done at night after 9.00 pm. ii. Make an oval thick blood film (3 x 1 cm) on a clean glass slide. iii. Dry it in a horizontal position, taking care to protect it from dust and pests. iv. Send immediately to the laboratory. <p>Note: A good smear is one which on drying still shows the hands of a watch placed beneath.</p>
12	Specimens for serological tests	<p>Method of blood collection:</p> <ol style="list-style-type: none"> i. Draw 3-5 ml of blood into a Plain Gel Tube with gel. ii. Clot at ambient temperature. iii. Dispatch to the laboratory within 4 hours of collection for serum separation by centrifugation. <p>Note: Haemolysed, icteric or lipaemic specimen invalidates certain tests. If such specimens are received, the samples will be rejected to assure that results are of clinical value.</p>
13	Specimens for Medico-legal cases	<p>a) Specimen should be sealed and send directly to pathology department. Chain of custody should be maintained at all times and should be recorded in Borang Pengendalian Specimen Medikolegal (HKK/BK/005/29 (Pind.1/16).</p> <p>b) List of specimens and tests which can be sent for medicolegal cases:</p> <ol style="list-style-type: none"> i. High and Low vaginal swabs For examination of spermatozoa, submits specimen collected in sterile normal saline. Meanwhile for gram negative diplococci, use Amies transport media with charcoal and sealed appropriately.

		<ul style="list-style-type: none"> ii. Endocervical swab This is preferred or a vaginal swab or a urethral swab for the culture of <i>Neisseria.gonorrhoeae</i>. Place the swab in Amies Transport media with charcoal and sealed appropriately. iii. Rectal Swab (For sodomy cases); Place the swab in Carry Blair Transport media and sealed appropriately. iv. Infectious Screening (RPR, Anti-HIV, HBsAg and anti-HCV); Collect 5 ml of venous blood aseptically in a sterile plain bottle/tube. Label and seal each specimen correctly and dispatch the blood sample promptly.
14	Seminal Fluid Analysis (SFA)	<ul style="list-style-type: none"> a) Give the patient a dry, clean, 'leak-proof' specimen and have a wide mouth opening to facilitate the insertion of semen specimens. b) Ask the patient to take the specimen at home after 3-5 days of sexual abstinence NOTE: -If condoms are used to collect this seminal fluid, they should be washed so that all the adhesive flour is cleaned. These condoms should be left to dry c) Make sure that the specimen container is tightly closed to prevent spills. Label the specimen container with the patient's name, identification card number, ward / clinic, age and date of acquisition of the specimen d) Have the patient write the time taken for the specimen and submit the specimen to the laboratory as soon as possible within 2 hours of the removal. e) When sending the specimen to the laboratory, the specimen containing this seminal fluid must be placed in a plastic bag and fastened to the body (as much as possible) for optimal body temperature to be maintained.

8. TRANSFUSION MEDICINE UNIT

TRANSFUSION MEDICINE UNIT

INTRODUCTION

The Transfusion Medicine Unit is divided into two different sections, Blood Donation and laboratory service. Laboratory section provides 24 hours services.

BLOOD DONATION SECTION

The function of this section is for recruitment of blood donors by:

- Mobile donation activities.
These donation groups usually organised by non-government organisation, private companies or from government departments.
- In House Blood Donation
Walk in donors to the bleeding room for blood donation during office hours only:

Sunday-Wednesday : 8.00am-1.00pm, 2.00pm-5.00pm
Thursday : 8.00am-1.00pm, 2.00pm-3.00pm

Collected blood will be processed and screened for blood borne infection at Hospital Raja Perempuan Zainab II and Pusat Darah Negara.

LABORATORY SERVICE SECTION

The function of this section is to ensure that safe blood and appropriate blood product is provided to the patient.

- Cross Matching Section
This section carries out full blood grouping and cross matching in order to ensure compatible blood is given to patients.

ORDERING OF BLOOD

- All request for blood/blood component must be through medical officer blood bank on call/incharge.
- Incomplete request form will not be processed.
- The Blood Transfusion Request Form must be completely filled and signed by the doctor in charge of the case.

COLLECTION OF BLOOD SAMPLE

- The collection of blood samples, for blood grouping and compatibility test must be taken from correct patient.
- Each specimen tube should be labelled immediately after blood is collected from each patient at the bed side.
- DO NOT collect sample of more than one patient at a time.

PROCEDURE FOR COLLECTION OF BLOOD SAMPLE

- Adults and children
Collect 3ml of blood in EDTA tube (mix well- inversion method).
- Infant
Collect 0.5mls blood in paediatric EDTA bottle. Infant **less than 4 months** old need to send sample together with mother sample.

SENDING OF BLOOD SAMPLE FOR GROUP AND CROSSMATCHING

- Blood sample together with **completely filled request form (PPDK-5)** must be sent to the Blood Bank without any delay.
- Please ensure that the time when blood is needed for transfusion is stated on the request form.
- Full cross-matched blood will be ready within 1 hour from sample received to the blood bank counter.

COLLECTION OF BLOOD FOR TRANSFUSION

- Staff who are eligible for blood and blood component collection from blood bank are Doctors, Staff nurse (J/T, J/M) or medical assistant only.
- Ensure to bring the ice box during blood/component collection.
- Avoid direct contact between ice packed and packed cell.

REQUEST FOR EMERGENCY BLOOD

- The request for emergency blood or safe O packed cell should be sent by a doctor.
- Complete the request form with blood in 2 EDTA tube and sent to blood bank immediately.
- He/She has to sign his/her name before the blood is released.

RETURN OF BLOOD BAGS

- The PPDK 1 card and empty blood bag must be return to blood bank after completion of blood transfusion.
- Unused blood **MUST** be return to blood bank immediately with "BORANG PEMULANGAN DARAH" to maintain the blood cold chain.

RESERVATION OF CROSS-MATCHED BLOOD

- Blood which has been cross-matched for patient will be kept reserved for 48 hours only.
- If blood were needed after the stated time, new GXM sample is required.

TRANSPORT AND STORAGE OF BLOOD IN OPERATION THEATRE / WARD

- Blood should not be keep in the ward refrigerator or in freezer compartment.
- Returned to the blood to Blood Bank as soon as possible if not transfused.
- Blood must be transport in insulated boxes containing ice-pack to maintain temperature of the blood bag remains between 4 -6^oC.

TRANSFUSION REACTION

- All suspected case for transfusion reaction need to be reported to blood bank and fill the *TRANSFUSION-RELATED ADVERSE EVENT FORM (BTS/HV/3/2016)*.

INVESTIGATION AND IMMEDIATE MANAGEMENT OF ADVERSE TRANSFUSION REACTION

- All adverse transfusion reaction shall be managed accordingly.
- If adverse transfusion reaction is detected or suspected, the transfusion shall be stopped immediately assess and stabilize the patient. Further management depends on the type and severity of the reaction.

All reaction must be reported immediately. The blood bag (with the remaining blood) and giving set (with all attached labels) should be preserved for culture purposes. Secure it properly to prevent spillage and send immediately to blood bank together with PPK 22 form which must be completely and accurately filled.

The following samples must be taken stating patient's name and identifying data and labelled as **Post-transfusion 1:**

- I. 3 ml of blood into 2 plain test tubes with a dry syringe
- II. 2.5ml EDTA blood for Full Blood Picture (FBP)
- III. 20ml of next urine sample for haemoglobinuria.

A second set of samples, 24 Hours after the reaction should be taken and labelled as **Post-transfusion 2** including:

- I. 3ml of blood in a plain test tube
- II. 2.5ml EDTA blood for Full Blood Picture (FBP) in advisable
- III. 20ml of urine sample for haemoglobinaemia.

To facilitate investigation of an adverse transfusion reaction, the following shall be carried out:

- I. Repeat ABO/Rh grouping
- II. Repeat crossmatching
- III. Direct and indirect antihuman globulin test (Coombs).

- IV. Urine examination for haemoglobin and red cell.
- V. If suspected haemolytic transfusion reactions, further investigation should be included FBP, LFT and LDH

FURTHER INFORMATION

This manual serves only to give basic guidelines. For further information about transfusion, please refer to Transfusion Practice Guidelines for Clinicians and laboratory Personnel by National Blood Centre (4th Edition 2016)

9. APPENDIX: LIST OF REQUEST FORMS


FORM INDEXES

FORM

- 1) FORM PER-PAT 301
- 2) 'URGENT' TEST REQUEST FORM
- 3) BORANG UJIAN SARINGAN "CONGENITAL HYPOTHYROIDISM"
- 4) BORANG PERMINTAAN UJIAN PENGESANAN DADAH DALAM AIR KENCING
- 5) THERAPEUTIC DRUG MONITORING (TDM) REQUEST FORM
- 6) IEM REQUEST FORM (IMR)
- 7) REQUEST FORM FOR MULTIPLE MYELOMA AND SPECIFIC PROTEIN (IMR)
- 8) REQUEST FORM FOR MOLECULAR DIAGNOSTICS SERVICES (IMR)
- 9) BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK/ TOKSIKOLOGI (Kimia 15-Pin. 2/2016)
- 10) BORANG HIV PCR (IMR/VIRUS/NARL2)
- 11) BORANG HIV GENOTYPING RESISTANCE (IMR/Viro/HIV/24)
- 12) BORANG PERMOHONAN UJIAN LEPTO RAPID/ LEPTO MAT (MKAK-BPU-U01/Rev2018)
- 13) BRUCELLOSIS REQUEST FORM (IMR/IDRC/BACT/BRUCE/01)
- 14) BORANG PERMOHONAN UJIAN TIBI (TBIS 20C)
- 15) BORANG MERS COV
- 16) BORANG MEASLES (MSLF:01/2004)
- 17) BORANG HIV ELISA
- 18) BORANG PERMOHONAN KATA LALUAN ILAB HRPZ II (PATH/IT/2013-1/B)
- 19) BORANG PERMOHONAN UJIAN MAKMAL UMUM (MKA SG. BULOH) (MKAK-BPU-U01/Rev2018)
- 20) RICKETTSIOSIS REQUEST FORM (IMR) (IMR/IDRC/BACT/RICK/02)
- 21) ACUTE FLACCID PARALYSIS (AFP) FORM
- 22) HIV NARL FORM (IMR/VIRUS/NARL)
- 23) BORANG "*HLA TYPING TEST REQUEST FORM (IMR/AIRC/TI/RF-2 , Version 1.0)*"
- 24) BORANG "*DNA ANALYSIS FOR THALASSEMIA SYNDROME AND HAEMOGLOBINOPATHIES*" (DNA ana for thal synd & Hbpathy(s) REQ form/ Hematologi unit, CaRC IMR. Version 3.0)
- 25) BORANG "*HOSPITAL AMPANG SPECIAL HEMATOLOGY LAB REQUISITION*"

- 26) BORANG “BONE MARROW CYTOGENETIC (FROM IMR GENETIC LABORATORY, Version 4.1)”
- 27) BORANG “REPORTING FORM FOR TRANSFUSION – RELATED ADVERSE EVENT TRANSFUSION MEDICINE SERVICE KEMENTERIAN KESIHATAN MALAYSIA (BTS/HV/ 3/ 2016)”
- 28) BORANG “REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION (BLOOD AND BLOOD COMPONENT) (BTS/TR/2/2016)”
- 29) BORANG “PERMOHONAN TRANSFUSI DARAH PERKHIDMATAN TRANSFUSI PERUBATAN (PER-SS-BT 105 (pind.1/2016))”
- 30) BORANG “CYTOGENETIC REQUEST FORM FOR BLOOD SAMPLE (from UNIT GENETIC, HWKKL) (HKL/GEN/TPM/N-1-(1))”
- 31) BORANG “CYTOGENETIC ANALYSIS USING PERIPHERAL BLOOD (PUSAT GENOM MANUSIA HUSM) (RM 043/9/2010)”
- 32) BORANG “CYTOGENETIC ANALYSIS USING BONE MARROW ASPIRATION (PUSAT GENOM MANUSIA HUSM) (RM 042/08/18(P2))”
- 33) BORANG “HAEMATOLOGY/SEROLOGY REQUEST FORM (PUSAT DARAH NEGARA) (PDN/HA/QP-01/01)”
- 34) BORANG PERMOHONAN UJIAN MAKMAL HFMD (MKAK SG. BULOH)

1) FORM PER-PAT 301

 <p>KEMENTERIAN KESIHATAN MALAYSIA PERKHIDMATAN PATOLOGI</p> <p>HOSPITAL _____</p>		<p>PER-PAT 301</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">UNTUK KEGUNAAN MAKMAL</td> </tr> <tr> <td style="text-align: center;">LAB NO. _____</td> </tr> </table>	UNTUK KEGUNAAN MAKMAL	LAB NO. _____																																							
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1. Nama : _____		2. No. Pendaftaran : _____																																									
3. No. K/P : _____		4. Jantina : <input type="checkbox"/> Lelaki <input type="checkbox"/> Perempuan																																									
5. Umur : _____	6. Keturunan : _____	7. Wad/Klinik : _____																																									
8. Tarikh Masuk Wad : _____	9. Pekerjaan : _____	10. Taraf Perkahwinan : _____	11. <input type="checkbox"/> Bayar <input type="checkbox"/> Percuma																																								
12. No. Laporan Dahulu : _____		13. Butiran Penting																																									
14. Ringkasan Klinikal, Penemuan Pembedahan dan Riwayat Keluarga		Ya Tidak																																									
		Jaundice <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		Lymphadenopathy <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		Hepatomegaly <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		Splenomegaly <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		Bleeding Tendency <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		H/O Transfusion <input type="checkbox"/> Ya <input type="checkbox"/> Tidak																																									
		Haematinics _____																																									

		Drug / Chemical History																																									

		Data Makmal Terdahulu																																									
		Hb _____																																									
		Platelet _____																																									
		TWDC _____																																									
15. Diagnosis : _____																																											
16. Kategori Permohonan/Jenis Ujian																																											
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2) 'URGENT' TEST REQUEST FORM

HSIP/BK/005/33 (Pind.2/2020)

<div style="display: inline-block; border: 1px solid black; padding: 5px; margin-right: 10px;">SEGERA</div> PERMOHONAN UJIAN SEGERA JABATAN PATOLOGI & TRANSFUSI HOSPITAL SULTAN ISMAIL PETRA																																					
1. Nama:		2. No. Pendaftaran:																																			
3. No. K/P:		4. Jantina: Lelaki / Perempuan																																			
5. Umur	6. Keturunan:	7. Wad/Klinik																																			
8. Diagnosis / Sejarah Klinikal:																																					
9. Kategori Permohonan /Senarai Ujian Segera (STAT)																																					
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10. Nama Pengambil Spesimen:		Tarikh: Masa:																																			
11. Nama, Cop & Tandatangan Doktor:																																					

3) BORANG UJIAN SARINGAN “CONGENITAL HYPOTHYROIDISM”

Appendix 1

No. Daftar


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BORANG UJIAN SARINGAN “ CONGENITAL HYPOTHYROIDISM ”

<i>Perkara 1 - 15 perlu diisi oleh kakitangan yang bertugas di wad bersalin Sila tulis dengan terang menggunakan pen mata bola dan tandakan di tempat yang berkenaan</i>	
1. No. Kad Pengenalan Ibu :	
2. Nama Ibu :	
3. Alamat Rumah Tetap :	No. Telefon :
4. Alamat Rumah : (semasa dalam pantang)	No. Telefon :
5. Nama Suami :	
6. Alamat tempat kerja suami :	No. Telefon :
7. Nama Hospital : WAD BERSALIN HOSPITAL KUALA KRAI 18000 KUALA KRAI, KELANTAN.	8. Tarikh Lahir : / / Waktu Lahir :
9. Berat Lahir: (Kg)	10. Jantina : Lelaki <input type="checkbox"/> Perempuan <input type="checkbox"/>
11. Kumpulan Etnik : Melayu <input type="checkbox"/> Cina <input type="checkbox"/> India <input type="checkbox"/> Lain-lain <input type="checkbox"/>	
12. Tarikh sampel diambil:	13. Tarikh sampel dihantar ke makmal :
14. Ibu ada mengambil ubat antitiroid : Ya <input type="checkbox"/> Tidak <input type="checkbox"/>	16. Nama Pejabat / Klinik Kesihatan berdekatan :
15. Bayi dimasukkan ke SCN Ya <input type="checkbox"/> Tidak <input type="checkbox"/>	
<i>Perkara 17 - 22 perlu diisi oleh kakitangan di makmal, 23 - 26 oleh kakitangan Klinik Pediatrik</i>	
17. Tarikh sampel diterima:	18. Nama Pegawai yang mengeluarkan keputusan.
19. Tarikh keputusan Ujian:	20. Keputusan TSH (mU/l):
21. Keputusan T4 (nmol/l) :	
22. Tarikh keputusan dikeluarkan : / /	
23. Tarikh keputusan diambil oleh klinik pediatrik : / /	
24. Tarikh sampel untuk kes 'recall':	
25. Keputusan TSH untuk kes 'recall':	
26. Tarikh 'Congenital Hypothyroidism disahkan' :	

Source: Adapted From: Amar. H.S.S., Jai Mohan. Screening For congenital Hypothyroidism: / . regional pilot project. Health System Research Report 1997 Ipoh Hospital, Perak.

5) THERAPEUTIC DRUG MONITORING REQUEST (TDM) FORM

 HOSPITAL KUALA KRAI CLINICAL PHARMACOKINETICS SERVICE Therapeutic Drug Monitoring (TDM) Request Form		No: 				
Note : <ul style="list-style-type: none"> • 3 – 5 ml of blood sample is needed for analysis of 1 – 3 drugs. • Use plain tubes for all the drugs except for Cyclosporin/Tacrolimus/Sirolimus/Everolimus (EDTA tube). • Correct information is crucial as interpretation of results is dependent on the information provided. 		Date Received : _____ Time Received : _____				
PATIENT PROFILE						
Name : _____	Ward/Unit : _____	RN / IC : _____				
Age : _____	Gender : <input type="checkbox"/> M <input type="checkbox"/> F	Race : _____				
Weight (kg) : _____	Height (cm) : _____	DOA : _____				
CLINICAL SUMMARY AND DIAGNOSIS						
PATIENT CONDITION		INDICATION FOR REQUEST				
<input type="checkbox"/> Oedema <input type="checkbox"/> Liver Disease <input type="checkbox"/> Dehydration <input type="checkbox"/> Dialysis <input type="checkbox"/> Burn <input type="checkbox"/> Others		<input type="checkbox"/> Therapeutic Monitoring <input type="checkbox"/> Non-compliance <input type="checkbox"/> Suspected Toxicity <input type="checkbox"/> Others				
LATEST LAB RESULTS		CONCURRENT MEDICATIONS				
Parameters	Date	Results (unit)	Parameters	Date	Results (unit)	
Blood Urea			Temperature			
Na ⁺ / K ⁺		/	WBC			
Creatinine			ALT / AST / ALP		/ /	
Albumin			HR			
Culture & Sensitivity						
Drug Analysis <small>(Tick ✓ where appropriate)</small>	Present Dose Regimen	Dose Started	Monitoring Date			
			/ /	/ /	/ /	/ /
			<small>Pre-dose / Post 1 / C₀</small>	<small>Last Dose Given</small>	<small>Post-dose / Post 6 / C₆</small>	<small>Random</small>
		Date Time	Time	Time	Time	
Acetaminophen						
Amikacin						
Carbamazepine						
Cyclosporin						
Digoxin						
Gentamicin						
Phenobarbitone						
Phenytoin						
Salicylate						
Theophylline						
Valproic acid						
Vancomycin						
<small>REFER TO TDM SERUM SAMPLING GUIDELINES (refer back page)</small>						
For injectable drug being analysed : Infusion rate : _____ Duration of infusion : _____		REQUESTED BY: Doctor's Signature : _____ Name & Stamp : _____ Date : _____				
FOR PHARMACY USE ONLY	Drug analysis	Result	Therapeutic Range	Calculated Pharmacokinetic Parameters		
				K _e : ..	C _{max} new : ..	
				t _{1/2} : ..	C _{max} new : ..	
				T : ..	C ₀ /C ₁ : ..	
				C _{max} : ..	C _{min} : ..	
			V _d : ..			
Pharmacist's Assessment & Recommendation : _____ _____						
Informed : DR / SN _____ on _____ at _____ am/pm				Pharmacist's signature & stamp		

TDM SERUM SAMPLING GUIDE								
DRUG		STEADY STATE <i>(Time to monitor plasma concentrations)</i>		SAMPLING TIME		THERAPEUTIC RANGE <i>(*The target reference ranges may vary based on institutional reference)</i>		SAMPLE STABILITY
		SINGLE DAILY DOSING	MULTIPLE DOSING	SINGLE DAILY DOSING	MULTIPLE DOSING	SINGLE DAILY DOSING	MULTIPLE DOSING	
AMINOGLYCOSIDE	AMIKACIN	Adult & Paed After 2 nd dose	Adult Pre & Post 4 th dose Paed Pre & Post 3 rd dose	1 st sample Post 2 hours 2 nd sample Post 6 hours	Pre 0 – 30 min before dose Post 60 min after 60 min infusion completed	Adult Trough : <1 mcg/ml Peak : 60 mcg/ml Paed Trough : 2 – 5 mcg/ml Peak : 20 – 30 mcg/ml	Adult Trough : <10 mcg/ml Peak : 20 – 30 mcg/ml Paed Trough : 2 – 5 mcg/ml Peak : 20 – 30 mcg/ml	8 hours
	Adult Trough : <1 mcg/ml Peak : 20 – 30 mcg/ml Paed Trough : <1 mcg/ml Peak : 5 – 12 mcg/ml Synergy Trough : <1 mcg/ml Peak : 5 – 10 mcg/ml					Adult Trough : <2 mcg/ml Peak : 5 – 10 mcg/ml Paed Trough : <1 mcg/ml Peak : 5 – 12 mcg/ml Synergy Trough : <1 mcg/ml Peak : 3 – 5 mcg/ml	4 hours	
	IP : Before 3 rd bag					IP : Pre (0 – 30 min before dose)		
VANCOMYCIN	Normal Renal Function : After 3 rd dose Impaired Renal Function : After 24 hours (after 1 st stat dose) Continuous Infusion : Take a sample after 12 – 24 hours of starting the continuous infusion		Trough level : 30 mins before dose		Trough : Non-complicated infection : 10 – 15 mcg/ml Complicated infection : 15 – 20 mcg/ml Peak : 25 – 40 mcg/ml Continuous infusion : 15 – 25 mcg/ml		4 hours	
CARBAMAZEPINE	Initiation : 2-3 weeks (Induction Phase) MD : 2-5 days after initiation and dose changes		Pre: 0 – 30 min before dose		4 – 12 mcg/ml		8 hours	
PHENOBARBITAL	Without LD : 2 – 3 weeks After LD : 2 – 3 hrs after administration		Pre: 0 – 30 min before dose		Epilepsy : 15 – 40 mcg/ml Refractory status epileptics : > 70 mcg/ml (up to 100 mcg/ml)		8 hours	
PHENYTOIN	With LD : 12 – 24 hours Without LD : 8 – 10 days		Pre: 0 – 30 min before dose		10 – 20 mcg/ml		8 hours	
VALPROIC ACID	2 – 4 days		Pre: 0 – 30 min before dose		Epilepsy : 50 – 100 mcg/ml Psychiatric Disorder : 50 – 125 mcg/ml		2 days	
THEOPHYLLINE	Adults : 2 days Children : 1 – 2 days Infants : 1 – 5 days Newborn : 120 hrs (5 days) Premature neonates : 150 hrs (6 days)		Pre: 0 – 30 min before dose		Apnoea/Bradycardia in neonates : 5 – 10 mcg/ml Asthma/COAD : 10 – 20 mcg/ml		8 hours	
DIGOXIN	Without LD : 7 – 14 days With LD : 12 – 24 hours ESRD : 15 – 20 days		Pre : 0 – 30 min before dose Post : Oral : At least 6 hours after dose IV : At least 4 hours after dose		CHF : 0.5 – 0.9 mg/mL AF : 0.8 – 2 mg/mL		8 hours	
CYCLOSPORINE (EDTA tube)	3 – 5 days		For transplant C ₀ : Immediately before next dose C ₂ : 2 hours after dose Other indication : 0 - 30 min before dose		According to drug indication General Therapeutic Range : C ₀ -100 - 500 mcg/L C ₂ -600 - 1700 mcg/L		8 hours	
SALICYLATE	Therapeutic : 5 – 7 days Toxicity : 4 hours after ingestion		Therapeutic : 1 – 3 hours after dose Toxicity : 4 hours after ingestion		Rheumatic Fever : 250 – 400 mcg/ml Anti-inflammatory : 150 – 300 mcg/ml		8 hours	
PARACETAMOL	Toxicity : 4 hours after ingestion		Toxicity : 4 hours after single acute ingestion OR Unknown Ingestion Time : 2 sample at 2 hours interval		Refer Rumack Matthew Nomogram		8 hours	
References :								
i) Martindale 33th Ed. 2002 ii) Basic Clinical Pharmacokinetic (Winter) 2004 iii) Drug Information Handbook 10 th Ed. 2003 iv) British National Formulary, Vol. 50 Sept 2005 v) Micromedex(R) Healthcare Series Vol. 130 2006 vi) Infectious Disease Society of America vii) Drug Doses, Frank Shank, 16 th Edition 2014								

6) IEM REQUEST FORM

Page 1 of 2



IEM REQUEST FORM
 BIOCHEMISTRY UNIT, SPECIALISED DIAGNOSTIC CENTRE
 INSTITUTE FOR MEDICAL RESEARCH (IMR)
 Jalan Pahang, 50588 Kuala Lumpur, Malaysia
 Contact No. : 03-26162640 / 2649 / 2796
 www.imr.gov.my

IMR Lab. Number

IMPORTANT NOTICE : To ensure correct, reliable result and interpretation given, the following must be followed :

1. Please fill up the entire form.
2. At least 2ml plasma and 5ml urine are required.
3. Separate plasma / serum from RBC immediately. Grossly hemolysed samples will be rejected.
4. All samples (plasma / urine / CSF) must be frozen immediately and transport in DRY ICE to IMR.
5. For enzyme assays, please send chilled whole blood in EDTA tube (DO NOT SPIN, DO NOT FREEZE).

Name : _____	Age : _____	Sex : M / F / U	Race : M / C / I / O
RN : _____	(preferably ID : patient's IC)	Hospital : _____	Ward : _____
Address : _____		Tel : _____	

1. Symptoms / Signs of Current Illness :

Fever	Poor sucking / feeding
Pallor	Respiratory problem
Jaundice	Difficulty in breathing
Hypothermia	Mental retardation
Hypotonia / floppy	Developmental delay
Cyanosed	Failure to thrive
Lethargy	Feeding intolerance
Easily irritable	Septicaemic-like illness
Seizures or h/o seizures	Headache
Drowsy	Smelly urine
Coma	Colored urine
Abnormal behaviour	Skin lesions
Frequent vomiting	Eye lesions

Other symptoms / signs :

2. Feeding History :

Type of milk : Breast / Formula / Mixed /
 Solid diet : _____

3. Family History : Consanguinity : Yes / No. If Yes please specify : _____

Occurrence of in	Stillbirth	Neonatal death	Neonatal seizures	Metabolic disease
Siblings				
Maternal side				
Paternal side				

4. Physical Examination :

Respiratory distress	Hyperreflexia
Dysmorphic features	Nystagmus
Hypothermia	Optical atrophy
Cardiomyopathy	Ptosis
Drowsy	Abnormal odour
Coma	Abnormal hair
Opisthotonus	Hepatomegaly
Dystonia	Splenomegaly
Choreoathetoid movement	Eczema / Other rashes
Hypotonia	Others (specify)

5. Treatment Given : (specimen should be taken before any form of treatment given or stop for 2-3 days)

Drug therapy :
 Antibiotic : No / Yes _____
 Steroid : No / Yes _____
 Anticonvulsant : No / Yes _____
 Other drug : (please state) _____
 Fluid infusion : Saline / Dextrose /
 Mannitol / Parenteral
 feeding /
 Others : _____

6. Lab Result : (before treatment is given)

LFT	Blood Glucose : _____ mmol/L	Urine Analysis
ALT : _____ U/L	Blood Ammonia : _____ umol/L	pH : _____
AST : _____ U/L	Blood Lactate : _____ mmol/L	Ketones : Pos / Neg
ALP : _____ U/L	Pyruvate : _____ mmol/L	Reducing Sugar : Pos / Neg
Blood Gases : Normal / Met acidosis / Met alkalosis / Resp acidosis / Resp alkalosis		Anion Gap : _____
CT Scan / MRI : _____		
Other relevant test (specify) : _____		

Provisional Diagnosis :

7. Test Required : (Please tick ONLY appropriate test / s required)


1	Inborn Error Metabolism (IEM) Screening, Blood Spot
2	Biotinidase Enzyme Activity, Blood Spot
3	Galactosemia Screening, Blood Spot
4	Acid Alpha-Glucosidase (POMPE), Blood Spot
5	Lysosomal Storage Disorders (LSD) Screening, Blood Spot
6	Amino Acids, Plasma
7	Amino Acids, CSF
8	Carnitine Total & Free, Plasma
9	Homocysteine Total, Plasma
10	Pipecolic Acid, Plasma
11	Peroxisomal Disorder Profile, Plasma / Serum (VLC)
12	Organic Acids, Urine
13	Orotic Acid, Urine
14	Succinylacetone, Urine
15	Myoglobin & Hemoglobin, Urine
16	Cystine & Homocystine, Urine
17	Argininosuccinic Acid, Urine (ASA)
18	Lysine Metabolism Profile, Urine (P6C)
19	Sugar & Polyols, Urine
20	Mucopolysaccharides (GAGs / HRE), Urine
21	Oligosaccharide, Urine
22	S-Sulphocysteine, Urine
23	Sialic Acid, Total & Free, Urine
24	Delta-Amino Levulinic Acids (Delta-ALA), Urine (protect from light)
25	Porphyria Profile, Urine (protect from light)
26	Creatine & Guanidinoacetic Acid, Urine
27	Creatine & Guanidinoacetic Acid, Blood Spot
28	Creatine & Guanidinoacetic Acid, Plasma
29	5-Hydroxy-Indole-Acetic Acid (5-HIAA) for Carcinoid Tumour, 24 H Urine
30	Biogenic Amines, CSF - Neurotransmitter (protect from light)
31	Biogenic Amines, Urine - Neurotransmitter (protect from light)
32	Pterins, Urine - Neurotransmitter (protect from light)
33	Pterins, CSF - Neurotransmitter (protect from light, special microtube with preservative EDTA and DTE provided by the Biochemistry Unit, IMR)

BY CONSULTATION ONLY (Please state the person's name whom spoken to upon requesting the following test / s)	
SPOKEN TO :	
34	Amino Acids, Urine
35	Carnitine, 24 H Urine
36	Organic Acids, Plasma (FORENSIC ONLY)
37	Organic Acids, Vitreous Humour (FORENSIC ONLY)
38	<p align="center">PANEL TEST : Mucopolysaccharidoses Enzyme Assays (Choose NOT more than TWO diseases of enzyme)</p> <p>i. MPS Type I (IDA)</p> <p>ii. MPS Type II (IDS)</p> <p>iii. MPS Type IIIa (SULP)</p> <p>iv. MPS Type IIIb (AHEX)</p> <p>v. MPS Type IVa (GALSO)</p> <p>vi. MPS Type IVb (BGAL)</p> <p>vii. MPS Type VI (ASB)</p> <p>viii. MPS Type VII (BGLUCU)</p> <p>ix. Multiple Sulphatase (ASA)</p>
39	<p align="center">PANEL TEST : Lysosomal Storage Disease Enzyme Assays (Choose NOT more than TWO diseases of enzyme)</p> <p>i. Aspartylglucosaminuria (GASP)</p> <p>ii. Sandhoff Disease (BHEX)</p> <p>iii. β-Mannosidosis (BMAN)</p> <p>iv. Tay-Sachs Disease (MUGS)</p> <p>v. Fabry Disease (AGAL)</p> <p>vi. Mucopolipidosis (AMANP)</p> <p>vii. Leukodystrophy (ASA)</p> <p>viii. GM1-Gangliosidosis (BGAL)</p> <p>ix. α-Mannosidosis (AMAN)</p> <p>x. Fucosidosis (AFUC)</p> <p>xi. Ceroid Lipofuscinosis (PPT)</p> <p>xii. Gaucher Disease (BGLU)</p> <p>xiii. Krabbe Disease (GALC)</p> <p>xiv. General LSD Marker (CHITO)</p> <p>xv. Schindler Disease (ANAG)</p> <p>xvi. Niemann Pick A/B (ASM)</p>
40	Others (please specify) :


*For details information of sample requirements, please refer to IMR Test List and IMR Handbook available at IMR Website (www.imr.gov.my)

Collected by	:	<input type="text"/>
Date specimen collected	:	<input type="text"/>
Date specimen sent	:	<input type="text"/>
Specialist In-Charge (Sign & Stamp)	:	<input type="text"/>

7) REQUEST FORM FOR MULTIPLE MYELOMA AND SPECIFIC PROTEIN (for Transferrin only)

		<p>REQUEST FORM Unit Protein Khas, Specialized Diagnostic Centre, Institute for Medical Research, Kuala Lumpur National Institute of Health, KKM Tel: 03-2616 2669/2731 Email: prot.umdp@moh.gov.my</p>		<p style="font-size: small;">IMR.SDC.UPK.REQUEST FORM</p> <p style="font-size: x-small; text-align: center;">To The Requesting Lab / Person, Please STAMP HERE</p>	
Patient name :		Hospital :	Ward :		
IC number :		Registration No. (RN) :			
Age :	Gender : <input type="checkbox"/> Male <input type="checkbox"/> Female		Hospital contact:- Tel. no :		
Ethnic:	Nationality:		Fax no : Email :		
Clinical Diagnosis: A) Multiple Myeloma B) Other than Multiple Myeloma (please specify): New case <input type="checkbox"/> Follow up case <input type="checkbox"/>			Laboratory findings (for Multiple Myeloma) : Hemoglobin (Hb) : g/dL White Cell Count : x10 ⁹ /L Urea : mmol/L Creatinine : µmol/L Calcium (corrected) : mmol/L ESR : mm/H X-ray : Peripheral Blood Film: BM aspirate : Treatments: Stem cell transplant:		
Clinical Symptoms & Signs: <input type="checkbox"/> Anaemic <input type="checkbox"/> Others (please specify): <input type="checkbox"/> Bone fracture <input type="checkbox"/> Bone pain <input type="checkbox"/> Constitutional symptoms <input type="checkbox"/> Hepato/Splenomegaly <input type="checkbox"/> Infections <input type="checkbox"/> Lymphadenopathy <input type="checkbox"/> Muscle weakness <input type="checkbox"/> Nephrotic syndrome <input type="checkbox"/> Peripheral neuropathy <input type="checkbox"/> Prolonged Jaundice <input type="checkbox"/> Respiratory symptoms <input type="checkbox"/> Vision problem <input type="checkbox"/> No symptom related to M protein					
Test requested : A. Multiple Myeloma :- i) Protein Electrophoresis, Serum <input type="checkbox"/> ii) Protein Electrophoresis, Serum and Urine <input type="checkbox"/> iii) Free Light Chain Quantitation, Serum <input type="checkbox"/> B. Specific Protein Quantitation :- i) Transferrin, Serum <input type="checkbox"/> ii) Alpha 1 Antitrypsin, Serum <input type="checkbox"/> iii) Beta 2 Microglobulin, Serum <input type="checkbox"/> C. Protein Profiling :- i) Transferrin Isoform, Serum <input type="checkbox"/> ii) Alpha 1 Antitrypsin Phenotyping, Serum <input type="checkbox"/> iii) Oligoclonal Band, CSF and Serum <input type="checkbox"/>					
Types of specimen:		<input type="checkbox"/> Serum <input type="checkbox"/> Urine <input type="checkbox"/> CSF			
Date of sample collection:					
Doctor in-charge :					
Sign and Stamp :					
Date:					
Guidelines for sample collection, storage and transportation: (i) SERUM : a) At least 3mL of serum in plain tube. b) Serum condition must be clear and not hemolysed, turbid or lipaemic. c) Refrigerate serum immediately after collection. (ii) URINE : a) At least 25mL of 24Hr urine in sterile container. OR b) At least 25mL of random urine in sterile container. c) Refrigerate urine immediately after collection. d) URINE SAMPLE MUST BE ACCOMPANIED WITH SERUM SAMPLE TOGETHER. (iii) CSF : a) At least 1mL of CSF in bijou bottle or sterile container. b) It is recommended to collect both CSF and serum sample at the same time. c) Freeze CSF immediately after collection. d) CSF SAMPLE MUST BE ACCOMPANIED WITH SERUM SAMPLE TOGETHER.					
Transport all specimens in ice to the laboratory.					

8) REQUEST FORM FOR MOLECULAR DIAGNOSTICS SERVICES

 REQUEST FORM FOR MOLECULAR DIAGNOSTICS SERVICES Unit of Molecular Diagnostics Specialised Diagnostics Centre Institute for Medical Research National Institute of Health, MOH Tel: 03-26162540/2590		IMR/SDC/UMD/REQUEST FORM To The Requesting Lab / Person, Please STAMP HERE
Patient Name :		
Patient IC/ID :		Hospital :
Date of Birth :	Age :	Ward/Clinic :
Gender : Male / Female / Unknown		Name of Attending Doctor (Specialist) :
Ethnicity/Nationality :		
If this is a parental or family member sample, please state		
Proband/Child's Full Name IC/ID DOB		
Reason for Referral:		
Diagnostic test : <input type="checkbox"/> Affected patient <input type="checkbox"/> Possibly affected patient Carrier testing : <input type="checkbox"/> Father of affected patient <input type="checkbox"/> Mother of affected patient <input type="checkbox"/> Sibling of affected patient <input type="checkbox"/> Other family member of affected patient (please specify) : Predictive testing : <input type="checkbox"/>		
Type of Specimen Sent:		
<input type="checkbox"/> Whole blood <input type="checkbox"/> Blood spot <input type="checkbox"/> Tissue (please specify) : <input type="checkbox"/> Urine <input type="checkbox"/> Extracted DNA <input type="checkbox"/> Others (please specify) : Date of sample taken:		
Please Read This Section before You Proceed		Clinical Signs and Symptoms, Age of Onset, Relevant Laboratory and Imaging Findings :
<i>Requirements for clients requesting molecular diagnostics services from UMD, IMR :</i> 1. All cases requiring molecular diagnostics testing must be referred to any Clinical Geneticist/Neurologist and they must endorse the test before any sample submission. Samples received without referral by Clinical Geneticist/Neurologist will be rejected. 2. Please ensure that the patient and/or their legal guardian understands the implications of genetic testing and provide his/her consent to undertake the test. 3. Please send the samples according to the criteria for sample collection as outlined below. 4. Kindly ensure samples are sent together with both the request form and informed consent form. <i>Criteria for sample collection :</i> 1. 2.5 ml blood in EDTA (purple/lavender cap) tube, DO NOT use Heparin (green cap) tube. Send about 1-2 tubes in appropriate packaging at AMBIENT condition as soon as possible after collection. If more than 3 hours, keep sample chilled. Please protect from freezing. 2. 10 – 20 ml urine in appropriate container. Urine must be refrigerated after collection. 3. Tissue samples must be placed inside sterile container. Please contact us for a detailed guideline on tissue sample collection, preservation and storage. 4. DNA, urine and tissue samples must be kept chilled at all times until the samples arrive at the laboratory.		Clinical Diagnosis : Parental Consanguinity : <input type="checkbox"/> Yes <input type="checkbox"/> No Pedigree (Family Tree) (Can also be attached on a separate sheet) :
I certify that the patient specified above and/or their legal guardian has been informed of the benefits, risks, and limitations of the laboratory test(s) requested. I have answered this person's questions. I have obtained informed consent from the patient or their legal guardian for this testing.		
Consultant's Name :		Signature and/or Stamp :
		Date :

LIST OF DISORDERS/GENES TESTED IN UNIT OF MOLECULAR DIAGNOSTICS (UMD), IMR

<ul style="list-style-type: none"> • Please mark ✓ to select • Please note that genetic testing will only be accepted upon consultation with Clinical Geneticist/Neurologist and/or if biochemical testing result or any relevant screening test result is suggestive of the respective disease • * Reflex testing 					
INHERITED METABOLIC DISORDERS / IEM					
(A) Disorders of Amino Acids & Organic Acids Metabolism					
1	Argininosuccinate Lyase Deficiency (ASL Sequence Analysis)	12	Lysuric Protein Intolerance (LPI) (SLC7A7 Sequence Analysis)	23	Methylmalonyl-CoA Epimerase Deficiency (MCEE Sequence Analysis)
2	Argininosuccinate Synthase Deficiency (ASS1 Sequence Analysis)	13	Maple Syrup Urine Disease (MSUD) (DLD Sequence Analysis)	24	N-Acetylglutamate Synthase (NAGS) Deficiency (NAGS Sequence Analysis)
3	Aromatic Amino Acid Decarboxylase Deficiency (DDC Sequence Analysis)	14	Maple Syrup Urine Disease (MSUD) (BCKDHA Sequence Analysis)	25	Non Ketotic Hyperglycinemia (NKH) (AMT Sequence Analysis)
4	Biotinidase Deficiency (BTD Sequence Analysis)	15	Maple Syrup Urine Disease (MSUD) (BCKDHB Sequence Analysis)	26	Non Ketotic Hyperglycinemia (NKH) (GCSH Sequence Analysis)*
5	Carbamoyl Phosphate Synthetase 1 (CPS1) Deficiency (CPS1 Sequence Analysis)	16	Maple Syrup Urine Disease (MSUD) (DBT Sequence Analysis)	27	Non Ketotic Hyperglycinemia (NKH) (GLDC Sequence Analysis)*
6	Citrin Deficiency (Type II Citrullinemia) (SLC25A13 Sequence Analysis)	17	Methyleneletrahydrofolate Reductase Deficiency (MTHFR Sequence Analysis)	28	Non Ketotic Hyperglycinemia (NKH) (GLDC Del/Dup Analysis)*
7	Classical Homocystinuria (CBS Sequence Analysis)	18	Methylmalonic Acidemia (MMA) (MMAA Sequence Analysis)	29	Orotidine Transcarbamylase (OTC) Deficiency (OTC Sequence Analysis)
8	Cystinuria (SLC3A1 Sequence Analysis)	19	Methylmalonic Acidemia (MMA) (MMA8 Sequence Analysis)	30	Primary Hyperoxaluria Type 1 (AGKT Sequence Analysis)
9	Ethylmalonic Encephalopathy (ETHE1 Sequence Analysis)	20	Methylmalonic Acidemia (MMA) (MMUT Sequence Analysis)	31	Pyruvate Dehydrogenase Deficiency (PDHA1 Sequence Analysis)
10	Glutaric Aciduria Type 1 (GGDH Sequence Analysis)	21	Methylmalonic Aciduria and Homocystinuria Type C (MMACHC Sequence Analysis)	32	Tyrosine Hydroxylase Deficiency (TH Sequence Analysis)
11	Hypophosphatasia (ALPL Sequence Analysis)	22	Methylmalonic Aciduria and Homocystinuria Type D (MMACHC Sequence Analysis)		
(B) Fatty Acids Oxidation Defects		(C) Disorders of Carbohydrate Metabolism		(D) Lysosomal Storage Diseases	
33	Carnitine Palmitoyltransferase 1 (CPT1) Deficiency (CPT1A Sequence Analysis)	43	Classical Galactosemia (GALT Sequence Analysis)	51	Gaucher Disease (GBA Sequence Analysis)
34	Carnitine Palmitoyltransferase 2 (CPT2) Deficiency (CPT2 Sequence Analysis)	44	Fruuctose-1,6-Bisphosphatase Deficiency (FBP1 Sequence Analysis)	52	Pompe Disease (GSD II) (GAA Sequence Analysis)
35	Carnitine Uptake Deficiency (OCTN2 Sequence Analysis)	45	Galactokinase Deficiency (GALK1 Sequence Analysis)	53	Maroteaux-Lamy Syndrome (MPS VI) (ARSB Sequence Analysis)
36	Carnitine-Acylcarnitine Translocase Deficiency (SLC25A20 Sequence Analysis)	46	Galactose Epimerase Deficiency (GALE Sequence Analysis)	54	Morquio A Disease (MPS IVA) (GALNS Sequence Analysis)
37	Long-Chain 3-Hydroxyacyl-CoA Dehydrogenase (LCHAD) Deficiency (HADHA Sequence Analysis)	47	Glycogen Storage Disease Type Ia (G6PC Sequence Analysis)	55	Metachromatic Leukodystrophy (MLD) (ARSA Sequence Analysis)
38	Medium Chain Acyl-CoA Dehydrogenase (MCAD) Deficiency (ACADM Sequence Analysis)	48	Glycogen Storage Disease Type Ib (SLC37A4 Sequence Analysis)	56	Fucosidosis (FUCA1 Sequence Analysis)
39	Mitochondrial Trifunctional Protein Deficiency (HADHB Sequence Analysis)	49	Glycogen Storage Disease Type II (AGL Sequence Analysis)		
40	Short Chain Acyl-CoA Dehydrogenase (SCAD) Deficiency (ACADS Sequence Analysis)	50	Phosphoribosyltransferase 2 Deficiency (PRMT2-CDG) (PRMT2 Sequence Analysis)		
41	Short-Chain 3-Hydroxyacyl-CoA Dehydrogenase (SCHAD) Deficiency (HADH Sequence Analysis)				
42	Very Long Chain Acyl-CoA Dehydrogenase (VLCAD) Deficiency (ACADVL Sequence Analysis)				
(E) Disorders of Purine & Pyrimidine Metabolism		(F) Other Metabolic Disorders			
57	Dihydropyrimidinase (DHP) Deficiency (DPYS Sequence Analysis)	61	Alpha 1-Antitrypsin Deficiency (SERPINA1 Sequence Analysis)		
58	Hereditary Orotic Aciduria (UMPS Sequence Analysis)	62	Acute Intermittent Porphyria (HMBG Sequence Analysis)		
59	Purine Nucleoside Phosphorylase Deficiency (PNP Sequence Analysis)	63	Acute Intermittent Porphyria (HMBG Del/Dup Analysis)*		
60	Lesch-Nyhan Syndrome (HPR1 Sequence Analysis)	64	Canavan Disease (ASPA Sequence Analysis)		
		65	Sulfite Oxidase (SUOX) Deficiency (SUOX Sequence Analysis)		
		66	X-linked Adrenoleukodystrophy (ABCD1 Sequence Analysis)		

* Please mark ✓ to select * Please note that genetic testing will only be accepted upon consultation with Clinical Geneticist/Neurologist and/or if biochemical testing result or any relevant screening test result is suggestive of the respective disease * Reflex testing					
MITOCHONDRIAL DISORDERS					
67	Leber Hereditary Optic Neuropathy (LHON) Panel (m.3460G>A, m.11778G>A, m.14459G>A and m.14484T>C Sequence Analysis)	77	mtDNA Deletion Syndromes - Chronic Progressive External Ophthalmoplegia (CPEO) (mtDNA Del/Dup Analysis)	87	mtDNA Depletion Syndrome (MDS) (TWINKLE Sequence Analysis)
68	Leigh Syndrome - 8993 Hotspot (MT-ATP6 Sequence Analysis)	78	mtDNA Deletion Syndromes - Kearns-Sayre Syndrome (KSS) (mtDNA Del/Dup Analysis)	88	mtDNA Depletion Syndrome (MDS) (TYMP Sequence Analysis)
69	Leigh Syndrome - mtDNA Full Panel (MT-ATP6, MT-TL1, MT-TK, MT-TW, MT-TV, MT-ND1, MT-ND2, MT-ND3, MT-ND4, MT-ND5, MT-ND6, MT-CO3 Sequence Analysis)	79	mtDNA Deletion Syndromes - Pearson Syndrome (mtDNA Del/Dup Analysis)	89	mtDNA Depletion Syndrome (MDS) (MPV17 Sequence Analysis)
70	Leigh Syndrome (SURF1 Sequence Analysis)	80	mtDNA Depletion Syndrome (MDS) (ANT1 Sequence Analysis)	90	Multiple Respiratory Chain Deficiencies (Mitochondrial Translation Defect/ CYP11B Deficiency) (GFM1 Sequence Analysis)
71	Mitochondrial Deletion (mtDNA Del/Dup Analysis)	81	mtDNA Depletion Syndrome (MDS) (DGUOK Sequence Analysis)	91	Myoclonic Epilepsy with Ragged-Red Fibers (MERRF) Syndrome - 8344 Hotspot (m.8344A>G Sequence Analysis)
72	Mitochondrial Encephalomyopathy, Lactic Acidosis, and Stroke-Like Episodes (MELAS) Syndrome - 3243 Hotspot (m.3243A>G Sequence Analysis)	82	mtDNA Depletion Syndrome (MDS) (POLG Sequence Analysis)	92	Neuropathy, Ataxia and Retinitis Pigmentosa (NARP) Syndrome - 8993 Hotspot (m.8993T>G/C Sequence Analysis)
73	Mitochondrial Encephalomyopathy, Lactic Acidosis, and Stroke-Like Episodes (MELAS) Syndrome - Full Panel (m.3243A>G, m.3252A>G, m.3256C>T, m.3271T>C, m.3291T>C, m.3697G>A, m.4332G>A, m.12147G>A, and m.13514A>G Sequence Analysis)	83	mtDNA Depletion Syndrome (MDS) (RRRMB Sequence Analysis)	93	POLG-Related Disorders (POLG Sequence Analysis)
74	Mitochondrial HMG-CoA Synthase Deficiency (HMGCS2 Sequence Analysis)	84	mtDNA Depletion Syndrome (MDS) (SUCLA2 Sequence Analysis)	94	POLG-Related Disorders (POLG Del/Dup Analysis)*
75	Mitochondrial Neurogastrointestinal Encephalopathy (MNGIE) (TYMP Sequence Analysis)	85	mtDNA Depletion Syndrome (MDS) (SUCLG1 Sequence Analysis)	95	Whole Mitochondrial DNA - mtDNA hotspots (mtDNA Sequence Analysis)
76	Mitochondrial Short-Chain Enoyl-CoA Hydratase 1 Deficiency (ECHS1 Sequence Analysis)	86	mtDNA Depletion Syndrome (MDS) (TK2 Sequence Analysis)		
NEUROGENETIC DISORDERS					
96	Alexander Disease (GFAP Sequence Analysis)	102	Primary Dystonia (DYT1) (TOR1A Sequence Analysis)	108	Spinocerebellar Ataxia Type 1 (CAG Repeat Analysis - SCA1)
97	Friedreich Ataxia (FRDA) (GAA Repeat Analysis - FXN)	103	Primary Dystonia (DYT6) (THAP1 Sequence Analysis)*	109	Spinocerebellar Ataxia Type 2 (CAG Repeat Analysis - SCA2)
98	Kennedy Disease (CAG Repeat Analysis - AR)	104	SCN1A-Related Seizure Disorders (SCN1A Sequence Analysis)	110	Spinocerebellar Ataxia Type 3 (CAG Repeat Analysis - SCA3)
99	Lissencephaly (LIS1 Sequence Analysis)	105	Spinal Muscular Atrophy (SMA) (SMN1 Gene Dosage Analysis)	111	Spinocerebellar Ataxia Type 6 (CAG Repeat Analysis - SCA6)
100	Lissencephaly (DCK Sequence Analysis)*	106	Spinal Muscular Atrophy (SMA) (SMN1 Sequence Analysis)*	112	Spinocerebellar Ataxia Type 7 (CAG Repeat Analysis - SCA7)
101	MCT8-Specific Thyroid Hormone Cell Transporter Deficiency (SLC16A2 Sequence Analysis)	107	Spinocerebellar Ataxia (SCA) - Full Panel (CAG Repeat Analysis - SCA1, SCA2, SCA3, SCA6, SCA7)		
GENETIC SYNDROMES					
113	Alagille Syndrome (JAG1 Sequence Analysis)	117	Barth Syndrome (TAZ Sequence Analysis)	121	Noonan Syndrome (PTPN11 Sequence Analysis)
114	Alagille Syndrome (JAG1 Del/Dup Analysis)*	118	Floating-Harbor Syndrome (FHS) (SRCAF Sequence Analysis - Hotspots)	122	Schizel Gledion Syndrome (SETBP1 Sequence Analysis)
115	Angelman Syndrome (SNRPN Methylation & Gene Dosage Analysis)	119	Fragile X Syndrome (FRAKX) (CGG Repeat Analysis - FMR1)	123	Short Syndrome (PK3R1 Sequence Analysis)
116	Angelman Syndrome (UBE3A Sequence Analysis)*	120	Leopard Syndrome (PTPN11 Sequence Analysis)	124	Prader-Willi Syndrome (SNRPN Methylation & Gene Dosage Analysis)
OTHER GENETIC DISORDERS					
125	Berardinelli Congenital Lipodystrophy (AGPAT2 Sequence Analysis)	130	FGFR3-Related Disorders (FGFR3 Sequence Analysis)	135	Retinoblastoma (RB1 Sequence Analysis)
126	Berardinelli Congenital Lipodystrophy (BSCL2 Sequence Analysis)	131	Mucopolysaccharidosis Type III B (MPS III B) (MGLU1 Sequence Analysis)	136	Retinoblastoma (RB1 Del/Dup Analysis)*
127	Cartilage Hair Hypoplasia (CHH) (RMRP Sequence Analysis)	132	Pseudorheumatoid Dysplasia (WSP3 Sequence Analysis)	137	Severe Congenital Neutropenia (ELANE Sequence Analysis)
128	Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL) (NOTCH3 Sequence Analysis - Hotspots)	133	PTEN-Related Disorders (PTEN Sequence Analysis)	138	X-Chromosome Inactivation (AR Fragment Analysis)
129	FGFR2-Related Disorders (FGFR2 Sequence Analysis)	134	PTEN-Related Disorders (PTEN Del/Dup Analysis)*		
OTHER SERVICES					
139	DNA Extraction & Storage	141	Specific Mutation Screening		
140	Testing of Familial Mutations/Carrier Testing	142	Others (Please discuss with the Head of Unit first)		



Unit of Molecular Diagnostics
 Specialised Diagnostics Centre
 Institute for Medical Research
 National Institute of Health, MOH
 Tel: 03-26162540/2590

IMR/SDC/UMD/CONSENT FORM

CONSENT FOR MOLECULAR DIAGNOSTICS SERVICES

Patient Name: _____ Patient ID: _____

The samples that I provide together with the request form are to be used for molecular genetic testing of:

 (Specify the disorder or disease to be tested)

- The molecular genetic testing may provide a diagnosis of or indication of risk for me or my offspring for the disorder or disease specified above.
- I understand the molecular genetic testing may not yield results for any combination of the following reasons: 1) unavailable blood or tissue samples from critical family members; 2) unformativeness of the available genetic markers; 3) maternal contamination of prenatal samples; 4) technical reasons.
- I understand that DNA analysis may yield information on biological paternity, the results of which will not be disclosed to me unless biological paternity is relevant in counseling for the reason for which I have submitted this DNA sample. I agree to provide a family history to the best of my knowledge.
- I **AGREE/DO NOT AGREE** to have my samples or DNA extracted from my samples be used for the purpose of research and development or as quality control in diagnostics laboratory.
- Additional samples may need to be collected from me in the absence of results, or if the results are inconclusive.
- The DNA extracted from my (my child's) samples will be stored in the DNA bank at the Institute for Medical Research or its responsible delegate.
- I understand that any information identifying me (my child) will be kept confidential and that any exchange of samples or information will be coded.
- No compensation will be given to me (my child) nor will funds be forthcoming to me (my child) due to invention resulting from research and development using my (my child's) DNA.

Your signature on this form indicates that you have understood to your satisfaction the information regarding molecular genetic testing and agree to participate. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. If you have further questions concerning matters related to this consent, please discuss them with your medical geneticist, genetic counselor, or referring physician.

 (Signature of patient or legal guardian and date)

 (Signature of witness and date)

9) BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK/ TOKSIKOLOGI

(Kimia 15-Pin. 2/2016)



BORANG PERMOHONAN BAGI PEMERIKSAAN FORENSIK / TOKSIKOLOGI

Borang ini perulah dilengkapkan dengan jelas oleh Pegawai Perubatan dan disertakan bersama spesimen kepada:

Cop Meterai/Seal Keselamatan

JABATAN KIMIA MALAYSIA

*PETALING JAYA (03-79853000)/ IPOH (05-5477744)/ ALOR SETAR (04-7357001)/ PULAU PINANG (04-2228300)/ MELAKA (06-2331406)/ JOHOR BAHRU (07-2226366)/ KUANTAN (09-5662400)/ K. TERENGGANU (09-6203077)/ KOTA BHARU (09-7647632)/ KUCHING (082-313011)/ SIBU (084-213890)/ BINTULU (086-334211)/ KOTA KINABALU (088-259090).

Bahagian 1:

a) Butiran Kes Hidup Mati Tandakan (✓) yang berkenaan

* Bulatkan yang berkenaan

Nama (HURUF BESAR): _____

No.Kad Pengenalan/
Passpot/ Surat Beranak: _____

No. Pendaftaran Hospital: _____

Jantina: *Lelaki/Perempuan

No. Autopsi: _____

Umur: _____

Pekerjaan: _____

Warganegara: _____

Tarikh dan masa kemasukan: _____

a.m./p.m.

pada: _____

Tarikh dan masa kematian: _____

a.m./p.m.

pada: _____

Balai Polis: _____

No. Repot Polis: _____

b) Keadaan Kes: *Makan racun atau ubat/jatuh dari bangunan/kemalangan jalanraya/
gantung diri/mati mengejut/mati lemas/jasad reput

Lain-lain: _____

c) Bawah pengawasan pegawai perubatan: *Ya/Tidak

Jika ada, apakah rawatan yang diberikan (termasuk ubatan): _____

d) Pemindahan darah dijalankan semasa pengawasan/sebelum kematian: *Ya/Tidak/Tidak diketahui

Nota: Analisis toksikologi tidak akan memberi apa-apa makna sekiranya spesimen darah diambil selepas proses pemindahan darah.

(Kimia 15-Pin. 2/2016)

Bahagian 2:

a) Butiran Spesimen

Spesimen	Tandaan	Masa dan Tarikh diambil	Analisis diperlukan
Darah			<input type="checkbox"/> Alkohol
Air Kencing			<input type="checkbox"/> Racun makhluk perosak
Kandungan Perut			<input type="checkbox"/> Dadah
Cucian Perut/ Muntah			<input type="checkbox"/> Bahan Kakisan / Asid
Hempedu (bile)			<input type="checkbox"/> Gas karbon monoksida
Lain-lain (sila nyatakan) :			<input type="checkbox"/> Logam
			<input type="checkbox"/> Bahan Pelarut
			<input type="checkbox"/> Lain-lain (nyatakan)

		<u>Ya</u>	<u>Tidak</u>
Bahan Pengawet Sodium Fluoride digunakan:	Darah	<input type="checkbox"/>	<input type="checkbox"/>
	Air Kencing	<input type="checkbox"/>	<input type="checkbox"/>
Anticoagulant: (Hanya dalam darah)	Sodium Oxalate	<input type="checkbox"/>	<input type="checkbox"/>
	Sodium Citrate	<input type="checkbox"/>	<input type="checkbox"/>
	Lain-lain(sila nyatakan)		

b) Simptom _____

c) Hal-hal berkaitan (yang difikirkan perlu dinyatakan seperti jenis racun disyaki)

Tandatangan: _____ Tarikh: _____

Nama Pegawai Perubatan: _____

Jawatan: _____

Hospital: _____

Telefon: _____

(Kimia 15-Pin. 2/2016)

GARIS PANDUAN

(Sila hubungi Jabatan Kimia Malaysia yang berhampiran bagi mendapatkan khidmat nasihat atau layari laman web di www.kimia.gov.my)

SPESIMEN UNTUK ANALISIS BAGI KES TOKSIKOLOGI**1. SPESIMEN YANG SESUAI**

Spesimen	Kuantiti
Darah	10 ml. (ante-mortem) 25 ml (peripheral-post mortem)
Air Kencing	25 ml
Vitreous Humor	semua
Cucian Perut/Muntah	semua
Kandungan Perut	semua
Hempedu (jika perlu)	semua
Otak (jika perlu)	100 gm
Hati (jika perlu)	100 gm
Buah pinggang (jika perlu)	50 gm

- Dalam kes post-mortem di mana mayat dalam keadaan 'putrefied' adalah dinasihatkan mengambil darah, air kencing dan vitreous humour untuk analisis alkohol.
- Spesimen darah sepatutnya diambil dari "cubital fossa, femoral or other peripheral vein". Dalam kes post-mortem pengambilan spesimen darah dari jantung, 'abdominal or thoracic cavities' tidak digalakkan.

2. BEKAS UNTUK SPESIMEN DAN BAHAN PENGAWET

- Spesimen darah dan air kencing hendaklah diisi ke dalam tiub/botol/bekas plastik yang mengandungi sodium fluoride (bahan pengawet) dalam kepekatan sekurang-kurangnya 1-2%.
- Spesimen darah (ante-mortem), mesti mengandungi anticoagulant sodium oxalate/citrate dalam kepekatan 0.5% bagi menghalang proses pembekuan (clotting).
- Spesimen organ dan tisu hendaklah diisi ke dalam botol/bekas kaca yang sesuai
- Jangan gunakan Formalin sebagai bahan pengawet untuk spesimen organ dan tisu. Sila gunakan Saturated Saline.
- Pastikan bekas untuk spesimen tiada kebocoran.

3. PERLABELAN

Bekas spesimen sekurang-kurangnya mempunyai keterangan/label seperti berikut:

- Nama:
- Spesimen:
- No.Pendaftaran Hospital
- Masa dan tarikh diambil
- No.Repot Polis (jika berkaitan)
- Bahan Pengawet: Ada/Tiada

4. METERAI

Bekas mesti dimeterai dengan terang.

5. ANTISEPTIK

Alkohol tidak boleh digunakan untuk tujuan pencucian kulit pesakit semasa spesimen darah diambil. Gunakan antiseptik yang sesuai.

6. PENGHANTARAN

- Semua spesimen untuk analisis mesti diserahkan bersama Borang Kimia 15 yang telah diisi oleh Pegawai Perubatan.
- Borang mesti disimpan berasingan dari spesimen.
- Jika kes polis, spesimen dan borang Kimia 15 mesti diserahkan oleh pihak polis bersama borang Polis 31.
- Spesimen mesti diserahkan untuk analisis dengan segera.
- Sekiranya berlaku kelewatan spesimen mesti disimpan dalam peti sejuk.

SPESIMEN BAGI UJIAN DNA


- Spesimen darah cecair hendaklah dipungut dalam tiub/botol yang mengandungi EDTA. Jangan tambah bahan pengawet seperti Sodium Fluoride.
- Spesimen terdapat kad FTA, kad tersebut harus digunakan untuk pungutan darah. Darah pada kad FTA hendaklah dibiarkan kering pada suhu bilik dan dilabelkan dengan lengkap seperti yang diterangkan diperenggan 3.
- Tisu, tulang, rambut dan kuku hendaklah diletakkan di dalam bekas kering yang telah di seterilkan tanpa diisi sebarang pengawet seperti Formalin.
- Swab dari bahagian "Vaginal, Anal and Rectal" hendaklah menggunakan putik kapas yang di seteril dan diletakkan di dalam tiub tanpa sebarang reagen atau additif

10) BORANG HIV PCR

IMR/Viro/HIV/2		IMR/VIRUS/NARL2	
UJIAN POLYMERASE CHAIN REACTION (PCR) UNTUK HUMAN IMMUNODEFICIENCY VIRUS (HIV) DI KALANGAN BAYI			
Spesimen yang diperlukan: 2.5ml darah EDTA dari bayi Darah hendaklah dihantar serta-merta kepada Makmal Rujukan Kebangsaan AIDS (NARL), Institut Penyelidikan Perubatan, Jalan Pahang, Kuala Lumpur. Tel: 03-40402351			
Hospital:		Wad/Clinic:	
No NARL	Nama Pesakit:		No Pendaftaran:
			No K/P:
	Tarikh Lahir:	Umur:	Jantina: Keturunan:
	AZT diberikan: <input type="radio"/> Tidak <input type="radio"/> Ya, tarikh diberi dari: hingga		
	Kesan-kesan klinikal: <input type="radio"/> Asimptomatik <input type="radio"/> Simptom: (nyatakan)		
Untuk Kegunaan NARL Sahaja			
No NARL	Nama Ibu:		No Kad Pengenalan/Passport:
	Umur:	Keturunan:	Aktiviti risiko (jika ada):
	AZT diberikan masa antenatal: <input type="radio"/> Tidak <input type="radio"/> Ya, tarikh diberi dari: hingga		
	Keputusan ujian anti-HIV:	<input type="radio"/> Positif <input type="radio"/> Negatif	Makmal yang menjalankan ujian:
Untuk Kegunaan NARL Sahaja			
	Nama Bapa:		No Kad Pengenalan/Passport:
	Umur:	Keturunan:	Aktiviti risiko (jika ada):
	Keputusan ujian anti-HIV:	<input type="radio"/> Positif <input type="radio"/> Negatif	Makmal yang menjalankan ujian:
Tarikh darah di ambil:		Darah ibu dilampirkan: <input type="radio"/> Tidak <input type="radio"/> Ya	
Name doktor yang minta ujian:		Untuk Kegunaan NARL:	
_____		Blood Received:	
_____		Baby:	
Tandatangan		Received: <input type="radio"/> Clotted <input type="radio"/> Plasma <input type="radio"/> Serum <input type="radio"/> EDTA (____ml) (____ml) <input type="radio"/> Serum <input type="radio"/> Clear <input type="radio"/> Lysed <input type="radio"/> Turbid	
Chop:		Mother:	
_____		Received: <input type="radio"/> Clotted <input type="radio"/> Plasma <input type="radio"/> Serum <input type="radio"/> EDTA (____ml) (____ml) <input type="radio"/> Serum <input type="radio"/> Clear <input type="radio"/> Lysed <input type="radio"/> Turbid	
Tel No:			
Tarikh: _____			
Version 2.1		Date: 26 April 2018	
		Approved by: Head, Virology Unit	

11) BORANG HIV GENOTYPING RESISTANCE

IMR/Viro/HIV/24



HIV Genotyping Resistance Testing

Virology Unit, Institute for Medical Research, Jin Pahang, 50588 Kuala Lumpur.
Tel: 03-2614 2871 Fax: 03-2693 8094

LAB NO:
Please write clearly in black ink

SENDER'S INFORMATION

Sender's name and address:

Phone: _____ Ext: _____

PATIENT/SOURCE INFORMATION

RN: _____ Hospital name (if different from sender's name): _____
Name: _____ Ward/Clinic name: _____

Sex Male Female
Date of birth: _____ Age: _____

SAMPLE INFORMATION

Sample type Plasma Consent for leftover sample to be used in other assays?
 Yes No

Date and time of collection: _____
Date sent to IMR: _____

TEST REQUESTED

HIV Genotyping Resistance Testing

RT and Probase

CLINICAL / EPIDEMIOLOGICAL INFORMATION

<p>Reason for test</p> <input type="checkbox"/> New diagnosis <input type="checkbox"/> Treatment failure <input type="checkbox"/> Poor response to new regime <input type="checkbox"/> Starting ART 1 st time <input type="checkbox"/> Re-starting ART after drug interruption <input type="checkbox"/> Acute primary infection seroconverter <input type="checkbox"/> Pregnancy <input type="checkbox"/> Other (Please specify) _____	<p>Adherence</p> <input type="checkbox"/> Poor <input type="checkbox"/> Excellent <input type="checkbox"/> Reasonable <input type="checkbox"/> No opinion	<p>Patient on therapy when sample was taken? <input type="checkbox"/> Yes* <input type="checkbox"/> No Has patient ever on therapy? <input type="checkbox"/> Yes* <input type="checkbox"/> No</p>
---	---	--

*Details of Current/Previous Therapies:

NRTIs		current/ most recent	Previous	PIs		current/ most recent	Previous
ZDV	<input type="checkbox"/>	<input type="checkbox"/>		APV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DTT	<input type="checkbox"/>	<input type="checkbox"/>		IsaAPV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d4T	<input type="checkbox"/>	<input type="checkbox"/>		ATV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3TC	<input type="checkbox"/>	<input type="checkbox"/>		IDV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FTC	<input type="checkbox"/>	<input type="checkbox"/>		RPV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ABC	<input type="checkbox"/>	<input type="checkbox"/>		LPV/r	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DdC	<input type="checkbox"/>	<input type="checkbox"/>		RTV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TDF	<input type="checkbox"/>	<input type="checkbox"/>		(any dose)			

Most recent viral load at time of sample:copies

Date of most recent viral load: _____

MNRTIs

NvP	<input type="checkbox"/>	<input type="checkbox"/>	SQV	<input type="checkbox"/>	<input type="checkbox"/>
EFV	<input type="checkbox"/>	<input type="checkbox"/>	DRV	<input type="checkbox"/>	<input type="checkbox"/>
ETV	<input type="checkbox"/>	<input type="checkbox"/>	TPV	<input type="checkbox"/>	<input type="checkbox"/>

OTHER COMMENTS

REFERRED BY


Doctor's name _____ Signature _____ Date _____

Version No: 1 Issued Date: 21 July 2014 Approved by: Head of Virology Unit


12) BORANG PERMOHONAN UJIAN LEPTO RAPID/ LEPTO MAT

MKAK-BPU-U01/Rev2018					
BORANG PERMOHONAN UJIAN MAKMAL (SPESIMEN KLINIKAL)					
MAKMAL KESIHATAN AWAM					
NO RUJUKAN MAKMAL (MKA) :					
A. MAKLUMAT PESAKIT					
Nama Pesakit:		Umur:	No Rujukan Pesakit (R/N):		
No K.P/ Lain-lain:		Jantina: L / P			
Warga Negara:		Bangsa:	Wad:		
Alamat pesakit:		Pekerjaan:	Status perkahwinan Tanda (✓) yang berkenaan:		
		No. Tel:	<input type="checkbox"/> Bujang	<input type="checkbox"/> Berkahwin	<input type="checkbox"/> Lain-lain
B. TUJUAN PERSAMPELAN Tanda (✓) yang berkenaan			C. LAIN-LAIN MAKLUMAT		
Wabak/ Kluster	<input type="checkbox"/>	Pesakit (Ada gejala)	<input type="checkbox"/>	Lokasi kejadian:	
Survelan	<input type="checkbox"/>	Kes	<input type="checkbox"/>		
Diagnostik	<input type="checkbox"/>	Kontak	<input type="checkbox"/>	Sejarah melancong: Ada / Tiada	
Projek	<input type="checkbox"/>	Kluster	<input type="checkbox"/>	Negara:	
Lain-lain	<input type="checkbox"/>			Tarikh keluar:	
				Tarikh masuk:	
D. RINGKASAN KUNIKAL			Tanda (✓) yang berkenaan		
			Tanda dan Gejala	Ada (✓)	Tarikh onset
			1) Demam (°C)		6)
			2) Selsema		7)
			3) Cirit-berit		8)
			4) Muntah		9)
Status & tarikh imunisasi berkaitan: Ada _____ Tarikh _____ Tiada _____ Tidak diketahui _____					
E. MAKLUMAT SPESIMEN					
Jenis Spesimen	Jenis ujian dipohon	Tarikh diambil	Tarikh dihantar	Tanda Tangan Pegawai yang mengambil spesimen (sila cop)	
* Nota: Sila rujuk Service Handbook Makmal Kesihatan Awam Kebangsaan untuk maklumat lanjut tentang spesimen					
F. BUTIRAN PEMOHON			G. BUTIRAN MAKMAL TRANSIT		
Nama		Nama			
Jawatan		Jawatan			
Tempat bertugas (sila cop)		Tempat bertugas (sila cop)			
No H/P:	Email:	No tel & samb.	Email:		
KK/PRD/Hospital:		Nama Pusat Transit:			
Daerah:	Negeri:	Daerah:	Negeri:		
H. MAKMAL (untuk kegunaan MKA):					
Unit Pengurusan Spesimen		Makmal		Catatan	
Suhu: °C	Jenis sampel:	Terima / Tolak			
Sampel: Terima / Tolak	Sampel dlm transport media:	Suhu: °C			
Nama Penerima :	Nama Penerima:				
Tarikh & masa:	Tarikh & Masa:				
Keputusan ujian disahkan oleh :			Tarikh:		

13) BRUCellosis REQUEST FORM

	Bacteriology Unit Institute for Medical Research Jalan Pahang, 50588 Kuala Lumpur Tel: 03-26162663 Fax: 03-26919716	IMR/IDRC/BACT/BRUCE/01	BRUCellosis LABORATORY REQUEST FORM
<div style="background-color: #cccccc; padding: 2px;">A. SENDER'S INFORMATION</div> Hospital: _____ Ward: _____ Date of Admission: __/__/__ Name of Requesting Doctor: _____ Signature: _____ Tel No: _____ Fax No: _____			
<div style="background-color: #cccccc; padding: 2px;">B. PATIENT INFORMATION</div> Name: _____ Address: _____ _____ IC No: _____ R/N No: _____ Age: _____ Date of Birth: __/__/__ Race: <input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Others: _____ Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female Nationality: <input type="checkbox"/> Malaysian <input type="checkbox"/> Non Malaysian: _____ Occupation: _____			
<div style="background-color: #cccccc; padding: 2px;">C. CLINICAL FEATURES / COMPLICATIONS</div> Diagnosis date: __/__/__ Illness duration: ____ days Sign & Symptoms: <input type="checkbox"/> Fever, duration: _____ <input type="checkbox"/> Recurring fever: present/absent Days between attacks _____ <input type="checkbox"/> Night sweats <input type="checkbox"/> Headache <input type="checkbox"/> Weakness <input type="checkbox"/> Generalized aching			
<input type="checkbox"/> Arthralgia <input type="checkbox"/> Loss of appetite <input type="checkbox"/> Endocarditis <input type="checkbox"/> Osteomyelitis <input type="checkbox"/> Arthritis or Spondylitis <input type="checkbox"/> Epididymo-orchitis <input type="checkbox"/> Meningitis <input type="checkbox"/> Hepatomegaly/ splenomegaly <input type="checkbox"/> Others: _____			
Exposure <input type="checkbox"/> Drink unpasteurized milk <input type="checkbox"/> Unpasteurized dairy products (soft cheese from raw milk, etc) <input type="checkbox"/> Work with animals or animal products (veterinarian, abattoir, farmer, researcher, animal birthing, placenta (please circle) <input type="checkbox"/> case or household member works or lives on farm or dairy <input type="checkbox"/> Laboratory worker <input type="checkbox"/> Travelled abroad over past 6 months <input type="checkbox"/> Others _____			
<div style="background-color: #cccccc; padding: 2px;">D. SPECIMEN INFORMATION</div> Type of specimen: <input type="checkbox"/> Blood in EDTA for PCR <input type="checkbox"/> Serum for ELISA <input type="checkbox"/> Culture isolate for identification Date Specimen Collection: __/__/__			
<div style="background-color: #cccccc; padding: 2px;">E. LABORATORY INFORMATION (For IMR only)</div> Date specimen received: __/__/__ Date test performed: __/__/__ Result of test: _____ Verified by: _____			
<hr/> Version : 2.0 Date issued: 28 April 2014 Approved by: Head of Bacteriology Unit Page 1 of 1			

14) BORANG PERMOHONAN UJIAN TIBI (TBIS 20C)

		TBIS 20C Sistem Maklumat TB, KKM
Kementerian Kesihatan Malaysia Program Kawalan Penyakit TB Permohonan ujian TB		
A. Pusat Pungutan spesimen (Wad/KK/Hospital) :		Tarikh Permohonan:
B. Maklumat Pesakit		
Nama :		No Pengenalan Diri (IC/Pasport) :
Umur :	No Telefon :	Jantina: <input type="checkbox"/> M <input type="checkbox"/> F
Alamat:		Warganegara : <input type="checkbox"/> Malaysia <input type="checkbox"/> Bukan Malaysia, Nyatakan
Status RVD : <input type="checkbox"/> Positif <input type="checkbox"/> Negatif		<input type="checkbox"/> Diabetik? : <input type="checkbox"/> Ya <input type="checkbox"/> Tidak
C. Sebab memohon (Tandakan satu)		
<input type="checkbox"/> Presumptive TB		Adakah pesakit telah menerima rawatan \geq 1 bulan?
<input type="checkbox"/> Follow-up TB case (Month of treatment:months)		<input type="checkbox"/> Ya <input type="checkbox"/> Tidak (New Case)
<input type="checkbox"/> Contact of TB case		Sekiranya YA,
<input type="checkbox"/> Contact of DRTB case (RR, MDR, XDR, TDR)		No Pendaftaran TB bagi kes adalah: □□-□□-□□□□
<input type="checkbox"/> Suspected MDR-TB		Klasifikasi Previously Treated TB adalah :
<input type="checkbox"/> Surveillance of		<input type="checkbox"/> After Failure of 1st treatment <input type="checkbox"/> After Failure of retreatment
		<input type="checkbox"/> After loss to follow-up <input type="checkbox"/> Relapse <input type="checkbox"/> Others
D. Jenis Specimen : <input type="checkbox"/> Kahak (x1 / x2 / x3) <input type="checkbox"/> Spot <input type="checkbox"/> Pagi <input type="checkbox"/> lain-lain (nyatakan) :		
Tarikh pengambilan spesimen : □□-□□-□□□□		
E. Ujian Di pohon <input type="checkbox"/> Mikroskopik <input type="checkbox"/> Kultur <input type="checkbox"/> ID & Kerentanan Ubatan (Drug susceptibility)		
<input type="checkbox"/> PCR MTB <input type="checkbox"/> Xpert MTB/RIF <input type="checkbox"/> LPA <input type="checkbox"/> Interferon Gamma Release Assay (IGRA)		
F. Maklumat Pemohon		
Tandatangan :		
Nama :		
Jawatan & Cop Rasmi :		
No. Telefon :		
KEPUTUSAN UJIAN MAKMAL (Di isi oleh pihak makmal yang menjalankan ujian)		
(Sila gunakan bahagian belakang mukasurat ini sekiranya ruangan tidak mencukupi)		
Diuji oleh:		Disahkan oleh
Tandatangan:		Tandatangan:
Nama:		Nama:
Jawatan & Cop Rasmi:		Jawatan & Cop Rasmi:
No. Telefon:		No. Telefon:

15) BORANG MERS COV

Lampiran B

VIROLOGY UNIT OF REFERRAL LAB (IMR / MKAK)		FOR LAB USE			
		LAB NO. _____			
LAB REQUEST FORM FOR MERS-CoV INVESTIGATIONS					
HOSPITAL/CLINIC _____					
1. Name:		2. Reg. No:			
3. NRIC:		4. Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female			
5. Age:	6. Race:	7. Occupation:			
8. Marital Status:		11. Type of specimen:			
9. Clinical Findings:		<input type="checkbox"/> Throat gargle <input type="checkbox"/> Throat swab <input type="checkbox"/> Nasopharyngeal Asp/wash <input type="checkbox"/> Nasal swab <input type="checkbox"/> Sputum <input type="checkbox"/> Blood <input type="checkbox"/> Serum <input type="checkbox"/> Urine <input type="checkbox"/> Faeces <input type="checkbox"/> Others: _____			
* Symptoms: <input type="checkbox"/> Cough <input type="checkbox"/> Shortness of breath <input type="checkbox"/> Difficulty in breathing <input type="checkbox"/> Hypoxia <input type="checkbox"/> Fever <input type="checkbox"/> Runny nose <input type="checkbox"/> Acute respiratory distress syndrome					
date of onset (dd/mm/yr) _____ _____ _____ _____ _____					
* Travel History: <input type="checkbox"/> Yes If yes please state the country (s)/ province: _____ Date of visit _____ to _____					
<input type="checkbox"/> No *Contact with confirmed novel coronavirus infected Y N <input type="checkbox"/> <input type="checkbox"/>					
* Investigation: White blood cell _____ Platelet _____ Chest x-ray _____					
Relation: _____ _____					
*Signs: Temperature: _____ Lungs: _____					
				Doctor's Name: _____ Contact No: _____ Signature: _____	

16) BORANG MEASLES

MSLF:01/2004			
No. Rujukan Makmal			
MEASLES – BORANG PERMOHONAN DAN KEPUTUSAN UJIAN MAKMAL			
A. MAKLUMAT PESAKIT			
Negeri:		Daerah:	
Hospital / Klinik Kesihatan:			
Nama Pesakit:			
No. KP:		Umur:	Jantina: L / P
B. MAKLUMAT IMUNISASI MEASLES			
Imunisasi measles: <input type="checkbox"/> Ada <input type="checkbox"/> Tiada <input type="checkbox"/> Tidak diketahui			
Tarikh dos terakhir dibert:			
C. MAKLUMAT KLINIKAL			
Gejala (Symptom)	Ada / Tiada (Tandakan <input checked="" type="checkbox"/> diruang berkenaan)	Tarikh mula	
Demam			
Ruam (maculopapular rash)			
Konjunktivitis			
Batuk			
"Coryza"			
D. SPESIMEN KLINIKAL			
Spesimen: <input type="checkbox"/> Pertama <input type="checkbox"/> Kedua			
Spesimen (tandakan <input checked="" type="checkbox"/> diruang berkenaan)	Tarikh diambil	Tarikh penghantaran	
Darah / Serum	/ /	/ /	
Sekresi pernafasan (Respiratory secretion)	/ /	/ /	
Air kencing (Urine)	/ /	/ /	
E. MAKLUMAT PEMOHON			
Nama dan Cop Pegawai:		No telefon:	
Tandatangan:		No. fax:	
		e-mail:	
F. MAKMAL (Untuk Kegunaan Makmal)			
Keadaan spesimen:			Tarikh terima spesimen:
Spesimen	Jenis ujian	Keputusan ujian	Komen
Darah / Serum			
Sekresi pernafasan (Respiratory secretion)			
Air kencing (Urine)			
Nama dan tandatangan Pegawai Makmal:			
Jawatan Pegawai Makmal dan Cop Makmal:			Tarikh:

* Nota: Jika spesimen ini adalah spesimen kedua, maklumat mengenai imunisasi Measles dan Klinikal tidak perlu diisi jika telah diisi pada borang spesimen pertama.

Spesimen klinikal (darah / sekresi pernafasan / air kencing) hendaklah diambil jika pesakit disyaki sebagai kes measles. Defin kes (case definition) adalah seperti dinyatakan di belakang.

Measles Elimination in Malaysia – Measles Surveillance Manual (1st edition)

17) BORANG HIV ELISA

BORANG UJIAN ELISA																																																			
Perkhidmatan Pathologi Kementerian Kesihatan Malaysia Institusi _____	Arahan : Tandukan Yang Berkenaan Borang yang Tidak Lengkap Tidak Akan Di Layan	Untuk Kegunaan Makmal Sebahaja LAB NO: _____ Bayar/Percuma																																																	
<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Nama</td> <td colspan="3" style="border: 1px solid black; text-align: center;"> <input type="text"/> </td> </tr> <tr> <td></td> <td colspan="3" style="text-align: center; font-size: small;"> (Nama Tidak Boleh Di masukkan untuk Pesakit Mendapat Jangkitan Melalui Hubungan Seks) </td> </tr> <tr> <td>Jantina</td> <td>Lelaki <input type="checkbox"/></td> <td>Pemempuan <input type="checkbox"/></td> <td>Dwi Jantina <input type="checkbox"/></td> </tr> <tr> <td>Umur</td> <td colspan="3"> <input type="text"/> Tahun/Bulan /Hari* </td> </tr> <tr> <td>No. K/P passport :</td> <td colspan="3" style="border: 1px solid black; text-align: center;"> <input type="text"/> </td> </tr> <tr> <td>Pekerjaan</td> <td colspan="3">_____</td> </tr> <tr> <td>Warganegara :</td> <td>Malaysia <input type="checkbox"/></td> <td>Asing <input type="checkbox"/></td> <td>(Sila nyatakan _____)</td> </tr> <tr> <td>Keturunan</td> <td colspan="3">_____</td> </tr> <tr> <td>Alamat Semasa :</td> <td colspan="3">_____</td> </tr> <tr> <td>Taraf Perkahwinan</td> <td colspan="3"> <input type="checkbox"/> 01 : Melayu <input type="checkbox"/> 02 : China <input type="checkbox"/> 03 : India <input type="checkbox"/> 04 : Lain-lain </td> </tr> <tr> <td>Alamat Tetap : (Ura Berlainan)</td> <td colspan="3">_____</td> </tr> <tr> <td></td> <td colspan="3"> <input type="checkbox"/> Hujung <input type="checkbox"/> Kabwin <input type="checkbox"/> Cersi </td> </tr> </table>				Nama	<input type="text"/>				(Nama Tidak Boleh Di masukkan untuk Pesakit Mendapat Jangkitan Melalui Hubungan Seks)			Jantina	Lelaki <input type="checkbox"/>	Pemempuan <input type="checkbox"/>	Dwi Jantina <input type="checkbox"/>	Umur	<input type="text"/> Tahun/Bulan /Hari*			No. K/P passport :	<input type="text"/>			Pekerjaan	_____			Warganegara :	Malaysia <input type="checkbox"/>	Asing <input type="checkbox"/>	(Sila nyatakan _____)	Keturunan	_____			Alamat Semasa :	_____			Taraf Perkahwinan	<input type="checkbox"/> 01 : Melayu <input type="checkbox"/> 02 : China <input type="checkbox"/> 03 : India <input type="checkbox"/> 04 : Lain-lain			Alamat Tetap : (Ura Berlainan)	_____				<input type="checkbox"/> Hujung <input type="checkbox"/> Kabwin <input type="checkbox"/> Cersi		
Nama	<input type="text"/>																																																		
	(Nama Tidak Boleh Di masukkan untuk Pesakit Mendapat Jangkitan Melalui Hubungan Seks)																																																		
Jantina	Lelaki <input type="checkbox"/>	Pemempuan <input type="checkbox"/>	Dwi Jantina <input type="checkbox"/>																																																
Umur	<input type="text"/> Tahun/Bulan /Hari*																																																		
No. K/P passport :	<input type="text"/>																																																		
Pekerjaan	_____																																																		
Warganegara :	Malaysia <input type="checkbox"/>	Asing <input type="checkbox"/>	(Sila nyatakan _____)																																																
Keturunan	_____																																																		
Alamat Semasa :	_____																																																		
Taraf Perkahwinan	<input type="checkbox"/> 01 : Melayu <input type="checkbox"/> 02 : China <input type="checkbox"/> 03 : India <input type="checkbox"/> 04 : Lain-lain																																																		
Alamat Tetap : (Ura Berlainan)	_____																																																		
	<input type="checkbox"/> Hujung <input type="checkbox"/> Kabwin <input type="checkbox"/> Cersi																																																		
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Cop Nama dan Jawatan : _____		Tarikh : _____																																																	

18) BORANG PERMOHONAN KATA LALUAN ILAB HRPZ II

PATH/IT/2013-1/B



**PERMOHONAN KATA LALUAN
MIDDLEWARE INFORMATION SYSTEM (MIS)
JABATAN PATOLOGI , HOSPITAL RAJA PEREMPUAN ZAINAB II. KOTA BHARU**

Kepada
Ketua Jabatan Patologi
Hospital Raja Perempuan Zainab II .
Kota Bharu

Permohonan kata laluan bagi Middleware Information System (MIS)

Perkara di atas dirujuk, bahawa saya ingin memohon kata laluan untuk menggunakan software tersebut MIS.

NO: Register secara online	R
Nama Pegawai	
Jawatan	
Tempat/Unit Bertugas	
Logon (Nama)	ONLINE
Kata Laluan	ONLINE
e-mail	

2. Saya **MESTI BERSETUJU** dengan apa jua syarat yang telah ditetapkan oleh pihak Jabatan.

Saya berjanji dan bertanggungjawab sepenuhnya keatas KATA LALUAN yang diberi iaitu:-

- i. Mengelak daripada berlaku kehilangan KATA LALUAN.
- ii. Mengelak daripada kebocoran maklumat pesakit
- iii. Mengelak terhadap kepentingan pihak ke-3
- iv. Mengelak terhadap kepentingan peribadi saya.
- v. Mengelak daripada memberi hak penggunaan KATA LALUAN tersebut kepada pihak lain

Jabatan Patologi tidak bertanggungjawab keatas sebarang hal yang berkaitan dengan laporan makmal yang di cetak daripada KATA LALUAN tersebut selain untuk kepentingan pesakit di Hospital Raja Perempuan Zainab II sahaja.

Saya faham dan membaca peraturan diatas.

Sekian , terima kasih

Saya yang menurut perintah

.....
Nama:


Cop:

Tarikh:

19) BORANG PERMOHONAN UJIAN MAKMAL UMUM (MKA SG. BULOH)

MKAK-BPU-U01/Rev2018					
BORANG PERMOHONAN UJIAN MAKMAL (SPESIMEN KLINIKAL)					
MAKMAL KESIHATAN AWAM -----					
NO RUJUKAN MAKMAL (MKA) :					
A. MAKLUMAT PESAKIT					
Nama Pesakit:		Umur:		No Rujukan Pesakit (R/N):	
No K.P/ Lain-lain:		Jantina: L / P			
Warga Negara:		Bangsa:		Wad:	
Alamat pesakit:		Pekerjaan:		Status perkahwinan Tanda (✓) yang berkenaan:	
		No. Tel:		<input type="checkbox"/> Bujang <input type="checkbox"/> Berkahwin <input type="checkbox"/> Lain-lain	
B. TUJUAN PERSAMPELAN Tanda (✓) yang berkenaan			C. LAIN-LAIN MAKLUMAT		
Wabak/ Kluster	<input type="checkbox"/>	Pesakit (Ada gejala)	<input type="checkbox"/>	Lokasi kejadian:	
Survelan	<input type="checkbox"/>	Kes	<input type="checkbox"/>		
Diagnostik	<input type="checkbox"/>	Kontak	<input type="checkbox"/>	Sejarah melancong: Ada / Tiada	
Projek	<input type="checkbox"/>	Kluster	<input type="checkbox"/>	Negara:	
Lain-lain	<input type="checkbox"/>		<input type="checkbox"/>	Tarikh keluar:	
				Tarikh masuk:	
D. RINGKASAN KLINIKAL			Tanda (✓) yang berkenaan		
			Tanda dan Gejala	Ada (✓)	Tarikh onsets
			1) Demam (°C)		5)
			2) Selsema		7)
			3) Cirit-birit		8)
			4) Muntah		9)
Status & tarikh imunisasi berkaitan: Ada _____ Tarikh _____ Tiada _____ Tidak diketahui _____					
E. MAKLUMAT SPESIMEN					
Jenis Spesimen	Jenis ujian dipohon	Tarikh diambil	Tarikh dihantar	Tanda Tangan Pegawai yang mengambil spesimen (sila cop)	
* Nota: Sila rujuk Service Handbook Makmal Kesihatan Awam Kebangsaan untuk maklumat lanjut tentang spesimen					
F. BUTIRAN PEMOHON			G. BUTIRAN MAKMAL TRANSIT		
Nama		Nama			
Jawatan		Jawatan			
Tempat bertugas (sila cop)		Tempat bertugas (sila cop)			
No H/P:	Email:	No tel & samb.	Email:		
EK/PPD/Hospital:		Nama Pusat Transit:			
Daerah:	Negeri:	Daerah:	Negeri:		
H. MAKMAL (untuk kegunaan MKA):					
Unit Pengurusan Spesimen		Makmal		Catatan	
Suhu: °C	Jenis sampel:	Terima / Tolak			
Sampel: Terima / Tolak	Sampel dlm transport media:	Suhu: °C			
Nama Penerima :	Nama Penerima:				
Tarikh & masa:	Tarikh & Masa:				
Keputusan ujian disahkan oleh :			Tarikh:		

20) RICKETTSIOSIS REQUEST FORM (IMR)

	BACTERIOLOGY UNIT INSTITUTE FOR MEDICAL RESEARCH JALAN PAHANG, 50588 KUALA LUMPUR TEL: 03-26162663 FAX: 03-26919716	IMR/IDRC/BACT/RICK/02 RICKETTSIOSIS LABORATORY REQUEST FORM	
PATIENT'S INFORMATION			
Name:		Age:	DOB: ___/___/___
IC :	R/N :	Gender: <input type="checkbox"/> M <input type="checkbox"/> F	
Ethnicity:	<input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Others (please specify): _____		Nationality: <input type="checkbox"/> Malaysian <input type="checkbox"/> Non-Malaysian
Address:			
Date of admission:		Occupation:	
Hospital:		Ward/ Clinic:	
Name of requesting Doctor:		Signature:	
Hospital:		Ward/ Clinic:	
CLINICAL SUMMARY			
Diagnosis:			Date of diagnosis:
Duration of illness: _____ days			
Signs & Symptoms:			
<input type="checkbox"/> Fever, duration: _____	<input type="checkbox"/> Malaise	<input type="checkbox"/> Dizziness	
<input type="checkbox"/> Eschar:	<input type="checkbox"/> Headache	<input type="checkbox"/> Photophobia	
<input type="checkbox"/> Rashes: <input type="checkbox"/> Maculopapular <input type="checkbox"/> Vesicular <input type="checkbox"/> Petechial <input type="checkbox"/> Others: _____	<input type="checkbox"/> Nausea	<input type="checkbox"/> Lymphadenopathy	
	<input type="checkbox"/> Vomiting	<input type="checkbox"/> Others (please specify): _____	
PAST HISTORY			
<input type="checkbox"/> Exposure to rodents (rats and mice) and their fleas			
<input type="checkbox"/> History of tick/mite bites			
<input type="checkbox"/> History of jungle trekking			
SPECIMEN INFORMATION		LABORATORY INFORMATION	
Type of specimen:	<input type="checkbox"/> Serum for Indirect Immunoperoxidase (IIP) Test	Date of specimen received: ___/___/___	Date of test performed: ___/___/___
		Result of test:	
Version : 1.0 Page 1 of 1		Date Issued: 29 th June 2020	
Approved by: Head of Bacteriology Unit			

21) ACUTE FLACCID PARALYSIS (AFP) FORM

Acute Flaccid Paralysis Case Investigation Form								
Ministry of Health, Malaysia								
1	CASE I.D. + PLACE	Name:	Gender:	DOB:	Age:	Hospit Regist No.:		
		Mother's N:	District:	State:				
Residential Address:								
2	REFERRAL + REPORTING	Child initially seen at:			Date first seen:			
		Date of report to EPI/MOH:		Person reporting:				
		Report from where? (Institution):		Attending physician:				
Remarks:								
3	HISTORY + PHYSICAL EXAMINATION	Onset of paralysis (date):			No. of days to maximum paralysis:			
		Main history source: 1.Parents 2.Chart 3.Doctor/Nurse						
		At onset (paral.): Fever: Y/N Diarrhoea: Y/N Cough: Y/N						
	P A S T H I S T O R Y (last 30 days):		ON EXAMINATION (date):			SITE OF PARALYSIS:		
	Injections ?	Yes / No	FLACCID Paralysis?		Yes / No	(grade mot. strength: 0=abs. to 5=full)		
Recent trauma or animal bite?	Yes / No	Meningeal signs (stiff neck):		Yes / No	left arm :	right arm :		
Any existing neurologic disease?	Yes / No	Paralysis symmetric/asymm.?		Symmetric / Asymm.	left leg:	right leg:		
Any recent travel? (Specify below)	Yes / No	Deep tendon reflexes:		Norm. / Red. / Abs.	respirator: yes / no	face: yes / no		
Similar case among contacts?	Yes / No	Any sensory loss?		Yes / No	others (specify): _____			
Remarks:								
4	PRELIMINARY DIAGNOSIS:	A F P:	IF YES: 1. Poliomyelitis 2.Guillain-Barre 3. Transverse Myelitis 4. Traum. Neuritis 5. Myasthenia Gravis 6.Viral Myositis					
		Yes	7. Periodic Paralysis 8. Demyelinating Diseases 9. Cord Compression Diseases 10. Others:					
	Name of investigator:		Date:		Signature:			
	Address of investigator:							
Remarks:								
5	IMMUNISATION HISTORY	Immunisation card available?			Total No. of OPV doses received:			
		Main reason for not fully immunised: 1.not informed 2.illness 3.refusal 4.unknown 5.other:						
	Dates: OPV1: Y/N	OPV(2):	OPV(3):	OPV(4):	OPV(4):	OPV(6):	OPV(7):	
	OPV(5):	IPV/OPV(5)		Recent OPV to contact? Y/N Date ___ ___ ___			Date 1.outbreak response immunis. ___ ___ ___	
				Number immunised: _____		% of eligible: _____		
Remarks:								
6	LAB. INFO	Date collected:	Date sent:	Date rec. IMR:	Pos. CPE (IMR):	IMR: PV-Type	Date sent to Ref.:	
	Stool 1: Yes / No	____ ____ ____	____ ____ ____	____ ____ ____	Yes / No	1 2 3	Negative	
	Stool 2: Yes / No	____ ____ ____	____ ____ ____	____ ____ ____	Yes / No	1 2 3	____ ____ ____	
Remarks:								
7	FOLLOW-UP	Case examined >= 60 days after onset paralysis? Yes / No			Date of examination:			
	Date:	If not seen, why not? _____			Paralysis/Weakness still present? Yes / No			
	Site of residual paralysis Right leg: Y / N Left leg: Y / N Right arm: Y / N Left arm: Y / N Face: Y / N Other:							
	Ability to walk: 1. Cannot walk 2. Walks with assistance 3. Limp 4. Walks normally				Exam. physician:			
Remarks:								
8	FINAL DIAGNOSIS - DATE:	(CONFIRMED POLIO or discarded as polio; Expert Review Committee)						
	1. CONFIRMED	> Virus isolation: Yes / No Residual paralysis: Yes / No Death: Yes / No Lost to follow-up: Yes / No						
	2. DISCARDED	1. Guillain-Barre 2. Transverse Myelitis 3. Traumatic Neuritis 4. Unknown 5. Other _____						
Remarks:								
NOTE: Please Fax AFP case investigation form to: 1. Disease Control Division, MOH (Fax No. 03 - 88886270) 2. Virology Department, Institute for Medical Research (IMR), KL (Fax No:03 - 26936323) with adequate stool samples. 3. Nearest District Health Office Second AFP Case Investigation form should be sent after 60 days with followup result to the above fax.								

22) HIV NARL FORM (IMR/VIRUS/NARL)

IMR/Virus/HIV/1

IMR/VIRUS/NARL

**UJIAN SEROLOGI BAGI PENYAKIT
HUMAN IMMUNODEFICIENCY VIRUS (HIV)****NO NARL:****KUMPULAN RISIKO:**

Specimen yang diperlukan: 5ml darah/2ml sirm dalam botol biasa yang telah disucihamakan.
Borang ini mesti dikembalikan bersama contoh dan borang asal yang diminta oleh pegawai perubatan yang menjaga ke Unit Virologi, Institut Penyelidikan Perubatan, Kuala Lumpur.

Hospital/Klinik/Tabung Darah:		No Pendaftaran:
Nama Pesakit:		No K/P Baru:
Umur:	Jantina:	No K/P Lama:
Keturunan:	Pekerjaan:	Aktiviti Risiko: <input type="checkbox"/> IV Drug User <input type="checkbox"/> Sexual Exposure <input type="checkbox"/> STD Patients <input type="checkbox"/> Female Sex Workers <input type="checkbox"/> Male Sex Workers <input type="checkbox"/> Homosexual <input type="checkbox"/> Blood/Organ recipient <input type="checkbox"/> Spouse of HIV positive patient <input type="checkbox"/> Others: Specify:
Kesan-Kesan Klinikal:		
Tarikh Darah Diambil:	Jenis Sampel: <input type="checkbox"/> Sampel Pertama <input type="checkbox"/> Sampel Kedua <input type="checkbox"/> Post Mortem	

KEPUTUSAN MAKMAL DARI HOSPITAL/KLINIK/PUSAT SARINGAN:

Cara Ujian	Tarikh Ujian Dijalankan	Keputusan		Catitan Pos/Neg/EQ
		Abs of Test	Abs of Cut-off	

Nama: _____

Tandatangan: _____
& Chop

Tarikh: _____

Untuk Kegunaan NARL:

Received: _____ ml

- Clotted Blood (_____ ml serum)
 EDTA Blood (_____ ml plasma)
 Serum
 Clear
 Lysed
 Turbid

23) BORANG HLA TYPING TEST REQUEST FORM

TRANSPLANTATION IMMUNOLOGY UNIT
 ALLERGY AND IMMUNOLOGY RESEARCH CENTRE
 INSTITUTE FOR MEDICAL RESEARCH
 JALAN PAHANG, 50588 KUALA LUMPUR
 DIRECT LINE: 03-2616 2581 TEL: 03-2616 2666 FAX: 03-2691 2019

HLA TYPING TEST REQUEST FORM

HOSPITAL :
 WARD :
 TEL. NO :
 FAX NO. :
 PAYING FREE

Nephrology <input type="checkbox"/> New Case <input type="checkbox"/> Add donor for existing case (NN:)	HSCT <input type="checkbox"/> New Case Diagnosis: _____ <input type="checkbox"/> Add donor for existing case (FN:) <input type="checkbox"/> Confirmatory Typing (CT) (FN:) <input type="checkbox"/> Cord blood / MSCR search
---	--

	RECIPIENT	DONOR 1	DONOR 2	DONOR 3	DONOR 4
Name:					
I.C. No. / Passport No.:					
Age / Gender / Ethnic:					
Last Transfusion Date:		- N/A -	- N/A -	- N/A -	- N/A -
Relationship to Recipient:	- N/A -				

1. This test is done **ONLY** by appointment.
 2. Please collect **6 ml** of EDTA blood from each patient and donor(s).
- IMPORTANT NOTE:**
- If TWBC less than $1.5 \times 10^9/ml$, please collect 15 ml of EDTA blood.
 - If patient has received blood transfusion in the past 3 weeks, please collect samples using saliva kit.
3. Please seal the tube stopper to avoid leakage of blood during transportation.
 4. Transport condition: Room Temperature (**WITHOUT ICE**).
 5. The blood samples must reach the lab by 10.30 am.

Time blood collected:
Date blood collected:

Test requested by:

Signature :
 Name :
 Stamp :


 Date :

For IMR Laboratory Use Only

Received Stamp:		RECIPIENT	DONOR 1	DONOR 2	DONOR 3	DONOR 4
	Lab. No.					
	DNA No.					
	Volume / Quantity					
Received By:	Sample Condition	<input type="checkbox"/> Good <input type="checkbox"/> Others:	<input type="checkbox"/> Good <input type="checkbox"/> Others:	<input type="checkbox"/> Good <input type="checkbox"/> Others:	<input type="checkbox"/> Good <input type="checkbox"/> Others:	<input type="checkbox"/> Good <input type="checkbox"/> Others:

Note: The full name, stamp and signature of the Medical Officer requesting the test **MUST** be provided.
 The date and test requested **MUST** be provided.

24) BORANG DNA ANALYSIS FOR THALASSAEMIA SYNDROME & HAEMOGLOBINOPATHIES

 DNA ANALYSIS FOR THALASSAEMIA SYNDROMES & HAEMOGLOBINOPATHIES		For IMR/ HKL/ HSB used only Type of specimen <input type="checkbox"/> Blood <input type="checkbox"/> DNA <input type="checkbox"/> Others
Please <input checked="" type="checkbox"/> below, WHERE you wish to send the sample and TEST request:		
<input type="checkbox"/> DNA analysis of the beta globin gene <input type="checkbox"/> Further testing for alpha globin gene* <input type="checkbox"/> Confirmation for haemoglobinopathy <small>*Note: Only after common alpha globin gene mutations have been included by HHL/ HSB</small>	<input type="checkbox"/> DNA analysis of the alpha globin gene	
Molecular Genetics Laboratory Haematology Unit, Cancer Research Centre Institute for Medical Research Jalan Pahang 50588 Kuala Lumpur, Malaysia Phone: 03-2616 2720 Fax: 03-2616 2529/ 2530 Email: mgm.lms@imr.gov.my Website: www.imr.gov.my	Molecular Hematology Laboratory Haematology Unit, Pathology Department Hospital Kuala Lumpur 50586 Kuala Lumpur, Malaysia Phone: 03-2615 5748/ 5746 Fax: 03-2697 0417 Email: mlh@hmatology.gov.my Website: www.hkl.gov.my	Haematology Unit Pathology Department Hospital Sultanah Bahiyah Km6, Jln Lengggar, Bandar Alor Setar, 05460 Alor Setar, Kedah, Malaysia. Phone: 04-740 6250/ 6251 Fax: 04-740 6275
Patient Name	Date of Birth: Age :	Ethnicity <input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Others;(specify) _____
Patient ID/IC Number	Gender <input type="checkbox"/> Male <input type="checkbox"/> Female If female; Pregnant? <input type="checkbox"/> YES, Weeks: <input type="checkbox"/> No	Hosp/ Ward/ Clinic:
Address of KK or hospital to send report:	Type of Specimen:	Date of Sampling:
Tel/ Fax No :	Date of Sent:	
CLINICAL SUMMARY/ FAMILY HISTORY/ FAMILY TREE.		
<div style="border: 1px solid black; padding: 5px;"> Parental consanguinity: <input type="checkbox"/> YES <input type="checkbox"/> NO </div>		
THIS PART EXPLAINS SPECIMEN & TEST REQUIREMENTS/ CHECKLIST:		
SPECIMEN REQUIREMENTS: Peripheral blood in EDTA tube (must arrive at lab within 2 week) <input type="checkbox"/> Adults: ~2.5 mL. <input type="checkbox"/> Peads: ~0.5mL.		
TEST REQUIREMENTS : <input type="checkbox"/> A copy of recent FBC (<3 months) result of this patient <input type="checkbox"/> A copy of Hb Analysis result of this patient <input type="checkbox"/> All paediatrics (≤12y/o) samples to be referred to IMR, must be accompanied with parents' samples.		
ADDITIONAL REQUIREMENTS FOR CASCADE SCREENING: <input type="checkbox"/> Index case i) Name: _____ ii) IC/Lab No: _____ iii) Diagnosis: _____ iv) Relationship to index case: _____		
<input type="checkbox"/> A copy of DNA analysis for thalassaemia syndromes/ haemoglobinopathy result of INDEX case <input type="checkbox"/> If Hb analysis report of this patient is pending : i) Hospital performing the test : _____ ii) Date of sample sent : _____		
This information is crucial for baseline correlation of molecular results. Please <input checked="" type="checkbox"/> all that applies		
INDICATION OF TEST: <input type="checkbox"/> Diagnostic : <input type="checkbox"/> Antenatal <input type="checkbox"/> Others _____ <input type="checkbox"/> Screening : <input type="checkbox"/> Form Four <input type="checkbox"/> Cascade screening <input type="checkbox"/> Others (specify) : _____		
CLINICAL DIAGNOSIS:		
CLINICAL STATUS: <input type="checkbox"/> New Case <input type="checkbox"/> Follow Up <input type="checkbox"/> Trait <input type="checkbox"/> TDT (≥6 transfusions/ year) <input type="checkbox"/> Intermedia <input type="checkbox"/> NTDT <input type="checkbox"/> Major		
Hb level at diagnosis : _____ g/dL Hepatomegaly : <input type="checkbox"/> NO <input type="checkbox"/> YES _____ cm. Splenomegaly : <input type="checkbox"/> NO <input type="checkbox"/> YES _____ cm.		
Transfusion History <input type="checkbox"/> NIL yet <input type="checkbox"/> YES _____ No./Year		
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> Official stamp of Requesting Doctor (Name, Signature & Date) </div>		
DNA Ass for Thal Synd & Hbpathy(x) REQform Hematology Unit, CeRC IMR Date of Issue: 06.04.2017 Version 3.0 Page 1 of 2		

IMR/CaRC/HAEM22/2203/03(1)REQ/FORM

KEBENARAN UNTUK UJIAN DNAMaklumat ujian yang di jalankan: **DNA ANALYSIS OF THALASSEMIA SYNDROMES & HAEMOGLOBINOPATHIES**

Nama Pesakit: ID Pesakit:

Saya memahami penerangan yang berikut:

Ujian ini khusus untuk ***THALASSEMIA SYNDROMES & HAEMOGLOBINOPATHIES**

*Keputusan ujian POSITIF adalah indikasi bahawa saya terdedah kepada atau menghadapi penyakit/ keadaan yang tertentu. Oleh itu ujian lanjutan adalah diperlukan bagi mengesahkan penyakit tersebut.

*Sekiranya keputusan ujian NEGATIF, masih ada kemungkinan saya mempunyai masalah genetik tersebut dan ia tidak dapat dikesan disebabkan oleh limitasi teknologi kaedah ujian yang digunakan dan ilmu pengetahuan berkenaan perubahan DNA atau protein pada gen yang menyebabkan penyakit tersebut belum dikenalpasti.

*Ada juga kemungkinan keputusan ujian TIDAK dapat ditafsirkan atau TIDAK diketahui kepentingannya. Dalam keadaan tertentu, keputusan ujian mungkin menunjukkan keputusan yang tidak selaras dengan diagnosis asal yang telah dijangkakan.

1. Kebalikan ujian ini adalah untuk pengesahan diagnosis sesuatu penyakit dan mengenalpasti pembawa atau ahli keluarga yang berisiko tinggi mempunyai gen yang tidak normal.
2. Keputusan dan interpretasi yang tidak tepat berkemungkinan boleh berlaku berpunca daripada variasi DNA yang jarang pada seseorang individu, kesilapan teknikal yang tidak lazim, gabungan pembentukan tapak DNA yang tidak lazim oleh enzim yang digunakan untuk sesuatu ujian, kesilapan pengenalpastian identiti sampel, kontaminasi sampel, mutasi pada tapak primer dan kesilapan umum makmal.
3. Ketepatan interpretasi keputusan DNA bergantung kepada ketepatan maklumat diagnosis klinikal dan hubungan biologikal antara ahli keluarga pesakit.
4. Ujian DNA boleh mengenalpasti jika ibu/bapa adalah biologikal atau tidak.
5. Ujian yang ditawarkan adalah ujian yang terbaik boleh didapati pada masa ini. Jika teknologi dan mutasi (kecacatan gen) yang baru dapat dikesan pada masa akan datang, saya memberi kuasa kepada makmal untuk menganalisis semula sampel DNA tersebut tanpa perlu memaklumkan kepada saya. Jika sampel tidak mencukupi, doktor boleh memohon kepada saya untuk sampel yang baru. Berkemungkinan terdapat kos tambahan bagi ujian tersebut.
6. Bagi tujuan membantu saya memahami laporan keputusan ujian, saya akan dimaklumkan kepada saya hanya melalui doktor atau kaunselor genetik.
7. Keputusan ujian ini digunakan HANYA untuk interpretasi klinikal.
8. Keputusan ujian ini tidak boleh digunakan untuk apa-apa tujuan forensik atau TIDAK SAH untuk tafsiran forensik.
9. Keputusan ujian ini tidak boleh digunakan dalam mana-mana mahkamah undang-undang atau dalam hal-hal berkaitan perundangan dan TIDAK SAH untuk tafsiran undang-undang.

Bagi ujian prenatal, syarat-syarat berikut adalah termaktub:


1. Ujian DNA ini akan menentukan status fetus bagi penyakit berkaitan ujian ini SAHAJA.
2. Selain variasi DNA yang luar biasa dan dan kesilapan teknik, kesilapan hasil keputusan juga boleh berlaku sekiranya terdapat kontaminasi (pencemaran) bahan maternal ke dalam sampel fetus.

PERSETUJUAN TERMAKLUM BERTULIS

1. Suatu spesimen biologi (darah, tisu badan, cecair amniotic atau vilus korion) akan diambil untuk ujian-ujian DNA bagi penyakit seperti di atas.
2. Selepas ujian DNA selesai, sebahagian DNA saya akan dilabel tanpa nama dan digunakan untuk tujuan pembelajaran, kawalan kualiti atau penyelidikan. Keputusan ujian tersebut tidak akan dimaklumkan kepada saya kerana sampel tersebut telah dilabel tanpa nama. Saya faham bahawa spesimen biologi yang diambil untuk tujuan ujian genetik adalah hak milik eksklusif Makmal IMR/HKL. Selepas ujian yang diminta selesai diproses, makmal berhak melupus, menyimpan atau menggunakan kembali spesimen tersebut untuk tujuan validasi atau pembelajaran.
3. Keputusan DNA adalah SULIT dan tidak akan didedahkan kepada sesiapa termasuk ahli keluarga atau individu selain doktor saya tanpa kelulusan saya.
4. Sesetengah individu yang telah menjalani ujian DNA mungkin merasa diskriminasi (dari aspek insurans, pekerjaan dan masyarakat) apabila keputusan ujian DNA menunjukkan individu adalah pembawa gen yang menyebabkan penyakit tersebut.

Untuk diisi oleh:	
PESAKIT/IBUBAPA/PENJAGA SAH	DOKTOR/KAUNSELOR
Saya telah membaca dan menerima salinan borang kebenaran. Saya memahami isi kandungan di dalam dokumen ini dan mempunyai peluang untuk bertanyakan soalan tentang ujian, prosedur ujian dan risiko yang berkaitan, manfaat dan limitasi ujian. Saya setuju untuk menjalani ujian genetik ini dan menerima risiko & limitasinya.	Saya telah menerangkan sepenuhnya tentang ujian yang ingin dijalankan kepada pesakit/ibu bapa/perjaga yang sah.
Tandatangan : Nama dan No IC: Tarikh:	Tandatangan : Nama dan No IC: Tarikh:

26) BORANG BONE MARROW CYTOGENETIC (IMR)

		BONE MARROW CYTOGENETICS Genetic Laboratory Haematology Unit, Cancer Research Centre Institute for Medical Research Jalan Pahang 50588 Kuala Lumpur, Malaysia		Phone : 03-2616 2711 Fax : 03-2616 2530 Website : http://www.imr.gov.my
		Specimen requirements: <ol style="list-style-type: none"> Chromosome analysis: Please send at least 2mL of FIRST bone marrow aspirate or blood (<i>white blood count is >10,000 WBC/mL and at least 20% blasts</i>) into sterile transport medium available from Genetic Laboratory. Transport as soon as possible. Protect from extreme heat and freeze. Chromosome breakages: An appointment is necessary for the performance of this analysis. Please contact the Genetic Laboratory for further instruction. Please send 10mL peripheral blood in sterile lithium heparin tube. A control sample, matched for age and sex is required. 		FOR GENETIC LAB USE ONLY Genetic No. : BM Serial No. : Previous Cytogenetic Result: _____
PATIENT INFORMATION				
1. Patient Name :		2. IC No. :		
3. Age :	4. Ethnicity :	<input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Others; Please specify: _____	5. Gender : <input type="checkbox"/> Male <input type="checkbox"/> Female	
6. Clinical History :		7. Address to send test report :		
CLINICAL DIAGNOSIS <input type="checkbox"/> Acute Lymphoblastic Leukaemia <input type="checkbox"/> Acute Myeloid Leukaemia FAB type: _____ <input type="checkbox"/> Chronic Myeloid Leukaemia <input type="checkbox"/> Chronic phase <input type="checkbox"/> Accelerated phase <input type="checkbox"/> Blast phase <input type="checkbox"/> Myeloproliferative Neoplasms <input type="checkbox"/> Myelodysplastic Syndrome <input type="checkbox"/> Myelodysplastic/Myeloproliferative Neoplasms <input type="checkbox"/> Multiple Myeloma <input type="checkbox"/> Lymphoma Please specify: _____ <input type="checkbox"/> Chronic Lymphocytic Leukaemia <input type="checkbox"/> Aplastic Anaemia <input type="checkbox"/> Others: _____		SPECIMEN INFORMATION Date Drawn : ___/___/___ Time : _____ Date Sent : ___/___/___ Time : _____ Specimen Type: <input type="checkbox"/> Bone Marrow Aspirate Volume of aspirates: _____mL <input type="checkbox"/> Peripheral Blood WBC count: _____WBC/mL % Blast: _____		
DISEASE STATUS <input type="checkbox"/> New Case <input type="checkbox"/> Marrow Assessment <input type="checkbox"/> Remission <input type="checkbox"/> Relapse <input type="checkbox"/> Post-Stem Cell Transplant Sex of Donor <input type="checkbox"/> Male <input type="checkbox"/> Female		TEST REQUESTED <input type="checkbox"/> Chromosome Analysis <input type="checkbox"/> Chromosome Breakages <input type="checkbox"/> FISH <input type="checkbox"/> BCR/ABL <input type="checkbox"/> PML/RARA <i>FISH analysis: Unless otherwise specified, this test will be done on selective cases under the discretion of the Laboratory Supervisor.</i>		
		Official stamp of Requesting Doctor: Name & Signature _____ Date: _____		
Date of Issue: 23 May 2014		Version 4.1		

27) BORANG REPORTING FOR TRANSFUSION RELATED ADVERSE EVENT

BTS/HV/3/2016

**REPORTING FORM FOR TRANSFUSION-RELATED ADVERSE EVENT
TRANSFUSION MEDICINE SERVICE
KEMENTERIAN KESIHATAN MALAYSIA**

IMPORTANT INFORMATION

1. Every adverse event related to transfusion of blood or blood component shall be managed, investigated and documented accordingly.
2. The form must be completed and returned to the blood bank within 2 weeks of the incident.
3. The blood bank shall retain the completed form and send a copy to the State Transfusion Committee and the National Haemovigilance Coordinating Centre (NHCC), Pusat Darah Negara within a month.

Reported by:

Name:	Designation:
Email:	Tel. No:
Date:	Fax No:

SECTION A: PATIENT DETAILS

Name of Patient:		
NRIC/ Passport No:	Age:	Hospital:
Barcode:	Gender:	Ward:
		Department:

SECTION B: TYPE OF ADVERSE EVENTS

- B1. TRANSFUSION REACTION (Fill up section C-J)
- B2. ERROR IN TRANSFUSION PROCESS (Fill up section C-K)
- a) INCORRECT BLOOD COMPONENT TRANSFUSED (Proceed to SECTION K1 for 'NEAR MISS' on page 4)
- b) NEAR MISS (Proceed to SECTION K2 for 'INCIDENT' on page 4)
- c) INCIDENT (Proceed to SECTION K2 for 'INCIDENT' on page 4)

Near Miss: Any error that has occurred but did not cause any adverse event as it was detected prior to blood transfusion.

SECTION C: ONSET OF ADVERSE EVENT

- C1. IMMEDIATE (within 24 hours of transfusion)
- C2. DELAYED (after 24 hours of transfusion)

SECTION D: BLOOD COMPONENTS IMPLICATED IN THE ADVERSE EVENT

- | | | | | | |
|-----------------------------------|--------------------------|-------------|----------|-----------------------|----------|
| D1. Whole blood | <input type="checkbox"/> | Irradiated: | YES / NO | Filtered: | YES / NO |
| D2. Packed Cells | <input type="checkbox"/> | Irradiated: | YES / NO | Filtered: | YES / NO |
| D3. Apheresis Platelet | <input type="checkbox"/> | Irradiated: | YES / NO | Pathogen Inactivated: | YES / NO |
| D4. Random Platelet | <input type="checkbox"/> | Irradiated: | YES / NO | | |
| D5. Fresh Frozen Plasma | <input type="checkbox"/> | | | | |
| D6. Cryoprecipitate | <input type="checkbox"/> | | | Pathogen Inactivated: | YES / NO |
| D7. Cryosupernatant/ Liver plasma | <input type="checkbox"/> | | | | |
| D8. Others (please specify) | <input type="checkbox"/> | | | | |

SECTION E: DETAILS OF ADVERSE EVENTS

- E1. Date of transfusion: (DD/MM/YY) _____ / _____ / _____
- E2. Time transfusion started: _____ am/pm
- E3. Time reaction occurred: _____ am/pm
- E4. Volume transfused: _____ ml / unit

28) REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION

BTS/TR/2/2016

REQUEST FORM FOR TRANSFUSION REACTION INVESTIGATION (BLOOD AND BLOOD COMPONENTS)

1. When a patient has an adverse reaction to any blood or blood component, **STOP** transfusion immediately. **URGENTLY** inform the doctor in charge of the patient and the Blood Bank.
2. Report all reactions and do the following:
 - 2.1 Preserve the blood bag and giving set with all attached labels. Seal it securely and send immediately to the Blood Bank.
 - 2.2 Send the following samples for transfusion reaction investigation to the Blood Bank or relevant laboratory.
 - a. Post-transfusion sample 1 (immediately)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - b. Post-transfusion sample II (after 24 hours)
 - I. 10 mls of blood in EDTA bottle
 - II. 10 mls of urine for haemoglobinuria
 - 2.3 Please send for other appropriate investigations if necessary.
 - 2.4 Please refer to Section 10: Adverse effect of transfusion in Handbook on Clinical Use of Blood for details.

Hospital: Ward/Clinic:

Patient's name: IC/Passport No:

Race: Age: Sex:

Diagnosis.....

- i. Date and time transfusion started
- ii. Date and time of onset of reaction
- iii. Blood/ Blood Component Serial No.
- iv. Volume Blood/ Blood Component transfused
- v. Blood Pressure: Before transfusion After transfusion
- vi. Temperature: Before transfusion After transfusion

Page 1 of 2

29) BORANG PERMOHONAN TRANSFUSI DARAH

No. Makmal:	PER-SS-BT 106 (Pind. 1/2016)																						
BORANG PERMOHONAN TRANSFUSI DARAH PERKHIDMATAN TRANSFUSI PERUBATAN																							
(Mesli dipenuhi dalam dua salinan. Tulis dengan pen mata bulat dan sila tandakan ✓ dalam petak yang berkenaan.)																							
Nama (Tulis huruf besar)				No. Kad Pengenalan				No. Darah															
Hospital		Unit		Wed		Bangsa		Umur		Jantina													
Pegawai Kerjiaan Ya/Tidak		Kelas		Bayar/Percuma		Pakar/Penuding		Kumpulan Darah Ada/Tiada															
Diagnosis				Sebab transfusi komponen darah				Hb % atau kepulsaan lain yg berkaitan (Plt count etc)															
Transfusi darah masa lalu? Ya/Tidak			Jika 'ya' sebutkan tarikh transfusi darah yang terakhir					Komplikasi?															
Sekiranya pesakit seorang wanita, nyatakan -->			SIL Kehamilan			SIL Lahir Mati			Tanda-tanda "Hemolytic Disease of Newborn"														
Sampel darah diambil dan dilabel oleh:				Unit/nya				SPECIAL REQUIREMENT :															
Saya mengesahkan bahawa saya telah mengenalpasti identiti pesakit dengan bertanya secara langsung* dan memeriksa gelang pengenalan pesakit. Saya juga mengesahkan bahawa saya telah mengambil sendiri sampel darah pesakit tersebut dan melabelkannya dengan serta merta sebaik sahaja ia diambil.				<input type="checkbox"/> WHOLE BLOOD <input type="checkbox"/> PACKED CELLS <input type="checkbox"/> PAEDIPACK <input type="checkbox"/> PLATELET CONCENTRATE <input type="checkbox"/> CRYOPRECIPIRATE <input type="checkbox"/> FRESH FROZEN PLASMA <input type="checkbox"/> CRYOSUPERNATANT				<input type="checkbox"/> WASHED..... <input type="checkbox"/> FILTERED..... <input type="checkbox"/> IRRADIATED..... <input type="checkbox"/> OTHERS : <input type="checkbox"/> GROUP, SCREEN & HOLD															
Tandatangan																							
Nama																							
Jawatan																							
Tarikh.....Waktu.....pagi/petang																							
* (atau ahli keluarga / penjaga untuk kes-kes pediatrik dan pesakit yang tidak sedarkan diri)																							
Nota:-				Bekalan diperlukan																			
(1) Sila hantarkan 3ml-5ml sampel darah dalam tub EDTA. Untuk makluman, ujian keserasian memerlukan masa 2 jam.				(a) Serta merta, tanpa ujian keserasian darah (safe O) <input type="checkbox"/>																			
(2) Dalam keadaan kecemasan, sila hubungi makmal transfusi darah untuk pembekalan segera berdasarkan keserasian pada peringkat awal ujian. Darah yang dibekalkan mempunyai risiko ketidakserasian yang kecil. Penggunaan darah tersebut merupakan tanggungjawab pegawai perubatan yang merawat.				(b) Segera (lihat Nota 2) <input type="checkbox"/>																			
(3) Darah yang tidak digunakan perlu dipulangkan dengan kadar segera ke makmal transfusi kecuali Pegawai Perubatan meminta dipanjangkan tempoh simpanannya di wad.				(c) Pada jam.....pg/ptg (Lihat Nota 3) <input type="checkbox"/>																			
(4) AMARAN: Setiap transfusi darah membawa risiko infeksi.				(d) Sampel disimpan selama 24 jam. <input type="checkbox"/>																			
WARNING: Every blood transfusion carries a small risk of infection.				Saya mengesahkan bahawa sampel darah yang disertakan ini telah diambil daripada pesakit bernama seperti di atas dan dilabelkan mengikut prosedur kerja yang telah ditetapkan. Saya juga mengesahkan bahawa setelah diperiksa, pesakit ini memerlukan/ akan memerlukan transfusi darah.																			
				Tandatangan:																			
				Cop dan Nama Pegawai Perubatan:																			
				(Huruf besar)																			
KHAS UNTUK KEGUNAAN KAKITANGAN MAKMAL TRANSFUSI DARAH																							
Permintaan diterima		T/Tangan		Anti A		Anti B		Anti AB		Sel A		Sel B		Sel O		Rh D		Kump. Darah		T/Tangan		Tarikh & masa	
Tarikh.....																							
Waktu.....pagi/petang																							
Serum pesakit diserasikan dengan beg darah no.			UJIAN KEBERASIAN DARAH						Cebutan														
			R.T.		37°C		AHG		T/Tangan.		Tarikh & masa												

30) BORANG "CYTOGENETIC REQUEST FORM FOR BLOOD SAMPLE (from UNIT GENETIC, HWKKL) (HKL/GEN/TPM/N-1-(1))"

TEL : 03-26003000 ext 1136	GENETICS LABORATORY DEPARTMENT OF PATHOLOGY WOMEN & CHILDREN HOSPITAL KUALA LUMPUR Jalan Raja Muda Abdul Aziz, 50300, Kuala Lumpur, Malaysia.	FOR LAB USE GENETIC NO :
----------------------------	---	--

CYTOGENETICS REQUEST FORM FOR PERIPHERAL BLOOD SAMPLES

Date of sample collected : Ward/ Clinic :

Previous Genetics No. : Date/ Place of previous analysis :

If this is a repeat sample kindly state reason for repeating chromosomal studies : (this includes genetics studies done in other institutions / universities/ private laboratories)

I. A) Name of patient : B) I/C No :

C) Date of birth : D) Age :yrs/mths

E) Sex : Male/ Female/ Undetermined

II. Clinical features observed :

III. Clinical diagnosis :

IV. Details of family :

A i) Name of father : ii) I/C No :

iii) Date of birth : iv) Age :yrs/mths

v) Ethnic group : vi) Occupation :

B i) Name of mother : ii) I/C No :

iii) Date of birth : iv) Age :yrs/mths

v) Ethnic group : vi) Occupation :

C Consanguineous marriage : YES/NO. If YES, state relationship with details :

D Address :

Contact Tel. No. :

E Family tree:

iv. Past Obstetric History :

A. i) Gravida : ii) Para :

 iii) Abortion : iv) Stillbirth :

B. Maternal illness/ drug therapy during pregnancy (give details):

C. Any other affected siblings: YES/ NO. If YES, give details regarding malformations/ mental retardation / other information.

D. Information on other affected relatives if any:

V. Result of other relevant test:

VI. Signature and stamp of physician

 Name in block letter Ward/ Clinic / Hospital


N.B. SAMPLES WILL NOT BE PROCESSED UNLESS THE FORM IS COMPLETELY FILLED, STAMPED AND SIGNED.

FOR LAB USE ONLY

i) Date and time of sample received : / / ii) By (Name of staff)

	Routine culture dates	MLT	Comments	Synchronized culture dates	MLT	Comments
Culture						
Harvesting						
Banding						
Capture						
Evaluation by MLT		Routine / Synchronized		Evaluation by Science Officer / Doctor		Routine / Synchronized
Spreads						
Bands						
DIAGNOSIS	GENETIC NO.					
	SPECIMEN TYPE					
	BANDING TECHNIQUE					
	CELLS EXAMINED					
	ISCN BPHS					
	KARYOTYPE					
	RESULT					
	COMMENTS					
	DATE					
REPORTED BY :		SCIENCE OFFICER/ DOCTOR :				

31) BORANG "CYTOGENETIC ANALYSIS USING PERIPHERAL BLOOD (PUSAT GENOM MANUSIA HUSM) (RM 043/9/2010)"



**PUSAT GENOM MANUSIA
HOSPITAL UNIVERSITI SAINS MALAYSIA**

CYTOGENETIC ANALYSIS USING PERIPHERAL BLOOD				
Lab No	(For Cytogenetic Lab Use Only)			
PATIENT'S DETAILS:				
Name: _____ Sex: _____				
R/N: _____	Age: _____ Hosp: _____			
UC: _____	Birth date: _____ Ward: _____			
FAMILY HISTORY				
Name of Father: _____	Age: _____			
Name of Mother: _____	Age: _____			
No. of Siblings: _____	Death / Abortion: _____			
Consanguineous Marriage: <input type="checkbox"/> No <input type="checkbox"/> Yes Relationship (if yes): _____				
Family History of Known Chromosomal / Genetic Disorder (Including Blindness, Mental Retardation, Muscular Dystrophy, etc) _____ _____ _____				
Pedigree (Please include At Least 3 Generations) <div style="border: 1px solid black; height: 150px; width: 100%;"></div>				
General Symbols for Pedigree Drawing: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <input type="checkbox"/> / <input type="circle"/> Normal Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Affected Male/Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Deceased Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Proband Male/ Female </td> <td style="width: 33%; vertical-align: top;"> <input type="triangle-up"/> Miscarriage <input type="square"/> - <input type="circle"/> Divorce <input type="square"/> - <input type="circle"/> Marriage <input type="square"/> - <input type="circle"/> Consanguineous Marriage </td> <td style="width: 33%; vertical-align: top;"> <input type="diamond"/> Sex unknown <input type="square"/> - <input type="square"/> Non identical twins <input type="square"/> - <input type="square"/> Identical twins </td> </tr> </table>		<input type="checkbox"/> / <input type="circle"/> Normal Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Affected Male/Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Deceased Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Proband Male/ Female	<input type="triangle-up"/> Miscarriage <input type="square"/> - <input type="circle"/> Divorce <input type="square"/> - <input type="circle"/> Marriage <input type="square"/> - <input type="circle"/> Consanguineous Marriage	<input type="diamond"/> Sex unknown <input type="square"/> - <input type="square"/> Non identical twins <input type="square"/> - <input type="square"/> Identical twins
<input type="checkbox"/> / <input type="circle"/> Normal Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Affected Male/Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Deceased Male / Female <input checked="" type="checkbox"/> / <input checked="" type="circle"/> Proband Male/ Female	<input type="triangle-up"/> Miscarriage <input type="square"/> - <input type="circle"/> Divorce <input type="square"/> - <input type="circle"/> Marriage <input type="square"/> - <input type="circle"/> Consanguineous Marriage	<input type="diamond"/> Sex unknown <input type="square"/> - <input type="square"/> Non identical twins <input type="square"/> - <input type="square"/> Identical twins		
RM043/08/18(P3)				

CYTOGENETIC ANALYSIS USING PERIPHERAL BLOOD

RISK FACTORS

(eg: Maternal Infection During First Trimester, Medication, Irradiation, Drug Addiction, Alcohol, Herbal Medication, Supplements, etc)

Patient:

Parents:

Relevant Clinical Investigations: eg: Blood Test, Radiological / Imaging Test, etc)

.....

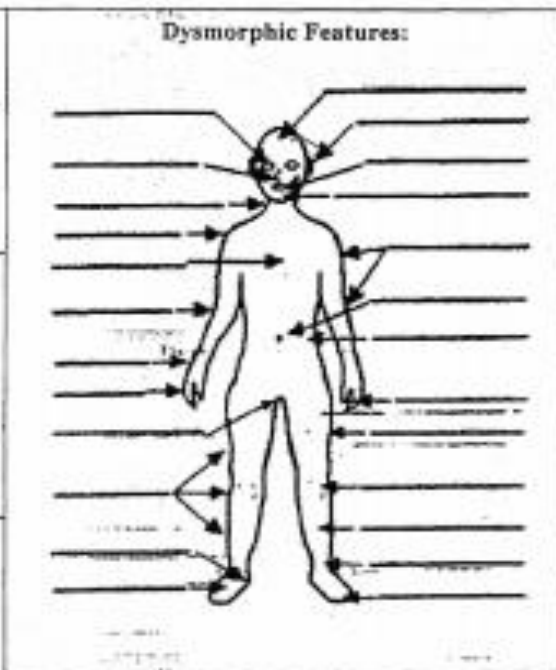
.....

.....

Provisional Diagnosis:

.....

.....



TEST REQUESTED (Sample collection tube) Note: For Further Details and Appointment, Please Contact 09-7636789/6798

- Conventional Karyotyping (in Sodium Heparin tube)
- Sex-determining Region on Chromosome Y (SRY gene) (in EDTA tube)
- Fluorescence In Situ Hybridization (FISH) (in Sodium Heparin tube)
- Chromosome Breakage Test (Fanconi Anaemia) (in Sodium Heparin tube)

Sample Collected Date: --- Time: ---

BIOLYTIC TOGENETIC LABORATORIA

Sample Received Date: --- Time: --- MLT: ---

Name, Signature, Stamp and Contact No of Medical Officer/ Consultant:

.....

Tel / Ext:



Name of Specialist /

.....

Pusat Genom Mulusia, Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan.
Tel: +609-767 6789 / Website: www.medio.usm.my/genome

RM043/08/18(P3)

32) BORANG "CYTOGENETIC ANALYSIS USING BONE MARROW ASPIRATION (PUSAT GENOM MANUSIA HUSM) (RM 042/08/18(P2))"

 	PUSAT GENOM MANUSIA HOSPITAL UNIVERSITI SAINS MALAYSIA
CYTOGENETIC ANALYSIS USING BONE MARROW ASPIRATION	
Rectangular Snip	Lab No. <small>(For Comparative Lab Use Only)</small>
<input type="checkbox"/> NEW CASE <input type="checkbox"/> REPEAT <input type="checkbox"/> REMISSION <input type="checkbox"/> RELAPSE <input type="checkbox"/> PRE BMT <input type="checkbox"/> POST BMT:	
Date of BMT : _____ Donor's gender : F / M	
PATIENT'S DETAILS:	
Name: _____	
R/N: _____	I/C: _____
Sex: F / M	Age: _____
Date of Birth: _____	Hosp/ Ward: _____
Diagnosis: _____	
HISTORY OF PRESENTING ILLNESS:	
1) Date of diagnosis: _____	
2) Initial presentation: _____	
3) Current presentation: _____	
4) Physical examination: _____	
5) Disease progress: _____	
6) Treatment: _____	
<small>Pusat Genom Manusia, Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan. Tel: +609-757 4789 / Website: www.medic.usm.my/genome</small>	
RM042/08/18(P2)	

RELEVANT INVESTIGATION (s) (Radiological imaging, HPE, FBP, BMAT, Cytogenetic & molecular analysis):		
BONE MARROW ASPIRATION:		Sample collected:
Volume of aspiration submitted: <input type="text"/>	Date: _____	
(Please try to provide 1-2 ml of first draw, spindle rich bone marrow aspirate)	Time: _____	
HAEMATOLOGICAL PARAMETERS AROUND TIME OF MARROW ASPIRATION FOR CYTOGENETICS:		
Total RBC cell count: <input type="text"/>		
Hemoglobin (Hb): <input type="text"/>		
Platelet Count: <input type="text"/>		
Blast in PBF: <input type="text"/>		
Name, Signature and Stamp of Medical Officer/ Consultant:		Name of Specialist /
.....	
Contact Number of Medical Officer:		
FOR LABORATORY USE ONLY		
Date Received: <input type="text"/>	Time Received: <input type="text"/>	Received By: <input type="text"/>
Total White Cell Count:		

Pusat Genom Manusia, Hospital Universiti Sains Malaysia, 16150 Kubang Keruan, Kelantan.
Tel: +609-767 6789 / Website: www.medic.usm.my/genome

XM042/09/18(P2)

33) BORANG "HAEMATOLOGY/SEROLOGY REQUEST FORM (PUSAT DARAH NEGARA) (PDN/HA/QP-01/01)"

NATIONAL BLOOD CENTRE Kuala Lumpur	QUALITY FORM		Doc. No. : PDN/HA/QP-01/01	
	HAEMATOLOGY/SEROLOGY REQUEST FORM		Version No. : 01	
			Issue Date : 01 January 2010	
			Page : 1 of 1	

<input type="checkbox"/> Paying	<input type="checkbox"/> Class	Haematology/		Lab No.	
<input type="checkbox"/> Free	<input type="checkbox"/> Govt. Servant	Serology No.			

Hospital		Ward/Bed No.		Date of admission	Ward/clinic's telephone no.
Name				R/N	I/C / Passport No.
Age	Race	Sex	Blood group	Current diagnosis	

History-complaints, duration of illness : _____

Dates of previous hospital admission or illness if any : _____

Any previous exposure to drugs or chemicals which may have induced aplasia or haemolysis : _____

Any family history of anemia, bleeding or thrombosis : _____

Obstetric history; Gravida : _____ Para : _____ No. of Abortions/Stillbirths : _____

Any evidence of Haemolytic Disease of Newborn : _____

Physical findings :

Any jaundice? _____

Lymphadenopathy? _____

Spleen enlargement? _____

Liver enlargement? _____

Bleeding tendency e.g purpura? _____

Others findings? _____

Any haematinis (Fe., Vit. B Co. Injection, Folates, Vit B12) given and when? _____

Any transfusion given and when ? _____

Laboratory Data (Haematological investigations done in your laboratory)

HB : _____ TWBC : _____ Blood Urea : _____ Urine exam. : _____

Platelets : _____ Reticulocytes : _____ Any other investigations e.g. Serum bilirubin,

_____ LFT : _____ Coagulation Profile : _____

Nature of specimen : _____

Examination required : _____

Date & Time of collection of specimen : _____

Signature of Doctor

Name of Doctor in Block Letters

34) BORANG PERMOHONAN UJIAN MAKMAL HFMD (MKAK SG. BULOH)

MAKMAL KESIHATAN AWAM KEBANGSAAN				
BORANG PERMOHONAN UJIAN MAKMAL HFMD				
No. Rujukan Makmal:		MKAK/ENT/20 ____ / ____)		
A. TUJUAN PERSAMPELAN				
Wabak		<input type="radio"/>		
Survelan (Klinik Sentinel)		<input type="radio"/>		
Kes Teruk (Masuk Wad & Umur < 5 tahun)		<input type="radio"/>		
B. MAKLUMAT PESAKIT				
Nama Pesakit:				
No. Kad Pengenalan / Passport:			Umur:	
Warganegara:			Jantina: L / P	
Hospital / Klinik Kesihatan:			Wad:	
R/N:			Bangsa :	
Negeri:			Daerah :	
C. MAKLUMAT KLINIKAL				
Gejala		Tandakan (√) di ruangan berkenaan		Tarikh mula
Demam $\geq 38^{\circ}\text{C}$				
Ulser di mulut & tekak				
Maculopapular rash dan / vesikel pada tapak tangan dan tapak kaki				
Tanda dan gejala URTI				
Lain-lain				
D. MAKLUMAT SPESIMEN KLINIKAL				
Jenis Spesimen	Tandakan (√) di ruangan berkenaan	Tarikh diambil	Tarikh dihantar	Pengambil Sampel
Rectal swab				
Mouth ulcer				
Vesicle swab				
Stool				
E. MAKLUMAT PEMOHON			F. MAKLUMAT MAKMAL TRANSIT* (sekiranya berkenaan)	
Tandatangan & Cop Pegawai:			Tandatangan & Cop Pegawai:	
No. Telefon:			No. Telefon:	
G. UNTUK KEGUNAAN MAKMAL				
Kaunter Penerimaan Sampel			Makmal	
Tarikh spesimen diterima:			Tarikh spesimen diterima:	
Suhu: $^{\circ}\text{C}$			Suhu: $^{\circ}\text{C}$	
Jenis spesimen:			Jenis spesimen:	
Status: Sampel Diterima / Sampel Ditolak*			Status: Sampel Diterima / Sampel Ditolak*	
* Sekiranya spesimen ditolak, sila nyatakan sebab:				
CATATAN:				
Tandatangan & Cop Pegawai:			Tandatangan & Cop Pegawai:	
<p style="text-align: center;">Sebarang kemusykilan sila hubungi:</p> <ul style="list-style-type: none"> • Makmal Kesihatan Awam Kebangsaan (MKAK) Sungai Buloh, Selangor (u.p. Makmal Isolasi Virus): 03-6126 1200 / 1325 • Sample swab mesti dimasukkan dlm vtm dan suhu penghantaran utk semua sample adalah 2-8 degree celsius 				