

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
1.	17-hydroxyprogesterone	3 ml blood	Plain tube	Diabetes & Endocrine , IMR Kuala Lumpur	Chemical Pathology	Random blood collection
2.	24 hrs Urine Protein electrophoresis	24 hr urine	24 hr urine container	Chem. Path, HPP	Chemical Pathology	Sent together with serum
3.	<i>Acanthamoeba/ Naegleria</i> spp. – microscopy, culture and PCR (by appointment)	Corneal scraping, contact lenses in sterile saline suspension, cerebrospinal fluid	Sterile container	Parasitology, IMR	Microb	Notify IMR 24hr before sending the sample. Must reach IMR within 1 day
4.	Acari (ticks and mites) identification	Ticks or mites in formalin	Sterile container	Acarology Unit, IMR	Microb	
5.	Acid Alpha Glucosidase	Dried blood spot or 1ml whole blood	Spot on Whatmann 903 special filter paper Paediatric EDTA bottle	Biochemistry lab, IMR	Chemical Pathology	Suspected Biotinidase deficiency Transport at RT EDTA need to be transport at 4°C
6.	ACTH (Adrenocorticotrophic Hormone)	3 ml blood	Plain tube with gel	Pathology Dept , HKL	Chemical Pathology	Specialist signature To be transport in ice *Special procedure required
7.	Acute Flaccid Paralysis	Stool	Sterile container	Virology, IMR	Microb	AFP Paralysis IMR form 2 stool specimen collected 24hrs apart, within 14 days Keep at 4°C
8.	<i>Adenovirus</i> for culture	3-5 ml tracheal or nasopharyngeal aspirate	Viral Transport Medium	MKAK SgBuloh	Microb	MKAK Request Form-in duplicates
9.	AFB C&S	Sputum or other body fluid	Sterile container	Micro, HPP	Microb	
10.	Aldosterone	3 ml blood	Plain tube	Jab. Patologi, Hosp. Putrajaya	Chemical Pathology	Sent in ice. Requested by Endocrine Specialist only
11.	Alpha Feto Protein (AFP)	3 ml blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
12.	Alpha Galactosidase	Dried blood spot or	Spot on Whatmann 903 special filter paper	Biochemistry lab, IMR	Chemical Pathology	Suspected Biotinidase deficiency Transport at RT

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		1ml whole blood	Paediatric EDTA bottle			EDTA need to be transport at 4°C
13.	Alpha1-antitrypsin	3 ml Blood	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Request form for specific protein
14.	Aluminium	Serum: 1ml	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
15.	Amoebiasis Serology (ELISA)	2.0 ml serum or 2.5ml anti-coagulated blood.	Plain tube	Parasitology, IMR	Microb	Clinical diagnosis of extra intestinal amoebiasis. To be sent on ice
16.	AntibioticResistance Verification	Culture plate / NA slant	-	Bacteriology, IMR	Microb	Send by lab
17.	Anti - cardiolipin Ab	3-5 ml Blood	Sodium Citrate tube	PDN	Haem	
18.	Anti HBcIgM	3-5 ml Blood	Plain tube	Hospital Sg.Buloh Virology, HKL	Microb	
19.	Anti Thrombin III	2.5 ml Blood	Sodium Citrate tube	Haematology, PDN	Haem	Special form Part of thrombophilia screening
20.	Anti-Acetylcholine receptor (ACH)	Blood Adult: 3-5 ml Children: 3 ml	Plain tube	Immunology, IMR	Microb	
21.	Anti-Cyclic Citrullinated Peptides (CCP)	Blood Adult: 3-5 ml Children: 3 ml	Plain tube	Immunology, IMR	Microb	
22.	Anti-double stranded DNA (dsDNA)	3-5 ml Blood	Plain tube	Hospital TunkuFauziah, Kangar	Microb	Perform only if ANA positive (homogenous pattern)
23.	Anti-fungal susceptibility testing	SDA plate/slant	-	Bacteriology, IMR	Microb	Send by lab upon verification
24.	Anti-GBM GBM: glomerular basement membrane	Blood Adult: 3-5 ml Children: 3 ml	Plain tube	Immunology, IMR	Microb	

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25.	Anti-Liver-Kidney -Muscle (LKM)	Blood Adult: 3-5 ml Children: 3 ml	Plain tube	Immunology, IMR Hospital Tunku Fauziah, Perlis	Microb	
26.	Anti-Neutrophil cytoplasmic Antibodies (P-ANCA & C-ANCA)	Blood Adult: 3-5 ml Children: 3 ml	Plain tube	Immunology, IMR Hospital Tunku Fauziah, Perlis	Microb	
27.	Anti-thyroglobulin Antibody	3-5 ml blood	Plain tube	Hospital Tunku Fauziah, Perlis	Microb	Pathology Dept , HKL Hospital Selayang
28.	Anti-thyroid Microsomal Antibody	3-5 ml blood	Plain tube	Hospital Tunku Fauziah, Perlis	Microb	
29.	Anti-Thyrosine Phosphatase (IA 2)	5-10 ml blood (adult) 3-5 ml blood (peads)	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
30.	Apolipoprotein (Lp a)	1 ml Serum	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	
31.	Apolipoprotein A-1	1 ml Serum	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	
32.	Apolipoprotein B	1 ml Serum	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	
33.	Apolipoprotein E	1 ml Serum	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	
34.	<i>Aspergillus galactomannan</i> antigen detection	3-5 ml blood	Plain tube	Hosp.SgBuloh	Microb	
35.	Bacterial Identification	Culture plate / NA slant	-	Bacteriology, IMR	Microb	Send by lab
36.	<i>Bartonellahensella</i> IgG & IgM	3-5 ml blood	Plain tube	Bacteriology, IMR	Microb	
37.	Bence-Jones protein	25ml 24 hours urine	Clean bottle with 26mg sodium azide or 2 drops toluene	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Test for positive cases

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38.	Beta-2- microglobulins	3 ml Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date. * Request form for specific protein
39.	Biotinidase enzyme activity	D3 circle of dried blood spot or 1ml whole blood	Spot on Whatmann 903 special filter paper Paediatric EDTA bottle	Biochemistry Unit, SDC, IMR	Chemical Pathology	Properly dries at RT for 4 hours before putting in plastic bag. Suspected Biotinidase deficiency Transport at RT EDTA need to be transport at 4°C
40.	Blood for metabolic screening	Dried blood spot: 3mm	Guthrie card	Chem. /Endocrine lab	Chemical Pathology	* Please use special form
41.	Blood Spot for LSD Screening	3 circles of dried blood spot	S&S filter paper.	Biochemistry Unit, SDC, IMR	Chemical Pathology	Properly dries at RT for 4 hours before putting in plastic bag. Transport at room temperature.
42.	Bone marrow for molecular study & FISH	Bone marrow	Transport media	IMR	Haem	Genetic request form Obtain transport media from lab
43.	Bone marrow for cytogenetic	Bone marrow	Transport media	Haem, HPP	Haem	Bone marrow request form
44.	<i>Bordetella pertussis</i> DNA (PCR)	Nasopharyngeal aspirates / 1-2 ml or	Nasopharyngeal aspirates in sterile container.	Bacteriology, IMR	Microb	Nasopharyngeal aspirate is the best specimen. Transport in ice.

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		Nasopharyngeal swab in Stuart's media.	Swab in Stuart's transport media.			Do not use calcium alginate swabs or cotton swabs.
45.	<i>Borrelia burgdoferi</i> IgM& IgG	3-5 ml blood	Plain tube	Hosp. Sg. Buloh	Microb	
46.	<i>Brucella sp</i> antibody	2 ml blood	Plain tube	Bacteriology, IMR	Microb	
47.	<i>Brucella sp.</i> DNA (PCR)	1 ml Whole blood or serum	EDTA tube	Bacteriology, IMR	Microb	Must be fresh specimen. Laboratory must be informed prior to sending sample
48.	C3 & C4	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	
49.	CA 125	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Request by Specialist only
50.	Ca15-3	3 ml Blood	Plain tube	Pathology Dept , HKL	Chemical Pathology	Specialist signature
51.	Ca19-9	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
52.	Cadmium	2ml Blood	Tube EDTA/Heparin	Biochemistry lab, IMR	Chemical Pathology	
53.	Caeruloplasmin	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
54.	Carcinoembryonic Antigen (CEA)	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Request by Specialist only
55.	Catecholamines 24 hr urine	24 hrs urine	24 hrs urine container with preservative	Pathology Dept., HKL	Chemical Pathology	Refer to lab for special collecting procedure.
56.	CD4/CD8	3 ml Blood	EDTA tube	Haem, HPP	Haem	
57.	CDG Genotyping	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature.

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						If > 24hours, keep sample cooled/refrigerated
58.	Cell Genotyping & Antibody Identification.	2.5 ml Blood 10 ml Blood	EDTA tube Vacutest tube (GXM tube)	Trans, HPP	Trans	Specimen must reach Blood Bank at 8.00 am during office hour
59.	Characterization of urinary GAG	5 mls, early morning urine	Sterile bottle, no preservative	Biochemistry lab, IMR	Chemical Pathology	Transport frozen in dry ice
60.	<i>Chikungunya Virus</i> detection - IgM/IgG - Virus Isolation - RT-PCR	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	Specimen should be collected ≤ 5 days after onset of illness for virus isolation and RT-PCR test
61.	<i>Chlamydia pneumoniae</i> IgA, IgG and IgM	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
62.	<i>Chlamydia psittacii</i> IgA, IgG and IgM	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
63.	<i>Chlamydia trachomatis</i> IgA, IgG and IgM	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
64.	<i>Chlamydia trachomatis</i> Antigen Immunofluorescent (IF)	Urethral, Cervical, Ocular	Slide	Serology, HPP	Microb	Collect sample collection kit from Micro Lab
65.	Cholinesterase	3-5 ml blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
66.	Chromium	Serum: 1ml	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
67.	Chromosome analysis (Peadiatric) Molecular (Peadiatric) Cytogenetic (Peadiatric)	5 ml blood	EDTA tube Lithium heparin Lithium heparin	Heamatology, HKL	Haem	MUST BE a. Collected under sterile conditions b. Packed in ice during transport c. Accompanied by Full COMPLETED 'genetic request form'.

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68.	Citrin Deficiency: 1. Screening - Large insertion/deletion	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
69.	2. CK-MB	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	
70.	Collagen Binding Assay	2.5 ml Blood	Sodium Citrate tube	Haem, HPP/PDN	Haem	Done by batch
71.	Confirmation of FRAX A	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
72.	Confirmation of sub-group for further classification	8 ml blood	EDTA	Immunohaematology Unit, National Blood Centre (PDN), Kuala Lumpur	Trans	
73.	Confirmation of unresolved antibody identification	8 ml blood	EDTA	Immunohaematology Unit, National Blood Centre (PDN), Kuala Lumpur	Trans	
74.	Copper	4ml blood 24 hr urine	Plain tube 24 hr urine container with preservative	Pathology Dept., HKL	Chemical Pathology	
75.	Cortisol Urine Cortisol (Random)	3 ml blood 50 ml random urine	Heparinised tube Universal container	Chem. Path, HPP	Chemical Pathology	
76.	<i>Coxiella</i> (IgM&IgG)	3-5 ml blood	Plain tube	Bacteriology, IMR Hosp. Sg.Buloh	Microb	

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77.	C-peptide	5 ml Blood	Plain tube	Pathology Dept , HKL	Chemical Pathology	Accompanied by Fasting Blood Sugar sample (both sample taken at the same time)
78.	<i>Cryptosporidium</i> Antigen Detection Immunofluorescent (IF)	Peanut size stool	Universal container	Micro, HPP	Microb	
79.	CSF Amino Acids	1ml CSF	Sterile bottle	Biochemistry lab, IMR	Chemical Pathology	Must send together with plasma.
80.	CSF Oligoclonal Band (Electrophoresis)	1 ml CSF & serum	Sterile container Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Sample must reach the lab not more than 7 days (at 2°C-8°C) after collection date Specific request form.
81.	CSF virology (for CMV, HSV, VZV) PCR	1-2 ml CSF	Sterile container	Hosp. Sg.Buloh	Microb	Please write specific virus. Note clinical history for all virus test
82.	<i>Cytomegalovirus</i> (CMV) serology IgM/IgG	3-5 ml Blood	Plain tube	Microbiology, HPP	Microb	
83.	Dehydro-epiandrosterine Sulphate (DHEAs)	2 ml Blood 30 ml Random urine 24 hrs urine	Plain tube with gel Universal container 24 hrs urine container	Diabetes & Endocrine , IMR	Chemical Pathology	Time collection: 8.00 am – 10.00 am
84.	Delta Aminolaevulinic Acid (ALA)	25ml 24hours urine (protect from light)	Sterile bottle 10ml glacial acetic acid	Biochemistry lab, IMR	Chemical Pathology	* Please use special form
85.	Dengue IgM (ELISA)	5 ml Blood	Plain tube	Micro, HPP	Microb	Paired serum (collected on admission & 2 nd after 3-5 days later)
86.	Dengue PCR	5 ml Blood	Plain tube	MKA Ipoh	Microb	

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87.	Detection of <i>Pneumocystis jirovecii</i> oocyst (PCP)	Induced sputum, Broncho-alveolar lavage / 5-10 ml	Sterile Container	Serology, HPP	Microb	Must be fresh specimen. Send immediately to lab
88.	Diabetes antibodies Anti-glutamic acid decarboxylase (GAD), anti-islet cells (ICA), anti-insulin G	Blood Adult: 5 ml Children: 3 ml	Plain tube	Immunology, IMR	Microb	
89.	DNA analysis a. β globin gene α globin gene (α -thalassemia 1 & 2)	2.5 ml Blood Mix thoroughly	EDTA tube	Haem, HKL	Haem	Special request form Together with FBC and Hb analysis result
90.	DNA Extraction and Quantitation	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
91.	DNA mutational analysis for Urea Cycle defect **	Blood: 2-5ml	Tube EDTA	Biochemistry lab, IMR	Chemical Pathology	**Please contact the Specialised Diagnostic Centre for an appointment & further information
92.	DNA/PCR Methylation Test or DNA Mutational Analysis for IEM	2.5 ml Blood X 2	EDTA tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	
93.	Epstein Barr virus (EBV) IgM / IgG	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
94.	<i>Epstein Barr Virus</i> (EBV) PCR	2 ml CSF	Sterile container	Hosp. Sg.Buloh	Microb	
95.	Echinococcosis Serology	2.0 ml serum or 2.5 ml anti-coagulated blood.	Plain tube or EDTA tube	Parasitology, IMR	Microb	To be sent on ice
96.	<i>Entamoeba histolytica</i> IgG	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
97.	Enteroviruses (Coxsackie A16 & Coxsackie A24, Coxsackie B, Enterovirus 70 & 71, Echovirus and Polio Virus) - Culture - Serology (IgM & IgG) PCR	- 3-5 ml blood - Throat/rectal swab/vesicle/ulcer swab CSF	- Plain tube - VTM Sterile container	MKAK Sg.Buloh	Microb	MKAK request form For suspected cases of HFMD, only send one sample/patient. The best specimen – vesicle swab.

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98.	Estradiol/Estrogen	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
99.	ETHE-1	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
100.	Extractable Nuclear Antigen (ENA) Anti-Sm, Anti-RNP, Anti-SSA/Ro, Anti-Jo 1, Anti-SSB/La, Anti-Scl -70, Anti-RNP 70, Anti-Centromere	3-5 ml blood	Plain tube	Hospital Tunku Fauziah, Kangar	Microb	
101.	Factor Assay (Factor 8, 9)	2.5 ml Blood	Sodium Citrate tube	Heamatology, HPP	Haem	
102.	Ferritin	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
103.	FilariasisPanLF and ICT WB	2.0 ml serum or 2.5ml anti-coagulated blood.	Plain tube or EDTA tube	Parasitology, IMR	Microb	To be sent on ice
104.	Filariasis PCR	2.5 ml of whole blood / blood on slides / filter paper	Plain tube or EDTA tube	Parasitology, IMR	Microb	To be sent on ice
105.	Folate	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
106.	Follicle Stimulating Hormone (FSH)	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
107.	Fragile-X syndrome (FRAX A & E)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
108.	Fragile-X syndrome (FRAX A)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature.

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109.	Fragile-X syndrome (FRAX E)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
110.	Free Light Chain (Kappa: Lambda) Ratio	Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date. Special request form required
111.	Free Triiodothyronine (T3)	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
112.	Frozen section for Immunofluorescent (IF)	Tissue	Closed container	Histology, HPP	Histo	By appointment
113.	Fungal DNA detection by PCR	3-5 ml blood Sterile body fluid (CSF, bronchial lavage, tissue biopsies, sinus aspirates.	EDTA tubes Other samples in sterile containers.	Bacteriology, IMR	Microb	Transportation condition: ambient temperature. For delayed specimen, keep at 2-8°C.
114.	Galactosemia Screening (Total Galactose & Galactose-1-Uridyltransferase)	3 circles of dried blood spot	S&S filter paper.	Biochemistry lab, IMR	Chemical Pathology	Properly dries at RT for 4 hours before putting in plastic bag. Transport at room temperature.
115.	Gamma Glutamyl Transferase	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	
116.	Growth Hormone (GH)	3ml Blood	Plain tube	Diabetes & Endocrine , IMR	Chemical Pathology	Time collection: 5-10 min post exercise / 2 hour post OGTT (75gm glucose)

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117.	Ham's test	5 ml blood	Plain tube	Haematology, HPP	Haem	By appointment
118.	Hantavirus IgM/IgG	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
119.	Haptoglobin	3 ml Blood	Plain tube	Pathology Dept , HKL	Chemical Pathology	
120.	Hepatitis A IgM	5 ml Blood	Plain tube	Virology, HKL Hosp. Sultanah Bahiyah	Microb	
121.	Hepatitis B core antibody total (Anti-HBcAb)	3-5 ml Blood	Plain tube	Hosp. Sg.Buloh	Microb	
122.	Hepatitis B envelope (HBeAg&HBeAb)	3-5 ml Blood	Plain tube	Serology, HPP	Microb	Please provide ALT result
123.	Hepatitis B Virus (HBV) DNA PCR viral load	10 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
124.	Hepatitis C Virus (HCV) RNA PCR	10 ml blood	Plain tube	Virology,IMR	Microb	
125.	Hepatitis C Virus (HCV) RNA PCR viral load	10 ml blood	Plain tube	Hosp. Sultanah Bahiyah	Microb	
126.	<i>Herpes Simplex Virus</i> (HSV)1&2IgM/IgG	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
127.	HIV PCR RNA (p24 Antigen for newborn)	2.5 ml blood	Fresh EDTA tube of mother and baby <18months	Virology, IMR	Microb	For babies >18 months Accompany with mother blood NARL request form
128.	HIV PCR p24 Antigen (Adult)	3-5 ml blood	Plain tube	Virology, HKL	Microb	
129.	HIV Viral Load	3 X 5ml Blood	EDTA tube	Molekular, HPP	Microb	- Only done for monitoring HAART treatment/baseline - Note time sampling Please sent sample to lab as soon as possible. (within 1hour)

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130.	HLA Cross-matching	Donor: 18 ml blood in Sodium Heparin. Patient: 5 ml blood in a plain tube	Sodium Heparin Plain tube	Immunology, IMR	Microb	Appointment & arrangement by requestor. (contact:03-26162581)
131.	HLA typing Class I and II (molecular)	6ml Blood	EDTA tube	Immunology, IMR	Microb	Appointment required (contact:03-26162581) Sent sample in room temperature If patient is anaemic, TWBC less than 1.5×10^3 cells per ml we require 15 ml of blood. Patient must not have had a transfusion in the 3 weeks preceding blood collection.
132.	Human T Lymphoma virus (HTLV) 1 or 2 antibody	3-5 ml blood	Plain tube	Hosp. Sg.Buloh	Microb	
133.	Influenza viruses PCR MERS-CoV PCR	Throat swab in VTM	VTM	Microbiology, HPP	Microb	Request for collection box.
134.	Immunofixation Electrophoresis	Serum urine	Plain tube Sterile container	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518
135.	Immunofluorescence for skin & renal biopsies	Fresh tissue	Closed container	Histology, HPP	Histo	By appointment
136.	Immunohistochemistry (tissue)	Tissue, slide Volume of formalin to specimen ratio - 10:1 or fresh specimen	Closed container	Histology, HPP	Histo	
137.	Inhibitor screening	2.5 ml Blood	Sodium Citrate tube	Haematology PDN	Haem	
138.	Insulin	3 ml blood	Plain tube	Diabetes & Endocrine , IMR	Chemical Pathology	Attach FBS result
139.	Insulin Growth Factor (IGF1)	3 ml Blood	Plain tube	Diabetes &	Chemical	Random blood collection

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				Endocrine , IMR	Pathology	
140.	Intact Parathyroid Hormone (iPTH)	4 ml Blood	Potassium-EDTA tube	Chem. Path, HPP	Chemical Pathology	Sent in ice
141.	Iron	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
142.	Japanese Encephalitis (JE) IgM	3-5 ml Blood	Plain tube	MKAK Sg.Buloh	Microb	Specimen should be collected ≤5 days after onset of illness. A brief concise history of illness and physical findings is required.
143.	Japanese Encephalitis (JE) RT-PCR	3-5 ml Blood	Plain tube	MKAK Sg.Buloh	Microb	Specimen should be collected ≤5 days after onset of illness. A brief concise history of illness and physical findings is required.
144.	Kleihauer Test	2 ml blood	EDTA tube	Haematology, HPP	Haem	Mother's blood only
145.	Lead	2.5 ml Blood	EDTA Tube	Toxicology & Pharmacology, IMR	Chemical Pathology	
146.	<i>Legionella pneumophila</i> C&S	Sputum Tracheal aspirate Bronchoalveolar lavage	Sterile container	MKAK Sg.Buloh	Microb	
147.	<i>Legionella pneumophila</i> antibody	3-5 ml Blood	Plain tube	Bacteriology, IMR	Microb	
148.	Leigh Syndrome	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
149.	Leishmaniasis Serology (ELISA)	2.0 ml serum or 2.5ml anti-coagulated blood. To be sent on ice	Plain tube	Parasitology, IMR	Microb	To be sent on ice.

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150.	Leishmaniasis PCR	2.5 ml of whole blood or skin / tissue scrapings	EDTA tube Sterile container Slide or filter paper	Parasitology, IMR	Microb	All samples to be transported in 4-8oC
151.	Leptospirosis IgM	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	
152.	Leptospirosis Microagglutination Test (MAT)	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	
153.	Leptospirosis PCR	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	
154.	Lesch Nyhan Syndrome 1. Mutation analysis X-inactivation analysis	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
155.	LHON	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
156.	Light chain fatty acid	2 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	
157.	Lipoprotein electrophoresis	Serum: 2.5ml	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
158.	Lupus Anticoagulant	2.5 ml Blood	Sodium Citrate tube	Haematology PDN	Haem	Special form Part of thrombophilia screening
159.	Luteinising Hormone (LH)	3 ml Blood	Heparinised tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
160.	Lysosomal Acid- Glucosidase (Pompe)	3 circles of dried blood spot	S&S filter paper.	Biochemistry lab, IMR	Chemical Pathology	Properly dries at RT for 4 hours before putting in plastic bag.
161.	Malaria Indirect Immunofluorescence Antibody tests (IFAT)	2.0 ml serum or 2.5 ml anti-coagulated blood.	Plain tube or EDTA tube	Parasitology, IMR	Microb	To be sent on ice

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
		To be sent on ice				
162.	Malaria PCR	2.5 ml blood or blood spot on filter paper	EDTA tube	Parasitology, IMR	Microb	To be sent on ice
163.	Measles Serology IgM / IgG	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	Collect specimen 4-28 days after onset of rash.
164.	Measles Virus Isolation	Urine Nasopharyngeal aspirate Throat swab	Sterile container VTM	MKAK Sg.Buloh	Microb	MKAK request form
165.	Measles RT-PCR	Urine Nasopharyngeal aspirate Throat swab	Sterile container VTM	MKAK Sg.Buloh	Microb	MKAK request form
166.	Melioidosis serology IgM (<i>Burkholderia pseudomallei</i>)	3-5 ml Blood	Plain tube	Bacteriology, IMR	Microb	
167.	MERRF	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
168.	Mitochondrial DNA: 1. Gene Re-arrangement Gene Depletion	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518 Send at room temperature. If > 24hours, keep sample cooled / refrigerated
169.	Mitochondrial Encephalopathy Lactic acidosis & stroke (MELAS)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
170.	Mitochondrial Functional Analysis on Oxidative phosphorylation (OXPHOS)	4 X 2.5 ml blood & Buccal cheek swab	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
	enzyme Complexes I, IV and PDH					Send at room temperature. If > 24hours, keep sample cooled/refrigerated
171.	Mixed lymphocyte culture	Blood Patient: 20ml Donor: 20ml Control I: 20ml Control II: 20ml	Universal sterile bottle with heparin.	Immunology, IMR	Haem	Appointment required (contact MLT in charge:03-40402359)
172.	MPS III 2. (Type A, B, C, D)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
173.	MSUD	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
174.	Mumps Virus IgM / IgG	3-5 ml blood	Plain tube	Virology, HKL	Microb	
175.	Mycobacterium leprae (PCR)	Skin biopsy, Punch biopsy	Sterile container, without preservative or in container with 70% alcohol	MKAK Sg. Buloh	Microb	Biopsy sample in container without preservative should be transported to reach the lab at 2-8°C within 5 days after collection. Biopsy sample in container with 70% ethanol can be stored for longer period before delivery to the lab.
176.	<i>Mycobacterium tuberculosis</i> - culture & sensitivity PCR	Sputum Gastric lavage Bronchial washing Sterile body fluids Blood	Sterile container Myco-F Lytic bottle	MKAK Sg.Buloh	Microb	Specimen volume 3-5 ml Up to 10 ml

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
177.	<i>Mumps Virus</i> IgM / IgG	3-5 ml blood	Plain tube	HospSgBuloh	Microb	
178.	<i>Mycobacterium leprae</i> (PCR)	Skin biopsy, Punch biopsy	Sterile container, without preservative or in container with 70% alcohol	MKAK Sg. Buloh	Microb	Biopsy sample in container without preservative should be transported to reach the lab at 2-8°C within 5 days after collection. Biopsy sample in container with 70% ethanol can be stored for longer period before delivery to the lab.
179.	<i>Mycobacterium tuberculosis</i> PCR <i>Mycobacterium tuberculosis</i> C&S	Sputum Gastric lavage Bronchial washing Sterile body fluids Blood Sputum Gastric lavage Bronchial washing Sterile body fluids	Sterile container Myc-F Lytic bottle Sterile container	MKAK Sg.Buloh TB,HPP	Microb	Specimen volume 3-5 ml Up to 3-5ml
180.	<i>Mycobacterium tuberculosis</i> – detection of multi-drug resistant by line probe assay	3-5 ml sputum	Sterile container	MKAK Sg.Buloh	Microb	
181.	<i>Mycobacterium tuberculosis</i> – detection of multi-drug resistant by GeneXpert	3-5 ml sputum Sterile body fluids	Sterile container	Microbiology, HPP	Microb	
182.	Mycoplasma serology	3-5 ml Blood	Plain tube	Microbiology, HPP	Microb	
183.	NARP	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled / refrigerated
184.	<i>Nipah Virus</i> PCR	Serum CSF Urine Tracheal aspirate	Plain tube Sterile container	MKAK SgBuloh	Microb	

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
		Tissue				
185.	NKH (AMT, GLDC & GCSH)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled / refrigerated
186.	Oligoclonal bands	1 ml Serum 1-2 ml CSF	Plain tube with 2mg sodium azide Clean container	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Test for positive cases
187.	Orosomuroid	0.5ml Serum:	Tube with 1mg sodium azide	Biochemistry lab, IMR	Chemical Pathology	
188.	Orotic acid (urine)	2 ml urine	Sterile container	Biochemistry lab, IMR	Chemical Pathology	To transport frozen specimen with special form
189.	Osmolality	20 ml urine or 3 ml blood	Universal urine container or Heparinised tube	Chem. Path, HPP	Chemical Pathology	
190.	Osmotic Fragility test	5 ml Blood	Heparinised tube	Haematology, HPP	Haem	By appointment
191.	OTC	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
192.	Paraprotein – anaemia	3 ml Serum	Plain tube with 6mg sodium azide	Biochemistry lab, IMR	Chemical Pathology	Test for positive cases
193.	Paraprotein Quantitation	Serum Urine	Plain tube Sterile container	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518 Urine is refrigerated after collection. Sample must reach the lab not more than 7 days (at 2°C-8°C) after collection date.

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
194.	Parvovirus B19 IgM / IgG	3-5 ml blood	Plain tube	HospSg.Buloh	Microb	
195.	Parvovirus B19 PCR	Serum 1-3ml CSF 1ml	Plain tube Sterile container	MKAK Sg.Buloh	Microb	
196.	Pearson Syndrome /KSS/CPEO (Deletion)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
197.	Plasma /Serum chitotriosidase	3 ml blood (serum or plasma)	Plain tube	Biochemistry lab, IMR	Chemical Pathology	Transport frozen.
198.	Plasma amino Acids	2 mls of heparinised plasma.	Lithium Heparin tube	Biochemistry lab, IMR	Chemical Pathology	4 hours after last meal.
199.	Plasma carnitine	2 ml blood	Heparinised tube	Biochemistry lab, IMR	Chemical Pathology	
200.	Plasma Total & Free Carnitine	2 ml heparinised plasma	Lithium Heparin tube	Biochemistry lab, IMR	Chemical Pathology	
201.	Plasma Total Homocystein	2 mls heparinised plasma	Lithium Heparin tube	Biochemistry lab, IMR	Chemical Pathology	
202.	Plasma VLCFA & Phytanic acids	2 ml blood (plasma)	Lithium Heparin	Biochemistry lab, IMR	Chemical Pathology	Transport frozen in dry ice Special form
203.	Platelet antibody	Mother – 20 ml blood Father – 10 ml blood Baby – 1 ml blood	Mother – 10 ml in plain tube, 10 ml in EDTA Father – 10 ml in EDTA Baby – 1 ml in EDTA	Immunohaematology Unit, National Blood Centre (PDN), Kuala Lumpur	Trans	Appointment required, arrangement by requestor with PDN,KL (03-2695572)
204.	Prader Willi/ Angelman Syndrome	2 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
205.	Primary & Secondary Immunodeficiency Disease - Immunoglobulin (IgA, IgM, IgG)	5 ml serum	Plain tube	Immunology, IMR	Microb	Appointment required (03-2616 2587)
206.	Primary & Secondary Immunodeficiency Disease - T & B cells Subset Enumeration - Lymphocytic Transformation Test Phagocytic Function Test	Blood Adult: 2.5ml Child: 2ml *State the time blood taken. Blood Patient: 5ml Control: 5ml (normal subject) Blood Patient: 2.5ml Control: 2.5ml (normal subject)	EDTA tube Heparin (obtained from PID lab, AIRC) EDTA tube	Immunology, IMR	Microb	- Appointment required (03-2616 2782) - PID request form - Protect specimen from extremes temperature. - Transport specimen at ambient temperature; not in ice and by requester Samples should reach the AIRC by 12 noon. Blood must be processed within 24 hours of withdrawal.
207.	Progesterone	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
208.	Prolactin	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Specialist signature
209.	Prostate Specific Antigen	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Request by specialist only
210.	Protein C	2.5 ml Blood	Sodium Citrate tube	Haematology,PDN	Haem	Special form - Part of thrombophilia screening
211.	Protein S	2.5 ml Blood	Sodium Citrate tube	Haematology,PDN	Haem	Special form Part of thrombophilia screening
212.	Renin	2.5 ml X 2 tubes Blood	EDTA tube	Jab. Patologi, Hosp. Putrajaya	Chemical Pathology	
213.	<i>Respiratory Syncytial Virus</i> IgM / IgG	3-5 ml blood	Plain tube	MKAK Sg.Buloh	Microb	MKAK request form

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
214.	<i>Respiratory Syncytial Virus</i> for culture	3-5 ml Tracheal / Nasopharyngeal aspirate Throat / Nasopharyngeal swab	Sterile container VTM	MKAK Sg.Buloh	Microb	MKAK request form
215.	Respiratory viruses screening (Adenovirus, Parainfluenza 1, 2 & 3, Influenza A & B, Respiratory Syncytial Virus)	3-5 ml Nasopharyngeal aspirate	VTM	MKA Ipoh	Microb	MKAK request form
216.	Ribonuclear protein ab.	2 ml Serum	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
217.	Rickettsial Antibody (IIP)	3-5 ml Blood	Plain tube	Bacteriology, IMR	Microb	Paired sera is preferred
218.	Rubella IgM / IgG	3-5 ml blood	Plain tube	Serology, HPP	Microb	
219.	Schistosomiasis Serology (ELISA)	2.0 ml serum or 2.5 ml anti-coagulated blood.	Plain tube	Parasitology, IMR	Microb	To be sent on ice
220.	Screening for IEM (Amino Acids & Acylcarnitine in Blood Spot)	3 circles of dried blood spot	S&S filter paper.	Biochemistry Unit, SDC, IMR	Chemical Pathology	Properly dries at RT for 4 hours before putting in plastic bag. Transport at room temperature.
221.	Screening for IEM (Amino acids & Acylcarnitine in blood spot)	3 circles of 1cm diameter of dried blood	Spot on Whatmann 903 special filter paper	Biochemistry, IMR	Chemical Pathology	Please refer to IMR Handbook for further requirement needed IEM request form Transport at RT
222.	Selenium	Serum: 1ml	Plain tube	Biochemistry lab, IMR	Chemical Pathology	
223.	Serum Alpha-1-antitrypsin (Quantitation)	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
224.	Serum Alpha-1-antitrypsin Phenotyping	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518
225.	Serum Apolipoprotein C III	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.
226.	Serum apolipoprotein E (Pheno typing)	1 ml Serum	Plain tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Method - iso elec. Focusing
227.	Serum B12	5 ml Blood	Plain tube	Chemical Pathology, HPP	Chemical Pathology	
228.	Serum Cryoglobulin	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Keep serum at 37 °C
229.	Serum Immunoglobulin A	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Microb	Appointment: 03-2616 2587 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.
230.	Serum Immunoglobulin G	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Microb	Appointment: 03-2616 2587 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.
231.	Serum Osmolality	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
232.	Serum Transferrin (Quantitation)	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
						date.
233.	Serum Transferin Isoform for CDG Type I & Type II Screening	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.
234.	Serum Transferin Isoform for CDG Type I Confirmatory Profiling	Blood	Plain tube.	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Serum must reach the lab not more than 7 days (at 2°C-8°C) after collection date.
235.	Serum/Plasma amino acid	2 ml Blood	Heparinised tube	Biochemistry lab, IMR	Chemical Pathology	Morning (fasting) or 4 hours after last meal. Centrifuge and freeze immediately. Transport frozen in dry ice
236.	SOTOS Syndrome (42 exons)	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
237.	Specific IgE	Blood < 5 tests: Blood: 3 ml or serum: 0.5 ml > 5 tests: Blood: 5-10 ml or serum: 1-3 ml	Plain tube	Immunology, IMR	Microb	Allergic test
238.	Spinal Muscular Atrophy (SMA)	1-2 X 2.5 ml blood	EDTA tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518
239.	SUOX Deficiency	4 X 2.5 ml blood	EDTA tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled / refrigerated

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
240.	SURF-1	2 X 2.5 ml blood	EDTA tube	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/ 2518 Send at room temperature. If > 24hours, keep sample cooled/refrigerated
241.	Taeniasis serology	3-5 ml blood	Plain tube	Parasitology, IMR	Microb	Clinical symptoms and/or history of exposure to infection source, medical preliminary screening for going overseas.
242.	Testosterone	2 ml blood	Plain tube	Chem. Path, HPP	Chemical Pathology	Random blood collection
243.	Thyroglobulin	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
244.	TORCHES Screening (Toxoplasma, Rubella, CMV, <i>Herpes Simplex Virus</i> & Syphilis)	5 ml blood	Plain tube	Serology,HPP	Microb	Except Herpes Simplex Virus IgM/IgG sent to Hosp Sg Buloh Syphilis tests done in HSJ
245.	Total and free Plasma Carnitine	4 ml blood	Heparinised tube	Biochemistry Lab, IMR	Chemical Pathology	Transport frozen in dry ice.
246.	Total and free Sialic Acid	1 mls, early morning urine	Sterile bottle, no preservative	Biochemistry Lab, IMR	Chemical Pathology	Transport frozen in dry ice
247.	Total Galactose and GALT	Dried blood spot (3 circle of 1cm spot) or 1ml whole blood	Spot on Whatmann 903 special filter paper Paediatric EDTA bottle	Biochemistry Lab, IMR	Chemical Pathology	Transport at Room Temperature EDTA need to be transport at 4°C
248.	Total IgE	3-5 ml Blood	Plain tube	Immunology, IMR	Microb	Allergic test
249.	Total Iron Binding Capacity	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
250.	Total Plasma Homocysteine	2 ml Blood	Plain tube / heparinised tube	Biochemistry lab, IMR	Chemical Pathology	To transport frozen specimen
251.	Toxocariasis Serology	2.0 ml serum or 2.5 ml anti-coagulated blood	Plain tube EDTA	Parasitology, IMR	Microb	Type of patient: Asthma / difficulty in breathing, have history of

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
						exposure to infection source
252.	Toxoplasma Serology IgM / IgG	2.0 ml serum or 2.5 ml anti-coagulated blood.	Plain tube	Parasitology, IMR	Microb	To be sent on ice
253.	Toxoplasma Serology IgG avidity	2.0 ml serum or 2.5 ml anti-coagulated blood.	Plain tube	Parasitology, IMR	Microb	To be sent on ice
254.	Trichinellosis Serology	2.0 ml serum or 2.5 ml anti-coagulated blood	Plain tube EDTA	Parasitology, IMR	Microb	Clinical symptom and/or history of exposure to infection source, medical preliminary screening for going overseas.
255.	Troponin T	3 ml Blood	Plain tube	Diabetes & Endocrine , IMR	Chemical Pathology	
256.	Tryptase Test	3 ml Blood	Plain tube	Immunology, IMR	Microb	
257.	Urinary Pterins	1 ml early morning urine.	Sterile bottle, no preservative (Protect from light)	Biochemistry Lab, IMR	Chemical Pathology	Transport frozen in dry ice
258.	Urine 5-HIAA (5-Hydroxyindoles Acetic Acid)	25ml of 24h urine in 10ml 25% HCL	Sterile bottle with 10ml 25% Hcl	Biochemistry Lab, IMR	Chemical Pathology	* Please use special form
259.	Urine alpha-amino adipic semi aldehyde	15 ml Urine	Urine container	Biochemical Genetic unit, Genetic Dept, HKL	Chemical Pathology	To contact Paediatric Inst. (Genetic Lab)
260.	Urine Amino Acids	2mls random urine	Urine container.	Biochemistry Lab, IMR	Chemical Pathology	Quantitation by HPLC only by appointment
261.	Urine Cystine	5 ml Urine	Universal bottle (protect from light)	Biochemistry Lab, IMR	Chemical Pathology	
262.	Urine Glycosaminoglycan (GAG) or Mucopolysaccharides	5 mls, early morning urine	Sterile urine container	Biochemistry Lab, IMR	Chemical Pathology	Transport frozen in dry ice
263.	Urine Homocysteine	5 ml fresh urine	universal bottle (protect from light)	Biochemistry Lab, IMR	Chemical Pathology	
264.	Urine Mucopolysaccharides (Screening	5 mls, early morning	Sterile urine	Biochemistry Lab,	Chemical	

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
	of GAGS and confirmation, HRE)	urine.	container, without preservative.	IMR	Pathology	
265.	Urine Oligosaccharide/ tetrasaccharide	5 ml fresh urine	Urine container.	Biochemistry Lab, IMR	Chemical Pathology	
266.	Urine Organic Acids Analysis	5 ml random(morning) urine	Sterile urine container.	Biochemistry Lab, IMR	Chemical Pathology	
267.	Urine Orotic Acids	2 ml urine	Sterile urine container, without preservative.	Biochemistry Lab, IMR	Chemical Pathology	
268.	Urine Prenantriol	50ml 24hours urine	Sterile bottle 10ml glacial acetic acid	Biochemistry Lab, IMR	Chemical Pathology	* Please use special form
269.	Urine Sialic Acid	2 ms fresh random Urine	Sterile urine container.	Biochemistry Lab, IMR	Chemical Pathology	
270.	Urine Succinylacetone	1 ml urine	Sterile urine container, without preservative.	Biochemistry Lab, IMR	Chemical Pathology	
271.	Urine Sulfoysteine	1 ml urine	Sterile urine container, without preservative. Protect from light.	Biochemistry Lab, IMR	Chemical Pathology	
272.	<i>Varicella Zoster</i> Virus IgM / IgG	3-5 ml blood	Plain tube	HospSgBuloh	Microb	
273.	Verification of antibiotics resistant	NA slant	Universal bottle	Bacteriology, IMR	Microb	
274.	Very long fatty acid	2 ml Blood	Heparinised tube	Biochemistry Lab, IMR	Chemical Pathology	
275.	Vitamin B12	3 ml Blood	Plain tube	Chem. Path, HPP	Chemical Pathology	
276.	VWF Antigen	2.5 ml Blood	Sodium Citrate tube	Haematology, PDN	Haem	Special form
277.	Whole mitochondrial DNA	4 X 2.5 ml blood	EDTA	Molecular Diagnostic & Protein Unit IMR	Chemical Pathology	Appointment: 03-2616 2796/2518 Send at room temperature. If > 24hours, keep sample

OUTSOURCE TEST TO REFERENCE LABORATORY

NO	TEST	SPECIMEN	CONTAINER	REFERENCE LAB	HSJ LAB	NOTE
						cooled / refrigerated
278.	<i>Zika Virus</i> PCR	Serum or plasma, Umbilical cord blood CSF Tissue samples in VTM	Plain tube or EDTA Sterile container	Molecular, HPP Virology, IMR	Microb	

- Sample for HPP will be send every day on working day
- Sample for others referral lab will be sending on Tuesday, sample must reach Jabatan Patologi before 12 pm for pre-analytical processing
- Other out sourced tests for Microbiology- please refer to HKL/IMR/MKAK Sg.Buloh list of test in (Micro ext.166)
- TAT: Refer to User Manual of Referral Laboratories