

VI Chemical Pathology & Haematology**1 Contact information**

General enquiries	2687 4961
Chemical Pathology Laboratory	2687 4957 2687 4949
Scientific Officer (Medical)	2687 4994
Senior Medical Technologist	2687 4975
Haematology & Serology Laboratory	2687 4953 2687 4954
Scientific Officer (Medical)	2687 4995
Senior Medical Technologist	2687 4977
Consultant Pathologist	2687 4984
Facsimile	
General enquiries	2699 4221
Request for laboratory report	2694 7949

2 Specimen containers

(a) Bar-coded collection tubes and containers:

The majority of the blood tests are required to be collected in tubes with bar code labels (Table 1). The main portion of the label is firmly stuck to the tube and the *oval portion* is designed for peeling off and sticking on to the request form for identification & matching.

Table 1: Bar-coded tubes for blood collection

<u>Tube with bar code</u>	<u>Colour of cap</u>	<u>Blood volume after filling to the mark on tube</u>	<u>Major Tests</u> (Please refer to Appendices 1 & 2)
Gel tube	Yellow	3.5 mL	LFT, RFT, iron, TIBC, ferritin, lipid profile, fructosamine, cardiac enzymes, amylase....
Plain tube	Red	4 mL	- Hormones including thyroid hormones - Tumour marker e.g. PSA, AFP - Immunochemistry e.g. C3, C4, RF.... - Drugs, vitamin B12, serum folate.... - Antibody detection: Antinuclear antibodies, blood group antibodies etc.
Fluoride tube	Grey	2 mL	Glucose
EDTA tube	Purple	3 mL	CBC, ESR, haemoglobin pattern, haemoglobin A1c, red cell folate, lead...
Citrate tube	Blue cap	2.7 mL	Coagulation study, HLA B27

(b) Collection tubes & containers without bar codes:

<u>Tube/Container without bar code</u>	<u>Feature</u>	<u>Sample type</u>	<u>Test</u> (Please refer to Appendices 1 & 2)
EDTA tube	Purple cap	3 mL of blood	Blood groups (ABO, Rh(D)) only
Plastic box, or Plain bottle	No preservative	Semen, Stool	Semen analysis Occult blood
Plain bottle	No preservative; Size ~ 25 mL.	Urine, body fluid	Spot urine/body fluid for Chemical Pathology test
24-h urine bottle	Size of 4 L	24-hour urine	24-hour urine for chemistry test

(c) Specimen tubes/containers can be obtained as described in section VII of this handbook. The quantity requested should be based on the usual consumption of the unit. Keep the tubes/containers in a cool and dry place before use.

3 Request form

(a) Types:

<i>No.</i>	<i>Use for</i>
DH2456 *	Tests of Haematology & Serology, Chemical Pathology; <i>except Blood Grouping.</i>
DH2457	Blood Grouping only

* (rev.06) is the latest version. It is a single sheet request form to replace the old version of DH2456 and DH2456T.

(b) Enter all the fields in the request form:

<i>Field</i>	<i>Requirement</i>	<i>Note</i>
Surname	Block letters, clear & legible	Shown on the report
Other Names	Block letters, clear & legible	
HKID No.	Legible, including check digit	
Sex [@]	Male (or M); Female (or F)	
Age/DOB	Date of birth is desirable; DO NOT enter "adult", "child"	Age shown on the report
Clinical Diagnosis	Diagnosis and/or history	Useful information
Dr	Block letters, clear & legible	Shown on the report
Signature	MUST be provided	
Report to Clinic/Institution	Clinic name and <u>LIS code</u> (Chop is preferred)	Clinic name shown on the report
Clinic/Institution reference	As a reference for clinic staff, such as AN no., room no. etc. to facilitate sorting/filing. <i>Maximum 14 characters</i>	Shown on the report for clinic use <u>if</u> it is provided on the request form.
Date Requested		Necessary information
Date & Time Sample Collected [#]	Clear & legible.	Shown on the report

[@]If sex is not indicated, sex-dependent reference ranges will not be shown on the report.

[#] Please remember to put down the collection time if it is clinically relevant.

- (c) Tick the boxes to order the test(s); write other test(s) at the lower left corner.

Tests included in the profile tests:

<i>Profiles</i>	<i>Tests included</i>
Liver function test	Total protein, Albumin, Total bilirubin, Alk. Phosphatase, ALT
Renal function test	Sodium, Potassium, Urea, Creatinine
Lipid profile	Cholesterol, Triglycerides, HDL-cholesterol, calculated LDL-cholesterol
Thyroid function test	TSH (See Table 1A for Laboratory Investigation Protocol)
CBC	Haemoglobin, RBC, Hct, red cell indices, WBC, Platelet count
CBC & Diff	Haemoglobin, RBC, Hct, red cell indices, WBC, Platelet count, differential count on white cell

- (d) Prepare the appropriate tubes/containers for sampling as indicated in Appendices 1 & 2.
- (e) A patient’s demographic data (name, sex, ID number, date of birth) must be the same in each request. If the current data is different from the previous one (as checked by the Laboratory Information System), the clinic staff have to clarify these data. The request form will be returned/faxed to the clinic staff who will be required to make amendment with signature & dated. The report will be withheld until the data concerned are clarified.
- (f) The Laboratory staff will not change or enter any data/information obtained over the phone on behalf of clinic staff.

4 **Specimen**

- (a) Safety practice in specimen collection:

- Collect specimen using safety precautions and personal protective equipment in accordance with infection control guidelines of your institution.
- Dispose of any potentially contaminated materials used for specimen collection in accordance with infection control guidelines of your institution and Code of Practice promulgated by the Environmental Protection Department.

- (b) Each sample must be collected in an appropriate tube/container; the specimens have to be treated appropriately according to the requirement listed in this Handbook.
- (c) Fresh samples are recommended for analysis; accuracy of the results may be affected if the specimens are stored overnight.
- (d) Specimens for the following tests require same day delivery to CPLC for immediate processing:

<u>Chemical Pathology</u>
Ceruloplasmin
Creatine kinase (CK)
Lactate dehydrogenase (LD)
Magnesium
Osmolality <i>(Send to CPLC within 3 hours after collection)</i>
Phosphate, inorganic
Potassium
RBC folate
Serum folate
Vitamin B12

<u>Haematology & Serology</u>
Antenatal Screening for MCV
Coagulation studies (e.g. PT, APTT) <i>(Send to CPLC within 2 hours after collection)</i>
ESR
Semen analysis <i>(Send to CPLC within 1 hour after collection)</i>

- (e) Other specimens may be stored overnight at 4°C if same day delivery to the laboratory is not possible.
- (f) Blood must be filled to the mark of the tube (gel / plain / EDTA / fluoride / citrate).
- (g) For 24-urine specimen collection, the bladder should be emptied at the start time, without collecting the urine. Thereafter and within the next 24 hours, all urine passed should be collected, including the urine voided at the end of the 24-hour period. The start and end time of urine collection should be clearly written on the specimen container.
- (h) Label the specimens clearly, legibly and correctly:

<u>Type of Tube/Container</u>	<u>Label required</u>	<u>Remarks</u>
Tube with bar code (gel/plain/EDTA/fluoride/citrate)	HKID number (or other ID number)	DO NOT write over/mask the bar codes
EDTA tube without bar code: For Blood Grouping only	Name, HKID no. (or other ID no.), Clinic name & Clinic's reference no.	*Blood grouping specimens must be labelled with 4 entries
Citrate tube without bar code	Name and HKID number	2 entries are required for non bar-coded tube
Plastic container / bottle and other special container	Name and HKID number	

* Specimen for **Blood Grouping** using EDTA tube with or without bar code: the label requirement is the same - **Name, HKID no. (or other ID no.), clinic name & clinic's reference no.**

- (i) Check that the entry/entries on the tube/container is/are **correct and identical** to that of the request form. Entries of "Name" should be in the same language, otherwise, are not treated as identical.
- (j) Peel off the oval bar code from each specimen and stick it on the lower right corner of the request form. One oval sticker corresponds to one specimen tube.
- (k) Each specimen must be individually wrapped in a sealed plastic bag to avoid contamination.

5 Packing and dispatch

- (a) Check that the specimens match with the tests ordered.
- (b) Fold the request form twice without creasing the bar code(s) on the form.
- (c) Place the specimen(s) of the client together with the folded request form in one medium-sized plastic zip-bag.
- (d) Firmly seal the zip-bag to hold the request form and the corresponding specimen(s) in one pack.
- (e) Gather all the medium-sized zip-bags in one large plastic bag, which bears a green "CPLC" label, and dispatch it to Clinical Pathology Laboratory Centre at Lek Yuen Health Centre, Shatin.
- (f) Ensure that the "CPLC" bag does not contain specimens for Virology, Bacteriology, VDRL, Cytology, TB tests - they are tested in Public Health Laboratory Centre, Shek Kip Mei.
- (g) In case there is unavoidable delayed delivery of specimens, e.g. suspension of service due to Typhoon signal no. 8, keep these specimens in one single pack and label date of collection clearly on the green "CPLC" label before dispatch upon resumption of service.

6 Reports

- (a) The users will receive the laboratory reports at their fax machine via our Laboratory Information System (LIS). Hence, the users should note the followings:
- (1) The request forms will not be returned to the users.
 - (2) The fax machine is ON and there is adequate paper in the machine to receive the fax reports in batches after office hours (scheduled LIS-fax).
 - (3) Urgent/panic results will be sent by fax as soon as possible.
 - (4) Specimen types, other than blood specimens, are specified in the report.
 - (5) Reference ranges may be revised as needed. Please refer to the laboratory report for the most updated reference ranges.
 - (6) Turnaround time (TAT) of report depends on the mix of tests requested. The TAT in Appendices 1 and 2 refers to the specific test(s) only.
- (b) Clinics/units will receive the LIS-reports in batches within the turnaround time. If the clinic/unit wants the report before or after the LIS-fax schedule, the responsible staff should complete a request form and fax to Registration Section (Fax no.: 2694 7949; Tel no.: 2687 4920) for arrangement.

7 Additional notes for sending specimens

- (a) Generally, one request form (DH2456) is for ordering multiple tests of Chemical Pathology, Haematology & Serology, which are packed together with the specimens in one medium-sized zip-bag.

However, 2 request forms are required for ordering Antenatal Screening

DH2456 for [Hb & MCV]; and
DH2457 for [ABO, Rh(D)]

- (b) Sending 2 separate packs is desirable for requesting 24-hour urine test and a haematological test:

1 pack of a bottle of 24-hours urine + DH2456 [e.g. urine protein], and
1 pack of EDTA blood + DH2456 [e.g. CBC]

- (c) 2 EDTA-specimens are required when:

- HbA1c and Hb pattern are requested
- lead analysis and CBC are requested
- RBC folate and CBC are requested

- (d) 2 EDTA-specimens are desirable when:

- ESR and CBC are requested

Appendix 1 - Chemical Pathology - List of tests and notes

TEST (Blood)	Volume of blood	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Alanine aminotransferase (ALT)	3.5 mL	GT		2
Albumin	3.5 mL	GT		2
Alkaline phosphatase	3.5 mL	GT		2
Alkaline phosphatase, heat stable isoenzyme	3.5 mL	GT		7
Alpha-fetoprotein (AFP)	4 mL	P		4
Amylase	3.5 mL	GT		2
Aspartate aminotransferase (AST)	3.5 mL	GT		2
Bilirubin, direct	3.5 mL	GT		2
Bilirubin, total	3.5 mL	GT		2
Calcium	3.5 mL	GT		2
Carbamazepine (Tegretol)	4 mL	P	Take blood immediately before next dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Carbon dioxide (CO ₂) content	3.5 mL	GT		2
Carcinoembryonic antigen (CEA)	4 mL	P		7
Chloride	3.5 mL	GT		2
Cholesterol (total)	3.5 mL	GT	12-hour fasting is required if LDL-C is requested. @ Source of reference interval.	2
Cholesterol, high density lipoprotein (HDL-cholesterol)	3.5 mL	GT		2
Cholesterol, low density lipoprotein (LDL-cholesterol)			12-hour fasting is required. Calculated LDL-cholesterol = Total cholesterol - Triglycerides x 0.45 - (HDL-cholesterol). Not applicable with triglycerides > 4.5 mmol/L and in the presence of chylomicrons. @ Source of reference interval.	2
Pseudocholinesterase	3.5 ml	GT	For insecticide (organophosphates) poisoning.	2
Complement C3	4 mL	P	Fasting blood sample is required.	10
Complement C4	4 mL	P	Fasting blood sample is required.	10
Cortisol	4 mL	P	Take blood at 07:00 - 09:00 hour, 16:00 - 18:00 hour. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Creatine kinase (CK)	3.5 mL	GT		2
C-Reactive protein (CRP)	4 mL	P	Fasting blood sample is required.	10
Creatinine	3.5 mL	GT		2
Ferritin	3.5 or 4 mL	GT or P		7
Folate (serum)	4 mL	P	Fasting blood preferable. Protect from light.	7
Folate (RBC)	3 mL	EDTA	Fasting blood preferable. 1 EDTA-blood solely for folate. Protect from light.	7
Fructosamine	3.5 mL	GT	Should be interpreted with care when there is abnormal serum protein concentration.	2
Gamma-glutamyl transferase (GGT)	3.5 mL	GT		2
Glucose	2 mL	F	If the blood is drawn after fasting overnight, indicate " <i>fasting</i> " on the form; if not, mark the time (hours postprandial) on the form.	2
Glucose tolerance test (GTT) (75 g anhydrous glucose (MW 180) or 82.5 g monohydrate glucose (MW 198))	2 mL	F	Take normal diet for 3-4 days and then fast overnight before blood taking/glucose loading. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2

GT: Gel Tube P: Plain Tube F: Fluoride Tube

TEST (Blood)	Volume of blood	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Immunoglobulin A (Ig A)	4 mL	P	Fasting blood sample is required.	10
Immunoglobulin G (Ig G)	4 mL	P	Fasting blood sample is required.	10
Immunoglobulin M (Ig M)	4 mL	P	Fasting blood sample is required.	10
Immunoglobulin pattern (IgA, IgG, IgM)	4 mL	P	Fasting blood sample is required.	10
Iron	3.5 mL	GT	Collect morning sample for the test. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2
Iron, total binding capacity (TIBC)	3.5 mL	GT	Collect morning sample for the test. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2
Iron saturation	3.5 mL	GT		2
Lactate dehydrogenase (LD)	3.5 mL	GT		2
Lead	3 mL	EDTA	1 EDTA-blood solely for Lead; not share with other tests.	12
Lithium	4 mL	P	Take blood at 12 hours post dose.	7
Liver function test (LFT) (Includes total protein, albumin, total bilirubin, alkaline phosphatase, alanine aminotransferase)	3.5 mL	GT		2
Magnesium	3.5 mL	GT	State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2
Osmolality	3.5 mL	P	Avoid contamination of blood with ethanol or propanol. The specimen should reach laboratory within 3 hours after collection.	2
Phenytoin (Dilantin)	4 mL	P	Take blood immediately before next dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Phosphate, inorganic	3.5 mL	GT	State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2
Potassium	3.5 mL	GT	State the <u>collection time</u> (e.g. 10:30 am) on the request form.	2
Prostate specific antigen (PSA)	4 mL	P		4
Protein, total	3.5 mL	GT		2
Renal function test (Includes sodium, potassium, urea, creatinine)	3.5 mL	GT		2
Rheumatoid factor (RF)	4 mL	P	Fasting blood sample is required.	10
Sodium	3.5 mL	GT		2
Thyroid function test	4 mL	P		4
Thyroxine, free (FT4)	4 mL	P	Laboratory Investigation Protocol :	4
Triiodothyronine, free (FT3)	4 mL	P	* please see Table 1A	4
Thyroid stimulating hormone (TSH)	4 mL	P		4
Triglycerides	3.5 mL	GT	A fasting sample, for at least 12 hours, is required. This should be indicated on the request form. @ Source of reference interval.	2
Urate (Uric acid)	3.5 mL	GT		2
Urea	3.5 mL	GT		2
Valproate (Valproic acid)	4 mL	P	Take blood immediately before next dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Vitamin B12	4 mL	P	Fasting blood preferable. Protect from light.	7

GT: Gel Tube P: Plain Tube

@ Source of reference interval : NCEP ATP III. JAMA, 2001; 285(19): 2486-97.

TEST (Urine – fresh sample required)	Minimum volume of urine	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Calcium	24 hr	24B (A)		5
Catecholamines	24 hr	24B (A)	Avoid patient stress, exercise, smoking, pain and caffeine products. The patient should not be subjected to hypoglycaemia or exertion.	14
Chloride	24 hr	24B		5
Creatinine	24 hr	24B	Same day delivery unless keep refrigerated.	5
Creatinine clearance test (Blood and urine creatinine)	24 hr	24B	Same day delivery unless keep refrigerated. Provide height and weight of the patient for calculation.	5
Chyle	10mL	PU	Qualitative test	7
Albumin	24 hr (or 5 mL [@])	24B (or PU [@])	[@] Use first morning sample where practicable. Same day delivery unless keep refrigerated. State the dipstick score on the request form. Do not collect specimen after exertion, in the presence of urinary tract infection, during acute illness, immediately after surgery, or after an acute fluid load.	10
Osmolality	5 mL	PU	Keep refrigerated if the specimen cannot reach laboratory within 3 hours after collection.	2
Phosphate, inorganic	24 hr	24B (A)		5
Potassium	24 hr (or 5 mL [@])	24B (or PU [@])	[@] Random urine potassium is useful ONLY when serum potassium is also performed at the same time.	5
Protein, total	24 hr	24B	Same day delivery unless keep refrigerated.	5
Reducing substances	10 mL	PU	Qualitative test. Send urine to laboratory immediately. Large quantities of salicylates, penicillin, ascorbic acid, nalidixic acid, cephalosporins, glucuronic acid, creatinine, uric acid, formaldehyde, probenecid may cause false positive results.	7
Sodium	24 hr (or 5 mL [@])	24B (or PU [@])	[@] Random urine sodium is useful ONLY when serum sodium is also performed at the same time.	5
Urate	24 hr	24B	On usual diet.	5
Urea	24 hr	24B	Same day delivery unless keep refrigerated.	5
Vanillylmandelic acid (VMA)	24 hr	24B (A)		14

PU: Plain Urine Bottle 24B: 24-hours Urine Bottle 24B(A): 24-hours Urine Bottle (Addition of preservative)

TEST (Other body fluids)	Minimum volume of fluid	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Amylase	4 mL	P / PB	Send fresh body fluid to laboratory immediately after collection.	2
Chloride	4 mL	P / PB		2
Creatinine	4 mL	P / PB		2
Glucose	2 mL	F		2
Lactate dehydrogenase (LD)	4 mL	P / PB		2
Potassium	4 mL	P / PB		2
Protein, total	4 mL	P / PB		2
Sodium	4 mL	P / PB		2
Urate (Uric acid)	4 mL	P / PB		2
Urea	4 mL	P / PB		2

P: Plain Tube PB: Plain Bottle F: Fluoride Tube

TEST (Faeces)	Minimum volume of faeces	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Occult blood	5 g	Px	<p>Same day delivery to CPLC is recommended. If not possible, store at 2-8°C before delivery on the next day.</p> <p>Qualitative test –</p> <p>It is recommended that the patient be placed on a high residue diet starting 2 days before the test period.</p> <p>DIET MAY INCLUDE:</p> <p><u>Meats:</u> Only small amounts of well-cooked chicken, turkey and tuna.</p> <p><u>Vegetables:</u> Generous amounts of vegetables including lettuce, corn, spinach, carrots and celery.</p> <p><u>Fruits:</u> Plenty, especially prunes & apples.</p> <p><u>Cereals:</u> Bran and bran-containing cereals</p> <p>AVOID:</p> <p><u>Meat:</u> Diet should not include any red or rare meat e.g. beef, lamb</p> <p><u>Fruits & vegetables:-</u> restriction of peroxidase rich fruits and vegetables such as broccoli, cauliflower, turnip, horseradish, parsnip, red radishes, and cantaloupe.</p> <p>OTHER FACTORS which affect the test:</p> <p><u>Medications:</u> For 7 days prior to test and during the testing, do not ingest aspirin or other anti-inflammatory medicines. For 2 days prior to and during testing, do not use rectal medicines or tonics or vitamin preparations which contain Vitamin C (ascorbic acid) in excess of 250 mg per day.</p>	4

Px: Plastic Box

 * **Table 1A**

Clinical Information	Initial Test	Further Test
Suspected hyperthyroidism	sTSH	FT4 if ↓ sTSH
Suspected hypothyroidism	sTSH	FT4 if sTSH result abnormal
Suspected 2° hypothyroidism	FT4	
2° hypothyroidism on T4	FT4	
Hyperthyroidism on treatment	Clinically toxic/euthyroid Clinically hypothyroid	FT4 FT4, sTSH
1° hypothyroidism, thyroid nodule or carcinoma on thyroxine	sTSH, FT4	

Referral Tests

TEST (Blood)	Volume of blood	Specimen container	Notes on collection & storage, remarks (if any)	T/T (Day)
Antitrypsin, alpha-1	4 mL	P		12
Caeruloplasmin	4 mL	P	Prolonged storage at room temperature leads to decreased levels.	12
Copper	4 mL	P		14
Digoxin	4 mL	P	Take blood > 6 hours post dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Follicle stimulating hormone (FSH)	4 mL	P		12
Growth hormone	4 mL	P	Random samples are of little value. It should be requested as part of a stimulation or suppression test.	12
Haptoglobin	4 mL	P		12
Human chorionic gonadotrophin (HCG)	4 mL	P		12
Immunoglobulin E (IgE)	4 mL	P		21
Luteinizing hormone (LH)	4 mL	P		12
Oestradiol (Estradiol)	4 mL	P		12
Parathyroid Hormone, PTH	3 mL	EDTA	The specimen should be wrapped in a plastic bag and kept on ice during transportation. Prior arrangement with CPLC at 2687 4920 is required.	21
Phenobarbital (Luminal)	4 mL	P	Take blood immediately before next dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Progesterone	4 mL	P		12
Prolactin	4 mL	P		12
Protein electrophoresis pattern	3.5 mL	GT	Qualitative test	14
Testosterone	4 mL	P		12
Theophylline	4 mL	P	Take blood immediately before next dose. State the <u>collection time</u> (e.g. 10:30 am) on the request form.	7
Zinc	4 mL	P	Acid-washed container is required. Call 2687 4920 for arrangement.	14

TEST (Urine – fresh sample required)	Volume of urine	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Amino acid chromatography	20 mL	PU	Send urine to laboratory immediately.	14
Bence Jones protein	20 mL	PU	Qualitative test. Send urine to laboratory immediately.	14
Copper	24 hr	24B	Acid-washed container is required. Call 2687 4920 for arrangement.	14
Cortisol	24 hr	24B		12
5-Hydroxyindoleacetic acid (5-HIAA)	24 hr	24B(A)	Bananas, pineapples, egg plant, tomatoes, plums, and walnuts must be excluded from diet 1 day prior to specimen collection. Phenothiazines should likewise be discontinued.	14
Lead	24 hr	24B	For known lead poisoning case only. Acid-washed container is required. Call 2687 4920 for arrangement.	14
Magnesium	24hr	24B(A)		12

GT: Gel Tube P: Plain tube PU: Plain Urine Bottle 24B: 24-hours Urine Bottle
 24B(A): 24-hours Urine Bottle(Addition of preservative) PB: Plain Bottle Px: Plastic Box

TEST (Urine – fresh sample required)	Volume of urine	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Metabolic screening	20 mL	PU	Qualitative test. Protect the specimen from light; send it to laboratory immediately. Prior arrangement with CPLC at 2687 4994 is required.	14
Oxalate	24 hr	24B(A)		21
Porphyrins	20 mL	PU	Qualitative test. Protect the specimen bottle from light; send it to laboratory immediately.	7
Porphobilinogen	10 mL	PU	Qualitative test. Protect the specimen bottle from light; send it to laboratory immediately.	12

TEST (Miscellaneous)	Volume	Specimen container	Notes on collection & storage, remarks (if any)	T/T (day)
Calculus	Whole portion	PB / Px		12

GT: Gel Tube P: Plain tube PU: Plain Urine Bottle 24B: 24-hours Urine Bottle
 24B(A): 24-hours Urine Bottle(Addition of preservative) PB: Plain Bottle Px: Plastic Box

Appendix 2 - Haematology & Serology - List of tests and notes

TEST	Volume of blood	Specimen container	Notes on collection & storage, remarks	T/T (day)
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Blood Counts:

Complete Blood Count [CBC (± Diff / Retic / RBC Morphology)]	3 mL	EDTA		2
Erythrocyte Sedimentation Rate [ESR]	3 mL	EDTA		2

Coagulation Studies:

Prothrombin Time (with or without International Normalized Ratio) [PT (± INR)]	3 mL	Citrate	Blood for coagulation studies must be <u>freshly drawn, filled exactly to the mark</u> of the tube.	2
Activated Partial Thromboplastin Time [APTT]	3 mL	Citrate	The specimen should be wrapped by a plastic bag and <u>kept in an ice-chilled box/ container</u> during transportation. State the <u>collection time</u> (e.g. 10:30 am) on the request form. Send to CPLC <u>within 2 hours</u> .	2

Immunohaematology & Serology:

ABO Grouping & Rh (D) Typing	3 mL	EDTA (no bar code)	All blood grouping—use only DH2457 1 EDTA blood + DH2457 in one medium-sized zip-bag. Do not use this request form for Hb & MCV screening.	3
Antenatal Screening (CBC) <i>Excluding Blood Grouping</i>	3 mL	EDTA	CBC will be reported when a stamp of “MCV Screening in MCHC” is marked; no need to tick any box of DH2456.	2

Haemoglobin Studies:

Haemoglobin Pattern: Hb electrophoresis, HbA ₂ level, HbF level, HbH inclusion demonstration.	3 mL	EDTA	For cases of “low MCV” and/or clients with family history of haemoglobinopathy.	8*
Haemoglobin A1c level	3 mL	EDTA		4

*16 days for abnormal haemoglobin pattern

Immunology:

Anti-thyroid antibodies: Anti-microsomal antibodies & Anti-thyroglobulin antibodies	4 mL	Plain		7
Anti-nuclear Antibody [ANA] ± Anti-nDNA	4 mL	Plain		8

TEST	Volume of blood	Specimen container	Notes on collection & storage, remarks	T/T (day)
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Miscellaneous:

HLA-B27 Typing	10 mL	Citrate	Call Laboratory Staff at 2687 4953 for special arrangement/booking. Specimens without prior arrangement will not be entertained. Deliver sample to CPLC before 12:00 noon on the day of blood collection.	3
Semen analysis (include: sperm count, motility, morphology and blood cell density)	Whole stream of ejaculation	Clean bottle	Sample should be collected after a minimum of 48 hours and no longer than 7 days of sexual abstinence. The sample should be protected from extremes of temperatures (not less than 20°C and not more than 40°C) during transport to CPLC. State the <u>collection time</u> (e.g. 10:30 am) on the request form. Deliver sample to CPLC within 1 hour after collection. For enquiry, call Laboratory Staff at 2687 4954.	1
Sperm count (sperm motility, morphology and blood cell density will not be performed)				1

Referral Tests

TEST	Volume of blood	Specimen container	Notes on collection & storage, remarks	T/T (day)
Direct Antiglobulin Test	3 mL	EDTA	Call Laboratory Staff at 2687 4924 for arrangement.	5
Indirect Antiglobulin Test	4 mL	Plain		5

Appendix 3 - Abbreviations on request form (DH2456)

<i>Abbreviation</i>	<i>For</i>
HKID No.	Hong Kong Identity Card Number
DOB	Date of birth
Dr.	Doctor's name
<i>Abbreviation</i>	<i>Description</i>
(Test)	(Test)
ALT	Alanine aminotransferase
ANA	Antinuclear antibodies
Anti-Tg/Tm	Anti-thyroglobulin antibody / Anti-microsomal antibody
APTT	Activated Partial Thromboplastin Time
CBC	Complete Blood Count
CBC & Diff	Complete Blood Count & Differential Count
ESR	Erythrocyte Sedimentation Rate
OGTT	Oral Glucose Tolerance Test
PT/INR	Prothrombin Time/International Normalized Ratio
Retics	Reticulocytes
RF	Rheumatoid Factor
TSH	Thyroid Stimulating Hormone
FT4	Free thyroxine
FT3	Triiodothyronine
VMA	Vanillylmandelic acid

Appendix 4 - Abbreviations on laboratory report

<i>Abbreviation</i>	<i>Description</i>
Ab	Antibody/antibodies
APTT	Activated Partial Thromboplastin Time
BASO	Basophil
EOS	Eosinophil
ESR	Erythrocyte Sedimentation Rate
Gamma GT	Gamma Glutamyl Transferase
GPT/ALT	Glutamate Pyruvate Transaminase / Alanine aminotransferase
HCT	Haematocrit
HDL	High Density Lipoprotein
HGB	Haemoglobin
HPLC	High Performance Liquid Chromatography
INR	International Normalized Ratio
LDL	Low Density Lipoprotein
LYMPH	Lymphocyte
MCH	Mean Cell Haemoglobin
MCHC	Mean Cell Haemoglobin Concentration
MCV	Mean Cell Volume
MONO	Monocyte
MPV	Mean Platelet Volume
NEUT	Neutrophil
NRBC	Nucleated Red Blood Cell
PLT	Platelet
RBC	Red Blood Cell
RDW	Red Cell Distribution Width
RETIC	Reticulocyte
WBC	White Blood Cell (Leukocyte)