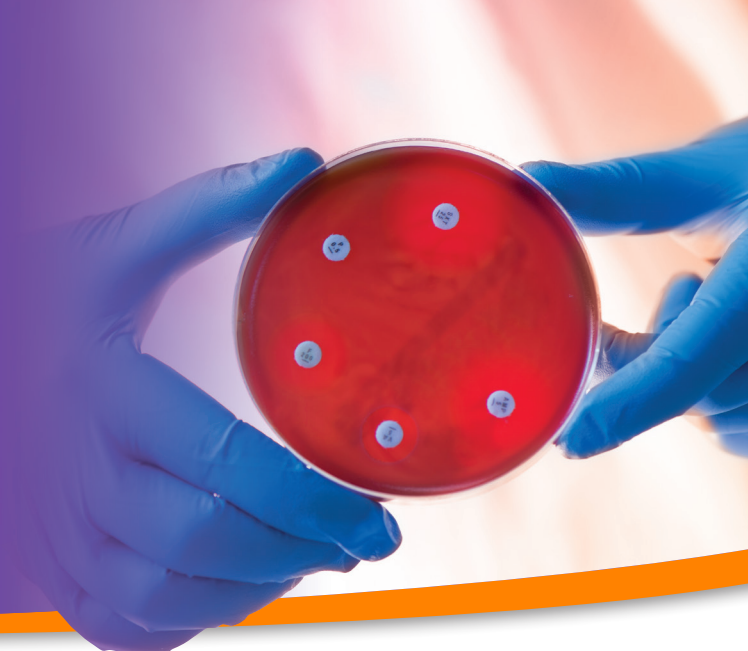


GUIDE TO PATHOLOGY TESTS

This quick reference guide may be useful in some clinical situations. The suggested investigations are neither comprehensive nor applicable in all circumstances. Tests should be selected after consideration of the patient's clinical history, signs, symptoms and previous test results.

For further information, please contact our pathologists, senior scientists or refer to The Royal College of Pathologists of Australia manual at www.rcpamanual.edu.au



A

ABDOMINAL PAIN

Baseline: ECU, LFT, CRP, cTn, Lipase, Amylase, HCG, FBE, urine MCS
Additional: Calcium, Phosphate, Lactate, Blood Gas, faeces (MCS, OCP, PCR), Urine Porphobilinogen
Supplementary: Blood Culture, H. Pylori Faecal Antigen Test, Urea Breath Test

ADRENOCORTICAL FUNCTION

Addison's disease

Baseline: S-Cortisol, ACTH, ECU
Additional: Synacthen stimulation test.
Supplementary: Adrenal-Ab, thyroid-Ab, ovarian-Ab, Tuberculosis, septicaemia, HIV, 17-OHP, VLCFA, Fine Needle Biopsy

Cushing syndrome

Baseline: 3 x 24 hour urinary free cortisol, or 1 mg overnight Dexamethasone Suppression Test, am serum Cortisol.
Additional: Prolonged Dexamethasone Suppression test, ACTH, Electrolytes, midnight salivary Cortisol.
Supplementary: Diagnostic imaging

Congenital Adrenal Hyperplasia

Baseline: 17-OHP, Electrolytes
Additional: Renin
Supplementary: Synacthen Stimulation with 17-OHP determination to exclude partial 21-Hydroxylase deficiency

Phaeochromocytoma

Baseline: Plasma Metanephrines or 24 hour Urinary Fractionated Metanephrines
Additional: 24 hour Urinary Catecholamines

ALLERGY

Baseline: RAST
Additional: IgE, FBE, ESR

AMENORRHOEA

Baseline: HCG, LH, FSH
Additional: E2, Prolactin, TFT
Supplementary: Cytogenetics, Ovarian-Ab, Urinary Anabolic Steroids, Testosterone, DHEAs, Androstenedione, 17-OHP

ANAEMIA

Macrocytic

Baseline: FBE, blood film, ECU, LFT, LDH, B12, Folate, TSH
Additional: AIF, PCA, EPG, FLC, Haptoglobin
Supplementary: Bone marrow biopsy

Microcytic:

Baseline: FBE, IS, ECU, LFT
Additional: FOB, EPG, Hb-electrophoresis
Supplementary: Blood Lead

Normocytic:

Baseline: FBE, Reticulocyte count, ESR, ECU, CRP
Additional: IS, B12, folate, LFT
Supplementary: EPG, Bone marrow biopsy

ANTENATAL TESTING

Note: "Antenatal Screen" is no longer a valid test request.

Please specify which of the tests below are requested.

First visit and < 20 weeks: FBE, ECU, LFT, TFT, Blood group and antibodies, Fasting glucose, Rubella Ab status, Hep B surface Antigen and Hep C antibody, HIV serology, Syphilis serology, Urine MCS, Cervical Cytology

Also consider: Maternal antenatal screening (triple test) First Trimester Screen (FTS), or Non-Invasive Pre-Natal test

26 – 28 weeks: FBE, blood group and antibodies, glucose tolerance test.

30 – 36 weeks: FBE, Group B Streptococcal vaginal rectal swab for culture
Additional: Down syndrome and Neural Tube Defect risk assessment
High risk patients: TSH, Thyroid Ab, Vitamin D

ARTHRITIS

Baseline: Rh factor, anti-CCP Ab, ANA, ENA, anti-dsDNA
Additional: FBE, ESR, CRP, Synovial fluid examination and biopsy if indicated

BLEEDING DISORDERS

Baseline: FBE and film, PTT/INR, APTT, Fibrinogen, TT
Additional: Blood: Lupus anticoagulant
Serum: Cardiolipin Ab, β 2GP1
Supplementary: D-Dimer, Assays for Factor VIIIc, Von Willebrand Disease Screen (VIIIc, VIIIaG, VIIIvWF), Factor IX, Factor XI, XIII and Platelet Aggregation or other Factor Assays, Factor V Leiden, Prothrombin 20210, Protein C and S

B



BONE DISEASE & CALCIUM DISORDERS

Baseline: Ca, Mg, PO₄, ALP, Vitamin D, PTH
Additional: ALP isoenzymes (if ALP elevated), P1NP, CTx

BULLOUS SKIN LESIONS

Baseline: Swab for MCS

CHEST PAIN

Baseline: cTn, DDimer
Supplementary: CK, CKMB

CHRONIC FATIGUE

Baseline: FBE, TFT, CRP, ECU, LFT, Cortisol, Glucose
(There are no diagnostic tests for chronic fatigue syndrome)

COELIAC DISEASE

Baseline: Transglutaminase Ab, FBE
Additional: IgG Antigliadin antibody (in cases of IgA deficiency)
Supplementary: Small bowel biopsy

DELIRIUM

Baseline: FBE, ESR, ECU, LFT, TSH, Glucose, Blood Culture, Urine MCS, CRP
Additional: Blood Gas, COHB, Calcium, Salicylate, Lithium, Cortisol
CSF: MCS, blood, protein, glucose, immunoglobulins, Urine Drug Screen

DIABETES MELLITUS

Baseline: Glucose or HbA_{1c} (high risk, asymptomatic)
Monitoring: HbA_{1c}, Urine Albumin
Additional: GTT
Acutely ill: Glucose, ECU, Blood Gas, FBE, Hydroxybutyrate, Lactate, exclude underlying infection, ketones

DIABETES (PREGNANT)

GTT (Traditional): 0 min = 5.4 mmol/L, 2 hour = 7.9 mmol/L
GTT (ADIPS): 0 min = 5.0 mmol/L, 1 hour > 9.9 mmol/L, 2 hour > 8.4 mmol/L

DIARRHOEA

Laboratory requires clinical information.
Suggested testing:

Acute:

Baseline: Faeces MCS (1 per 7 days), PCR, OCP
Additional: Determined by history
Blood Cultures for typhoid, C. difficile toxin testing, viral outbreaks

Chronic:

Baseline: Faeces MCS, OCP, PCR
Additional: Cryptosporidia/Cyclospora stains, Microsporidia stain (HIV patients), Sudan black stain for fat globules
Supplementary: Disaccharidases and/or Reducing Substances, Lactose Tolerance Test, H Breath Test, Coeliac Screen, Laxative Screen Faecal Na, K, Osmolality

ELECTROLYTE DISORDERS

Hyperkalaemia

Consider spurious result, renal failure, acidosis, adrenocortical insufficiency, drug induced, cellular injury.

Baseline: ECU, Glucose, FBE plus platelets
Additional: Aldosterone:Renin ratio, random Urine K and Na

Hypnatraemia

Baseline: ECU
Additional: Serum: Osmolality
Aldosterone:Renin ratio, ADH
Urine: Osmolality, Na, K, Creatinine

Hypokalaemia

Baseline: ECU, Mg, Glucose. Urine Na, K, Mg
Additional: Aldosterone:Renin ratio.
24 hour Urinary Free Cortisol
Urine: Na, K, Cl

Hyponatraemia

Baseline: ECU, glucose, LFT, TSH
Additional: TP, Cholesterol plus Triglycerides, Osmolality, Cortisol, ADH.
Urine Osmolality, Na, K, Creatinine

ERECTILE DYSFUNCTION

Take the following into consideration when assessing the patient:
Assess cardiac risk, diabetes mellitus, testicular failure, drug therapy, post-surgical, prostate radiation, neurological disease, renal failure, psychogenic causes.

Baseline: ECU, LH, FSH, Testosterone, Prolactin, Glucose

GENITAL ULCER

Baseline: Swabs for PCR (Herpes) and MCS
Serum: Syphilis serology

HAEMATURIA

Baseline: Urinalysis, MCS and red cell morphology
Additional: Cytology

HAEMOLYSIS

Baseline: FBE, RETC, DAT, ECU, LFT (inc. bilirubin), LDH, Haptoglobin
Additional: Cold Haemagglutinines
CRP, ANA, DNA, NUC

HEPATITIS

Baseline: LFT, Urinalysis, FBE, PT
Acute: Infectious: Hep A, B, C
Alcoholic hepatitis
Drugs (Paracetamol, anticonvulsants, NSAIDs, etc.)
Hepatic ischemia
Severity and degree determined on liver biopsy
Monitoring: LFTs
EPG (helpful in certain cases)
Consider Hep B, C, autoimmune hepatitis, alcoholic hepatitis, drugs, Wilson's disease, AAT deficiency, PBC, PSC
Granulomatous: Diagnosis requires liver biopsy
Causes: Idiopathic, sarcoidosis, drugs (Allopurinol), infective, Hodgkin lymphoma, Berylliosis

HEPARIN THERAPY

Baseline: APTT

HEREDITARY HAEMOCHROMATOSIS

Baseline: Iron studies, HFE gene mutations (C282Y, H63D)
Additional: HFE mutation S65C, liver biopsy

HIRSUTISM

Baseline: LH, FSH, E₂, Testosterone, SHBG, FAI
Additional: 17-OHP, DHEAS, Androstenedione

HYPERLIPIDAEMIA

Baseline: Cholesterol and triglyceride, HDL
Additional: HDL, LDL, ECU, TSH, Glucose
Supplementary: ApoB, Lp(a), Apo-A, Lipoprotein Electrophoresis

HYPERTENSION

Baseline: ECU, urine MCS
Additional: TFT, 24 hour Urinary Free Cortisol, Plasma/Urine Metanephrines, Aldosterone:Renin ratio

C

D

E

G

H

HYPOGLYCAEMIA

Baseline: Glucose, Insulin, C-peptide
Additional: Cortisol, Growth Hormone, Proinsulin, Oral Hypoglycaemia Screen, Lactate, Hydroxybutyrate

IMMUNODEFICIENCY

Baseline: FBC, WCC diff, blood film, Ig's (G, A, M), Blood Group, lymphocyte immunophenotyping
Additional: IgG subtypes, Neutrophil Function tests

INFERTILITY - MALE

Baseline: Semen analysis (must reach lab in 2 hours with completed patient information sheet)
Additional: LH, FSH, Testosterone, Prolactin, Iron Studies
Supplementary: Chromosome studies, Sperm antibodies, Testicular biopsy

INFERTILITY - FEMALE

Baseline: LH, FSH, day 21 Progesterone, E2
Additional: Prolactin, Testosterone, TFT
Supplementary: Chromosome studies, Endometrial biopsy
Exclude PID, STI

INFLAMMATORY BOWEL DISEASE

Baseline: Faecal Calprotectin, M&C, CRP and ESR

JAUNDICE

See liver disease and haemolysis

LIVER DISEASE

Baseline: ECU, Glucose, LFT, FBE, Coags, serology relevant to history
Additional: Ca, PO4
Supplementary: AAT, Ceruloplasmin, Iron studies, EPG, Urine Copper
ANA, anti-dsDNA, SMA, LKM, IgM, AMA

LUMPS

Biopsy for histological investigation

LYMPHADENOPATHY

Depends on site, age and clinical history/presentation
Baseline: FBE plus diff, EBV, CMV, Throat Swab MCS
Additional: HIV, Syphilis, Toxoplasma, ACE, EPG
Supplementary: Lymph node FNA, TB culture

MALABSORPTION

Baseline: FBE, ECU, LFT, CMP
Stool: MCS, Reducing Substances, Elastase, and Sudan black for fat globules
Additional: IS, B12, folate, Ig's, tTG Ab (coeliac screen), H-breath Test, Lactose Tolerance Test
Supplementary: Small bowel biopsy for histology and disaccharidases

MENOPAUSE

Baseline: E2, LH, FSH

NEPHROCALCINOSIS

Baseline: Stone analysis, ECU, Calcium, Phosphate
Urine Calcium, Oxalate, Uric Acid, pH, Citrate, Cystine, Magnesium
Additional: ACE (to exclude Sarcoid)

OSTEOPOROSIS

Calculate absolute fracture risk:
<http://garvan.org.au/promotions/bone-fracture-risk/calculator/>
Baseline: Blood: Calcium, Phosphate, Albumin, Vitamin D, ALP, PTH
Urine: Calcium, Creatinine, BTM (CTx, P1NP)

PHARYNGITIS

Baseline: Throat swab MCS, EBV, CMV serology, respiratory PCR

POLYURIA

Baseline: ECU, Glucose, Urine MCS
Additional: Urine and serum Osmolality
Supplementary: Water Deprivation test

RENAL DISORDERS/DISEASE

Baseline: FBE, ECU, Calcium, Phosphate, Albumin, Uric Acid, Glucose, Urine Protein and MCS
Additional: Urine Creatinine Clearance

RESPIRATORY INFECTIONS

Baseline: Sputum MCS, respiratory PCR

SEXUALLY TRANSMITTED DISEASES

Baseline: Serum: HIV, Syphilis
Urine: Chlamydia PCR, Gonorrhoea MC&S and PCR
Urethral/vaginal Swab: Chlamydia PCR, Gonorrhoea MC&S and PCR
Additional: Urine: Mycoplasma genitalium PCR
Rectal/throat Swabs: Chlamydia PCR, Gonorrhoea MC&S and PCR
Lesion: Herpes PCR if indicated
Trichomonas: PCR if indicated
Pap smear or dry swab: HPV PCR
If indicated: HBV sAg + Ab, HCV Ab

STEATORRHOEA

Baseline: Faeces: Sudan black stain for fat globules, Elastase

URETHRITIS

See sexually transmitted diseases



O

P

R

S

U

GLOSSARY OF ABBREVIATIONS

AAT	Alpha-1-Antitrypsin	DNA	Anti-Double-stranded DNA Antibody	Mg	Magnesium
ACE	Angiotensin Converting Enzyme	E2	Oestradiol	MCS	Microscopy, Culture & Sensitivity
ACTH	Adrenocorticotrophic Hormone	EBV	Epstein-Barr Virus	M&C	Microscopy & Culture
ADH	Antidiuretic Hormone (Vasopressin)	ECU	Electrolytes, Creatinine & Urea	MTHFR	Methylenetetrahydrofolate Reductase
AIF	Intrinsic Factor Antibody	ENA	Extractable Nuclear Antibody	Na	Sodium
ALP	Alkaline phosphatase	EPG	Serum Protein Electrophoresis	NUC	Nucleosome Antibody
AMA	Anti-Mitochondrial Antibody	ESR	Erythrocyte Sedimentation Rate	OCF	Ova, Cysts and Parasites
ANA	Antinuclear Antibody	FAI	Free Androgen Index	PCA	Gastric Parietal Cell Antibody
ANCA	Anti-Neutrophil Cytoplasmic Antibody	FBE	Full Blood Examination	PCR	Polymerase Chain Reaction
ANNA	Anti-Neuronal Nuclei Antibody	FLC	Serum Free light Chains	PID	Pelvic Inflammatory Disease
APTT	Activated Partial Thromboplastin Time	FNA	Fine Needle Aspiration	PO4	Phosphate
ASOT	Antistreptolysin O / Anti DNase B Titre	FOB	Faecal Occult Blood	PTT	Partial Thrombin time
β2GP1	Beta-2-Glycoprotein 1 Antibody	FSH	Follicle Stimulation Hormone	PTH	Parathyroid Hormone
B12	Vitamin B12	GTT	Glucose Tolerance Test	RAST	Radioallergosorbent Test
BTM	Bone Turnover Markers	HCG	Human Chorionic Gonadotrophin	RETC	Reticulocyte Count
Ca	Calcium	HDL	HDL-Cholesterol	Rh	Rhesus
CCP	Cyclic Citrinulated Peptide Antibody	Hep	Hepatitis (Specify A, B or C Serology)	SMA	Smooth Muscle Antibody
Cl	Chloride	17-OHP	17-Hydroxyprogesterone	STI	Sexually Transmitted Infection
CK	Creatine Kinase	HIV	Human Immunodeficiency Virus	TFT	Thyroid Function Test
CKMB	Creatine Kinase MB	Ig	Immunoglobulin	TP	Total Protein
CMP	Calcium, Magnesium, Phosphate	IgE	Immunoglobulin E	tTG	Tissue Transglutaminase Antibody
CMV	Cytomegalovirus	INR	International Normalised Ratio	TSH	Thyroid Stimulating Hormone
COHB	Carboxyhaemoglobin	IS	Iron Studies	TT	Thrombin Time
CRP	C-Reactive Protein	K	Potassium	Vit D	25-Hydroxy Vitamin D
CSF	Cerebrospinal Fluid	LDH	Lactate Dehydrogenase	VLCFA	Very Long Chain Fatty Acids
cTn	Cardiac Troponin	LDL	Low Density Lipoprotein	WCC	White Cell Count
DAT	Direct Antiglobulin Test	LFT	Liver Function Test		
DHEAS	Dehydroepiandrosterone Sulphate	LH	Luteinizing Hormone		
		LKM	Liver Kidney Microsomal Antibody		

