

Sample Type	Analyte	Test Method Principle
<b>BIOCHEMISTRY :</b>		
plasma	ACTH	Immunochemiluminescence
Serum	AFP	Immunochemiluminescence
Serum	AFP	Immulite 2000 AFP based on 2 site sandwich sequential chemiluminescent
Serum	Alanine Aminotransferase	Colourimetry - Tris Buffer (IFCC w/o pyridoxal phosphate)
Serum	Albumin	Colourimetry - Tris Buffer (IFCC w/o pyridoxal phosphate)
Whole blood	Alcohol	Colourimetry - Enzymatic method with alcoholdehydrogenase
Serum	Alkaline	Phosphatase Colourimetry - AMP Buffer - Rate (IFCC)
Serum	Alpha-1-Antitripsin	Immunoturbidimetric
Serum	Anti-Mullerian Hormone (AMH)	Immunochemiluminescence
Urine	Phencyclidine	Rapid Chromatographic Competitive Binding Immunoassay
Urine	Benzodiazepines	Rapid Chromatographic Competitive Binding Immunoassay
Urine	Barbiturates	Rapid Chromatographic Competitive Binding Immunoassay
Urine	Cocaine	Rapid Chromatographic Competitive Binding Immunoassay
Urine	Propoxyphene	Rapid Chromatographic Competitive Binding Immunoassay
Urine	Amphetamines	Kinetic interaction of microparticles in a solution
Urine	Cannabinoids	Kinetic interaction of microparticles in a solution
Urine	Opiates	Kinetic interaction of microparticles in a solution
Serum/Urine	Amylase	Colourimetry -p-Nitrophenyl (IFCC)
Serum	Apo A	Immunoturbidimetric
Serum	Apo B	Immunoturbidimetric
Serum	Aspartate Aminotransferase	Colourimetry - Tris Buffer (IFCC w/o pyridoxal phosphate)
Serum	Bicarbonate	Colourimetry - Enzymatic (PEPC)
Serum	Beta Cross Laps	Immunochemiluminescence
Serum	Total Bilirubin	Colourimetry – Diazonium Salt
Serum	C3	Immunoturbidimetric
Serum	C4	Immunoturbidimetric
Serum	CA 125	Immunochemiluminescence
Serum	CA 15-3	Immunochemiluminescence
Serum	CA 19-9	Immunochemiluminescence
Serum/Urine	Beta-2-Microglobulin	Immunoturbidimetric
Serum/Urine	Calcium	Colourimetry – BAPTA
Serum	Carbamazepine	Architect Carbamazepine based on CMIA technology
Serum	CEA	Immunochemiluminescence
Serum	Chloride	Indirect ISE
Serum	Cholesterol	Colourimetry - Cholesterol Oxidase / Peroxidase
Serum	CKMB	Colourimetry - Immuno-inhibition
Serum	Cortisol	Immunochemiluminescence
Serum	C-PEPTIDE	Immunochemiluminescence
Serum	Creatine Kinase	Colourimetry - NAC Activator / Imidazole Buffer
Serum/Urine	Creatinine	Colourimetry - Alkaline Picrate - Jaffe
Serum	CRP	Immunoturbidimetric
Whole Blood	Cyclosporin	Architect Cyclosporin based on CMIA technology
Serum	DHEAS	Immunochemiluminescence
Serum	Digoxin	Architect Digoxin based on CMIA technology
Serum	Direct Bilirubin	Colourimetry - Diazo
Serum	Ferritin	Immunochemiluminescence
Serum	Folate	Immunochemiluminescence

Serum	Free T3	Immunochemiluminescence
Serum	Free T4	Immunochemiluminescence
Serum	FSH	Immunochemiluminescence
Serum	Gamma GT	Colourimetric - g - glutamyl - 3 - carboxy - nitro
Serum	Gentamycin	Architect Gentamycin based on CMIA technology
Plasma	Glucose	Colourimetric – hexokinase
Serum	Growth Hormone	Immunochemiluminescence
Serum	Total HCG	Immunochemiluminescence
Serum	Neonatal Bilirubin	APEL Bilirubin Tester based on dual wavelength absorbance
Serum	HDL - Chol	Colourimetry - Non sep DxSo4/PEG mod enzymes
Serum	Homocysteine	Colourimetric – Enzymatic
Serum	IGA	Immunoturbidimetric
Serum	IGE	Immunochemiluminescence
Serum	IGF-1	Immunochemiluminescence
Serum	IGG	Immunoturbidimetric
Serum	IGM	Immunoturbidimetric
Serum/Urine	Inorganic Phosphate	Colourimetry – Phosphomolybdate Reduction
Serum	Insulin	Immunochemiluminescence
Serum	Iron	Colourimetry - FerroZine without deproteinization
Serum	Lactate Dehydrogenase	Colourimetric – Rate L to P
Serum	LH	Immunochemiluminescence
Serum	Lipase	Colourimetry - Glutaric acid ester
Serum	Lipoprotein (a) / Lp(a)	Immunoturbidimetric
Serum/Urine	Magnesium	Colourimetry - Xylidyl Blue
Urine	Microalbumin	Immunoturbidimetric
Serum	NT-pro BNP	Immunochemiluminescence
Serum	Oestradiol	Immunochemiluminescence
Serum/Urine	Osmolality	Osmolality based on Freezing point depression method
Serum	Phenobarbital	Architect Phenobarbital based on CMIA technology
Serum	Phenytoin	Architect Phenytoin based on CMIA technology
Serum/Urine	Potassium	Indirect ISE
Serum	Progesterone	Immunochemiluminescence
Serum	Prolactin	Immunochemiluminescence
Serum	PSA - Free	Immunochemiluminescence
Serum	PSA - Total	Immunochemiluminescence
Serum	Intact PTH	Immunochemiluminescence
Serum/Urine	Sodium	Indirect ISE
Serum	Testosterone	Immunochemiluminescence
Serum	Theophylline	Architect Theophylline based on CMIA technology
Serum	Thyroglobulin	Immunochemiluminescence
Serum	Total Protein	Colourimetry – Biuret
Serum	Transferin	Immunoturbidimetric
Serum	Triglycerides	Colourimetry – Lipase / Glycerol kinase / GPO-PAP
Serum/Urine	Urea	Colourimetry – Urease – Rate
Serum/Urine	Uric Acid	Colourimetry – Enzymatic (Uricase)
Urine	Urine Protein	Turbidimetric (Benzethonium chloride)
Serum	Valproic Acid	Architect Valproic Acid based on CMIA technology
Serum	Vancomycin	Architect Vancomycin based on CMIA technology
Serum	Vitamin B12	Immunochemiluminescence
Serum	Vitamin D	Immunochemiluminescence
Serum/plasma	SHBG	Immunochemiluminescence
Serum	NTD / DWN	First Trimester Screening Siemens Immulite 2000 with Pricsa software for risk calculation
Serum	PAPP-A	(Pregnancy Associate Plasma Protein A) Solid phase, enzyme labelled chemiluminescent immunometric assay
Serum	Rheumatoid Factor	Immunoturbidimetric
Serum	Direct LDL	Colourimetry - Non sep DxSo4/PEG mod enzymes
Serum	Pyrilink-D	Solid phase chemiluminescence enzyme labeled immunoassay
Whole blood	Tacrolimus	Abbott Architect Tacrolimus using Chemiluminescent Microparticle Immunoassay (CMIA) method

Serum	Troponin T-HS	Immunochemiluminescence
Serum	TSH	Immunochemiluminescence
Serum	Unconjugated Estradiol (UE3)	Immulite 2000 UE3 based on Competitive Chemiluminescent Enzyme Immunoassay Method
Whole blood	HbA1C	C513 HbA1C based on turbidimetric inhibition immunoassay (TINIA) - DONE IN HAEMATOLOGY DEPT
Plasma (EDTA)	Aldosterone	Chemiluminescence Technology using IDS-SYS
Plasma (EDTA)	Renin (Direct)	Chemiluminescence Technology using IDS-SYS
Serum	Cholinesterase	Colourimetry-Decoloration of Hexacyanoferrate III to Hexacyanoferrate II
Serum	Fructosamine	Colorimetric test by reaction with nitroblue tetrazolium

## HEMATOLOGY:

Whole blood	Haemoglobin	Photometry
Whole blood	Red cell count	Electrical Impedance
Whole blood	Haematocrit @ PCV	Calculated
Whole blood	MCV	Electrical Impedance
Whole blood	MCH	Calculated
Whole blood	MCHC	Calculated
Whole blood	RDW-CV	Calculated
Whole blood	White cell count	Flourescent Flow Cytometry
Whole blood	Neutrophils	Flourescent Flow Cytometry
Whole blood	Lymphocytes	Flourescent Flow Cytometry
Whole blood	Monocytes	Flourescent Flow Cytometry
Whole blood	Eosinophils	Flourescent Flow Cytometry
Whole blood	Basophils	Flourescent Flow Cytometry
Whole blood	Platelets	Electrical Impedance
Whole blood	ESR	Microaggregation
Whole blood / Blood Smear	Peripheral Blood Film	Microscopy
Whole blood	Reticulocyte count	Flow cytometry
Whole blood	Reticulocyte Haemoglobin Content	Flow cytometry
Whole blood	Malarial Parasite ( Screening Test )	1/ Celldyn Ruby by MAPPs @ Multi Angled Polarized Scatter Separation 2/ Microscopy
Whole blood	Malarial Parasite ( Patient )	Microscopy
Whole blood	Malaria Antigen	Immunochromatography
Whole blood	Microfilaria	Microscopy
Serum	Dengue Antibody ( IgM & IgG )	Fluorescence Immunoassay
Serum	Dengue NS1	Fluorescence Immunoassay
Serum	Infectious Mononucleosis	Agglutination
Bone Marrow	Bone Marrow Examination	Microscopy ( MGG & Iron Stain)
Bone Marrow Trepine	Trepine Examination	Microscopy ( Reticulin and H&E Stain - block and staining by Histology )
Whole blood	Hb Analysis	1/ HPLC Method 2/ Capillary Electrophoresis
Whole blood	HbH Inclusion	Microscopy ( BCB incubation staining )
Whole blood	Kleihauer Test	Acid Elution
Sodium citrate Plasma	PT	Mechanical Clot Detection
Sodium citrate Plasma	INR	Mechanical Clot Detection
Sodium citrate Plasma	APTT	Mechanical Clot Detection
Sodium citrate Plasma	Fibrinogen	Mechanical Clot Detection
Frozen sodium citrate plasma	Lupus Anticoagulant	Mechanical Clot Detection
Frozen sodium citrate plasma	Antithrombin III	Mechanical Clot Detection
Frozen sodium citrate plasma	Protein C	Mechanical Clot Detection
Frozen sodium citrate plasma	Protein S	Mechanical Clot Detection
Frozen sodium citrate plasma	Factor V Leiden	Mechanical Clot Detection
Sodium citrate Plasma	D-Dimer	Fluorescence Immunoassay
Whole Blood	Blood Group	Microtitre plate & Tube Method
Plasma	Direct Antiglobulin	Gel Card
Plasma	Indirect Antiglobulin / Antibody Screening	Gel Card

Whole blood & Serum	Cold Agglutination	Agglutination at 4 degree C
Plasma	Antibody -Titration	Gel card
Plasma	Antibody Identification	Gel card
Plasma & Whole blood	Cross Match	Gel card
Whole blood / Filter paper	G6PD	Fluorescence by UV Light
Whole Blood	Rhesus Phenotyping	Gel card

## MOLECULAR :

Oropharyngeal/Nasopharyngeal Swab VTM	Covid-19 PCR	Real Time PCR
Dry Swab	Covid-19 Rapid Test	Rapid Chromatographic Immunoassay
Dry Swab (Nasal/Throat)	Influenza A & B Rapid Test	Rapid Chromatographic Assay
Plasma	Hepatitis B DNA PCR	Real Time PCR
Plasma	Hepatitis C Viral RNA	Real Time PCR
Plasma	HIV RNA	Real Time PCR
Plasma	HCV Genotyping	Real Time PCR
Dry Swab/1st void urine	Chlamydia Trachomatis/ Neisseria Gonorrhoea PCR	Real Time PCR
Nasopharyngeal swab, BAL, Nasopharyngeal aspirate, Sputum	Respiratory Pathogen Full Panel (26)	Real Time PCR
LBC	Human Pappiloma Virus DNA PCR	Real Time PCR
Dry Swab/1st void urine/LBC	Sexual Transmitted Infection (ST7)	Real Time PCR
Serum/Plasma	Nucleic Acid Testing (NAT)	Nucleic Acid Based Amplification Test
Dry Swab/1st void urine/LBC	STD Molecular Profile	Hybridization Method
Dry Swab (Nasal/Throat)	Influenza A (H1N1) & B PCR	Real Time PCR
CSF/Dry Swab/Plasma	Herpes Simplex 1 & 2 PCR	Real Time PCR
Plasma/CSF/Urine	Cytomegalovirus PCR	Real Time PCR
Plasma/CSF	Epstein Barr Virus PCR	Real Time PCR
Whole Blood EDTA	Alpha Thalassemia Genotyping	Hybridization Method
Whole Blood EDTA	Beta Thalassemia Genotyping	Hybridization Method
Sputum/Swab/Urine/Body Fluid/Tissue	MTB / Non-tuberculosis PCR (send out)	Real Time PCR
Plasma	Zika PCR (send out)	Real Time PCR
Whole blood & Serum	Dengue PCR (send out)	Real Time PCR
	Leptospirosis PCR (send out)	Real Time PCR
Swab	Bordetella Pertussis PCR (send out)	Real Time PCR

## MICROBIOLOGY & SEROLOGY :

Serum	Anti Nuclear Antibodies (ANA)	Indirect Immunofluorescence
Serum	Antistreptolysin O Titre (ASOT)	Latex agglutination
Serum	Antineutrophil Cytoplasmic Antibodies (ANCA)	Indirect Immunofluorescence
Serum	Anti Smooth Muscle Antibody (ASMA)	Indirect Immunofluorescence
Serum	Anti Mitochondrial Antibody (AMA)	Indirect Immunofluorescence
Serum	Anti Cardiolipin Antibody IgG/IgM (ACA)	ELISA
Serum	Anti Citrullinated Peptide Antibody (ACPA)	Fluoroenzymeimmunoassay
Serum	Anti Double Stranded DNA ( Anti-dsDNA)	ELISA
Serum	Anti Extractable Nuclear Antigen (ENA)	ELISA
Serum	Anti Tyroglobulin Antibody (Anti Tg)	Immuno-electrochemiluminescence
Serum	Anti Thyroid Peroxidase Antibody (Anti TPO)	Immuno-electrochemiluminescence
Serum	Allergy (Specific IgE & Total IgE) -Asean Panel (MAP)	Chemiluminescent
Serum	Allergy (Specific IgE & Total IgE)-Single or small profile	Fluoroenzymeimmunoassay
Serum	Allergy (Total IgE)	Electrochemiluminescent

Feaces	Calprotectin	Fluoroenzymeimmunoassay
Serum/plasma	Chikungunya IgG/M	Rapid Chromatographic Immunoassay
Serum/plasma	Chlamydia trachomatis IgG	ELISA
Serum/plasma	Chlamydia trachomatis IgM	ELISA
Serum/plasma	Chromogranin A	ELISA
Serum/plasma	Covid-19 IgG/M	Rapid Chromatographic Immunoassay
Serum/plasma	Cytomegalovirus IgG	Electrochemiluminescent
Serum/plasma	Cytomegalovirus IgM	Electrochemiluminescent
Serum	Epstein Barr Virus (VCA) IgG	ELISA
Serum	Epstein Barr Virus (VCA) IgM	ELISA
Serum	Epstein Barr Virus (VCA) IgA	Chemiluminescence Immunoassay
Serum	Epstein Barr Virus (EA) IgA	ELISA
Serum/plasma	Food Intolerance	Colorimetric microarray-based ELISA
Serum/plasma	HIV Antigen/Antibody (Screening)	Electrochemiluminescent
Serum/plasma	HIV p24 Antigen	Electrochemiluminescent
Serum/plasma	HIV Antibody Confirmation	Enzyme Immunoassay by Western blot technique
Serum/plasma	Hepatitis A Total	Electrochemiluminescent
Serum/plasma	Hepatitis A IgM	Electrochemiluminescent
Serum/plasma	Hepatitis B Surface Antigen (HBsAg)	Electrochemiluminescent
Serum/plasma	Hepatitis B Surface Antibody (HBsAb)	Electrochemiluminescent
Serum/plasma	Hepatitis B e Antigen (HBeAg)	Electrochemiluminescent
Serum/plasma	Hepatitis B e Antibody (HBeAb)	Electrochemiluminescent
Serum/plasma	Hepatitis B Core Total (HBcT)	Electrochemiluminescent
Serum/plasma	Hepatitis B Core IgM (HBcIgM)	Electrochemiluminescent
Serum/plasma	Hepatitis C Antibody (HCV Total)	Electrochemiluminescent
Serum/plasma	Helicobacter pylori Antibody -Screening	Chemiluminescence Immunoassay
Breath	Helicobacter pylori -Urea Breath Test	Measure the 13C change in exhaled respiratory CO2 gas by infrared spectrophotometer
Serum	Herpes simplex IgG Type 1	Immunochemiluminescence
Serum	Herpes simplex IgG Type 2	Immunochemiluminescence
Serum	Herpes simplex IgM Type 1 & 2	ELISA
Serum	Human T-cell Leukemia Virus Type 1&2 (HTLV)	ELISA
Serum/plasma	Leptospirosis IgM	Rapid Chromatographic Immunoassay
Serum/plasma	Leptospirosis IgG/M	Rapid Chromatographic Immunoassay
Serum	Mycoplasma pneumoniae Antibodies	Passive Particle Agglutination
Serum	Mycoplasma pneumoniae IgM	Rapid Chromatographic Immunoassay
Serum	Measles IgG	ELISA
Serum	Measles IgM	ELISA
Serum	Mumps IgG	ELISA
Serum	Mumps IgM	ELISA
Serum/plasma	Rubella IgG	Electrochemiluminescent
Serum/plasma	Rubella IgM	Electrochemiluminescent
Serum	Rapid Plasma Reagin (RPR)	Immunoturbidimetry
Serum/plasma	Salmonella typhi IgG/M (Typhidot)	Rapid Chromatographic Immunoassay
Serum/plasma	Toxoplasma IgG	Electrochemiluminescent
Serum/plasma	Toxoplasma IgM	Electrochemiluminescent
Serum/plasma	Treponema pallidum Antibody	Passive Particle Agglutination
Serum	Tuberculosis IgG	Rapid Chromatographic Immunoassay
Whole blood in Quantiferon sample tube	TB Quantiferon	ELISA
Serum	Widal Weil Felix	Agglutination assay
Serum	Weil Felix	Agglutination assay
Swab/Smear	Gram stain	Microscopy
Tissue/Biopsy/Swab/Bone	Wound Culture	Microscopy, Culture ,Identification & Sensitivity
Peritoneal/Pericardial/Pleural/Bile/Synovial/CSF	Sterile Body Fluid Culture	Macroscopy, Microscopy, Culture ,Identification & Sensitivity
Aerobic/Anaerobic/Pediatric blood culture bottle	Blood Culture -Bacteria	Microscopy, Culture ,Identification & Sensitivity & Blood Culture System
Myco/F lytic Blood culture bottle	Blood Culture -Mycobacterium/ Fungal	Microscopy, Culture ,Identification & Sensitivity & Blood Culture System
Transport Swab	Ear Culture	Microscopy, Culture ,Identification & Sensitivity
Transport Swab	Eye Culture	Microscopy, Culture ,Identification & Sensitivity

Transport Swab	Vaginal/Endocervical/Urethral/IUCD culture	Microscopy, Culture ,Identification & Sensitivity
Transport Swab	Throat/ Nasal/Nasopharygeal Culture	Culture ,Identification & Sensitivity
Sputum/Aspirate	BAL/Sputum/Tracheal aspirate/NPA Culture	Microscopy, Culture ,Identification & Sensitivity
Corneal/Hair/Nail/Skin etc.	Fungal Culture	Microscopy, Culture ,Identification
Faeces/ Rectal swab	Faeces culture	Macroscopy, Microscopy, Culture ,Identification & Sensitivity
Urine/Sputum/Aspirate/Tissue/Body fluid	Mycobacterium culture	Microscopy & Culture, Identification & Sensitivity, Liquid culture system
Urine/Sputum/Aspirate/Tissue/Body fluid	Mycobacterium stain	Ziehl Neelsen, Auramine stain
Urine	Urine Culture	Microscopy, Culture ,Identification & Sensitivity
Urine	Urine FEME	Chemistry & Microscopy
Urine	Urine Pregnancy Test	Rapid Chromatographic Immunoassay
Urine	Legionella Urinary Antigen	Rapid Chromatographic Immunoassay
Faeces	Rotavirus Antigen	Rapid Chromatographic Immunoassay
Faeces	M2-PK	Rapid Chromatographic Immunoassay
Faeces	Occult blood -Immunological	Rapid Chromatographic Immunoassay
Faeces	Norovirus Antigen	Rapid Chromatographic Immunoassay
Nasopharyngeal swab/wash/aspirate	Influenza A/B/RSV/Adenovirus Antigen	Rapid Chromatographic Immunoassay
Nasopharyngeal swab/wash	Respiratory Syncytial Virus Antigen	Rapid Chromatographic Immunoassay
Urine	Streptococcus pneumoniae Antigen	Rapid Chromatographic Immunoassay
Faeces	Clostridium Difficile Toxin A&B	Rapid Chromatographic Immunoassay
Serum/Urine/CSF	Bacterial Antigen	Latex Agglutination Assay
CSF/Plasma/Serum	Cryptococcal Antigen	Rapid Chromatographic Immunoassay
Serum/Plasma/Whole blood	Procalcitonin	Fluorescence Immunoassay
Corneal/Hair/Nail/Skin etc.	KOH Wet prep	Microscopy
Peritoneal/Pericardial/Pleural/Bile/Synovial/CSF	Cell count	Microscopy