

## Bionova Laboratory Tests

### Complete Blood Count + Differential Count (CBCD)

Billing Code	85022
Clinical Significance	To asses general health and/or to detect various hematologic disorders
Patient Preparation	-
Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	0.5 ml
Rejection Criteria	Overfilled, clotted
Methodology	Automated cell measurement by impedance
Critical Values	Variable by age and sex; refer to laboratory
Turn Around Time	24 hours

### Erythrocyte Sedimentation Rate (ESR)

Billing Code	85651
Clinical Significance	To help in diagnosing conditions that cause inflammation
Patient Preparation	-
Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	2 ml
Rejection Criteria	Overfilled, clotted
Methodology	Westergren method
Critical Values	> 120 mm
Turn Around Time	24 hours

### Reticulocyte Count

Billing Code	85044
Clinical Significance	To asses red blood cell production by the bone marrow
Patient Preparation	-
Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	0.5 ml
Rejection Criteria	Overfilled, clotted, non-fresh sample
Methodology	Automated cell measurement by impedance
Critical Values	Variable by age and sex; refer to laboratory
Turn Around Time	24 hours

### Cell Count with Differential Count (Body Fluid)

Billing Code	85050 + 85051
Clinical Significance	To enumerate RBCs and WBCs and/or to detect infections or malignancies
Patient Preparation	-

Sample Requirements	Body fluid collected by physician in a clear tube
Min. Volume	0.5 ml
Rejection Criteria	-
Methodology	Manual count using Neubauer chamber
Critical Values	Presence of malignant cells
Turn Around Time	24 hours

### **Cryoglobulins**

Billing Code	82595
Clinical Significance	To aid in detection of immunoproliferative, proliferative, and/or autoimmune diseases.
Patient Preparation	Preferably fasting
Sample Requirements	Clear tube incubated at 37°C for 1 hr before collection of blood
Min. Volume	2 ml
Rejection Criteria	Lipemic, hemolyzed, icteric
Methodology	Incubation at 4°C and precipitate examination
Critical Values	-
Turn Around Time	3-7 working days

### **Prothrombin Time (PT)**

Billing Code	85610
Clinical Significance	To evaluate coagulation pathway and/or monitor patients under anticoagulant treatment
Patient Preparation	Check if under anticoagulant treatment
Sample Requirements	Citrate plasma, properly filled and immediately inverted
Min. Volume	3 ml
Rejection Criteria	Highly hemolytic, highly icteric, clotted, short draw
Methodology	Clotting assay
Critical Values	> 30 s
Turn Around Time	24 hours

### **Partial Thromboplastin Time (PTT)**

Billing Code	85730
Clinical Significance	To evaluate coagulation pathway and/or monitor patients under anticoagulant treatment
Patient Preparation	Check if under anticoagulant treatment
Sample Requirements	Citrate plasma, properly filled and immediately inverted
Min. Volume	3 ml
Rejection Criteria	Highly hemolytic, highly icteric, clotted, short draw
Methodology	Clotting assay
Critical Values	> 100 s

Turn Around Time	24 hours
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### **Fibrinogen**

Billing Code	85384
Clinical Significance	To monitor for bleeding and/or predict coronary heart disease events
Patient Preparation	-
Sample Requirements	Citrate plasma, properly filled and immediately inverted
Min. Volume	3 ml
Rejection Criteria	Highly hemolytic, highly icteric, clotted, short draw
Methodology	Clauss method (clot-based)
Critical Values	> 400 mg/dL
Turn Around Time	24 hours

### **D-Dimer**

Billing Code	85362
Clinical Significance	To monitor for deep vein thrombosis and/or pulmonary embolism
Patient Preparation	-
Sample Requirements	Citrate plasma, properly filled and immediately inverted
Min. Volume	3 ml
Rejection Criteria	Highly hemolytic, highly icteric, clotted, short draw
Methodology	Particle-enhanced immunoturbidimetric assay
Critical Values	> 1 µg FEU/ml
Turn Around Time	24 hours

### **Blood Group [ABO/Rh(D)]**

Billing Code	86900
Clinical Significance	To determine ABO and Rh(D) antigens
Patient Preparation	-
Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	1 ml
Rejection Criteria	Highly hemolytic
Methodology	Agglutination, reverse and forward
Critical Values	-
Turn Around Time	24 hours

### **Direct Anti-Globulin Test (Direct Coombs)**

Billing Code	86880
Clinical Significance	To detect the presence of antibodies attached to RBCs
Patient Preparation	-

Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	1 ml
Rejection Criteria	Highly hemolytic, non-fresh sample
Methodology	Agglutination
Critical Values	-
Turn Around Time	24 hours

### Indirect Anti-Globulin Test (Indirect Coombs)

Billing Code	86885
Clinical Significance	To detect the presence of circulating antibodies against RBCs, especially in pregnancy and prior to blood transfusion
Patient Preparation	-
Sample Requirements	EDTA whole blood, freshly collected
Min. Volume	1 ml
Rejection Criteria	Highly hemolytic, non-fresh sample
Methodology	Agglutination
Critical Values	Positive test
Turn Around Time	24 hours

### Zinc

Billing Code	84630
Clinical Significance	To evaluate suspected nutritional inadequacy or zinc exposure and/or to monitor zinc therapy
Patient Preparation	12h fasting
Sample Requirements	Serum collected in metal-free SST, avoid contact with rubber stopper
Min. Volume	1 ml of serum
Rejection Criteria	Highly hemolytic, lipemic, non-metal free
Methodology	Colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### Alkaline Phosphatase

Billing Code	84075
Clinical Significance	To monitor liver and/or bone disorders
Patient Preparation	-
Sample Requirements	Serum or heparinized plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	Variable by age and sex; refer to laboratory

Turn Around Time	24 hours
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### **Alanine Aminotransferase (ALT/SGPT)**

Billing Code	84460
Clinical Significance	To monitor liver function
Patient Preparation	-
Sample Requirements	Serum or heparinized plasma
Min. Volume	100 µl of serum or heparinized/EDTA plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### **Aspartate Aminotransferase (AST/SGOT)**

Billing Code	84450
Clinical Significance	To monitor liver function
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### **α-Amylase**

Billing Code	82150
Clinical Significance	To detect disorders of the pancreas
Patient Preparation	-
Sample Requirements	Serum or heparinized plasma; urine (pH>7)
Min. Volume	100 µl of serum or plasma or urine
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### **γ-Glutamyl transferase (GGT)**

Billing Code	82977
Clinical Significance	To assess hepatobiliary function
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma

Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### Lactate Dehydrogenase (LDH)

Billing Code	83615
Clinical Significance	To detect liver disease and/or certain malignancies
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### Total Proteins/Albumin/Globulin

Billing Code	84155
Clinical Significance	To diagnose liver and/or kidney disease
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma; CSF
Min. Volume	100 µl of serum or plasma or CSF
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Photometric absorbance
Critical Values	-
Turn Around Time	24 hours

### Microalbumin

Billing Code	82043
Clinical Significance	To predict diabetic nephropathy
Patient Preparation	-
Sample Requirements	<ul style="list-style-type: none"> <li>• Serum or plasma</li> <li>• CSF</li> <li>• Urine spot</li> <li>• 24-hour urine</li> </ul>
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Immunoturbidimetry
Critical Values	-
Turn Around Time	24 hours

### **Bilirubin (Total & Direct)**

Billing Code	82251
Clinical Significance	To detect liver and/or hemolytic disorders
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma <b>away from light</b>
Min. Volume	200 µl of serum or plasma or CSF
Rejection Criteria	Hemolytic, highly lipemic
Methodology	Colorimetric assay
Critical Values	For neonates: > 15 mg/dL
Turn Around Time	24 hours

### **Calcium**

Billing Code	82310
Clinical Significance	To monitor conditions affecting bones, kidneys, thyroid gland, parathyroid glands, and/or digestive system.
Patient Preparation	8h fasting or 24h urine collection
Sample Requirements	Serum or heparinized plasma; 24h urine (3<pH<4)
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric, patient on EDTA treatment
Methodology	Photometric absorbance
Critical Values	< 6.5 mg/dL or > 13 mg/dL
Turn Around Time	24 hours

### **Phosphate**

Billing Code	84100
Clinical Significance	To monitor kidney and/or parathyroid gland function
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma; urine or 24h urine (pH<3)
Min. Volume	100 µl of serum or plasma or urine
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Ammonium molybdate UV
Critical Values	<1 mg/dL or > 10 mg/dL
Turn Around Time	24 hours

### **Magnesium**

Billing Code	83735
Clinical Significance	To evaluate pancreatic function
Patient Preparation	-
Sample Requirements	Serum or heparinized plasma; urine or 24h urine (pH=1)

Min. Volume	200 µl of serum or plasma or urine
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Colorimetric endpoint method
Critical Values	< 1 mg/dL or > 7mg/dL
Turn Around Time	24 hours

### **Cholesterol Total**

Billing Code	82465
Clinical Significance	To detect hypercholesterolemia and/or assess cardiovascular disease
Patient Preparation	12h fasting
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### **High Density Lipoprotein (HDL-C)**

Billing Code	83718
Clinical Significance	To assess risk for cardiovascular disease
Patient Preparation	12h fasting
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, icteric * abnormal liver function affects HDL and LDL levels, limiting their diagnostic value
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### **LDL-Cholesterol**

Billing Code	As part of Lipid Panel
Clinical Significance	To assess risk for cardiovascular disease
Patient Preparation	12h fasting
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, icteric * abnormal liver function affects HDL and LDL levels, limiting their diagnostic value
Methodology	Calculation
Critical Values	-
Turn Around Time	24 hours



## Triglycerides

Billing Code	84478
Clinical Significance	To evaluate lipids in the body and/or assess risk for cardiovascular disease
Patient Preparation	12h fasting
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

## Blood Urea Nitrogen (BUN)

Billing Code	84520
Clinical Significance	To assess kidney function
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma; urine or 24h urine
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

## Creatinine

Billing Code	82565
Clinical Significance	To assess kidney function
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma; urine
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, icteric, creatine interference at 20mg/dL
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

## Glucose

Billing Code	82947
Clinical Significance	To monitor diabetes mellitus, chronic liver disease, and/or other disorders with glands
Patient Preparation	8h fasting

Sample Requirements	Serum or heparinized/EDTA/K-Ox plasma; urine; CSF
Min. Volume	100 µl of serum or plasma or urine or CSF
Rejection Criteria	Highly hemolytic, highly lipemic, icteric
Methodology	Hexokinase enzymatic reaction
Critical Values	< 50 mg/dL Or > 150 mg/dL for infants Or > 400 mg//dL for adults
Turn Around Time	24 hours

### Homocysteine

Billing Code	83090
Clinical Significance	To monitor risk for cardiovascular disease, osteoporosis, and/or chronic kidney disease
Patient Preparation	Preferably fasting overnight
Sample Requirements	Serum or heparinized/EDTA plasma <b>centrifuged within 1h</b>
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic
Methodology	Enzymatic, colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### Iron

Billing Code	83540
Clinical Significance	To diagnose different types of anemia
Patient Preparation	Morning sample preferred
Sample Requirements	Serum or heparinized plasma <b>centrifuged within 1h</b>
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Colorimetric assay
Critical Values	> 350 µg/dL
Turn Around Time	24 hours

### Total Iron Binding Capacity (TIBC)

Billing Code	83550
Clinical Significance	To diagnose iron metabolism disorders
Patient Preparation	Morning sample preferred
Sample Requirements	Serum or heparinized plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, lipemic, highly icteric
Methodology	Colorimetric assay with FerroZine
Critical Values	-

Turn Around Time	24 hours
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### Ferritin

Billing Code	82728
Clinical Significance	To evaluate iron reserve, associated with several disorders
Patient Preparation	Morning sample preferred, biotin interference > 5 mg/day
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Particle enhanced immunoturbidimetric assay
Critical Values	-
Turn Around Time	24 hours

### Transferrin

Billing Code	84466
Clinical Significance	To help diagnose iron deficiency anemia and/or iron poisoning
Patient Preparation	-
Sample Requirements	Serum or heparinized plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Particle enhanced immunoturbidimetric assay
Critical Values	-
Turn Around Time	24 hours

### Lactic Acid

Billing Code	83605
Clinical Significance	To evaluate tissue hypoxia, metabolic acidosis, methanol/ethanol ingestion, and/or glycogen storage disease
Patient Preparation	-
Sample Requirements	Na-heparinized/K-Ox plasma <b>on ice centrifuged within 15 min.</b>
Min. Volume	100 µl of plasma
Rejection Criteria	Highly hemolytic, highly lipemic, conjugated bilirubin interference > 28 mg/dL, unconjugated bilirubin interference > 60 mg/dL
Methodology	Colorimetric assay
Critical Values	> 4 mmol/L
Turn Around Time	7 working days

### Lipase

Billing Code	83690
Clinical Significance	To evaluate pancreatic function

Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	> 80U/L
Turn Around Time	24 hours

### Ammonia

Billing Code	82140
Clinical Significance	To detect disorders of the urea cycle enzymes, and/or acute (Reye's Syndrome) or chronic (cirrhosis) liver disease.
Patient Preparation	8h fasting, avoid smoking before blood collection
Sample Requirements	EDTA plasma <b>on ice centrifuged within 10 min. at 4°C</b>
Min. Volume	100 µl of plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic method
Critical Values	> 80 µmol/L
Turn Around Time	24 hours

### Uric acid

Billing Code	84550
Clinical Significance	To diagnose renal and/or metabolic disorders
Patient Preparation	Preferably first morning urine
Sample Requirements	Serum; urine or 24-h urine (pH > 8)
Min. Volume	100 µl of serum or urine
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Enzymatic colorimetric assay
Critical Values	-
Turn Around Time	24 hours

### HbA1C

Billing Code	83036
Clinical Significance	To monitor diabetes mellitus
Patient Preparation	-
Sample Requirements	EDTA whole blood
Min. Volume	1 ml
Rejection Criteria	Highly lipemic, highly icteric, glycemia interference at glucose > 1000 mg/dL
Methodology	Turbidimetric inhibition immunoassay
Critical Values	-

Turn Around Time	24 hours
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### **Haptoglobin**

Billing Code	83010
Clinical Significance	To detect conditions of hemolysis
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	200 µl of serum or plasma
Rejection Criteria	Hemolytic, lipemic, highly icteric
Methodology	Immunoturbidimetric assay
Critical Values	-
Turn Around Time	7-10 working days

### **Creatine Phosphokinase (CPK)**

Billing Code	82550
Clinical Significance	To detect conditions of skeletal muscle, heart, or brain damage or degeneration
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	UV spectrophotometry
Critical Values	-
Turn Around Time	24 hours

### **Creatine Kinase Myocardial Band (CK-MB)**

Billing Code	82553
Clinical Significance	To detect myocardial ischemia
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma; dilution required if CK > 4000U/L
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Hemolytic, lipemic, highly icteric
Methodology	UV spectrophotometry
Critical Values	-
Turn Around Time	24 hours

### **Sodium (Na)**

Billing Code	84295
Clinical Significance	To assess electrolytes imbalance, various renal and endocrine disorders.
Patient Preparation	-

Sample Requirements	<ul style="list-style-type: none"> <li>• Serum or plasma</li> <li>• Urine</li> <li>• 24-hour urine: refrigerated during collection</li> </ul>
Min. Volume	100 µl
Rejection Criteria	Any sign of hemolysis is rejected or gross lipemia
Methodology	Potentiometry and amperometry
Critical Values	160 mmol/L
Turn Around Time	24 hours

### Potassium (K)

Billing Code	84132
Clinical Significance	To assess electrolytes imbalance, various renal and endocrine disorders.
Patient Preparation	-
Sample Requirements	<ul style="list-style-type: none"> <li>• Serum or plasma</li> <li>• Urine</li> <li>• 24-hour urine: refrigerated during collection</li> </ul>
Min. Volume	100 µl
Rejection Criteria	Any sign of hemolysis is rejected or gross lipemia
Methodology	Potentiometry and amperometry
Critical Values	6 mmol/L
Turn Around Time	24 hours

### Chloride (Cl)

Billing Code	82435
Clinical Significance	To assess electrolytes imbalance.
Patient Preparation	-
Sample Requirements	<ul style="list-style-type: none"> <li>• Serum or plasma</li> <li>• Urine</li> <li>• 24-hour urine: refrigerated during collection</li> </ul>
Min. Volume	100 µl
Rejection Criteria	Any sign of hemolysis is rejected or gross lipemia
Methodology	Potentiometry and amperometry
Critical Values	130 mmol/L
Turn Around Time	24 hours

### Bicarbonates (CO<sub>2</sub>)

Billing Code	82374
Clinical Significance	To diagnose and treat acid-base imbalance in respiratory and metabolic systems.
Patient Preparation	-
Sample Requirements	Serum or plasma
Min. Volume	100 µl of serum or plasma

Rejection Criteria	Any sign of hemolysis is rejected or gross lipemia
Methodology	Enzymatic
Critical Values	40 mmol/L
Turn Around Time	24 hours

### **Rheumatoid Factor (RF)**

Billing Code	86431
Clinical Significance	To screen for rheumatic disease. This test is not specific, further diagnostic tests are recommended.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	300 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Hemagglutination
Critical Values	-
Turn Around Time	24 hours

### **Anti-Streptolysin O Abs (ASO)**

Billing Code	86060
Clinical Significance	To confirm preceding infection with Streptococcus A bacteria.
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	300 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Agglutination
Critical Values	> 300 U/mL
Turn Around Time	24 hours

### **C-Reactive Protein (CRP)**

Billing Code	86140
Clinical Significance	To detect non-specific inflammation.
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Particle-enhanced immunoturbidimetric assay
Critical Values	-
Turn Around Time	24 hours

### **C3 Complement**

Billing Code	86160
Clinical Significance	To indicate activation of the complement system in inflammatory and infectious diseases.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Immunoturbidimetric assay
Critical Values	-
Turn Around Time	24 hours

#### **C4 Complement**

Billing Code	86161
Clinical Significance	To indicate activation of the complement system in inflammatory and infectious diseases.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Immunoturbidimetric assay
Critical Values	-
Turn Around Time	24 hours

#### **Troponin T Hs**

Billing Code	84484
Clinical Significance	To detect myocardial ischemia.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	200 µl of serum or plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	> 0.1 ng/mL
Turn Around Time	24 hours

#### **N-terminal pro-brain B-type Natriuretic Peptide (NT-proBNP)**

Billing Code	Pro-BNP
Clinical Significance	To detect ventricular hemodynamic changes.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma



Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Beta-2 microglobulin:**

Billing Code	82232
Clinical Significance	To monitor B-cell tumors and/or renal disease.
Patient Preparation	-
Sample Requirements	Serum or Urine
Min. Volume	200 µl of serum or 5 ml of urine
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Immunoturbidimetric assay
Critical Values	> 3 mg/L
Turn Around Time	7 working days

### **Procalcitonin (PCT)**

Billing Code	82309
Clinical Significance	To detect and monitor sepsis and severe bacterial infections.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	> 2 ng/ml
Turn Around Time	2 working days

### **Interleukin 6 (IL-6)**

Billing Code	IL-6
Clinical Significance	To detect acute inflammation at an early stage.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Immunoturbidimetric assay
Critical Values	> 20 pg/ml
Turn Around Time	7 working days

### Thyroid-Stimulating Hormone / Thyrotropin (TSH)

Billing Code	84443
Clinical Significance	To monitor thyroid function.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	> 10 µUI/mL
Turn Around Time	24 hours

### Free Triiodothyronine (FT3)

Billing Code	84481
Clinical Significance	To assess thyroid function and/or support differential diagnosis of thyroid disorders.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Free Thyroxine (FT4)

Billing Code	84439
Clinical Significance	To assess thyroid function and/or support differential diagnosis of thyroid disorders.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	> 4 ng/dL
Turn Around Time	24 hours

### Follicle-Stimulating Hormone (FSH)

Billing Code	83001
Clinical Significance	To assess the state of reproductive organs.
Patient Preparation	Biotin interference > 5 mg/day; abide by menstrual cycle information as requested by the physician
Sample Requirements	Serum or EDTA plasma

Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Luteinizing Hormone (LH)

Billing Code	83002
Clinical Significance	To detect hypothalamus-pituitary-gonads system dysfunction.
Patient Preparation	Biotin interference > 5 mg/day; abide by menstrual cycle information as requested by the physician
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Prolactin (PRL)

Billing Code	84146
Clinical Significance	To diagnose and manage fertility disorders, hypogonadism and/or pituitary adenoma.
Patient Preparation	20 min. rest required
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Anti-Mullerian Hormone (AMH)

Billing Code	AMH
Clinical Significance	To assess ovarian reserve reflecting the number of antral and pre-antral follicles, and/or to diagnose sex development disorders in children, granulosa cell tumors, and Polycystic Ovary Syndrome (PCOS).
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	200 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	Variable by age and sex; refer to laboratory

Turn Around Time	7 working days
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### Progesterone

Billing Code	84144
Clinical Significance	To assess ovarian function and/or abnormal pregnancy in females, and to diagnose progesterone-secreting tumors.
Patient Preparation	Abide by menstrual cycle information as requested by the physician
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Testosterone

Billing Code	84403
Clinical Significance	To assess testicular function in males and to manage hirsutism, virilization, or Polycystic Ovary Syndrome (PCOS) in females.
Patient Preparation	Biotin interference > 5 mg/day
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Thyroglobulin (TG)

Billing Code	84432
Clinical Significance	To monitor various thyroid conditions such as Hashimoto's disease, Graves' disease, thyroid adenoma, and thyroid carcinoma among others .
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly lipemic
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	7 working days

### Anti-Thyroglobulin Abs (Anti-TG)

Billing Code	86800
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Clinical Significance	To assess and/or monitor auto-immune thyroid damage.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Anti-Thyroid Peroxidase Abs (Anti-TPO)**

Billing Code	86376
Clinical Significance	To assess and/or monitor auto-immune thyroid damage.
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Pregnancy Associated Plasma Protein-A (PAPP-A)**

Billing Code	PAPP-A
Clinical Significance	To assess, in conjunction with other parameters, the prenatal risk of certain genetic conditions during the first trimester of pregnancy
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	7 working days

### **Insulin**

Billing Code	83525
Clinical Significance	To diagnose and/or treat disorders of carbohydrate metabolism, including diabetes mellitus and hypoglycemia
Patient Preparation	8h fasting
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric

Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Cortisol

Billing Code	82533
Clinical Significance	To detect and/or monitor disorders of the adrenal gland
Patient Preparation	Blood drawn 7-10 am or 4-6 pm according to Dr's prescription. For salivary cortisol refer to the laboratory.
Sample Requirements	Serum or EDTA plasma or 24h urine or saliva Note the sample collection time.
Min. Volume	100 µl of sample
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	< 2 µg/dL
Turn Around Time	24 hours

### Adrenocorticotrophic hormone (ACTH)

Billing Code	82024
Clinical Significance	To diagnose disorders related to the hypothalamic-pituitary-adrenal system
Patient Preparation	Blood drawn 7:45-8:15 am or 3:45-4:15 pm according to Dr's prescription.
Sample Requirements	EDTA plasma <b>on ice centrifuged at 4°C within 10 min.</b> Note the sample collection time.
Min. Volume	200 µl of plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	Depend on the time of draw; refer to the laboratory
Turn Around Time	7 working days

### C-peptide

Billing Code	84681
Clinical Significance	To assess pancreatic function and insulin production
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	>9 ng/ml
Turn Around Time	7 working days

### Growth hormone (hGH)

Billing Code	83003
Clinical Significance	To diagnose Growth Hormone (GH) Disorders and/or to monitor GH treatment
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	7 working days

### **Insulin-like Growth Factor 1 (IGF-1) / Somatomedin C**

Billing Code	84305
Clinical Significance	To diagnose Growth Hormone deficiency/excess, pituitary gland disorders, and/or malnutrition in children
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Beta Human Chorionic Gonadotropin (βHCG)**

Billing Code	84702
Clinical Significance	To screen for and monitor pregnancy, or monitor certain tumors (of ovarian, placental, or testicular origin)
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Parathyroid Hormone (PTH)**

Billing Code	83970
Clinical Significance	To aid in the differential diagnosis of hypercalcemia and hypocalcemia
Patient Preparation	Biotin interference > 5 mg/day
Sample Requirements	Serum or EDTA plasma – run within 1h or freeze immediately

Min. Volume	200 µl of plasma
Rejection Criteria	Hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Dehydroepiandrosterone Sulfate DHEA-S**

Billing Code	82626
Clinical Significance	To monitor adrenal function
Patient Preparation	-
Sample Requirements	Serum or EDTA plasma
Min. Volume	100 µl of serum or plasma
Rejection Criteria	Highly hemolytic, highly lipemic, icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Sex Hormone-Binding Globulin (SHBG)**

Billing Code	SHBG
Clinical Significance	To evaluate various condition including androgen deficiency and hypogonadism
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	500 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Folate (Vitamin B9 or folic acid)**

Billing Code	82746
Clinical Significance	To investigate of suspected folate deficiency.
Patient Preparation	Fasting for 12 hours prior to test.
Sample Requirements	Serum or heparinized plasma. Protect from light.
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric
Methodology	Electrochemiluminescence immunoassay
Critical Values	-



Turn Around Time	24 hours
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### **Vitamin B12**

Billing Code	82607
Clinical Significance	To aid in the diagnosis of macrocytic anemia.
Patient Preparation	Fasting for 12 hours prior to test.
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric, high total protein concentrations.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Vitamin D3 (25-OH)**

Billing Code	82306
Clinical Significance	To aid in the assessment of vitamin D sufficiency.
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, moderately lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Anti CCP**

Billing Code	Anti-CCP
Clinical Significance	To aid in the diagnosis of rheumatoid arthritis.
Patient Preparation	-
Sample Requirements	Serum.
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	10 working days

### **Total PSA (PSAt)**

Billing Code	84153
Clinical Significance	To aid in the detection of prostate cancer in men aged 50 years or older.

Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Free PSA (PSAf)

Billing Code	84154
Clinical Significance	To aid in distinguishing prostate cancer from benign prostatic conditions in men age 50 years or older
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Carcinoembryonic antigen C (CEA)

Billing Code	82378
Clinical Significance	To monitor colorectal cancer
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Cancer Antigen 125 (CA 125)

Billing Code	86316
Clinical Significance	To monitor therapy and progress of patients with ovarian carcinoma
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-

Turn Around Time	24 hours
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### Human epididymal protein 4 (He4)

Billing Code	HE4 ROMA
Clinical Significance	To aid in monitoring recurrence or progressive disease in patients with epithelial ovarian cancer. It is used in conjunction with the CA 125 as an aid in estimating the risk of epithelial ovarian cancer in premenopausal and postmenopausal women presenting with pelvic mass.
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	7 working days

### Cancer Antigen 15-3 (CA 15-3)

Billing Code	86317
Clinical Significance	To aid in the management of breast cancer patients, in the early detection of recurrence in previously treated stage II and III breast cancer patients and for monitoring response to therapy in metastatic breast cancer patients
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Carbohydrate antigen (Ca 19.9)

Billing Code	86318
Clinical Significance	To follow up and monitor pancreatic carcinoma
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### Alpha-Fetoprotein (AFP, αFP)

Billing Code	86318
Clinical Significance	To follow up and monitor pancreatic carcinoma
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Total Immunoglobulin E (IgE t)**

Billing Code	82785
Clinical Significance	To aid in the diagnosis of allergic diseases.
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl of serum
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence immunoassay
Critical Values	-
Turn Around Time	24 hours

### **Immunoglobulin G (IgG)**

Billing Code	82784
Clinical Significance	To detect or monitor IgG monoclonal gammopathies and immune deficiencies.
Patient Preparation	-
Sample Requirements	<ul style="list-style-type: none"> <li>• Serum or heparinized/EDTA plasma</li> <li>• CSF</li> <li>• Urine spot</li> <li>• 24-hour urine</li> </ul>
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Immunoturbidimetry
Critical Values	-
Turn Around Time	24 hours

### **Immunoglobulin A (IgA)**

Billing Code	82784
Clinical Significance	To detect or monitor IgA monoclonal gammopathies and IgA-related immune deficiencies
Patient Preparation	-

Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Immunoturbidimetry
Critical Values	-
Turn Around Time	24 hours

### Immunoglobulin M (IgM)

Billing Code	82784
Clinical Significance	To detect or monitor IgM monoclonal gammopathies and IgM-related immune deficiencies
Patient Preparation	-
Sample Requirements	Serum or plasma.
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Immunoturbidimetry
Critical Values	-
Turn Around Time	24 hours

### Lambda Light Chains:

Billing Code	Lambda Light Chains
Clinical Significance	To aid in the diagnosis of light chain myeloma, amyloidosis, non-secretory myeloma and management of patients with B-cell proliferative disorders
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma or 24-hour urine collection
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Immunoturbidimetry
Critical Values	-
Turn Around Time	10 working days

### Kappa Light Chains:

Billing Code	Kappa Light Chains
Clinical Significance	To aid in the diagnosis of light chain myeloma, amyloidosis, non-secretory myeloma and management of patients with B-cell proliferative disorders
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma or 24-hour urine collection
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Immunoturbidimetry

Critical Values	-
Turn Around Time	10 working days

### **Kappa Free Light Chains:**

Billing Code	Kappa Free Light Chains
Clinical Significance	Aids in the diagnosis of multiple myeloma
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Latex enhanced immunoturbidimetry
Critical Values	-
Turn Around Time	10 working days

### **Lambda Free Light Chains:**

Billing Code	Kappa Free Light Chains
Clinical Significance	Aids in the diagnosis and monitoring of multiple myeloma
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Latex enhanced immunoturbidimetry
Critical Values	-
Turn Around Time	10 working days

### **Toxoplasma gondii IgG**

Billing Code	86777
Clinical Significance	To determinate a previous exposure to the parasite Toxoplasma gondii
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Toxoplasma gondii IgM**

Billing Code	86778
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Clinical Significance	To detect of acute infection with Toxoplasma gondii
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### Rubella IgG

Billing Code	86762
Clinical Significance	To determinate a previous exposure or vaccination of Rubella virus
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### Rubella IgM

Billing Code	86763
Clinical Significance	To detect an acute infection with Rubella virus
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### Hepatitis B Surface Antigen (HBsAg)

Billing Code	86287
Clinical Significance	To aid in the diagnosis of acute, recent, or chronic hepatitis B viral (HBV) infection
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	200 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.

Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	24 hours

### **Hepatitis B Surface (HBs) Abs (Anti Hbs Ab)**

Billing Code	86291
Clinical Significance	To monitor immunity due to HBV infection or vaccination with HBsAg
Patient Preparation	Before heparin therapy
Sample Requirements	Serum or plasma
Min. Volume	200 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Hepatitis B Core (HBc) Abs, IgM (Anti HBc Ab IgM)**

Billing Code	86289
Clinical Significance	Diagnosis of acute hepatitis B virus (HBV) infection
Patient Preparation	Before heparin therapy
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Hepatitis B Core (HBc) Abs, Total (Anti HBc Ab total)**

Billing Code	86289
Clinical Significance	Diagnosis of acute hepatitis B virus (HBV) infection
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Anti-Hepatitis A IgM Antibody (Anti HAV Ab IgM)**

Billing Code	86296
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Clinical Significance	Diagnosis of acute or recent hepatitis A infection
Patient Preparation	Before heparin therapy
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Anti-Hepatitis A Total Antibodies (Anti HAV Ab total)**

Billing Code	86296
Clinical Significance	To detect a past or existing hepatitis A infection or to determine the presence of antibody response to HAV in vaccine recipients
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Hepatitis C antibodies (HCV Abs)**

Billing Code	86302
Clinical Significance	To indicate an infection or exposure to hepatitis C virus
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	200 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	24 hours

### **Human immunodeficiency virus (HIV combi)**

Billing Code	86703
Clinical Significance	Screening for HIV-1 and HIV-2 infection
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	200 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence

Critical Values	-
Turn Around Time	24 hours

### **Cytomegalovirus IgM (CMV IgM)**

Billing Code	86645
Clinical Significance	To aid in the diagnosis of recent CMV infections.
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Cytomegalovirus IgG (CMV IgG)**

Billing Code	86644
Clinical Significance	To indicate past or recent infection with CMV
Patient Preparation	-
Sample Requirements	Serum or heparinized/EDTA plasma
Min. Volume	100 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	Electrochemiluminescence
Critical Values	-
Turn Around Time	7 working days

### **Helicobacter pylori IgG (H-Pylori IgG)**

Billing Code	86677
Clinical Significance	To detect active or a previous Helicobacter pylori infection
Patient Preparation	-
Sample Requirements	Serum
Min. Volume	500 µl
Rejection Criteria	Highly hemolytic, highly lipemic, highly icteric.
Methodology	ELISA
Critical Values	-
Turn Around Time	24 hours

## **Microbiology:**

### **Blood Culture**

Billing Code	87205+87040+87076+87184
Clinical Significance	To detect bacteria and fungi in blood.
Patient Preparation	Three different venipunctures, from different sites in an interval of 1 hour collected aseptically.
Sample Requirements	<ul style="list-style-type: none"><li>• Aerobic, Anaerobic bottles, pediatric bottles.</li><li>• A maximum of 3 sets of two blood culture bottles collected aseptically in 24-hour period.</li></ul>
Min. Volume	<ul style="list-style-type: none"><li>• 5-10mL/bottle for adults.</li><li>• 1-5mL/ bottle for infants according to age and weight.</li></ul>
Rejection Criteria	<ul style="list-style-type: none"><li>• Inadequate blood collection.</li><li>• Blood culture bottles can't be refrigerated</li></ul>
Methodology	Culture
Critical Values	Positive culture
Turn Around Time	6 working days

### **Body fluids (excluding blood and urine)**

Billing Code	87205+87070+87076+87184
Clinical Significance	To detect bacteria and fungi in body fluids.
Patient Preparation	-
Sample Requirements	Collect aspirated fluid in a sterile container to be delivered within 6 hours of collection. Use sterile containers and dead-capped syringe for aspirate.
Min. Volume	2 mL
Rejection Criteria	Inappropriate collection
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### **Eye culture**

Billing Code	87205+87070+87076+87184
Clinical Significance	To detect and identify common bacteria that are involved in eye infection.
Patient Preparation	Anesthetic application prior to collecting corneal scrapings by the physician.
Sample Requirements	<ul style="list-style-type: none"><li>• 2 small swabs are taken, one from each eye</li><li>• Corneal scraping (by physician).</li><li>• Deliver to laboratory immediately using a special transport media that the physician decides.</li></ul>
Min. Volume	2 swabs
Rejection Criteria	Inappropriate collection, touching external skin while collecting.

Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Nasopharynx culture

Billing Code	87205+87060+87076+87184
Clinical Significance	To detect and identify common bacteria that are involved in nasopharynx infection such as <i>N. meningitidis</i> , <i>S. pneumoniae</i> , <i>H. influenzae</i> , <i>S. pyogenes</i> , or for the diagnosis of suspected cases of diphtheria and whooping cough.
Patient Preparation	-
Sample Requirements	The swab is taken after passing through the nose into the nasopharynx.
Min. Volume	1 swab
Rejection Criteria	<ul style="list-style-type: none"> <li>• Inappropriate collection.</li> <li>• Do not refrigerate.</li> </ul>
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Urine culture

Billing Code	81015+87205+87086+87184
Clinical Significance	To detect and identify common bacteria or fungi that are involved in urine infection.
Patient Preparation	Should clean genitalia well with cleaning solution & water before giving mid-stream urine
Sample Requirements	Specimen must be delivered immediately to the microbiology department. Refrigerate if there is longer than 1 hour delay until cultured. Specimen collection should be specified: midstream.
Min. Volume	2 mL
Rejection Criteria	Inappropriate collection.
Methodology	Culture
Critical Values	-
Turn Around Time	2 working days

### Urine, catheter culture

Billing Code	81015+87205+87086+87184
Clinical Significance	To detect and identify common bacteria or fungi that are involved in urine infection.
Patient Preparation	Collect from catheter line after decontaminating it.

Sample Requirements	Specimen must be delivered immediately to the microbiology department Refrigerate if there is longer than 1 hour delay until cultured. Specimen collection should be specified: catheterization.
Min. Volume	2 mL
Rejection Criteria	<ul style="list-style-type: none"> <li>• Inappropriate collection.</li> <li>• Collection from bag</li> </ul>
Methodology	Culture
Critical Values	-
Turn Around Time	2 working days

### Urine, Suprapubic Aspirate

Billing Code	81015+87205+87086+87184
Clinical Significance	To detect and identify common bacteria or fungi that are involved in urine infection.
Patient Preparation	Procedure done by physician.
Sample Requirements	Specimen must be delivered immediately to the microbiology department Refrigerate if there is longer than 1 hour delay until cultured. Specimen collection should be specified: suprapubic.
Min. Volume	2 mL
Rejection Criteria	<ul style="list-style-type: none"> <li>• Inappropriate collection.</li> <li>• Contamination.</li> </ul>
Methodology	Culture
Critical Values	-
Turn Around Time	2 working days

### Stool culture

Billing Code	87205+87045+87184
Clinical Significance	To detect and identify the common bacterial enteric pathogens involved in gastrointestinal tract infections as well as carriers of Salmonella spp.
Patient Preparation	Do not take any antacids, oily laxatives, or anti-diarrheal medications unless prescribed by the physician
Sample Requirements	<ul style="list-style-type: none"> <li>• Sterile or clean container.</li> <li>• Specimen must be processed within the next 8-10 hours of collection.</li> </ul>
Min. Volume	5 ml of fresh random stool or rectal swab in a sterile container.
Rejection Criteria	Inappropriate collection.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Pus or wound culture

Billing Code	87205+87070+87076+87184
Clinical Significance	To detect and isolate aerobic and anaerobic bacteria implicated in wound infection.
Patient Preparation	<ul style="list-style-type: none"> <li>• Collection should be made from the deep inside walls of the wound to avoid contamination.</li> <li>• Decontaminate surrounding skin before collection.</li> <li>• Open the lesion and express pus onto swab.</li> <li>• Avoid O<sub>2</sub> exposure if possible.</li> </ul>
Sample Requirements	<ul style="list-style-type: none"> <li>• Removal of surface collection, old pus precedes collection of material from culture.</li> <li>• Sterile swab should be used.</li> <li>• Aspiration in syringe is possible along with a biopsy specimen.</li> </ul>
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

## Ear

Billing Code	87205+87070+87076+87184
Clinical Significance	To detect and identify bacteria and yeast implicated in otitis externa or media.
Patient Preparation	Clean external ear surface and carefully sample representative area.
Sample Requirements	<ul style="list-style-type: none"> <li>• Swab of drainage.</li> <li>• Send two swabs from the discharge or involved area in a transport medium.</li> <li>• In case of myringotomy, send aspirates in a closed syringe.</li> </ul>
Min. Volume	2 swabs
Rejection Criteria	Inappropriate collection and contamination.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

## Nose

Billing Code	87205+87184+87060
Clinical Significance	To diagnose upper respiratory infections
Patient Preparation	-

Sample Requirements	Swab interior nares only.
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection and contamination.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Throat

Billing Code	87205+87184+87060
Clinical Significance	To aid in the primary diagnosis of streptococcal groups, A, B, C, G, and Archanobacterium pharyngitis.
Patient Preparation	The specimen should be collected before any antibiotic intake.
Sample Requirements	Sample collected from the back of the throat between and around the tonsillar area.
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection and contamination.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Sputum culture

Billing Code	87205+87184+87070
Clinical Significance	To detect and identify the common bacteria implicated in lower respiratory tract infection.
Patient Preparation	Cough deeply first thing in the morning into a sterile container.
Sample Requirements	Transport immediately. Consider sputum potentially contaminated with Mycobacterium tuberculosis.
Min. Volume	2-5 mL
Rejection Criteria	Inappropriate collection and saliva are not acceptable.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### Vaginal/Urethral culture

Billing Code	87205+87184+87070+87076+87210
Clinical Significance	To detect and identify the common bacteria/yeast implicated in vaginal/urethral infections.
Patient Preparation	<ul style="list-style-type: none"> <li>• Clean external urethra before taking urethral specimen.</li> <li>• Cervical swab is to be inserted through a speculum</li> </ul>

Sample Requirements	<ul style="list-style-type: none"> <li>• Secretions or exudates are collected in a sterile container.</li> <li>• Place swabs in a transport media and to be taken immediately to the laboratory.</li> <li>• Avoid touching swab to un-infected mucosal surfaces.</li> </ul>
Min. Volume	2 swabs. Appropriate media is needed such as Stuart's to avoid drying.
Rejection Criteria	Dried specimen.
Methodology	Culture
Critical Values	-
Turn Around Time	4 working days

### **Mycobacterium tuberculosis culture (TB)**

Billing Code	87206+87118
Clinical Significance	To detect, isolate, and differentiate Mycobacterium spp. implicated in human infection.
Patient Preparation	Specimen should be collected before initiating anti-mycobacterial therapy: <ul style="list-style-type: none"> <li>• Sputum: Patient must rinse the mouth with water before giving deep cough sputum. Remove dentures and rinse mouth in case present</li> <li>• Urine: refer to general urine analysis preparation.</li> </ul>
Sample Requirements	<ul style="list-style-type: none"> <li>• Sputum, Urine, Body fluids, Tissue biopsy, Wound and abscess.</li> <li>• All specimens should be collected in a sterile well sealed container to be sent to the laboratory within 1 hour for testing.</li> <li>• In addition, tissue samples should be kept with sterile saline in a sterile container.</li> </ul>
Min. Volume	2 mL
Rejection Criteria	Inappropriate collection.
Methodology	Culture
Critical Values	-
Turn Around Time	60 working days

### **Fungal culture**

Billing Code	87220+87210+87106
Clinical Significance	To detect and identify etiologic agents of fungal infections.
Patient Preparation	<ul style="list-style-type: none"> <li>• Depending on the specimen's site.</li> </ul>
Sample Requirements	<ul style="list-style-type: none"> <li>• Blood: Bottles system.</li> <li>• Eye: Corneal scraping, intraocular fluid or biopsy.</li> <li>• Hair: From infected area remove at least 10 entire hair shafts.</li> </ul>



	<ul style="list-style-type: none"> <li>• Nails: Cleanse nail with 70% alcohol, scrape with a blade the outer portions away and obtain the deeper infected areas.</li> <li>• Nose: Necrotic material or biopsy.</li> <li>• Respiratory: Induced sputum.</li> <li>• Skin and interspaces: Cleanse with 70% alcohol, scrape the entire lesions and both sides of interspaces.</li> <li>• Tissue biopsy: Collect tissue aseptically from the center and edge of the lesion. Place specimens between moist gauze squares adding a small amount of sterile water or saline to keep the tissue from drying out.</li> <li>• Urine: Catheterized specimen is preferred. Early morning clean catch is also acceptable.</li> </ul>
Min. Volume	<ul style="list-style-type: none"> <li>• Swab: 1 swab</li> <li>• Body Fluids: 2 mL</li> <li>• Tissues/ biopsies: ≤1g</li> </ul>
Rejection Criteria	Inappropriate collection.
Methodology	Culture
Critical Values	-
Turn Around Time	30 working days

### **Parasitology:**

#### **PPD Test (intradermal reaction IDR)**

Billing Code	86580
Clinical Significance	To help diagnose tuberculosis.
Patient Preparation	-
Sample Requirements	Intradermal injection of 5 Tuberculin units (0.1ml) between the layers of dermis is done.
Min. Volume	-
Rejection Criteria	-
Methodology	Intracutaneous injection.
Critical Values	-
Turn Around Time	Patient must report back to Laboratory Reception for result interpretation after 48-72 hours.

#### **Rotavirus-Adenovirus Antigen Detection**

Billing Code	86759
Clinical Significance	To qualitatively detect both viruses in human feces specimens to aid the diagnosis of rotavirus or adenovirus infection
Patient Preparation	-

Sample Requirements	Stool should be collected as soon as possible after onset of symptoms in a clean cup.
Min. Volume	1 ml or 50 mg.
Rejection Criteria	Do not freeze. Presence of blood in the feces samples in high quantity may lead to false positive results in limited cases
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours.

### **Clostridium Difficile Antigen Detection**

Billing Code	86405
Clinical Significance	To qualitatively detect Clostridium difficile toxin A, toxin B and GDH in human feces.
Patient Preparation	-
Sample Requirements	Stool should be collected as soon as possible after onset of symptoms in a clean cup.
Min. Volume	1 ml or 50 mg.
Rejection Criteria	Do not freeze. Presence of blood in the feces samples in high quantity may lead to false positive results in limited cases
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours.

### **Qualitative fecal immunochemical test in stool (FIT)**

Billing Code	FIT qualitative
Clinical Significance	To qualitatively detect human occult blood in feces.
Patient Preparation	-
Sample Requirements	-
Min. Volume	1 ml or 50 mg.
Rejection Criteria	A specimen should not be collected from a patient following conditions that may interfere with the test results: <ul style="list-style-type: none"> <li>a. Menstrual bleeding</li> <li>b. Bleeding hemorrhoids</li> <li>c. Constipation bleeding</li> <li>d. Urinary bleeding</li> </ul>
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours.

### **Quantitative fecal immunochemical test in stool (FIT)**

Billing Code	FIT Quantitative (quantification of hemoglobin from occult blood in human feces)
Clinical Significance	To quantitatively detect human occult blood in feces.
Patient Preparation	Do not collect a sample if there is visible blood in the feces sample or in case of diarrhea. Wait for the next bowel movement and collect a sample from that.
Sample Requirements	-
Min. Volume	1 ml or 50 mg.
Rejection Criteria	A specimen should not be collected from a patient following conditions that may interfere with the test results: <ul style="list-style-type: none"> <li>a. Menstrual bleeding</li> <li>b. Bleeding hemorrhoids</li> <li>c. Constipation bleeding</li> <li>d. Urinary bleeding</li> </ul>
Methodology	Immunoturbidimetry
Critical Values	Positive result
Turn Around Time	24 hours.

### **Helicobacter pylori Antigen detection in stool (H. pylori Ag)**

Billing Code	H. pylori Ag
Clinical Significance	To qualitatively detect H. pylori antigens in human feces specimens to aid in the diagnosis of H.pylori infection.
Patient Preparation	-
Sample Requirements	-
Min. Volume	1 ml or 50 mg.
Rejection Criteria	-
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours.

### **Fecal Occult Blood**

Billing Code	82270
Clinical Significance	To qualitatively detect human occult blood in human feces.
Patient Preparation	-
Sample Requirements	Stool should be collected as soon as possible after onset of symptoms in a clean cup.
Min. Volume	1 ml or 50 mg.
Rejection Criteria	-
Methodology	Chromatography
Critical Values	Positive result

Turn Around Time	24 hours.
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### Urine Pregnancy Test (hCG in urine)

Billing Code	84703
Clinical Significance	To qualitatively detect human chorionic gonadotropin in urine, serum or plasma to aid in the early detection of pregnancy
Patient Preparation	-
Sample Requirements	Stool should be collected as soon as possible after onset of symptoms in a clean cup.
Min. Volume	2 mL
Rejection Criteria	Inappropriate collection.
Methodology	Chromatography
Critical Values	-
Turn Around Time	24 hours.

### General urine analysis

Billing Code	81000
Clinical Significance	To provide information concerning kidneys & urinary tract and information pertaining to diseases in other sites
Patient Preparation	Should clean genitalia well with soap & water before giving mid-stream urine
Sample Requirements	Midstream urine delivered immediately to the laboratory.
Min. Volume	2 mL
Rejection Criteria	<ul style="list-style-type: none"> <li>• Inappropriate collection.</li> <li>• Contamination of urine while sampling.</li> </ul>
Methodology	Microscopy and dipstick.
Critical Values	-
Turn Around Time	24 hours

### Streptococcus A Antigen

Billing Code	Streptococcus A
Clinical Significance	To qualitatively detect Strep A antigen from throat swabs to aid in the diagnosis of group A streptococcal infection.
Patient Preparation	The specimen should be collected before any antibiotic intake.
Sample Requirements	Swab the posterior pharynx, tonsils and other inflamed areas without touching the tongue, cheeks and teeth.
Min. Volume	1 swab
Rejection Criteria	<ul style="list-style-type: none"> <li>• Inappropriate collection.</li> <li>• Contamination from the cheeks or saliva.</li> </ul>
Methodology	Chromatography
Critical Values	Positive result

Turn Around Time	24 hours
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### **Respiratory syncytial virus (RSV)**

Billing Code	Respiratory Syncytial Virus (RSV)
Clinical Significance	To qualitatively detect RSV antigen in nasopharyngeal swab or nasal aspirate specimens.
Patient Preparation	-
Sample Requirements	-
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours

### **Influenza A/B Antigen**

Billing Code	Influenza screening
Clinical Significance	To qualitatively detect influenza, A or B antigen in nasopharyngeal aspirates, nasopharyngeal washes or nasal/nasopharyngeal swabs
Patient Preparation	-
Sample Requirements	-
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection
Methodology	Chromatography
Critical Values	-
Turn Around Time	24 hours

### **Novel coronavirus 19 Antigen (Covid 19)**

Billing Code	COVID-19 Rapid Ag Detection
Clinical Significance	To qualitatively detect of covid 19 antigen in nasopharyngeal swab.
Patient Preparation	-
Sample Requirements	The test should be performed during the first 10 days of symptoms from a nasopharyngeal swab
Min. Volume	1 swab
Rejection Criteria	Inappropriate collection
Methodology	Chromatography
Critical Values	-
Turn Around Time	24 hours

### **Special tests**

#### **Syphilis**

Billing Code	86592
Clinical Significance	To qualitatively detect Treponema pallidum antibodies (IgG and IgM) to aid in the diagnosis of Syphilis.
Patient Preparation	-
Sample Requirements	Whole blood, serum or plasma
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	Chromatography
Critical Values	Positive result
Turn Around Time	24 hours

### **RPR (rapid plasma reagin)**

Billing Code	86593
Clinical Significance	To qualitatively and semi quantitatively detect reagin antibodies of patients with primary and secondary syphilis phases.
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	flocculation
Critical Values	Positive result
Turn Around Time	24 hours

### **Widal**

Billing Code	86768
Clinical Significance	To detect and quantitatively measure the Salmonella antibodies (agglutinins) in the sera of patients with Typhoid fever
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	agglutination
Critical Values	Positive result
Turn Around Time	48 hours

### **TPHA (Treponema Pallidum Hemagglutination)**

Billing Code	86782
Clinical Significance	To detect specific Treponema pallidum antibodies for the confirmation of active syphilis infection.
Patient Preparation	-
Sample Requirements	serum

Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	hemagglutination
Critical Values	Positive result
Turn Around Time	24 hours

### Waalser rose

Billing Code	Waalser Rose
Clinical Significance	To qualitatively and semi quantitatively detect Rheumatoid factors.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	hemagglutination
Critical Values	Positive result
Turn Around Time	24 hours

### Wright

Billing Code	86622
Clinical Significance	To screen and detect total anti-Brucella antibodies
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	immunocapture
Critical Values	Positive result
Turn Around Time	48 hours

### Free testosterone

Billing Code	Free Testosterone
Clinical Significance	To clinical evaluate of hypogonadism in males and hyperandrogenic states in females.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### Anti-gliadin IgG

Billing Code	Anti-Gliadin IgG
Clinical Significance	To aid in the diagnosis of celiac disease
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### Anti-gliadin IgA

Billing Code	Anti-Gliadin IgA
Clinical Significance	To aid in the diagnosis of celiac disease
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### D4-Androstenedione

Billing Code	82157
Clinical Significance	Diagnosis of hirsutism, polycystic ovarian disease, virilization, congenital adrenal hyperplasia
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### Anti-transglutaminase IgG

Billing Code	Anti-Transglutaminase IgG
Clinical Significance	To diagnose gluten-sensitive enteropathies, such as Celiac disease
Patient Preparation	-
Sample Requirements	serum or plasma



Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### **Anti-transglutaminase IgA**

Billing Code	Anti-Transglutaminase IgA
Clinical Significance	To diagnose gluten-sensitive enteropathies, such as Celiac disease
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### **17-OH progesterone**

Billing Code	83498
Clinical Significance	To diagnose congenital adrenal hyperplasia
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### **Anti-EBV profile IgM**

Billing Code	86663
Clinical Significance	To aid in the diagnosis of acute infection or reactivation of Epstein-Barr virus (infectious mononucleosis, Burkitt's lymphoma, nasopharyngeal carcinoma)
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	7 working days

### Anti-EBV profile IgG

Billing Code	86664
Clinical Significance	To aid in the diagnosis of previous exposure to Epstein-Barr virus (infectious mononucleosis, Burkitt's lymphoma, nasopharyngeal carcinoma)
Patient Preparation	-
Sample Requirements	serum or plasma
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	7 working days

### ANA (Anti-Nuclear Antibodies)

Billing Code	86038
Clinical Significance	To support the diagnosis of many autoimmune diseases, particularly those of the rheumatic form.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	indirect immunofluorescence
Critical Values	-
Turn Around Time	10 working days

### AMA (Anti-Mitochondria Antibodies)

Billing Code	86038
Clinical Significance	To support the diagnosis of many autoimmune diseases, particularly those of the rheumatic form.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	indirect immunofluorescence
Critical Values	-
Turn Around Time	10 working days

### ASMA (Anti-smooth muscles Antibodies)

Billing Code	86038
Clinical Significance	To support the diagnosis of many autoimmune diseases, particularly those of the rheumatic form.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	200 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	indirect immunofluorescence
Critical Values	-
Turn Around Time	10 working days

### Specific IgE: Inhalation

Billing Code	86003
Clinical Significance	To aid in the diagnosis of inhalation related allergies
Patient Preparation	-
Sample Requirements	serum
Min. Volume	1 mL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### Specific IgE: Food

Billing Code	86003
Clinical Significance	To aid in the diagnosis of food related allergies
Patient Preparation	-
Sample Requirements	serum
Min. Volume	1 mL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### ANA profile (ENA)

Billing Code	ENA profile
Clinical Significance	To evaluate patients with signs and symptoms of a connective tissue disease in whom the test for antinuclear antibodies is positive
Patient Preparation	-

Sample Requirements	serum
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	10 working days

### **Helicobacter pylori IgG**

Billing Code	86677
Clinical Significance	To detect a previous or ongoing exposure to H. pylori.
Patient Preparation	-
Sample Requirements	serum
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection, highly lipemic/hemolytic specimen
Methodology	ELISA
Critical Values	-
Turn Around Time	1 day

### **Calprotectin**

Billing Code	Calprotectin
Clinical Significance	To differentiate organic inflammatory disease from functional gastrointestinal disease
Patient Preparation	-
Sample Requirements	stool
Min. Volume	500 µL
Rejection Criteria	Inappropriate collection
Methodology	ELISA
Critical Values	-
Turn Around Time	1 day

### **Anti-dsDNA**

Billing Code	86225
Clinical Significance	To aid in the diagnosis and treatment of systemic lupus erythematosus.
Patient Preparation	-
Sample Requirements	Serum, plasma (EDTA, heparin or citrate)
Min. Volume	100 µL
Rejection Criteria	Inappropriate collection, high hemolysis
Methodology	ELISA
Critical Values	-
Turn Around Time	10 days

References:

- Mayo Clinic Laboratories
- Brigham and Women's Hospital, Clinical Laboratory Manual