



**TRADHOSPITAL**  
مستشفى طراد



TRAD HOSPITAL

# Laboratory & Blood Bank

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# Hematology & Coagulation

Complete Blood Count (CBC) – Erythrocyte sedimentation rate (ESR) –  
Peripheral blood smear

## Coagulation Screen:

PT (Prothrombin Time) – PTT (partial thromboplastin time) – Fibrinogen

## Coagulation Factors Screen:

Factor V Activity – Factor IX Activity – Factor VII Activity

## DIC Screen (Disseminated Intravascular Coagulation):

D-dimer – Fibrinogen – PT (Prothrombin Time) – PTT (partial thromboplastin time)

## Fibrinolysis screen :

Fibrinogen – D-dimer – Fibrinogen Degradation Products

## Anemia Panel:

CBC – Blood Film Inspection – Reticulocyte Count

## Tests related to iron deficiency:

Serum iron, ferritin, transferrin, total iron-binding capacity

## Tests related to vitamins deficiency:

Vitamin B12, Folic acid, Vitamin D

## Tests related to increased destruction of red blood cells:

LDH, Haptoglobin, Direct Antiglobulin Test (Coombs), G6PD, Hemoglobin Electrophoresis

## Tests related to potential blood loss:

Fecal Occult Blood Test

## Thrombotic Risk panel:

- Protein C Activity
- Protein S Activity
- Antithrombin III
- Homocysteine
- Lipoprotein (a) Multiplex PCR, factor V Leiden, factor II, MTHFR

## Immuno Hematology

- ABO Grouping and Rh typing
- Coombs direct
- Unexpected antibody detection
- Unexpected antibody identification
- Compatibility testing

## Chemistry

### CHEMISTRY TESTS:

Alkaline Phosphatase – ALT (SGPT) – AST (SGOT) – Amylase – Bilirubin Total/  
Direct – BUN - Calcium – Carbon Dioxide – Chloride – Cholesterol Total – Hdl  
Cholesterol – Ldl Cholesterol – Creatine Phosphokinase – Creatinine – Gamma  
Glutamyl-Transferase – Glucose – Iron – Iron Binding Capacity – Lactate  
Dehydrogenase – Lipase – Magnesium – Potassium – Phosphate – Protein Total  
– Albumin – Globulin – Sodium -Triglycerides – Uric Acid – Zinc

## Basic Metabolic Panel (BMP) - *also known as Chemistry 7*

Glucose – Blood Urea Nitrogen (BUN) – Creatinine – Electrolytes (Sodium, Potassium, Chloride, Bicarbonate, Calcium)

## Comprehensive Metabolic Panel (CMP) - *also known as Chemistry 14*

Glucose – Blood Urea Nitrogen (BUN) – Creatinine – Electrolytes (Sodium, Potassium, Chloride, Bicarbonate, Calcium) – Total protein – Albumin – Alanine aminotransferase (ALT) – Aspartate amino transferase (AST) – Alkaline phosphatase – Bilirubin

## Cholesterol Panel

Total Cholesterol – HDL – LDL – Triglycerides

## Kidney Function Test

Creatinine – Blood Urea – Uric Acid – Electrolytes – Total protein

## Blood Sugar Test

Glucose – Glucose tolerance test – HbA1c – Insulin – peptide C

## Cardiac Blood Test

Troponin-I – CPK – CPK-MB – CRP High-sensitivity

# Endocrinology

## Adrenal Cortical Function:

ACTH – Cortisol – DHEAS – Testosterone total & free – Sex Hormone Binding Globulin

## Tests for Infertility:

Follicle Stimulating Hormone – Luteinizing Hormone – Prolactin – Anti-Mullerian hormone – Estradiol – Progesterone

## Adrenal Medullary Function:

Catecholamine – Metanephrines – VMA

## Hirsutim panel :

Total & free testosterone – Androstenedione – DHEAS

## Thyroid function :

TSH – FT4 – FT3 – Thyroglobulin

## Parathyroid/Ca Metabolism:

PTH – Calcitonin – Vitamin D

# Serology

- BRUCELLA AGGLUTINATION direct & indirect (WRIGHT)
- CMV ANTIBODIES IgG & IgM
- COVID 19: Direct antigen detection – Anti-spike
- EBV ANTIBODIES IgG & IgM
- HELICOBACTER PYLORI IgG
- Hepatitis A ANTIBODIES IgG, IgM
- HEPATITIS B: Hepatitis B surface antigen, HBsAg, Hepatitis B core antibody (HBcAb), IgG & IgM, Hepatitis B surface antibody (HBsAb) Hepatitis Be antigen (HBeAg), Hepatitis Be antibody (HBeAb)
- HEPATITIS C ANTIBODY
- HIV ANTIBODY
- HSV ANTIBODIES TYPE I & II, IgG & IgM
- Hydatid serology cyst
- Malaria detection: Blood smear & rapid antigen test
- MONOSPOT
- MUMPS ANTIBODIES IgG & IgM
- PPD Skin Test
- RUBELLA ANTIBODIES IgG & IgM
- SALMONELLA AGGLUTINATION (WIDAL)
- TOXOPLASMA ANTIBODIES (IgG & IgM), Toxo avidity test
- VARICELLA ANTIBODIES IgG & IgM
- VDRL QUANTITATIVE & TPHA
- WEIL FELIX 3 Antigen

# Tumor Markers

- AFP (alpha fetoprotein)
- CA 15-3
- CA 27-29
- CA 19-9
- CA 125
- Calcitonin
- hCG (Human chorionic gonadotropin)
- CEA (Carcino Embryonic Antigen)
- PSA Total & Free (Prostate Specific Antigen)

# Immunology

## IMMUNOLOGY TESTS:

ANA – Anti CCP – ASO – Beta-2 microglobulin – Ceruloplasmine – Complement C3 – Complement C4 – Cryoglobulin Screen – CRP – ENA Panel – Haptoglobin IgG, IgA, IgM – Kappa and Lambda Chains – Protein Electrophoresis (serum, urine) – Immunofixation Electrophoresis (serum, urine, CSF) – Procalcitonin – Rheumatoid factor – Transferrin

## Autoimmune Diseases

### Lupus (Systemic Lupus Erythematosus or SLE):

- Anti-nuclear antibody (ANA)
- Anti-double stranded DNA (Anti-dsDNA)
- ENA panel
- Histone antibodies – for drug-induced lupus.

## **Rheumatoid Arthritis :**

- Rheumatoid Factor (RF)
- Cyclic Citrullinated Peptide (CCP) Antibody
- Antinuclear Antibody (ANA)

## **Scleroderma:**

- Antinuclear antibodies (ANA)
- Scl-70 antibody (Scleroderma antibody Anti-topoisomerase I antibody)
- Centromere antibody (ACA)

## **Sjögren Syndrome:**

- Antinuclear antibodies (ANA)
- Antibodies specific to Sjögren syndrome – Anti-SS-A (Ro) and Anti-SS-B (La)

*\*ENA panel: Anti-SSA, Anti-SSB, Anti-SmRNP, Anti-Sm, Scl-70, Anti-RNP, Anti-Topoisomerase, Anti-Jo-1*

## **Antiphospholipid Syndrome:**

- Lupus anticoagulant
- Cardiolipin antibody
- Beta-2 glycoprotein I ( $\beta$ 2GP1) antibody

## **Hashimoto Thyroiditis:**

- Thyroid-stimulating hormone (TSH) – Free T4 – Free T3
- Anti-thyroid peroxidase antibody (anti-TPO)
- Antithyroglobulin antibody (TgAb)



## Graves' Disease (Autoimmune Hyperthyroidism or Basedow Disease):

- Thyroid stimulating hormone Receptor Antibody (TRAb)
- Anti-Thyroid Peroxidase antibody (anti-TPO)

## Celiac Disease Gluten Intolerance:

1. Quantitative (total) IgA
2. Anti-tissue transglutaminase (anti-tTG) antibodies, IgA, IgG – Anti-gliadine antibodies IgA, IgG – Anti-endomysial antibodies IgA

## Autoimmune Hepatitis :

ANA-ASMA (Anti-Smooth Muscle Antibody) – Anti LKM1 ( Liver Kidney Microsomal Type 1)

## Inflammatory Bowel Disease:

Calprotectin and lactoferrin

## Multiple Sclerosis:

Cerebrospinal fluid (CSF) analysis, CSF Electrophoresis, CSF Immunoglobulin G (IgG) Index

## Sarcoidosis:

ACE (Angiotensin Converting Enzyme)

## Vasculitis:

Antineutrophil Cytoplasmic Antibodies (ANCA, MPO, PR3)

# Allergy Testing

- Total IgE
- Specific pneumo allergen panel
- Specific Food Allergen panel

# Screening Test

- Neonatal screening
- Triple & double screening for trisomy 21, trisomy 18 & neural tube defects

# Molecular Biology

- Real time PCR (polymerase chain reaction)
- Factor V mutation, Factor II mutation, MTHFR mutations
- Sexually transmitted diseases: Chlamydia Trachomatis, Neisseria gonorrhoeae, Ureaplasma species, Mycoplasma species, Trichomonas.
- HSV type I & II
- HLA B 27
- FMF (Familial Mediterranean fever)
- Lactose Intolerance
- HPV screening (oncogenic & non oncogenic)
- HIV
- HCV
- HBV
- Tuberculosis

## **THERAPEUTIC DRUGS**

Digoxin – Epanutin – Depakene – Lithium

# Bacteriology / Mycology

- Urinalysis
- Stool analysis: Rotavirus, adenovirus, Calprotectin, Clostridium difficile, H. pylori, FOBT
- CSF analysis: glucose, protein, cell count, differential
- SYNOVIAL FLUID: cell count, differential & crystal identification
- PLEURAL FLUID: cell count, differential, protein, glucose, LDH, CEA & amylase
- ASCITES: Protein, LDH, cell count & differential
- SEMEN analysis
- MEDULLOGRAM

*Bacterial culture and antibiotics susceptibility for all above sources.*