



## BIOCHEMICAL TESTS

### Electrolytes

<b>Ca<sup>++</sup></b>	Calcium ionized
<b>Ca</b>	Calcium total
<b>Ca-U</b>	Urine Calcium
<b>Mg</b>	Magnesium
<b>Mg-U</b>	Urine Magnesium
<b>HCO<sub>3</sub></b>	Bicarbonate
<b>P</b>	Phosphorus
<b>P-U</b>	Urine Phosphorus
<b>K<sup>+</sup></b>	Serum potassium
<b>K<sup>+</sup>-U</b>	Urine Potassium
<b>Na<sup>+</sup></b>	Sodium
<b>Na<sup>+</sup>-U</b>	Urine Sodium
<b>Cl<sup>-</sup></b>	Chloride
<b>Cl<sup>-</sup>-U</b>	Urine chloride

### Trace elements

<b>Cu</b>	Copper
<b>Cu-U</b>	Urine copper
<b>Pb</b>	Lead

<b>Pb-U</b>	Urine lead
<b>Zn</b>	Zinc
<b>Zn-U</b>	Urine zinc
<b>Se</b>	Selenium
<b>Se-U</b>	Urine selenium

### **Organic function tests**

<b>BUN</b>	Blood urea nitrogen
<b>UREA</b>	Urea
<b>NH3</b>	Ammonia
<b>UREA</b>	U Urine
<b>LAC</b>	Lactic acid
<b>UA</b>	Uric acid
<b>UA-U</b>	Urine uric acid
<b>GLU</b>	Glucose
<b>GLU-U</b>	Urine glucose
<b>TBIL</b>	Total bilirubin
<b>DBIL</b>	Bilirubin direct
<b>IBIL</b>	Bilirubin indirect
<b>CREA</b>	Creatinine
<b>CREA U</b>	Urine Creatinine
<b>Carnitine total</b>	
<b>Urine citric acid</b>	
<b>Urine oxalates</b>	
<b>Creatinine clearance / Urea clearance</b>	
<b>GFR</b>	Glomerular Filtration Rate
<b>Total bile acids</b>	

### **Enzymes**

<b>LIP</b>	Lipase
<b>AMYp</b>	Pancreatic amylase
<b>CK, CPK</b>	Creatinine kinase
<b>CK-MB</b>	Creatine kinase isoenzyme MB - activity
<b>ALP</b>	Alkaline phosphatase
<b>BSAP</b>	Bone Fraction Alkaline Phosphatase
<b>ACP</b>	Acid phosphatase
<b>BAP</b>	Alkaline Phosphatase Bone Fraction
<b>ALD</b>	Aldolase
<b>AMY</b>	$\alpha$ -Serum Amylase
<b>AMY-U</b>	$\alpha$ -Urine Amylase
<b>PCHE</b>	Pseudocholinesterase
<b>LDH</b>	Lactic Dehydrogenase
<b><math>\gamma</math>-GT</b>	$\gamma$ -Glutamyltransferase
<b>5-NU</b>	5- Nucleotidase
<b>ACE</b>	Angiotensin converting enzyme
<b>SGPT, ALT</b>	Pyruvate Transaminase
<b>SGOT, AST</b>	Oxaloacetate Transaminase
<b>G-6-PD</b>	Glucose 6-Phosphate Dehydrogenase

#### **ALP isoenzyme electrophoresis**

#### **LDH isoenzyme electrophoresis**

#### **CK isoenzymes electrophoresis**

### **Cardiac markers**

<b>CK-MB</b>	Creatine kinase isoenzyme MB-activity
<b>Mass CK-MB</b>	Immunoassay of the creatine kinase MB isoenzyme
<b>CRP-ULTRA</b>	High Sensitivity C-Reactive Protein
<b>BNP</b>	B-type Natriuretic Peptide

<b>NT-proBNP</b>	N-terminal pro b-type Natriuretic Peptide
<b>CK, CPK</b>	Creatinine kinase
<b>Myo</b>	Serum myoglobin
<b>tHcy</b>	Homocysteine total
<b>Tni-Ultra</b>	High Sensitive Troponin-I

## **Specific proteins**

**Urinary immunoblotting, Bence-Jones** (IEP,  $\kappa, \lambda$  chains, free  $\kappa, \lambda$  chains)

**Immunoglobulin G subclasses** (IgG1, IgG2, IgG3, IgG4)

**Immuno-electrophoresis of Immunoglobulins** (IgG, IgA, IgM,  $\kappa, \lambda$ )

**Immuno-electrophoresis of Immunoglobulins** (IgG, IgA, IgM, IgD, etc.)

**Immunoblotting (IFE)** (IgG, IgA, IgM, etc.) (Complete control)

**Urine protein immuno-electrophoresis** (free  $\kappa, \lambda$ )

**Bence-Jones Bence Jones protein** (Qualitative test)

**Serum protein electrophoresis**

**Urine protein electrophoresis**

**$\kappa$  FLC Free light and serum chains**

**$\lambda$  FLC Free light  $\lambda$  serum chains**

**Ratio FLC  $\kappa / \lambda$  Ratio of free light  $\kappa / \lambda$  serum**

**Urine FLC Free light urine chains**

**Urine FLC Free light urine chains**

**Ratio FLC urine urine Ratio of free light urine urine**

**Total light serum chains**

**Total light serum chains**

**Serum light chain ratio**

**Total light and urine chains**

**Total light urine chains**

**Urine light chain ratio**

## **Albums, Albumin**

**TPR (Total Proteins)**

<b>Total globins</b>	(TPR-ALB)
<b>μALB</b>	Urine microalbumin
<b>PCT</b>	Procalcitonin
<b>TPR-U</b>	Urine proteins
<b>HPT</b>	Aptoglobin
<b>CRP-HS</b>	C-Reactive High Sensitivity Protein
<b>IgG<sub>1</sub></b>	IgG <sub>1</sub> subclass
<b>IgG<sub>2</sub></b>	IgG <sub>2</sub> subclass
<b>IgG<sub>3</sub></b>	IgG <sub>3</sub> subclass
<b>IgG<sub>4</sub></b>	IgG <sub>4</sub> subclass
<b>IgG</b>	Immunoglobulin G
<b>IgM</b>	Immunoglobulin M
<b>IgA</b>	Immunoglobulin A.
<b>IgD</b>	Immunoglobulin D
<b>IgE</b>	Immunoglobulin E
<b>IgE RAST</b>	Specific immunoglobulin E, RAST
<b>IgE RAST Comp</b>	Specific immunoglobulin E components, RAST
<b>SAA</b>	Amyloid A.
<b>A<sub>1</sub>AT</b>	A <sub>1</sub> - Antitrypsin
<b>A<sub>1</sub>-M</b>	A <sub>1</sub> - Urine microglobulin
<b>A<sub>2</sub>-M</b>	A <sub>2</sub> - Macroglobulin
<b>A<sub>1</sub>-AGp</b>	A <sub>1</sub> Acid Glycoprotein

## **Acute phase proteins**

<b>TNF-α</b>	Tumor Necrosis Factor
<b>β<sub>2</sub>-M-Urine</b>	β <sub>2</sub> -Urine microglobulin

<b>CRP-HS</b>	C High Sensitivity Reactive Protein
<b>A<sub>1</sub>-AGp</b>	A <sub>1</sub> Acid Glycoprotein
<b>C<sub>3</sub></b>	Complement ingredient
<b>C<sub>4</sub></b>	Complement ingredient
<b>TRF</b>	Transferrin
<b>CRP</b>	C Reactive Protein non-quantitative
<b>SAA</b>	Amyloid A.
<b>β<sub>2</sub>-M</b>	β <sub>2</sub> - Serum microglobulin
<b>A<sub>1</sub>AT</b>	A <sub>1</sub> - Antitrypsin
<b>IL6</b>	Interleukin 6
<b>CER</b>	Seruloplasmin
<b>Fib</b>	Fibrinogen
<b>HPT</b>	Aptoglobin

## **Anemia**

<b>FOL</b>	Folic Acid (Vitamin B9)
<b>Fe</b>	Iron
<b>FERR</b>	Ferritin
<b>TS</b>	Transferrin saturation
<b>TIBC</b>	Total Railing Capacity
<b>B12</b>	Vitamin B12
<b>TRF</b>	Transferrin
<b>EPO</b>	Erythropoietin
<b>Fol RB</b>	Red blood cell folic acid
<b>STfR</b>	Soluble Transferrin Receptor
<b>Fe-U</b>	Urine iron
<b>MMA</b>	Methylmalonic acid

## **Vitamins**

**Vitamin A**

**Vitamin C**

**Vitamin E**

**1,25 D**                      Vitamin 1,25- (OH)<sub>2</sub>-Vit D

**25-OH D**                     Vitamin 25-OH-Vit D

**Fol**                             Folic acid

**B1 Vitamin B1**

**B2 Vitamin B2**

**B6 Vitamin B6**

**B12 Vitamin B12**

## **Amino acids**

Plasma Amino Acids

Urine Amino Acids

## **Lipids and lipoproteins**

### **Lipoprotein electrophoresis**

#### **Total lipids**

**CHOL**                         Total cholesterol

**TRIG**                         Triglycerides

**HDL**                         Cholesterol HDL

**LDL**                         Cholesterol LDL

**VLDL**                        Cholesterol VLDL

**Apo A<sub>1</sub>**                      Apolipoprotein A<sub>1</sub>

**Apo A<sub>II</sub>**                     Apolipoprotein A<sub>II</sub>

<b>Apo B</b>	Apolipoprotein B
<b>Apo E</b>	Apolipoprotein E
<b>Lp (a)</b>	Lipoprotein(a)

### **Sperm analysis**

Sperm count test

DNA fragmentation index (DFI)

DNA fragmentation index (DFI) and sperm apoptosis

ASA Antisperm antibodies

Acid phosphatase

Alkaline Phosphatase

Neutral  $\alpha$ -Glucosidase

L-sperm carnitine

Citric acid

Magnesium

Proteins

Fructose

Zinc

### **Qualitative urine tests**

Qualitative measurement of cystine

Urinary Stone Analysis

### **Peritoneal Fluid Analysis**

**Ascites fluid analysis**



- Cell count
- Biochemical analysis

## **Synovial fluid analysis**

### **Culture for bacteria**

### **Gram stain or Ziehl-Nielsen**

### **Cell count**

<b>ALP</b>	Alkaline phosphatase
<b>ACP</b>	Acid phosphatase
<b>CRP</b>	C Reactive Protein
<b>ANA</b>	Articular Fluid Antibodies
<b>RF</b>	Rheumatic Factor

### **Lactic acid**

## **Therapeutic drug monitoring and drug abuse**

Ethosuximide

Primidone

Phenytoin (Epanutin)

Urine Drug test (package of 5 parameters)

Cocaine metabolites (Coke, Crack, Snow)

Ecstasy (Ecstasy drugs in human urine)

Lamotrigine (Lamotrigine, Lamictal)

Urine opiates (heroin, morphine, codeine)

Theophylline, Aminophylline (Theo)

Phenobarbital (Luminal)

Tacrolimus

Carbamazepine (Tergetol)

Keppra (Levetiracetam)

Amphetamines

Barbiturates

Amiodarone (Agoron,)

Gentamicin

Valproic Acid (Depakine)

Vancomycin

Digoxin (Digoxin, Lanoxin)

Ethanol (Alcohol)

Benzodiazepines

Oxycarbazepine (Trileptal)

Sulthiame (Ospolot)

Methadone

CsA Cyclosporine

THC Cannabinoids

Li Lithium