Sampling: 1 mL serum, EDTA plasma not accepted. Avoid hemolysis. Fasting sample is preferred in the morning, there is a circadian rhythm, low in the evening, up to 30% higher in the morning. Stable for 1 week at 4˚C.

Reference Interval: 48–152 µg/dL for adult males
5-10% lower for adult females

Iron (Fe), Urine

Related Information: Hemolysins
Glucose-6-Phosphate Dehydrogenase (G6PD), RBC
Hemoglobin Electrophoresis
Hemoglobin, Qualitative, Urine
Iron and Iron Binding Capacity/Transferrin, Serum
Lactate Dehydrogenase (LDH), Serum

Background: In case of intravascular destruction of blood, free hemoglobin alpha-beta dimers are bound to haptoglobin and removed from the circulation by the live parenchymal cells if plasma hemoglobin levels exceeds 50-200 mg/dL (the binding capacity of haptoglobin for hemoglobin). The dimers of hemoglobin are filtrated by the glomeruli and a portion is reabsorbed by the tubular cells. The tubular cells convert hemoglobin to hemosiderin. If the tubular cells are shed into the urine, hemosiderinuria occurs. Hemoglobinuria occurs if the tubular reabsorption capacity is exceeded. Hemoglobin not bound to haptoglobin or not excreted by the kidney is oxidized to hemiglobin and the oxidized heme groups are bound to hemopexin, a beta globulin. The complex is cleared by hepatic parenchymal cells. If hemopexin is depleted, hemin groups bind to albumin, forming methemalbumin.
Useful in the assessment of intravascular hemolysis, hemochromatosis, hemolytic anemia, nephrotic syndrome, paroxysmal nocturnal hemoglobulinuria, multiple transfusions.
Limitations: Hemosiderin is shed in the urine several days after onset of hemolysis with slow decline, which may take weeks to month after heart valve replacement.

Sampling: A 5 mL aliquot of a 24h urine collection. Note total quantity.

Reference Interval: 3–99 µg/24h

Iron Total Binding Capacity see Transferrin and Total Iron Binding Capacity, Serum

Jo-1 Antibody

Related Information: Antinuclear Antibody
Scl-70 Antibody
SS-A/Ro and SS-B/La Antibodies

Synonyms: Antihistidyl Transfer tRNA Synthetase

Background: Aminoacyl-tRNA synthetases are a group of 20 enzymes to catalyze the reaction of amino acids with t-RNA. Jo-1 antigen resides on the enzyme histidyl-tRNA synthetases and is located in the cytoplasma.

Jo-1 antibodies account for 75% of all antibodies directed against synthetases and Jo-1 antibodies occur in 20%-35% of patients with inflammatory myositis, dermatomyositis, polymyositis, in overlap syndromes, and cancer associated myositis, as well as in fibrosing alveolitis.

Sampling: 1 mL serum

Reference Interval: Negative: < 20 U/mL

Kalium Serum or Plasma see Potassium, Serum, Plasma

Kalium, Urine see Potassium, Urine

Knee Punctate see Synovial Fluid Analysis

Lactic Acid, Whole Blood, Plasma or CSF

Related Information: Ammonia, Plasma
Ethanol, Blood, Serum or Urine
Ibuprofen, Serum
Salicylate, Serum or Plasma

Synonyms: Blood Lactate, Lactate

Background: Derived from pyruvate in glycolysis, levels rise sharply during exercises. Lowest values occur during fasting and upper values during postprandial state.

Increased in lactic acidosis caused by carbon monoxide intoxication, anemia, methemoglobulinemia, respiratory failure, shock hypotension.

Increased in drug mediated lactic acidosis by ethanol, methanol, ethylene glycol, cyanide, nitroprusside, salicylate, nalidixic acid, catecholamines. Increased during therapy with biguanides (phenformin), particularly in patients >60 years.

Increased in inborn errors of metabolism such as diabetes mellitus; mitochondrial myopathy; glycogen storage diseases Type I,II,III,V,VIII; fructose1-6-biphosphatase deficiency; deficiency of pyruvate carboxylation.

Increased in liver and renal failure, infections, malignancies.

Useful as a prognostic parameter for mortality and admission to the emergency unit: Patients with values >36 mg/dL need emergency care.