

# Vitamin B12 Cobalamin

## General:

**Biochemistry:** Vitamin B12, a cobalt containing, porphyrin similar ring, is an essential co-enzyme for DNA synthesis, growth, myelinization of the nerves and new production of epithelium cells. Vitamin B12 is transformed into two co-enzyme forms which are required for metabolizing valine, threonine and methionine or re-synthesizing of homocysteine to methionine.

**Physiology:** Vitamin B12 (extrinsic factor) in food is released from its protein by the peptic activity of the intrinsic factor in the stomach. It forms a complex with the intrinsic factor and is transported into the small intestine. The complex is absorbed by the mucosa of the terminal ileum and transported into the plasma where vitamin B12 binds to transcobalamin I and II. Usually 2 mg of vitamin B12 are stored in the liver, another 2 mg are stored in bone marrow and other fast proliferating tissues. Occurrence: liver, kidney, meat, milk, eggs.

**Clinical symptoms:** Neurological: Paresthesia, motor dysfunctions, loss of depth sensibility as a consequence of demyelinating focus in the spinal tracts (funicular myelosis), Hunter's glossitis as an early symptom in pernicious anemia, pernicious psychosis; Pediatrics: growth delay ; Hematology: macrocytic hyperchromic (megaloblastic) anemia; Skin: symmetrical hyperpigmentations, affectedness of mucous membranes in mouth and throat.

**Indication:** in megaloblastic anemia, intrinsic factor deficiency, autoimmune disorder with antibodies against parietal cells and intrinsic factor, in sub- or anacidity, pernicious anemia, atrophied gastritis after stomach resection, chronic stomach diseases, disease of the terminal ileum, B12 deficient diet, pathological intestinal bacterial flora, funicular spinal disease.

**Material:** 1 ml serum

**Preanalytics:** light protected dispatch is highly recommended!

**Stability:** 2 days at 2 to 8°C

**TAT:** same day, FML

**Method:** ECLIA

**Units:** pg/ml

**Ref.- range:** 200 - 1000

**Note:** increased values in EDTA plasma

if the patient is taking multivitamins or dietary supplements containing high dose

of Biotin (> 5 mg), the patient should stop taking it for at least 24 hours, before having the blood collection.

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit <http://www.fml-dubai.com/parameter-listings/>