

Folic acid Folate (B9)

General:

Folic acid (pteroyl monoglutamic acid, PGA) is formed by plants and bacteria of the intestinal flora and occurs in many vegetable and animal tissues (vegetables, mushrooms, yeast, liver, milk). The carrier-mediated absorption occurs in duodenum and jejunum. The size of the folic acid pool is reflected by the intraerythrocyte folic acid concentration; however the latent deficiency condition, measured in serum, is more accurate. Folic acid is necessary for purine synthesis and as coenzyme for amino acid metabolism. Tissue/cells with high proliferation react more sensitive to a deficiency: blood cells, mucous membranes, skin and bones.

First symptom of folic acid deficiency is, beside the decreased folate in whole blood, the occurrence of hypersegmented granulocytes, moreover it leads to mucous membrane changes, neurological and psychiatric disturbances and, finally, to megaloblastic anemia. Increased folic acid consumption occurs in pregnancy, in premature delivery, lactation, growth phase, during infections, hemolytic anemia, hemodialysis, generalized and malignant tumors.

Folic acid in serum	Folic acid in RBC	Interpretation
decreased	normal	latent folic acid deficiency
decreased	decreased	manifest folic acid deficiency
normal	decreased	suspicion of B12 defect

The following tests are available:

- **Folic acid in serum**

General:

Decrease of folic acid below the lower reference range point to a latent (only plasma folic acid decreased) or an apparent folic acid deficiency (both, intraerythrocyte and plasma folic acid decreased). Folic acid deficiency might result from treatment with several drugs.

Material: 1 ml serum (light protected, send immediately or send frozen aliquot)

Stability: 2 days at 2 to 8°C

TAT: same day, FML

Method: LIA

Units: ng/ml

Ref.- range: 3.0 - 20.0

Note: 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.

- **Folic acid RBC (red blood cells)**

Indication: Suspicion of folic acid deficiency in megaloblastic anemia, malnutrition (e.g. alcoholic), malabsorption, aplastic anemia.

Material: 3 ml EDTA blood

TAT: 7-10 days*

Method: CLIA

Units: ng/ml ERY

Ref.- range: see report

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