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Medical Encyclopedia: ALP

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Alternative names

Alkaline phosphatase

Definition

This is a blood test that measures the amount of the enzyme ALP (alkaline phosphatase).

How the test is performed

Blood is drawn from a vein or from a capillary on the heel, finger, toe, or earlobe. The laboratory centrifuges the blood to separate the serum from the cells. The ALP test is done on the serum.

How to prepare for the test

Fast for 6 hours.

Your health care provider may advise you to discontinue drugs that may affect the test, such as:

- antibiotics
- narcotics
- methyldopa
- propranolol
- cortisone
- allopurinol
- tricyclic antidepressants
- chlorpromazine
- oral contraceptives (birth control pills)
- anti-inflammatory analgesics
- androgens
- tranquilizers
- some antiarthritic drugs
- oral antidiabetic drugs

Why the test is performed

Alkaline phosphatase is an enzyme found in all tissues. Tissues with particularly high concentrations of ALP include the liver, bile ducts, placenta, and bone.

Damaged or diseased tissue releases enzymes into the blood, so serum ALP measurements can be abnormal in

many conditions, including bone disease and liver disease. Serum ALP is also increased in some normal circumstances (for example, during normal bone growth) or in response to a variety of drugs.

There are multiple varieties of ALP, called isoenzymes. Different types of isoenzymes, each with different structures, are found in different tissues (for example, liver and bone ALP isoenzymes have different structures) and can be quantified separately in the laboratory. To differentiate the location of damaged or diseased tissue in the body, ALP isoenzyme testing must be done.

Normal Values

The normal range is 44 to 147 IU/L (international units per liter).

Normal values may vary slightly from laboratory to laboratory. They also can vary with age and gender.

What abnormal results mean

Higher-than-normal ALP levels may indicate:

- anemia
- biliary obstruction
- bone disease
- healing fracture
- hepatitis
- hyperparathyroidism
- leukemia
- liver diseases
- osteoblastic bone cancers
- osteomalacia
- Paget's disease
- rickets

Lower-than-normal ALP levels (hypophosphatasemia) may indicate:

- malnutrition
- protein deficiency

Additional conditions under which the test may be performed:

- alcoholic liver disease (hepatitis/cirrhosis)
- alcoholism
- biliary stricture
- giant cell (temporal, cranial) arteritis
- multiple endocrine neoplasia (MEN) II
- renal cell carcinoma

Special considerations

The ALP levels vary with age and gender. It is normal for young children experiencing rapid growth and for pregnant women to have high levels of ALP.

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