

Alkaline phosphatase

Diagnostic use

- bile ducts are blocked
- children
- pregnant women
- less common
- High ALP
- Lowered ALP
- Inc. PCV
- Inc. Leukemoid Reaction
- Dec. CML
- Blood levels of LAP

Hypophosphatasemia

- Hypophosphatasia
 - autosomal recessive disease
- Postmenopausal women
 - receiving estrogen
 - osteoporosis
- Men with recent
 - heart surgery
 - malnutrition
 - magnesium deficiency
 - hypothyroidism
 - severe anemia
- Children
 - achondroplasia
 - cretinism
 - after a severe enteritis
- Pernicious anemia
- Aplastic anemia
- CML

Hyperphosphatasemia

- Liver ALP
 - Cholestasis, cholecystitis, cholangitis
 - cirrhosis, hepatitis, fatty liver
 - liver tumor, liver metastase
- Drugs
 - verapamil, carbamazepine, phenytoin
 - erythromycin, allopurinol, ranitidine
- High/Very
 - Page't's disease, osteosarcoma
 - bone metastases of prostatic cancer
- Bone ALP
 - Other bone metastases
 - Fractured bone
 - Multiple myeloma with fractures
- Skeletal involvement in
 - Osteomalacia, rickets
 - Malignant tumors
 - Renal disease (secondary hyperparathyroidism)
 - Primary hypothyroidism
- Polycythemia vera
- Myelofibrosis
- Leukemoid reaction to infection
- Women using hormonal contraception
- Pregnancy
- Biliary obstruction
- Transient hyperphosphatasemia of infancy

General

- hydrolase enzyme
- dephosphorylation
 - nucleotides
 - proteins
 - alkaloids
- most effective in an alkaline
 - optimal pH = 10
- In humans
 - present in all tissues
 - Concentrated
 - liver
 - bile duct
 - kidney
 - bone
 - placenta
- Heat distinguishes bone and liver isoenzymes
- ("bone burns, liver lasts").