ALP activity is about 9-10. Alkaline phosphatase hydrolyses monophosphate esters in alkaline medium. Optimum pH for these ALP isoforms activities is about 9-10. Alkaline phosphatase level is the highest in liver, bone, intestine, kidney and placenta.

Measurement of ALP isoenzymes is useful in diagnosis of these organs diseases.

INTRODUCTION
Alkaline phosphatase (ALP) is actually a group of isoenzymes that hydrolyse monophosphate esters in alkaline medium. Optimum pH for these ALP isoforms activities is about 9-10. Alkaline phosphatase level is the highest in liver, bone, intestine, kidney and placenta.

METHOD PRINCIPLE
Kinetic method recommended by International Federation of Clinical Chemistry (IFCC).

ADDITIONAL EQUIPMENT
- Automatic analyzer or photometer able to read at 405 nm;
- Thermostat at 30°C or 37°C;
- General laboratory equipment;

Dr. ALKALINE PHOSPHATASE

DIAGNOSTIC KIT FOR DETERMINATION OF ALKALINE PHOSPHATASE ACTIVITY

Kit name  Kit size  Cat. No
Dr. ALP mini  2 x 25 ml  GB01DR
Dr. ALP 100  2 x 50 ml  GB02DR
Dr. ALP 200  2 x 100 ml  GB03DR
Dr. ALP 500  5 x 100 ml  GB03BK

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Dr. ALP page 1

SPECIMEN
Serum, heparinized plasma free from hemolysis.
Do not use EDTA, citrate and oxalate as anticoagulants because of ALP activity inhibition!
ALP activity remains stable in specimen up to 4 hours at 15-25°C but it is recommended to perform the assay with freshly collected samples. Freezing of sample causes a loss of enzyme activity. Frozen specimens should be thawed and kept at room temperature for 18 to 24 hours before measurement to achieve full enzyme reactivation.

PROCEDURE
These reagents may be used both for manual assay (Sample Start and Reagent Start method) and in several automatic analyzers. Applications for them are available on request.

Manual procedure
- Wavelength λ=405 nm, cuvette l=1 cm
- Sample Start method
  - Pipette into the cuvette: 1000 µl
  - Bring up to the temperature of determination. Then add:
  - Working reagent: 1000 µl
  - Sample: 20 µl
  - Mix and incubate at adequate temperature. After about 1 min. read the absorbance against air or water. Repeat the reading after exactly 1, 2 and 3 minutes. Calculate the mean absorbance change per minute ∆A/min. for each time interval.
- Reagent Start method
  - The determination can be also performed with use of separate R1-ALP and R2-ALP reagents.
  - Pipette into the cuvette:
    - R1-ALP: 1000 µl
    - R2-ALP: 250 µl
  - Mix well, incubate for 1 min. Then add:
  - Sample: 20 µl
  - Mix well, perform measurement as described for Sample Start method.

Calculation
ALP activity [U/l] = ∆A/min. x F

REFERENCE VALUES

Female
- 20 – 50 years: 42 – 98 U/l (37°C)
- ≥ 60 years: 53 – 141 U/l (37°C)

Male
- 20 – 50 years: 53 – 128 U/l (37°C)
- ≥ 60 years: 56 – 119 U/l (37°C)

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL
To ensure adequate quality control, each run should include assayed normal and abnormal controls. If commercial controls are not available it is recommended that known value samples be aliquoted, frozen and used as controls.

ADDITIONAL EQUIPMENT
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- Thermostat at 30°C or 37°C;
- General laboratory equipment;

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Genuine Biosystem
A Genuine Service For better Tomorrow
PERFORMANCE CHARACTERISTICS

- **Sensitivity / Limit of Quantitation**: 8.8 U/l.
- **Linearity**: up to 700 U/l.
- **Specificity / Interferences**: Haemoglobin up to 3.75 g/dl, ascorbate up to 62 mg/l, bilirubin up to 20 mg/dl and triglycerides up to 500 mg/dl do not interfere with the test.

WASTE MANAGEMENT

Please refer to local legal requirements.

SYSTEM PARAMETERS

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LITERATURE