

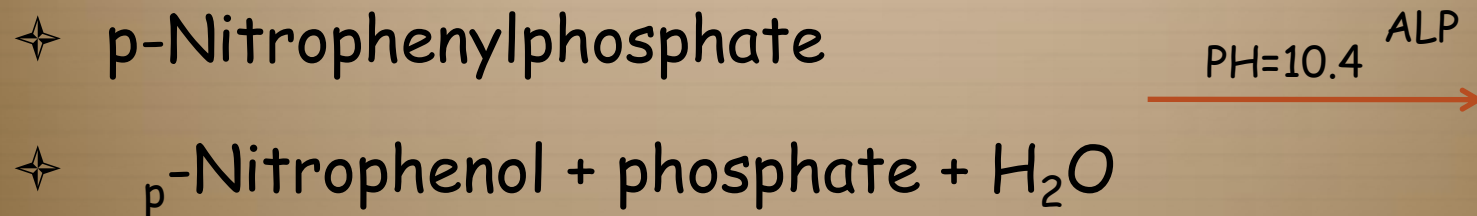


Quantitative Demonstration of alkaline phosphatase (ALP)

CLS431



Principle of the method



- ✦ The increase of absorbance is directly proportional to the amount of ALP present in the sample

Clinical Significance



- ✦ Highest activities are seen in liver, bone, intestine, placenta and kidney.
- ✦ Elevations of serum ALP are of diagnostic significance in the evaluation of hepatobiliary disease.
- ✦ Normal ALP levels are age dependent and are elevated during periods of active bone growth.

Clinical use

✦ Causes of increased plasma ALP:

✦ Paget's disease of bone

✦ Osteomalacia

✦ Obstructive liver disease

✦ Hepatitis

✦ hepatotoxicity caused by drugs

✦ Causes of decreased plasma ALP:

✦ Cretinism

✦ Vitamin C deficiency.

✦ Procedure

✦ Assay conditions:

✦ Wavelength 405nm.

✦ Cuvette 1cm. light path

✦ constant temperature 37C

✦ Adjust the instrument to zero with distilled water or air.

✦ Pipette into a cuvette:

WR (ml)	1.0
Pre-warm at 37 C and add:	
Sample (μ l)	20

- ✦ Mix, incubate for 1 minute at 37 C
- ✦ Read initial absorbance of the sample, start the the stopwach and read absorbances at 1 minute intervals thereafter for 3 minutes.
- ✦ Calculate the difference between absorbances and the average absorbance differences per minute ($\Delta A/\text{min}$)

✦ Calculations

✦ $\Delta A/\text{min} \times 2720 = \text{U/L of ALP}$

✦ Reference values:

✦ Men: 50 - 119 U/L

✦ Women: 43 - 110 U/L