



# Alkaline Phosphatase

<b>Synonyms</b>	ALP								
<b>Clinical Indication</b>	At normal concentration in plasma ALP, is approximately equally of bone and hepatobiliary origin. ALP rises in the presence of bile duct obstruction (e.g. primary biliary cirrhosis, cholestasis, gallstones, bile duct strictures). ALP is also elevated in bone disease where increased osteoblastic activity is involved (e.g. malignancy (not myeloma), osteomalacia, Paget's)								
<b>Part of Profile / See Also</b>	Liver Function Test, Bone								
<b>Request Form</b>	Combined Pathology manual blood form or ICE request								
<b>Availability / Frequency of Analysis</b>	On request								
<b>Turnaround Time</b>									
<b>Patient Preparation</b>	None								
<b>Sample Requirements</b>									
<b>Specimen Type</b>	Serum or plasma.								
<b>Volume</b>	2 ml								
<b>Container</b>	 Yellow top (SST) tube   Or Paediatric green top (lithium-heparin)  <p><b>Do not</b> collect blood in EDTA (pink/purple top) tube as these will give falsely low results.</p>								
<b>Reference Range &amp; Units</b>	<p>In adults mild increases in ALP may be seen as a result of age-related changes, particularly in older women.</p> <p>Children: Levels are higher in children and may increase during growth spurts.</p> <table border="1"> <thead> <tr> <th>Age Range</th> <th>Alk. Phos. U/L</th> </tr> </thead> <tbody> <tr> <td>0 to 30 days</td> <td>70-380</td> </tr> <tr> <td>Up to 1 year</td> <td>60-425</td> </tr> <tr> <td>Adult</td> <td>30-130</td> </tr> </tbody> </table> <p>Reference: Pathology Harmony Group, Clinical Biochemistry Outcomes, January 2011 (<a href="http://www.pathologyharmony.co.uk">www.pathologyharmony.co.uk</a>)</p>	Age Range	Alk. Phos. U/L	0 to 30 days	70-380	Up to 1 year	60-425	Adult	30-130
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<b>Interferences</b>	Blood collected in EDTA (purple top) will give falsely low results.								
<b>Interpretation &amp; Clinical Decision Value (if applicable)</b>	Critical Difference 37%								

Elevated ALP may be as a result of liver or bone disease. Certain medications may also cause rises in ALP. A normal Gamma-GT may be used to exclude liver disease, but a raised Gamma-GT does not exclude bone disease (since liver and bone disease may both be present).

ALP activity in plasma increases in hepatobiliary disease with cholestasis as a result of increased enzyme synthesis (enzyme induction). The highest levels are seen with complete or near-complete biliary obstruction, but the level itself does not contribute to the diagnosis of the cause of the obstruction (whether intra or extra-hepatic). In hepatocellular disease with no cholestasis, there is either no or only a slight rise in activity.

ALP activity in plasma increases in bone disease in which there is increased osteoblastic activity and reflects the extent of that activity. Thus ALP is increased in Paget's disease, osteomalacia, rickets and some patients with renal osteodystrophy, but not in osteoporosis unless complicated by fracture (activity is increased with healing fractures).

High levels of ALP may be due to transient hyperphosphataemia of childhood, which can occur in younger adults. Alkaline phosphatase isoenzyme analysis is indicated.

## References

## Test code

L (part of LFT). BONE (part of bone profile)

## Lab Handling

Processing: Analysed from primary tube and stored at 4°C.  
Serum and plasma stable at 2-25°C for 7 days.