

## Liver

Kit REF.  
SRE610K (130 tests)

The *Microgel*/INTERLAB G26 ALP Isoenzymes Electrophoresis kit, thanks to the *Easy Mark*, provides a semi-automated method for the detection of the ALP Isoenzymes.

The kit is extremely user friendly and easy to use!

In 1 hour and 15 minutes the first 26 ALP samples are completed and subsequent groups every 20 minutes.

1. Pipette the specimens into the sample wells
2. Place gels into the holder
3. Start the instrument
4. **WALK AWAY!**

■ Enzymes are proteins that act as biological catalysts performing chemical reactions in the cells of various organs and tissues. Extensive cell leakage may occur due to different factors, causing considerable release of enzymes in the bloodstream.

Many enzymes are therefore useful as markers of cellular damage, and the specific measurement of their activity in biological fluids provides a valuable source of information for clinical laboratories.

Isoenzymes are multiple forms of the same enzyme, all catalyzing the same reaction but with different rates and substrate specificity. The most important feature of isoenzymes is the tissue/organ specific distribution of each isoform. Therefore the specific increase of one isoform can be correlated to the pathological damage of a given organ or tissue.

Alkaline phosphatase (ALP; E.C. 3.1.3.1) is an enzyme that catalyzes the alkaline hydrolysis of a large variety of both naturally occurring and synthetic substrates. This protein is a cell membrane enzyme and is present in almost all tissues of the body, and is prevalent in the bone (osteoblasts), liver, kidney tubules, intestinal epithelium and placenta.

ALP seems to be involved in the lipid transport in the intestine and to play an important role in the calcification process in the bone. Several isoforms of ALP exist that can be resolved by agarose gel electrophoresis that, according to the tissue or organ of origin, include: liver (most anodal), bone, macrohepatic, intestinal bands.

Analysis of ALP isoenzymes electrophoretic pattern is of particular interest in the investigation of hepatobiliary disease and bone disease.

Marked increase of the liver isoform is observed in biliary tree obstruction. Bone ALP increase is correlated to hyperosteoblastic activity in conditions like osteomalacia and bone tumors. Intestinal ALP appears in pathological conditions associated to cirrhosis, diabetes and cancer of the intestinal tract. Additional isoforms are tumor markers and show typical migration rate and chemical and physical characteristics.

Special treatment of the sample, either enzymatic and thermal, is required in order to improve the electrophoretic separation of ALP isoforms.

## Intestine

## Bone

## Macrohepatic

## KIT CONTENT

Gel Plates	10
Blotting Paper	20
Buffered Sponges	20
Applicator Washing Sol.	1
Substrat	2
NBT	10
Neuraminidase	1
Disposable Sample Plates	10

## REAGENT PREPARATION

All reagents are ready to use, only the NBT must be reconstituted with 2 ml of Substrat.

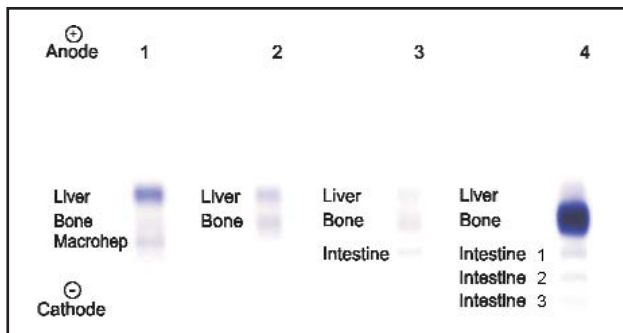
## SAMPLE PREPARATION

Each sample must be pre-treated with the Neuraminidase. Distribute 5  $\mu$ l of Neuraminidase in each wells then 25  $\mu$ l of serum samples. Mix well, wait 5 minutes before starting the analysis.

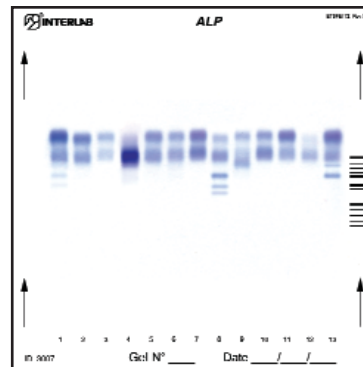
## SAMPLE STORAGE and STABILITY

**Serum:** Fresh serum samples.  
If needed, 1 week at 2 to 8°C

## ISOENZYMES ALP INTERPRETATION

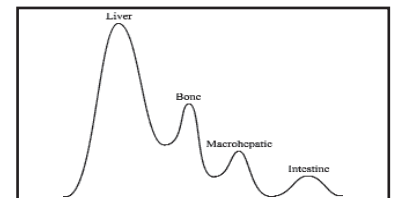


1 = Liver disease    2-3 = Normal profile    4 = Bone disease



\*Normal values range

Fraction	Tot. ALP% Adult	Tot. ALP% Child
Macrohepatic	0	0
Liver	40 to 60	10 to 30
Bone	30 to 70	70 to 90
Intestinal	<10	<10



\* Each laboratory should establish its own normal values range.

## PERFORMANCE CHARACTERISTICS

### Accuracy

A total of 75 normal and abnormal specimens were tested with Interlab systems *versus* a commercially available agarose system.

This study yielded a 100% agreement with the reference method for the observed bands.

### Within Run Precision

3 samples were run on 3 different gels. Each sample was run 13 times, on the same gel. Excellent C.V. was achieved, see table below.

### Between Run Precision

3 samples were run on 10 different gels using 2 different lots. Excellent C.V. was achieved, see table below.

#### Accuracy

Fraction	Correlation Coefficient
Liver	0.98
Bone	0.98
Macrohepatic	0.97
Intestine	0.99

#### Within Run Precision

Fraction	C.V. (%)
Liver	1.5
Bone	1.2
Macrohepatic	2.0
Intestine	2.0

#### Between Run Precision

Fraction	C.V. (%)
Liver	2.5
Bone	3.0
Macrohepatic	4.0
Intestine	3.0



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