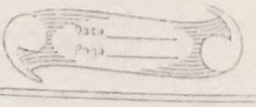
ALP



Function — it is not only in liver, bone, intestine, placenta.

→ Calcification on Bone
→ lipid transport in intestine

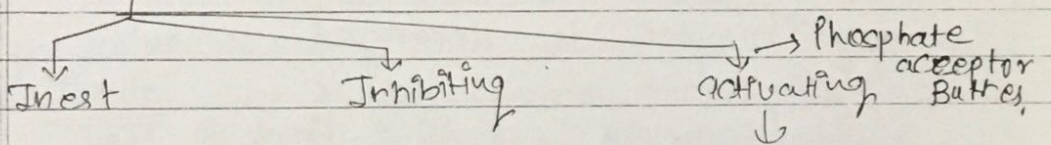
⇒ 4 loci → 4 Isoenzyme → Many Isoform differing in carbohydrate structure

→ Zn → tightly bound constituent metal
Mg^{+2} → required for binding ē phosphate

→ If Zn^{+2} in highes amount → it displace Mg^{+2} ion → so inhibitor.

→ Mg^{+2} → chelators → oxalate → oxalator → Inhibitor
phosphate → feedback inhibiton → ALP

Buffess



activating → AMP, DEA, Tris
By removing phosphate

so feedback Inhibin By product prevented ← phosphat released ← is traped By AMP, DEA

→ (n) ALP from livers & bone
⟷ measured in fasting sera → B'cz after meal intestinal ALP is added.

FUNCT

* c/s :-

liver → ① Biliary tract ~~dise~~ obstruction → Induction of ALP in Hepatocyte ↓ Increase/↓ may be delayed due to it.

liver → ② 1° → Hepatocellular ca.

liver → 2°

Bone → ↑ osteoblastic activity

Placenta.
↓
2 to 3 times the Ⓝ limit in preg.

→ more ↑ in Extrahepatic than intrahepatic d'se

→ more in more obstruction.

→ may reach 10 to 12 times than Ⓝ.
↓
returns to Ⓝ surgically.

→ Hepatocellular jaundice → moderate elevation.

→ Intestinal ALP ↑ in liver d'se
↓
Asialyoglycoprotein receptor is deranged.

→ Pregnancy : 2 to 3 times Ⓝ limit

→ Familial elevation in intestinal ALP :-
↓
- it is benign
- also occur in infant & children → 10 times upper limit

↓

This such benign elevation may be due to attachment glycosylation.

→ Malignant dse :
- → liver → 1°
- → liver → 2°
- → Bone → 1° & 2°
- → Cancers in general By derepression on placental gene

nonplacental gene

* Methods :-

IFCC :- recommended method contains mg^{+2} + Zn^{+2} (Ini).

Hydroxyethyl EDTA → Binds ↓ losely to Zn^{+2}

↓

if high Zn^{+2} it binds & if low it release Zn^{+2}

* Bld using ^Citrate → citrate traps mg^{+2} & increase ↓ measurement

↳ so ask about Blood transfusion.

* Frozen & Lyophilized → kept for 1 day Before investigation.

* Isoenzyme :-

→ differentiation done By

ⓐ electrophoresis ⓑ Heat ⓒ Immunological ⓓ Heat & urea denaturation ⓔ Specific inhibitor

ⓐ → nephthylp —ALP→ nephthelin → react ē diazo → gives colour.

* Bone isoform :-

→ Bone & liver → isoform → seperation → difficult

as they are structurally similar

→ Mass based method
activity based method } are there.

→ METHOD

4-Nitrophenyl phosphate —ALP, Mg^{++}, PH 10.3→ 4-Nitrophenoxide (yellow coloured compound) + phosphate (inorganic)

↓

measured