

AL-MUSTAQBAL UNIVERSITY COLLEGE

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Department

Clinical Biochemistry

Estimation of Transaminases Enzymes



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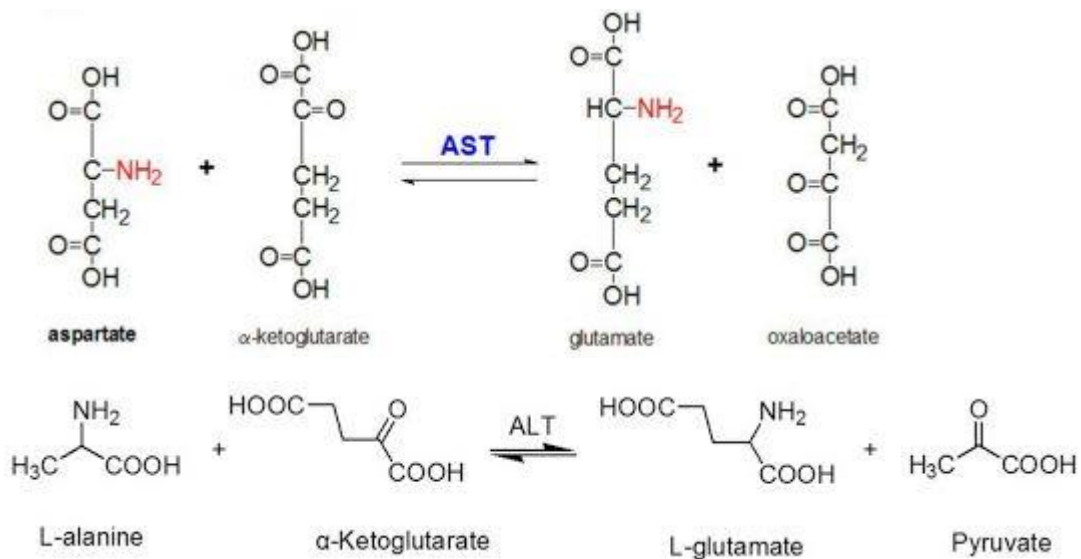
Transaminases Enzymes

Transaminases or aminotransferases are enzymes that catalyze a transamination reaction between an amino acid and an α -keto acid. They are important in the synthesis of amino acids, which form proteins.

Example:

1) Aspartate aminotransferase (AST/GOT)

2) Alanine aminotransferase (ALT/GPT)



Aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are enzymes found mainly in the liver, but also found in red blood cells, heart cells, muscle tissue and other organs, such as the pancreas and kidneys.

AST and ALT formerly are called serum glutamic oxaloacetic transaminase (GOT) and serum glutamic pyruvic transaminase (GPT), respectively.

AST and ALT levels are a valuable aid primarily in the diagnosis of liver disease. Although not specific for liver disease, it can be used in combination with other enzymes to monitor the course of various liver disorders.

The normal concentrations in the blood are from 5 to 40 U l⁻¹ for AST and from 5 to 35 U l⁻¹ for ALT.

However, when body tissue or an organ such as the liver or heart is diseased or damaged, AST levels rise 10 to 20 times and greater than normal, whereas ALT can reach higher levels (up to 50 times greater than normal).

On the other hand, the ratio of AST to ALT (AST/ALT) sometimes can help determine whether the liver or another organ has been damaged.

Note

*All anticoagulant will effect in the activity of enzyme , so we use serum instead of plasma in the estimation .

*stable in room temp. for 1-2 days but at refrigerator for 1 week.

*Activity of GOT > GPT already.

Aspartate transaminase (AST)

AST is found more than ALT in the **liver, heart, skeletal muscle, kidneys, and less in spleen, lung and red blood cells.**

Clinical significance

1-Heart disease : increase (GOT) 6-12 hr after onset of pain, maximum at 24 – 48 hrs than return to normal after 4-6 days .

2- liver disease : viral hepatitis , liver cirrhoses , liver cancer , obstruction jaundice . all due to increase librating of GOT from liver cell to circulation .

3- Muscular disease : muscular dystrophy (with increase CK)

N.V OF s. GOT = up to 12 IU\L