

ALT – SGPT – [Serum] Analysis

Objective

The objective of this test is to measure alanine aminotransferase (ALT), also known as serum glutamate pyruvate transaminase (SGPT), in serum. ALT is an important liver enzyme used to assess liver health and detect liver damage caused by conditions such as hepatitis, fatty liver disease, and drug-induced liver injury.

Materials and Methods

Materials:

- Serum sample from patient
- ALT assay reagents (colorimetric or enzymatic method)
- Automated biochemical analyzer or spectrophotometer
- Standard laboratory equipment (centrifuge, pipettes)

Methods:

1. Sample Collection: Collect venous blood and separate serum by centrifugation.
2. Enzyme Activity Measurement: Perform ALT assay using kinetic enzymatic methods with substrates such as L-alanine and α -ketoglutarate.
3. Quality Control: Include calibration standards and control samples to ensure accuracy of results.
4. Interpretation: Compare ALT activity with reference ranges and correlate with other liver function tests for comprehensive evaluation.

Results

- Normal range (adults): 7–56 U/L (varies by laboratory)
- Elevated ALT: Suggests liver cell injury from hepatitis, fatty liver, alcohol, or medications
- Mild elevation: May indicate chronic liver conditions; significant elevation suggests acute liver damage

Conclusion

Serum ALT (SGPT) testing is a key marker for detecting liver injury and monitoring liver disease progression or response to therapy. Interpretation should be combined with clinical evaluation and additional liver function tests for accurate diagnosis.