

Division of Laboratory Medicine

Biochemistry

Alanine Aminotransferase; ALT

Pseudonyms: Systematic name L-alanine:2-oxoglutarate aminotransferase (EC 2.6.1.2); also pyruvate aminotransferase, glutamate pyruvate aminotransferase; formerly known as SGPT

General information

Collection container:

Adults - serum (with gel separator, 4.9mL Sarstedt brown top)

Paediatrics - lithium heparin plasma (1.2mL Sarstedt orange top tube)

Type and volume of sample: The tubes should be thoroughly mixed before transport to the lab. The test may be added to a profile without provision of a separate specimen provided a full tube has been received and is included in the liver function profile.

Laboratory information

Method principle:

Alanine + 2-oxoglutarate → (ALT) → pyruvate + glutamate

Pyruvate + NADH + H⁺ → (LD) → lactate + NAD⁺

Pyridoxine 5'-phosphate is a coenzyme for the ALT reaction

Biological reference ranges

Up to 1 month 90 IU/L

Others Male <50 U/L

Female <35 U/L

Turnaround times: Results are available within 1 hour (urgent - phone lab in advance of sampling) or 4 hours (routine).

Clinical information

ALT is typically thought of as a marker of hepatotoxicity caused by drugs, alcohol, autoimmunity, inherited metabolic diseases of the liver or non-alcoholic fatty liver (NAFLD/NASH). Blood levels are also raised in parenteral-nutrition associated cholestasis.

Although ALT is widely distributed, significant increases in its plasma activity are rarely seen other than in liver disease. Occasional elevations due to muscle disease have been observed.

- Further information: <http://www.acb.org.uk/Nat Lab Med Hbk/ALT.pdf>

(Last reviewed 25th June 2016)