Lipase (blood and fluid)

Pseudonyms: Human Pancreatic Lipase (HPL), Triacylglycerol Lipase (TAGL), EC 3.1.1.3

General information

Lipase is a digestive enzyme secreted by the pancreas which is secreted into blood during acute inflammation of the pancreas (including acute pancreatitis, recurrent acute pancreatitis, acute-on-chronic pancreatitis and traumatic pancreatitis). Serum Lipase level has been shown to have improved clinical diagnostic accuracy for the investigation of pancreatic disease and pancreatic inflammation, compared with serum total amylase. Lipase has a longer half-life in blood than amylase and there is also a greater pancreatic tissue content of lipase compared with amylase. Lipase offers improved sensitivity to lipase (90-100% compared to 65-75%) with the same specificity (95%) for detecting pancreatic disease.

Improved diagnostic performance is likely to be greatest in situations where, due to recurrent acute pancreatitis, amylase becomes depleted: alcoholic pancreatitis and pancreatitis secondary to chylomicronaemia (very high triglycerides) are examples. The overall management of acute pancreatitis is addressed in BMJ Best Practice (2017) http://bestpractice.bmj.com/topics/en-gb/66

Collection container:
Adults: 4.9mL Serum gel (Sarstedt brown top) / LiHep Plasma (Sarstedt orange top)
Paediatrics: 1.2mL Serum (Sarstedt white top) / LiHep Plasma (sarstedt orange top)

Type and volume of sample: Serum or Lithium Heparin plasma. Minimum 1.0mL whole blood required (150µL separated serum/plasma)

Laboratory information

Method principle: Automated Enzymatic colorimetric assay with 1,2 O dilauryl-rac-glycero-3-glutaricacid(6 methylresorufin) ester as substrate (Roche Cobas platform)

Biological reference range or cut off: 13 - 60 U/L
(Source: Junge W, Abicht K, Goldmann J, et al. Evaluation of the Colorimetric Liquid Assay for Pancreatic Lipase on Hitachi Analyzers in 7 Clinical Centers in Europe, Japan and USA. Clin Chem Lab Med 1999;37 (Special Suppl):469.)

Reference interval applies to all ages.

Turnaround times:
Routine 4 hours
Urgent 2 hours

Clinical information

Factors known to significantly affect the results: Samples collected into EDTA tubes are not suitable for analysis

Clinical decision points:

- The action limit for acute pancreatitis is widely reported as 3 x ULN.
- Results >5 x ULN will be telephoned to the requesting clinician where correct contact details have been supplied

References:

1) Rompianesi G, Hann A, Komolafe O, Pereira SP, Davidson BR, Gurusamy KS. Serum amylase and lipase and urinary trypsinogen and amylase for diagnosis of acute pancreatitis (Review). Cochrane Database of Systematic Reviews 2017, Issue 4. Art. No.: CD012010.
2) UK guidelines for the management of acute pancreatitis. Gut 2005 54;1-9.
3) Gomez D, Addison A, De Rosa A, Brooks A and Cameron C. Retrospective study of patients with acute pancreatitis: is serum amylase still required?. BMJ Open 2012;2:e001471. doi:10.1136/bmjopen-2012-001471

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