

Possible causes of an elevated Serum Gamma Glutamyl Transferase (GGT)

(GGT > 100 U/L)

ALT < 80 U/L; ALP < 200 U/L

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Liver enzyme induction

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Alcohol excess

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Drugs

Benzodiazepines

Phenytoin

Tricyclics

Warfarin

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Obesity

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Diabetes mellitus

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Steatosis, NASH (Non-Alcohol Steatohepatitis)

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Hypertriglyceridaemia

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'Normal' for subject

(some subjects have 'normal' GGT values of up to 120 U/L)

ALT < 80 U/L; ALP > 200 U/L

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Cholestatic liver disease

Extrahepatic obstruction

Intrahepatic obstruction

Drug/Alcohol toxicity¹

Space-occupying lesion²

Cirrhosis

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Two disorders, for example:

Liver enzyme induction plus bone disease

Phenytoin (induces liver GGT production, and also stimulates bone ALP directly)

ALT > 80 U/L; ALP < 200 U/L

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Hepatocellular disease

Steatohepatitis (NASH)

Drug/Alcohol toxicity¹

Hepatitis (A, B, C)

EBV infection

ALT > 80 U/L; ALP > 200 U/L

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Mixed Hepatocellular and Cholestatic disease

Acute hepatitis

Chronic active hepatitis

Space-occupying lesion²

Cirrhosis

Drug/Alcohol toxicity¹

1. In alcoholic liver disease, the AST is often greater than ALT.

2. Space-occupying lesions: malignancy, abscess, cyst, etc.