

Beta 3-hydroxybutyrate

Analyte: Beta 3-hydroxybutyrate

Specimen Type: Serum

Optimum Volume: 0.5 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
6 days	1 month	2.8 years

Reporting Units: umol/L

Method: Enzymic

Biological or Clinical Significance:

The term ketone body describes 3 molecules: acetoacetate, beta-hydroxybutyrate, and acetone. Betahydroxybutyrate (also referred to as 3-hydroxybutyrate or 3-HB) is the result of acetoacetate reduction. Ketone bodies are fundamental for the metabolic homeostasis during periods of prolonged starvation. The brain cannot use fatty acids for energy production and usually depends on glucose to meet its metabolic needs. In cases of fasting or starvation, ketone bodies become a major fuel for brain cells, sparing amino acids from being catabolized to gluconeogenesis precursors to be used to supply the brain with energy. After prolonged starvation, ketone bodies can provide as much as two thirds of the brain's energy needs. Elevated serum beta-hydroxybutyrate levels can be observed in various conditions associated with metabolic substrate use disorders, insulin deficiency, and altered redox states including the following: diabetic ketoacidosis, alcoholic ketoacidosis, a high fat diet, steroid or growth hormone deficiency, salicylate poisoning, fasting and starvation, lactation, ketogenic diets and glycogen storage diseases. The most clinically relevant application of beta-hydroxybutyrate determination involves the diagnosis, management and monitoring of diabetic ketoacidosis

Principle of Test Method:

The Beta 3-hydroxybutyrate (3HB) assay is an automated enzymic assay.