

Acetone – [Serum] Analysis

Objective

The objective of this test is to measure serum acetone levels in the blood, which is useful in diagnosing and monitoring metabolic conditions such as diabetic ketoacidosis (DKA), prolonged fasting, and alcohol-related metabolic disorders.

Materials and Methods

Materials:

- Serum sample from patient
- Acetone assay reagents or chromatographic methods (e.g., Gas Chromatography – Mass Spectrometry)
- Standard laboratory equipment (centrifuge, pipettes, vials)

Methods:

1. Sample Collection: Collect venous blood and separate serum using centrifugation.
2. Screening: Measure acetone levels using enzymatic assays or gas chromatography.
3. Quantification: Compare the measured values against standard reference ranges for serum acetone levels.
4. Quality Control: Use calibration standards and quality control samples to ensure accuracy and reliability.
5. Interpretation: Correlate results with clinical presentation, such as symptoms of hyperglycemia, ketosis, or metabolic acidosis.

Results

- Normal Range: Typically < 0.6 mmol/L
- Elevated Levels: Indicate ketosis or possible diabetic ketoacidosis
- Critical Levels: Require urgent clinical intervention and metabolic correction

Conclusion

Serum acetone measurement is a vital diagnostic tool for detecting ketoacidosis and other metabolic disorders. Early identification and monitoring allow clinicians to initiate appropriate treatment and prevent serious complications.