

Determination of beta-lipoproteins in blood serum

Laboratory diagnostics and determination

Fasting for 12-14 hours prior to collection. Ingestion of water or calorie-free liquids is permitted. The blood must be collected under standard conditions, in a sitting position.

1. Electrophoretic (more precisely) — LDL is found in the electric field of β -globulins
2. By protein (apoprotein) concentration (indicative)

β -lipoproteins are LDL lipoproteins: They form the nucleus (cholesterol esters, triglycerols) and the phospholipid and protein envelope: Apoprotein B-100

Principle

Heparin activates lipase to release lipoproteins from lipids. The released protein produces a clot with calcium, which we measure photometrically.

Equipment

Test tubes, pipettes, cuvette, spectrophotometer

Chemicals

0,025 mol/l solution of CaCl_2 , 10 g/l heparin

Method

1. Pipette into the tube: 0.1 ml of blood serum, 0.1 ml of heparin, 4 ml of CaCl_2
2. Wait 10 minutes.
3. To be measured spectrophotometrically at $\lambda = 650 \text{ nm}$ in relation to distilled water (reference sample)
4. Calculation: $c = A \cdot 9,25$ (g/l) 9.25 correction factor

Physiological parameters: **3,5-5,5 g/l**

β -lipoprotein disorders

↑ Elevated values: obesity, atherosclerosis, familial hyperbetalipoproteinaemia associated with insulin resistance (diabetes mellitus), hypothyroidism, fish eye disease, hypercholesterolaemia ↓ Decreased values: abetalipoproteinaemia, hypobetalipoproteinaemia, hunger, hyperthyroidism, pregnancy

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