

Blood Magnesium Content Assay Kit

Note: Take two or three different samples for prediction before test.

Operation Equipment: Spectrophotometer/Microplate reader

Cat No: BC2795

Size: 100T/96S

Components:

Reagent I: Powder×1, store at 4°C. Working solution: Dissolve in 2 mL distilled water at 50°C before use. Mix thoroughly.

Reagent II: Liquid 2mL×1, store at 4°C. Dilute 10 times with distilled water before use.

Reagent III: Liquid 5mL×1, store at 4°C

Standard: Liquid 1mL×1, 4 mmol/L magnesium standard solution, store at 4°C. Add equal distilled water to 2 mmol/L before use.

Description:

Magnesium is the activator of many enzymes, such as phosphatase, creatine kinase, hexokinase and carboxylase. Magnesium is also an essential element for the formation of DNA, RNA and ribosomal macromolecular structures. Meanwhile, magnesium is an important element in maintaining normal nerve and muscle function. Serum magnesium concentration deviating from the normal value is related to some kidney and endocrine diseases, etc.

In alkaline condition, magnesium ions combined with hydroxide ions to colloidal particle, and further turns orange-red color when combined with titan yellow. In a certain range, the absorbance at 540 nm is proportional to the concentration of magnesium ions.

Required but not provided:

Transferpeltor, spectrophotometer/microplate reader, micro glass cuvette/96 well flat-bottom plate and distilled water.

Protocol:

1. Preheat spectrophotometer/microplate reader for 30 min, adjust wavelength to 540 nm, set zero with distilled water.
2. Add reagents according to the following table.

	Blank tube (B)	Standard tube (S)	Test tube (T)
Distilled water (μL)	120	110	110
2mmol/L standard (μL)	-	10	-
Serum sample (μL)	-	-	10
Reagent I (μL)	20	20	20
Reagent II (μL)	20	20	20

Reagent III (μL)	40	40	40
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Detect the absorbance of 540nm after reacting 5min in RT. Record A_B , A_S , A_T .

Calculation of Blood Magnesium Concentration

$$\text{Blood Magnesium Concentration (mmol/dL)} = [C_S \times (A_T - A_B) \div (A_S - A_B)] \times 0.1 = 0.2 \times (A_T - A_B) \div (A_S - A_B)$$

C_S : 2 mmol/L

Conversion factor: 1 dL=0.1 L

Note:

1. Avoid light exposure during operation
2. Fasting blood should be taken and sodium citrate cannot be used as anticoagulant.
3. Magnesium concentration in red blood cell is about 3 times higher than serum. Serum should be separated from blood as soon as possible to avoid hemolysis.
4. After adding Reagent III and mixing thoroughly, detection procedure should be completed within 30min.

Related Products:

- BC0720/BC0725 Blood Calcium Content Assay Kit
- BC2770/BC2775 Blood Potassium Content Assay Kit
- BC2860/BC2865 Serum Total Iron Binding Capacity(TIBC) Assay Kit
- BC2810/BC2815 Blood Zinc Content Assay Kit