Blood Magnesium Content Assay Kit

Note: It is necessary to predict 2-3 large difference samples before the formal determination.

Operation Equipment: Spectrophotometer

Cat No: BC2790

Size: 50T/48S

Components:

Reagent I: Powder×2, store at 2-8℃. Add 3 mL distilled water to one Reagent I and dissolve well at 50℃ before use. The unused reagent can be stored at 2-8℃ for two weeks.

Reagent II: Liquid 10 mL×1, store at 2-8℃

Reagent III: Liquid 10 mL×1, store at 2-8℃

Standard: Liquid 1 mL×1, 4mmol/L magnesium standard solution, store at 2-8℃. 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:

Spectrophotometer, transferpettor, 1mL glass cuvette, distilled water.

Protocol:

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

Reagent (μL)	Blank Tube (B)	Standard Tube (S)	Test Tube (T)
Distilled water	600	550	550
Standard working solution	-	50	-
Serum sample	-	-	50
Reagent I	100	100	100
Reagent II	100	100	100
Reagent III	200	200	200

Detect the absorbance of 540nm after reacting 5min in RT. Record A_B, A_S, A_T. The standard tube

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and blank tube only need to be measured 1-2 times.

Calculation of Blood Magnesium Concentration

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

C_S: 2mmol/L

0.1: 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

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