

Blood Sodium Content Assay Kit

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

Operation Equipment: Spectrophotometer/Microplate reader

Cat No: BC2805

Size: 100T/96S

Components:

Reagent I: Liquid 30 mL×1, store at 2-8°C.

Powder I: Powder×1, store at 2-8°C. Add powder I into reagent I, heat and dissolve in boiling water bath before use. It could be stored at 2-8°C for three months.

Standard: Liquid 1 mL×1, 1 mol/L sodium standard solution, store at 2-8°C.

Description:

Blood sodium plays an important role in maintaining normal extracellular fluid volume, osmotic pressure and acid-base balance of body fluids.

Sodium and potassium pyroantimonate in serum could precipitate in weak alkaline solution. The amount of precipitate is directly proportional to the concentration of sodium. According to its turbidity, the content of sodium in serum can be determined.

Required but not provided:

Spectrophotometer/microplate reader, centrifuge, adjustable pipette, micro glass cuvettes/96-well plate, deionized water and absolute ethanol, 90% ethanol (mix 90mL absolute ethanol and 10mL distilled water).

Procedure:

I. Sample processing

Serum pretreatment: take EP tube, add 100μL of serum, 900μL of absolute ethanol, mix well. Centrifugate at 10000 rpm for 10 minutes at 4°C, take the supernatant and place it on ice for testing.

II. Determination

- Preheat spectrophotometer/microplate reader for 30 minutes, adjust the wavelength to 520 nm and set spectrophotometer zero with distilled water.
- Preparation of standard solution: dilute the standard solution with 90% ethanol to 0.04, 0.03, 0.02 0.01 and 0.005 mol/L standard solution.
- Add reagents according to the following table.

Reagent (μL)	Blank tube (B)	Standard tube (S)	Test tube (T)
90% ethanol	20	-	-
Standard solution	-	20	-
Supernatant	-	-	20

Anhydrous ethanol	20	20	20
Reagent I	200	200	200

React for 5 minutes at room temperature, blow and mix well, then take 200 μL to measure the absorbance at 520 nm, record as A_B , A_S , A_T respectively. Calculate $\Delta A_T = A_T - A_B$, $\Delta A_S = A_S - A_B$, the blank tube only needs to be measured once or twice.

III. Calculation of Blood Sodium Concentration

1. Drawing of standard curve:

According to the concentration of the standard tube (x , mol/L) and the absorbance ΔA_S (y , ΔA_S), establish a standard curve. According to the standard curve, the ΔA_T (y , ΔA_T) is brought into the formula to calculate the sample concentration (x , mol/L).

2. Blood sodium content calculation

$$\text{Blood Sodium Concentration (mol/L)} = x \times D = 10 \times x$$

D: Sample dilution factor, $(100\mu\text{L of serum} + 100\mu\text{L of anhydrous ethanol}) \div 100\mu\text{L of serum} = 10$.

Note:

- In the process of blood collection, it is advisable to take blood on an empty stomach and avoid using sodium citrate anticoagulant.
- The sample shall be measured as soon as possible after the reaction.
- If the absorbance value exceeds the linear range, the sample size can be increased or diluted before the determination. For example: take 200 μL of serum and add 800 μL of absolute ethanol (dilution ratio is 5), or take 50 μL of serum and add 950 μL of absolute ethanol (dilution ratio is 20).

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

Technical Specifications:

The detection limit: 0.00454 mol/L

The linear range: 0.005-0.05 mol/L