

## Blood Sodium Content Assay Kit

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

**Operation Equipment:** Spectrophotometer/Microplate reader

**Cat No:** NA0425

**Size:** 100T/96S

### Components:

Reagent I: 30 mL×1, store at 4°C. If there is gelatinous substance, it shall be heated and dissolved in boiling water bath before use.

Standard: 1 mL×1, 1 mmol/L sodium standard solution, store at 4°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:

Centrifuge, water bath, transferpettor, spectrophotometer/microplate reader, micro glass cuvette/96 well flat-bottom plate, distilled water, anhydrous ethanol and 90% ethanol (mix 90 mL of anhydrous ethanol and 10 mL of distilled water).

### Procedure:

#### I. Sample processing

1. 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

2. Preheat spectrophotometer for 30 minutes, adjust wavelength to 520 nm, set zero with distilled water.

3. 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.

4. Add reagents according to the following table.

Reagent name (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  $\mu\text{L}$  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.

### Calculation of Blood Sodium Concentration

1. Drawing of standard curve:

The standard curve is drawn with the concentration of standard solution as the abscissa and the  $\Delta A_S$  as the ordinate. The standard equation  $y=kx+b$  is obtained. The determination of  $\Delta A$  is brought into the standard equation to obtain  $x(\text{mol/L})$ .

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

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

### Note:

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

### Related Products:

- NA0811/NA0569 Blood Calcium Content Assay Kit
- NA0669/NA0428 Blood Potassium Content Assay Kit
- NA0661/NA0420 Serum Total Iron Binding Capacity(TIBC) Assay Kit
- NA0666/NA0424 Blood Zinc Content Assay Kit

### Technical Specifications:

The detection limit: 0.00454 mol/L

The linear range: 0.005-0.05 mol/L