



Zinc ion detection kit

(Cat.No:BC072 Size:R1:50ml×1 R2:5ml×1)

1. Packaging Specifications

Reagent 1: 40mL x 1 bottle, store at 4°C.

Reagent 2: 5mL x 1 bottle, store at 4°C.

One calibrator (concentration as per label), store at 4°C.

2. Testing Principle(PAPS colorimetric method)

Zinc ions in the sample react with nitro-PAPS in an alkaline solution, and the resulting complex exhibits a maximum absorption peak at 570 nm. Cu and iron ions in the sample can be eliminated by adjusting the Phhe value and adding chelating agents.

3. Storage and shelf life (The kit is valid for 12 months)

The reagent is stable for 12 months when stored at 2-8°C away from light. Once opened, it should be used within one month.

4. Applicable Instruments

Various types of spectrophotometers or ELISA readers.

5. Sample Requirements

The sample must be clear and transparent to avoid hemolysis.

6. Test Methods

1、 Microplate reader operation instructions:

	blank well	Standard well	Sample well
Deionized water (μL)	12		
Calibrator (μL)		12	
Sample (μL)			12
Reagent 1 (μL)	200	200	200
Mix well and incubate at 37°C for 5 minutes.			
Reagent 2 (μL)	50	50	50
Mix well and incubate at 37°C for 5-10 minutes. Read the absorbance value A of each well at 570nm using an ELISA reader. Calculate $\Delta A = A_{\text{sample well (or A standard well)}} - A_{\text{blank well}}$.			

Note: When operating the microplate reader, after adding reagent 2, you need to use a pipette



to repeatedly blow and mix the reaction solution in each well, or repeatedly shake the plate, but be careful not to generate air bubbles.

2. Spectrophotometer operation method:

	Blank well	Standard well	Sample well
Deionized water (μL)	48		
Calibrator (μL)		48	
Sample (μL)			48
Reagent 1 (μL)	800	800	800
Vortex mix, then bathe in a 37°C water bath for 5 minutes.			
Reagent 2 (μL)	200	200	200
Vortex mix, incubate in a 37°C water bath for 5-10 minutes, zero with deionized water, use a 1cm optical path, and read the absorbance value A of each tube at 570nm using a spectrophotometer. Calculate $\Delta A = A_{\text{sample well (or } A_{\text{standard well}}) - A_{\text{blank well}}}$.			

3. Calculation formula:

$$\text{Zinc Ion Concentration (}\mu\text{mol/L)} = \frac{\Delta A_{\text{Sample}}}{\Delta A_{\text{Standard}}} \times C_{\text{Standard}}$$

C_{Standard} : Concentration of standard solution (unit: μmol/L; conversion: 1 μmol/L × 6.51 = 1 μg/dL)

7. Product Performance Specifications

Reagent blank absorbance: $A_{570\text{nm}}(1.0\text{cm}) \leq 0.5$;

Linear range: 0~76.8μmol/L (judgment criterion: $r^2 \approx 0.995$);

Accuracy: Relative deviation $\leq 15.0\%$;

Precision: Intra-batch CV $\leq 4.0\%$; Inter-batch relative range $\leq 6.0\%$

Sensitivity: When measuring analyte at 13.9 μmol/L, the absorbance difference is ≥ 0.02 (1 cm optical path).

8. Precautions

1. Color or turbidity in the sample can interfere with the results. You can try to make a sample control (i.e., follow the procedure of the measurement well (tube), replace reagent one and two with an equal amount of physiological saline, mix with the sample, allow the normal reaction, and finally read the value. When calculating, ΔA_{sample} needs to be subtracted from the absorbance value of the sample control well (tube) and then substituted into the formula to calculate) to eliminate interference (this method cannot eliminate interference 100%, but it can make the result closer to the true value when the sample interference is severe).

2. The ratio of reagents to samples can be adjusted proportionally according to the



instrument usage.

3. If the result exceeds the linear range, please dilute the sample with deionized water and multiply the result by the dilution factor.
4. If the instrument does not contain the wavelength required by this kit, select a similar wavelength.
5. This method does not require sample protein removal or sample blank preparation.
6. If the reagent is accidentally splashed onto the human body, such as the skin or eyes, it must be rinsed with clean water. If it is ingested, medical treatment is required.
7. The product contains no toxic or biohazardous substances.