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Potassium (K) Assay Kit

Catalog No.: BC00071

Size: 100T

If you have any questions or need further help during experiment, please don't hesitate to contact us through the following methods:

✉Email (Sale) order@enkilife.com

✉Email (Techsupport) techsupport@enkilife.com

Tel: 0086-27-87002838

Website: www.enkilife.com

Shelf life: Please refer to the label on the outer package.

Techsupport: In order to provide you with better service, please inform us the lot number on the label of the outer package.

Basic Information

Product Name	Potassium (K) Assay Kit
Detection Methods	Colorimetric
Sample type	Serum, plasma, milk, animal tissue
Detection Type	Quantitative
Detection instrument and wavelength	Microplate reader (450 nm)
Range	0.0625-1mM
Sensitivity	0.0137mM

Product Introduction

Potassium ions are the most abundant cations in cells and are essential for maintaining physiological processes such as cell metabolism, transmission of nerve impulses, muscle contraction, and heart function. The balance of potassium ions is also very important for maintaining osmotic pressure and acid-base balance inside and outside cells. Abnormal changes in potassium ion concentrations may be associated with a variety of diseases, including but not limited to hypertension, heart disease, kidney disease, and endocrine disorders.

Features

★ Reduced interference from biological samples : Serum and plasma samples can be directly tested without pretreatment.

Detection principle

Under alkaline conditions, sodium tetraphenylborate reacts with potassium ions in the test solution to form white fine particles of potassium tetraphenylborate with low solubility, which are suspended in the solution and form a turbid solution, which is proportional to the potassium ion concentration within a certain range.

Product composition

Serial Number	Product Name	Packing Specifications (100T)	Storage
Reagent 1	Protein Precipitants	5ml	Store at -20℃ , store at 2-8 ℃ after

Reagent 2	Chromogen A	20ml	Store at -20℃ away from light , store
Reagent 3	Chromogen B	1ml	Store at -20℃ , store at 2-8 ℃ after
Reagent 4	10mmol/L Potassium	5ml	Store at -20℃ , store at 2-8 ℃ after
	96-well ELISA plate	1 plate	RT
	96-well membrane	2 pieces	RT

Note: The reagents must be stored strictly according to the storage conditions in the table above. Reagents from different test kits cannot be mixed. For reagents with a small volume, centrifuge them before use to avoid insufficient amount of reagent.

Storage conditions

The unopened kit can be stored at -20°C for 6 months.

Preparation before the experiment

Sample processing

1. Sample processing

Liquid samples such as serum and plasma: Generally, they can be measured directly. If the absorbance exceeds the detection range, they can be diluted to an appropriate multiple for testing.
Tissue sample: Take 0.020-1.0 g of fresh tissue block, rinse with 2-8℃ deionized water, absorb with filter paper, weigh, put into a homogenization container, add 2-8℃ deionized water in the ratio of weight (g): volume (mL) = 1:9, homogenize, centrifuge at 4℃, 10000×g for 10 min, take the supernatant and place on ice for testing.

2. Dilution of samples

Before formal testing, it is necessary to select 2-3 samples with large expected differences and dilute them into different concentrations for preliminary experiments, and determine the actual dilution multiple of the samples based on the results of the preliminary experiments.
Note: The diluent is double distilled water.

Key points of the experiment

1. Hemolyzed samples cannot be measured (hemolysis should be avoided because red blood cells contain high concentrations of potassium ions).
2. Ammonium ions and chloride ions affect the test results.

· Preparation of the kit

1. Before testing, equilibrate the reagents in the kit to room temperature.
2. Preparation of color developer: Mix reagent 2 and reagent 3 in a volume ratio of 32:1 and

prepare before use.

3. Dilution of standards of different concentrations: First, dilute the 10mmol/L potassium ion standard with double distilled water to 1mmol/L, and then dilute it to different concentrations using double distilled water according to the half-dilution method: 1, 0.5, 0.25, 0.125, 0.0625, 0mmol/L.

Operation Process

1. Preparation of supernatant: Mix sample and protein precipitant at a volume ratio of 1:1 (e.g.
2. 20 μL of sample was placed in a 1.5 mL EP tube, 20 μL of protein precipitant was added and mixed), centrifuged at 1100×g for 10 min, and the supernatant was taken for testing.
3. Standard wells: Take 50 μL of standards of different concentrations and add them to the corresponding standard wells;
4. Determination well: Take 50 μL of supernatant and add it to the sample well.
5. Blank well: Take 50 μL of double distilled water and add it to the blank well.
6. Add 200 μL of colorimetric reagent to each well in step " 2 " .
7. Cover with film and let stand at room temperature for 5 min.
8. The OD value of each well was measured using a microplate reader at 450 nm.

Operation table

	Standard wells	Assay well	Blank well (μL)
Different concentrations of	50	--	--
Double distilled water (μL)	--	--	50
Supernatant (μL)	--	50	--
Color developer (μL)	200	200	200
The plate was incubated at room temperature for 5 min and the OD value of each well was measured using a microplate reader at 450 nm.			

Result Calculation

Standard fitting curve: y = ax + b

The calculation formula of potassium ion concentration in serum (plasma) and milk is:

Potassium ion content (mmol/L) = (ΔA450 - b) ÷ a × f

The formula for calculating the potassium ion concentration of tissue homogenate is:

Potassium ion content (mmol/gprot) = (ΔA450 - b) ÷ a × 10* × f ÷ Cpr

annotation:

y: OD value of standard well - OD value of blank well (OD value when the concentration of

standard is 0)

x: concentration of the standard

a: Slope of the standard curve

b: standard curve intercept

ΔA450: OD value of sample supernatant - OD value of blank

10*: The dilution factor of the sample during supernatant preparation (10 times)

f: dilution factor of the sample before adding it to the detection system

Cpr: protein concentration of the sample to be tested (gprot/L)

Notes

1. The kit is for research use only. If it is used for clinical diagnosis or any other purpose, our company will not be responsible for any problems arising therefrom and will not bear any legal liability.
2. Please read the instructions carefully and adjust the instrument before the experiment, and conduct the experiment strictly in accordance with the instructions.
3. Please wear lab coats and latex gloves for protection during the experiment.
4. The detection range of the kit is not equivalent to the concentration range of the analyte in the sample. If the concentration of the analyte in the sample is too high or too low, please dilute or concentrate the sample appropriately.
5. If the sample being tested is not among the sample types listed in the instructions, it is recommended to conduct a preliminary experiment to verify the effectiveness of the test.
6. The final experimental results are closely related to the effectiveness of the reagents, the relevant operations of the experimenter, the experimental environment and other factors. Our company is only responsible for the kit itself, not for the sample consumption caused by the use of the kit. Please fully consider the possible usage of the sample before use and reserve sufficient samples.