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Calcium (Ca) Assay Kit

Catalog No.: BC00074

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	Calcium (Ca) Assay Kit
Detection Methods	Colorimetric
Sample type	Serum, plasma, tissue
Detection Type	Quantitative
Detection instrument and wavelength	Microplate reader (520-540 nm, optimal detection wavelength is 520 nm)

Product Introduction

Calcium is a metallic element that appears as silvery white crystals at room temperature. Animal bones, clam shells, and egg shells all contain calcium carbonate. The calcium content in living organisms is mainly detected by measuring the concentration of calcium ions .

Blood calcium is almost entirely present in plasma, so blood calcium refers to plasma calcium. Plasma calcium has two forms: ionized calcium and bound calcium. Only ionized calcium plays a direct physiological role. It is in dynamic equilibrium with bound calcium and is affected by blood pH. Blood calcium levels are related to many important physiological functions. Too high or too low will affect normal physiology.

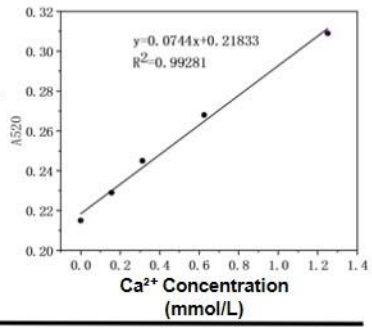
Features

★ Easy to operate, the test can be completed within 5 minutes.

Detection principle

The calcium ions in the sample react with the complex indicator Calmagite to form a Calmagite-Ca complex; the color depth is proportional to the calcium ion concentration, and this complex has a maximum absorption peak at 520 nm. The figure below shows the standard curve for the determination of calcium in this kit. The following standard curve is for reference only:

Ca^{2+} Concentration (mmol/L)	A520
1.25	0.309
0.625	0.268
0.3125	0.245
0.15625	0.229
0	0.215



$y=0.0744x+0.21833(R^2=0.99281)$

Product Composition

Serial Number	Product Name	Packing Specifications	Storage
Reagent 1	Alkaline reagents	12 mL	-20℃ away from light, 2-8 ℃ after opening
Reagent 2	Color developer	0.25 mL	-20℃ away from light, 2-8 ℃ after opening
Reagent 3	2.5 mmol/L Calcium	1 mL	-20℃，2-8 ℃ after opening
Consumable 1	96-well ELISA plate	1 plate	RT
Consumable 2	96-well membrane	2 pieces	RT

Storage Conditions

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

Preparation before the experiment

Sample processing

1. Serum and plasma samples: can be measured directly.

Tissue samples: routine homogenization (deionized water). After homogenization, centrifuge at 4°C, 10,000×g for 10 min, take the supernatant and place it on ice for testing.

2. Sample dilution: Before the formal test, you need to select 2-3 samples with large expected differences and dilute them into different concentrations for preliminary experiments. According to the results of the preliminary experiment, the dilution multiple is selected in combination with the linear range of this kit.

Preparation of the kit

1. Before testing, the reagents in the kit were equilibrated to room temperature.
2. Dilution of different concentrations of standard: dilute reagent 3 with water in half to different concentrations such as 1.25, 0.625, 0.3125, 0.15625, 0 (blank well) mmol/L
3. Preparation of the color developer working solution: dilute reagent 2 50 times with double distilled water, such as 20 μL of color developer plus 980 μL of double distilled water.
4. Preparation of working solution: Mix the alkaline solvent and the color developing agent in a volume ratio of 1:1 to obtain the working solution. Use it immediately after preparation and store it at 2-8℃ for 3 days.

Operation Process

1. Standard wells: Take 5 μL of standard solutions of different concentrations and add them to the corresponding standard wells.

Sample well: Take 5 μL of sample and add it to the corresponding sample well.

2. Add 200 μL of working solution to the standard wells and sample wells in step “ 1 ” .

3. Oscillate on a microplate reader for 5 s and measure the OD value of each well at 520 nm.

Operation Table

	Standard wells	Assay wells
Standard solutions of different concentrations (μL)	5	--
Sample to be tested (μL)	--	5
Working solution (μL)	200	200
Oscillate on the microplate reader for 5 s and measure the OD value of each well at 520 nm.		

Result Calculation

Standard fitting curve: y = ax + b

Formula for calculating calcium concentration in the sample: Calcium content (mmol/L) = (ΔA520 - b) ÷ a × f

annotation:

ΔA520: Sample OD value - blank OD value (OD value when the standard concentration is 0)

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

b: intercept of the curve

a: slope of the curve

Notes

1. The optimal detection wavelength of the microplate reader is 520 nm, and detection can be performed in the range of 520 nm-540 nm.

2. This product is limited to scientific research by professionals and shall not be used for clinical diagnosis or treatment, shall not be used as food or medicine, and shall not be stored in ordinary residences.