Blood Glucose Content Assay Kit

Note: The reagents of this product are subject to change. Please note and strictly follow this instruction.

Operation Equipment: Spectrophotometer/ Microplate reader

Catalog Number: BC2495

Size:100T/96S

Components:

Reagent I: 10 mL×1, 2 μmol/mL glucose solution. Storage at 2-8℃.

Reagent II: Liquid 10 mL×1. Storage at 2-8℃.

Reagent III: Liquid 10 mL×1. Storage at 2-8℃.

Preparation of mixed reagent: mix Solution II and Solution III in equal proportion and prepare it fresh.

Product Description

Glucose in the blood of mammals is the main form of sugar transport in the body. Blood glucose concentration is regulated by the nervous system and hormones, so it remains relatively stable. While hyperglycemia and hypoglycemia occur when the regulation is out of balance. Hyperglycemia can be caused by diabetes, increased intracranial pressure and dehydration. After the meal, mental tension can also appear physiological high blood glucose. In contrast, hypoglycemia can occur in patients with such conditions as islet cell proliferation or cancer, hypophysis, adrenal cortex and hypothyroidism, and severe liver disease. In addition, hunger and strenuous exercise can cause temporary hypoglycemia.

Glucose oxidase can catalyze the oxidation of glucose to gluconic acid, and produce hydrogen peroxide. Peroxidase catalyzes the oxidation of 4-aminoantipyrine bisphenol by hydrogen peroxide to form colored compounds with characteristic absorption peaks at 505 nm.

Reagents and Equipment Required but Not Provided.

Water-bath, transferpettor, spectrophotometer/microplate reader, micro quartz cuvette/96 well flat-bottom plate and distilled water.

Procedure

I.Sample preparation:

Mix 75 μL of serum (plasma) with 75 μL of distilled water, boil for 10 min in a boiling water bath (cover tightly to prevent water loss), cool to room temperature, then centrifuge at 8000g for 10 min at 25°C and reserve the supernatant (equivalent to the serum (plasma) being diluted 2 times).

Note: If the measurement result is small, the ratio of serum to distilled water can be adjusted (For example. 100 μL of serum (slurry) mixed with 50 μL of distilled water and boiled, that is diluted 1.5 times); if the measurement result is large, the supernatant can be diluted with distilled water.

II.Determination Procedure

1. Preheat the spectrophotometer or microplate reader for more than 30 min, adjust the wavelength

to 505 nm. The spectrophotometer needs to be zeroed with distilled water.

2. Sample table (add Reagent in the EP tube/96 well flat-bottom plate):

Reagent（μL）	Blank Tube	Standard Tube	Test Tube
Sample	-	-	20
Reagent I	-	20	-
distilled water	20	-	-
Mixed reagent	180	180	180

Mix thoroughly, keep it at 37℃ (mammals) or 25℃ (other species) for 15 min, read the absorbance of wavelength at 505 nm. Note the light absorption values of blank tube, standard tube and test tube as A_B, A_S and A_T respectively. The standard tube and blank tube only need to be measured 1-2 times.

Calculation of blood glucose content:

Blood glucose content（μmol/mL）$= C_S \times (A_T-A_B) \div (A_S-A_B) \times F$

$= 4 \times (A_T-A_B) \div (A_S-A_B)$

Cs: concentration of standard solution, 2 μmol/mL;

F: dilution multiple of serum (plasma) in pre-treatment, 2.

Note:

If (A_T-A_B) is less than 0.005, the ratio of serum to distilled water can be adjusted (For example. 200 μL of serum (plasma) mixed with 100 μL of distilled water and boiled, that is. being diluted 1.5 times); (A_T-A_B) is greater than 1.2, the supernatant can be diluted with distilled water. Note the modification of the dilution times in the calculation formula.

Experimental example:

1. 75 μL of sheep serum and 75 μL of distilled water were mixed and boiled for 10 min, the supernatant was centrifuged and determined according to the assay procedure, and the absorbance values were measured using a 96 well flat-bottom plate as A_T = 0.186, A_B = 0.051, A_S =0.724. calculation

Blood glucose content (μmol/mL) $= C_S \times (A_T-A_B) \div (A_S-A_B) \times F = 4 \times (0.186-0.051) \div (0.724-0.051)$ = 0.802μmol/mL

2. 75μL of cow serum and 75μL of distilled water were mixed and boiled for 10min, the supernatant was centrifuged and then diluted 2 times with distilled water (the overall dilution was 4 times) and then measured according to the assay procedure, the absorbance value of A_T = 1.047, A_B = 0.006 and A_S = 0.600 measured with a 96 well flat-bottom plate. calculation

Blood glucose content (μmol/mL) $= 2 \times (0.808-0.051) \div (0.724-0.051) \times 4 = 8.998$ μmol/mL.

Recent Product Citations：

[1] Wu J, Liu J, Ding Y, et al. MiR-455-3p suppresses renal fibrosis through repression of ROCK2 expression in diabetic nephropathy[J]. Biochemical and biophysical research

communications, 2018, 503(2): 977-983.

References:

[1]Basagni U, Bonicolini F. Ready to use liquid reagent for determining the glucose content in blood: U.S. Patent 5,077,199[P]. 1991-12-31.

[2] Kabasakalian P, Kalliney S, Westcott A. Enzymatic blood glucose determination by colorimetry of N, N-diethylaniline-4-aminoantipyrine[J]. Clinical chemistry, 1974, 20(5): 606-607.

Related Products:

BC0340/BC0345	Glucogen Content Assay Kit
BC2540/BC2545	Cellulase(CL) Activity Assay Kit
BC0330/BC0335	Trehalose Content Assay Kit
BC2500/BC2505	Glucose Content Assay Kit

Technical Specifications:

The detection limit: 0.0188 μmol/mL

Linear range: 0.125-8 μmol/mL

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