

Urea Nitrogen (BUN) Assay Kit

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

Operation Equipment: Spectrophotometer/microplate reader

Catalog Number: BC1535

Size: 100T/48S

Components:

Reagent I: Powder×2. Storage at 4°C and protect from light. Working solution: add 5 mL distilled water to per bottle before use, fully dissolved. Prepared when the solution will be used..

Reagent II: Solution 15 mL×1. Storage at 4°C.

Reagent III A: 3 mL×1. Storage at 2-8°C.

Reagent III B: 12 mL×1. Storage at 2-8°C.

Reagent III: Pour liquid A into liquid B and mix before use, or mix according to the ratio (A:B=1:4).

Reagent IV: Solution 10 mL×1. Storage at 4°C and protect from light.

Standard: Powder×1. Storage at 4°C, 10 mg urea. Dissolved with 4.66 mL distilled water, to 1 mg/mL urea standard solution.

Product Description

Urea (BUN) is the main product of human protein metabolism. Urea constitutes the majority of non-protein nitrogen in blood. Blood urea nitrogen is one of the main indexes of renal function. This kit use indophenol blue colorimetric method to test $\text{NH}_3\text{-N}$ product by urease hydrolysis. The concentration of indophenol is proportional to urea nitrogen concentration.

Reagents and Equipment Required but Not Provided:

Spectrophotometer/microplate reader, balance, cryogenic centrifuge, mortar/homogenizer, micro glass cuvette/ 96-well flat-bottom plate, constant temperature water bath pot.

Procedure:

I. Sample preparation:

1. Tissue sample

According to the ratio of mass (g): volume of distilled water (1:5-10 (it is recommended to weigh about 0.1g, add 1mL of distilled water), homogenize on ice and then centrifuged at 4°C 12000g for 15min, take the supernatant to be measured.

2. Cells

According to the number of cells (10^4): the volume of distilled water (mL) for the ratio of 500-1000:1 (recommended 5 million cells to add 1mL); then ice bath ultrasonic broken cells (power 300w, ultrasound 3s, interval 7s, total time 3min); then 4 °C 12000g centrifugation 15min take the supernatant on ice to be measured.

3. Serum (plasma) sample:

Detect sample directly.

II. Determination procedure:

1. Preheat the spectrophotometer/microplate reader 30 min, adjust the wavelength to 630 nm set zero with distilled water.
2. Standard solution: dilute urea standard solution (1 mg/mL) with distilled water to 25 µg/mL.
3. Add reagents with the following list:

Reagent Name(µL)	Blank Tube (Ab)	Standard Tube (As)	Test Tube (At)	Control Tube (Ac)
Sample			30	30
Standard Solution		30		-
Distilled water	30			60
Reagent I	60	60	60	-
Reagent II	110	110	110	110
Mix well, place at 37°C for 10 min.				
Reagent III	120	120	120	120
Reagent IV	90	90	90	90
Mix well, place at room temperature for 30 min.				
Distilled water	90	90	90	90
Mix well, detect absorbance at 630 nm. $\Delta A_s = A_s - A_b$, $\Delta A_t = A_t - A_c$.				

III. Calculation:

1. Calculated by sample weight

$$\text{Urea Nitrogen content}(\mu\text{g/g}) = \Delta A_t \div \Delta A_s \times C_s \times V_e \div W = 25 \times \Delta A_t \div \Delta A_s \div W$$

2. Calculated by protein concentration

$$\text{Urea Nitrogen content}(\mu\text{g/mg prot}) = \Delta A_t \div \Delta A_s \times C_s \times V_e \div (C_{pr} \times V_e) = 25 \times \Delta A_t \div \Delta A_s \div C_{pr}$$

3. Calculated by cell amount

$$\text{Urea Nitrogen content}(\mu\text{g}/10^4 \text{ cell}) = \Delta A_t \div \Delta A_s \times C_s \times V_e \div n = 25 \times \Delta A_t \div \Delta A_s \div n$$

4. Calculated by liquid volume

$$\text{Urea Nitrogen content}(\mu\text{g/mL}) = \Delta A_t \div \Delta A_s \times C_s = 25 \times \Delta A_t \div \Delta A_s$$

Cs: concentration of standard working solution, 25 µg/mL;

Ve: extraction volume, 1 mL;

W: sample weight, g;

Cpr: sample protein concentration, mg/mL;

n: cell amount. 10⁴.

Note:

1. Reagent I working solution can be stored at 2-8°C for one week.
2. If measured value of ΔA or A_t exceed 1, it is suggested dilute sample with distilled water for determination.

Technical Specifications:

Minimum Detection Limit: 0.00009 ug/mL

Linear Range: 0.78125-100 ug/mL

Recent Product citations:

[1] Xiaoguang Zhu,Jun Shi,Huicong li,et al. PVT1 knockdown alleviates vancomycin-induced acute kidney injury by targeting miR-124 via inactivation of NF- κ B signaling. RSC advances. September 2018;(IF3.049)

Related products:

BC0080/BC0085 Nitrate Reductase(NR) Activity Assay Kit

BC1450/BC1455 Glutaminase (GLS) Assay Kit