台塑生醫科技股份有限公司
FORMOSA BIOMEDICAL TECHNOLOGY CORP.

BUN TEST-U.V.Kinetic Method BUN

FOR BECKMAN CX AND LX SYSTEMS

INTENDED USE

For the quantitative determination of urea nitrogen in serum.

CLINICAL SIGNIFICANCE

Urea is the end-product of the nitrogen generated during the breakdown of protein. Urea is produced in the liver. It constituents the majority of the NPN fraction of the blood, and is normally excreted by the kidney in urine. Blood Urea Nitrogen (BUN) levels are therefore related to protein metabolism (Intake and catabolism) and to liver and kidney function.

PRINCIPLE

Urea is hydrolyzed by urease to produce ammonia. The ammonia is then coupled with α-ketoglutarate and NADH to produce glutamate and NAD^+. The rate of absorbance decrease is directly proportional to the amount of urea present in the sample. The reaction formula is as follows:

$$\text{Urea} + 2H_2O \xrightarrow{\text{urease}} 2NH_3 + H_2CO_3$$

$$NH_3 + \alpha\text{-ketoglutarate} \xrightarrow{\text{Glutamate dehydrogenase}} \text{glutamate} + NAD^+$$

SPECIMEN COLLECTION AND PREPARA

The test can be performed on serum, plasma, urine and other body fluids. For serum, blood is drawn into a tube which does not contain anticoagulant and allow to clot. The serum is them separated from the clot. Samples are generally stable for 1 day at room temperature but can be stored for several days refrigerated or several months frozen without any appreciable loss of urea.

For plasma, add whole blood directly into a tube containing anticoagulant. Most common anticoagulants may be used except which contains fluoride and ammonium salts.

REAGENT

·Each kit contains 2 cartrige of BUN reagent (2×300 tests)

·Ready-to-use

·Components:

Urease	>	3 Ku/l
Gltamate dehydrogenase	>	15 Ku/l
α-ketoglutarate :		5.0 mM
$NADH_2$:		0.3 mM
ADP:		3.0 mM

STORAGE: 2~8℃

PRECAUTIONS:

1. For in vitro diagnostic use only.
2. Since all specimens are potentially infectious, they should be handled with appropriate precautions and practices in accordance with Biosafety level 2 as recommended by USA NIH manual Biosafetyin Microbiological and Biomedical Laboratories, and in accordance with National or local regulations related to the safety precautions of such materials.
3. Each laboratory has to perform the quality control test to assure the results being reliable before running the specimen tests.

PROCEDURE:

Use bar code reading to follow the Beckman CX-4 and LX-20 parameters and procedures.

EXPECTED VALUE:

Serum or plasma: 5~25 mg/dl /l (1.8~8.9 mmol/L)

NOTE:

It is generally recommended that each laboratory establish its own range of normal valus for commonly performed tests.

REFERENCES:

1. Tiffany, T.O.et.al. 1972. Clin. Chem. 18:829.
2. Henry, R.J. et.al. 1974. Clinical Chemistry: Principle and Technics, 2 nd ed. Harper & Raw. Hagerstown, MD, p.516.
3. Talke, H and G.E. Schubert 1965. Klin wochenschr. 43:174.