

Urea Assay Kit

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CATALOG #
AAA11413

PRODUCT SYNONYMS

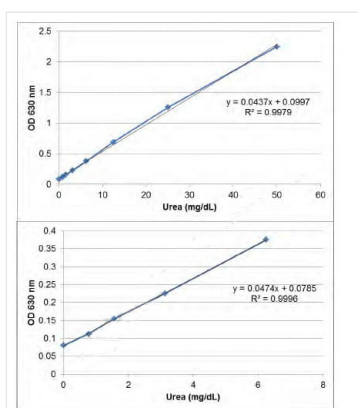
Urea; Urea Assay Kit; Urea assay kit

PRODUCT SPECIFICATIONS

Preparation and Storage

Upon receipt, prepare aliquots and store the Urea Standard and Urease at -20 degree C. Store the remaining kit components at 4 degree C until their expiration dates.

IMAGES



Standard Curve (Sample)

ADDITIONAL INFORMATION

Related Product Information for Urea assay kit	Principle of the Assay: Urea Assay Kit measures urea levels within urine, serum, plasma, cell lysates, or tissue homogenates. Samples are compared to a known concentration of urea standard within a 96-well microtiter plate format. Samples and standards are incubated for 10 minutes with the enzyme urease, which hydrolyzes urea to ammonia and CO₂. The ammonia reacts further with a chromogen in alkali solution to produce a blue-green colored product. After 30 minutes, the plate is read with a standard 96-well spectrophotometric microplate reader at an optical density between 580 nm and 630 nm (Figure 2). Higher OD values correlate with high urea concentrations. Sample urea concentrations are determined by comparison with the known urea standards. The standard curve is linear up to 50 mg/dL urea. Background/Introduction: Urea, or carbamide, is the end product of protein nitrogen metabolism and is the primary vehicle for removing toxic ammonia from the body. Urea is synthesized in the liver from the ammonia produced from the catabolism of amino acids via the hepatic urea cycle. The conversion from ammonia to urea is regulated by N-acetylglutamate, which activates carbamoyl phosphate synthetase in the urea cycle. Urea is transported in the blood to the kidneys where it is excreted in the urine. In addition to its role as a carrier of waste nitrogen, urea also has a role in the countercurrent exchange system of the nephrons in which water and ions are re-absorbed from excreted urine. It is freely filtered by the glomeruli and partially passively resorbed as filtrate transverses the renal tubules. Urea reabsorption is inversely proportional to urine flow rate. Consequently, urea concentration depends upon protein intake, protein catabolism, and kidney function. Urea quantitation is one of the most widely applied tests for kidney function evaluation. The analysis of urea in serum, plasma and urine is an important clinical test for renal disease and dysfunction. The test is frequently tested in conjunction with creatinine determination for identification of pre-renal, renal, and post renal uremia. Toxic urea levels are associated with renal, liver, or other system dysfunction. Pre-renal uremia relates to water depletion, increased protein catabolism, infection, hypovolemia, or cardiac decomposition. Glomerulonephritis, tubular necrosis, nephrosclerosis, chronic nephritis, and polycystic kidney are examples of renal uremia, while post renal uremia is predominantly urinary tract obstructions or leakage. Increased urea levels can also be linked to other disease states such as liver disease, diabetes, and congestive heart failure. High plasma urea levels are known as Azotemia. Decreased urea levels are associated with acute hepatic insufficiency or excess parenteral fluid therapy. Urea Assay Kit is based on the Berthelot reaction. Urea is first degraded into ammonia and carbon dioxide, which further reacts with an alkaline developer to produce a blue-green colored product that can be measured with a standard spectrophotometric plate reader at an optical density between 580-630 nm. Each kit provides sufficient reagents to perform up to 200 assays, including blanks, urea standards and unknown samples and controls.
Product Categories/Family for Urea assay kit	Metabolism Research ; Renal Function Assays ; Urea Assay
References	1. Friedman and Young. (2000) Effects of Disease on Clinical Laboratory Tests, 5th ed. AACC. 2. Sands, J.M. et al. (2009) Semin Nephrol. 29(3): 178-195. 3. Walker, V. (2009) Diabetes, Obes and Metab. 11(9): 823-835. 4. Young, D.S. et al. (1972) Clin. Chem. 18: 1041-1303.

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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 Online datasheet: <https://stage.aaabiotech.com/assay-kits/urea/11413>