

KIDNEY INJURY ASSAY KITS



ARBOR ASSAYS
Interactive Assay Solutions™

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INJURY

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Ordering

ONLINE:

www.ArborAssays.com

PHONE:

Call 734-677-1774 or Toll Free: 855-677-1774. Monday-Friday 8:30 am to 5:30 pm, EST.

FAX:

Send faxes to 734-677-6860.

E-MAIL:

Send E-mail orders to Orders@ArborAssays.com

DISTRIBUTORS:

Check our website at www.ArborAssays.com/distributors for a list of distributors.



Alkaline Phosphatase Colorimetric Activity Kit

K082-H1 (1 Plate)

FEATURES

- ▶ Use Measure Alkaline Phosphatase in a variety of samples
- ▶ Sample Serum, non-EDTA plasma, and other biological samples
- ▶ Time to answer: 30 minutes end-point assay
- ▶ Standard Range: 1.563 – 100 mU/mL
- ▶ Samples/Kit Up to 88 samples in duplicate
- ▶ Sensitivity 0.06 mU/mL
- ▶ Stability 4° C liquid reagents
- ▶ Readout Colorimetric, 405 nm

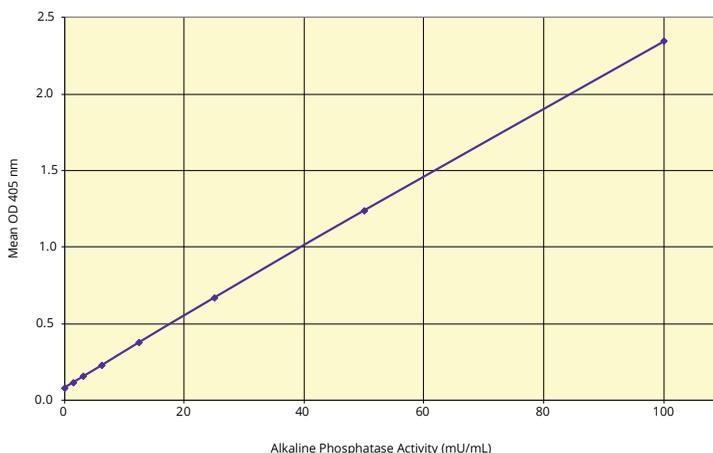


SCIENTIFIC RELEVANCE

Found in many higher organisms, Alkaline Phosphatase (ALP) plays an active role in regulating many biological processes, ranging from metabolism, signal transduction, molecule transportation, and the expression of genetic information. The measurement of ALP activity aids in the study of physiological conditions, disease states, mostly involving the skeletal system and liver, and the structure-activity relationships in inhibitor research.

The DetectX® Alkaline Phosphatase Colorimetric Activity Kit is designed to quantitatively measure ALP activity in a variety of biological samples. The assay is formulated to measure ALP activity in physiologically relevant samples and includes a calibrated ALP standard.

Assay Kit developed by 21 Grams Assays, Inc., www.21gramsassays.com.



Arg8-Vasopressin (AVP) ELISA & Chemiluminescent ELISA Kits

ELISA: K049-H1 (1 Plate) | K049-H5 (5 Plate)

Chemiluminescent ELISA: K049-C1 (1 Plate) | K049-C5 (5 Plate)

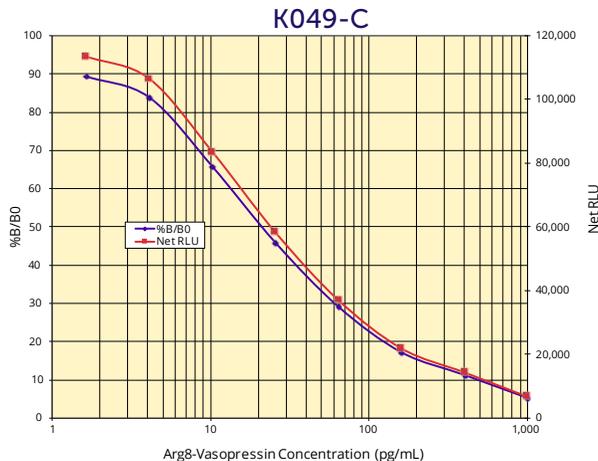
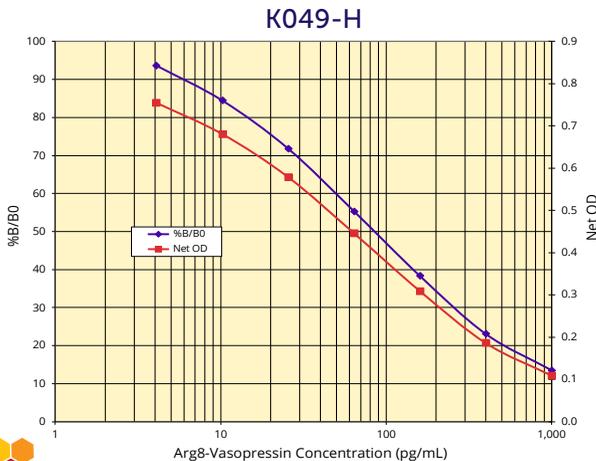
FEATURES

- ▶ Use: Measure AVP in Mammals, Arg-Vasotocin in Birds, Reptiles
- ▶ Sample: Extracted Serum, Plasma and Buffers, Tissue Culture Media
- ▶ Sensitivity: ELISA: 3.7 pg/mL
Chemiluminescent: < 0.9 pg/mL
- ▶ Simple: Extraction Reagent included, no C18 SPE Columns needed
- ▶ Samples/Kit: ELISA: 39 or 231 in Duplicate
Chemiluminescent: 38 or 230 in Duplicate
- ▶ Readout: ELISA: Colorimetric, 450 nm
Chemiluminescent: Glow Luminescent



SCIENTIFIC RELEVANCE

The neurohypophysial hormone arginine vasopressin (AVP) is involved in a wide range of physiological regulatory processes, including renal water reabsorption, cardiovascular homeostasis, hormone secretion from the anterior pituitary, and modulation of social behavior and emotional status. AVP and the structurally related posterior pituitary hormone, oxytocin (OT), are synthesized in the paraventricular nucleus and the supraoptic nucleus of the hypothalamus. AVP is a 9 amino acid peptide with a 6-member disulfide ring. It is structurally related to OT, differing by 2 amino acids.



BCA Protein Dual Range Colorimetric Detection Kit

K041-H1 (2 Plate)

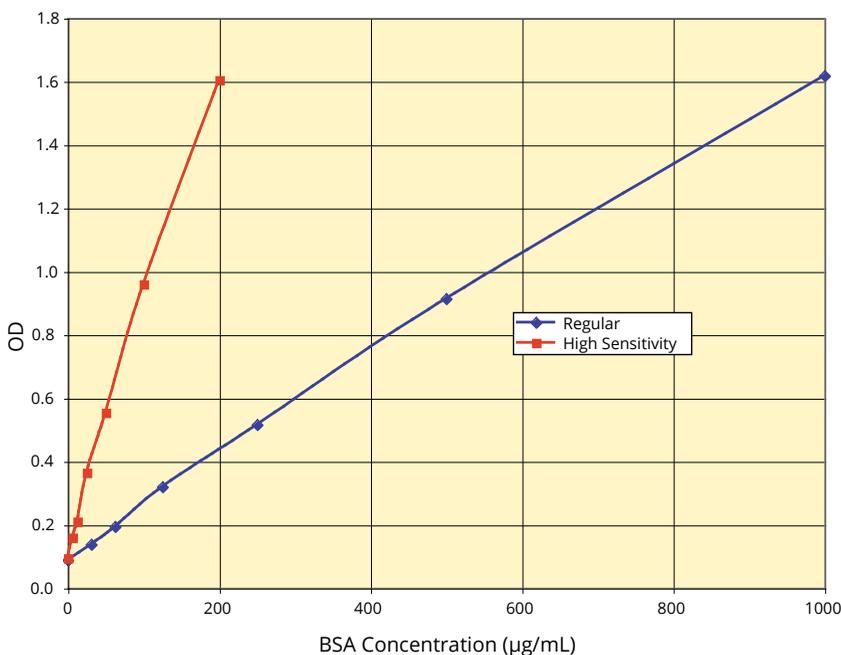
FEATURES

- ▶ Use Measure Total Protein Content
- ▶ Sample Type Cell Lysates, Urine, Serum, Plasma, Tissue Homogenates
- ▶ Samples/Kit 89 in Duplicate
- ▶ Sensitivity 1.68 µg/mL
- ▶ Stable Liquid Reagents, Stable at Room Temperature
- ▶ Readout Colorimetric, 560 nm



SCIENTIFIC RELEVANCE

Protein determination is one of the most common operations performed in biochemical research. The principle of the bicinchoninic acid (BCA) assay is similar to the Lowry assay, and relies on the formation of a Cu^{2+} -protein complex under alkaline conditions, followed by reduction of the Cu^{2+} to Cu^{1+} . The amount of reduction is proportional to protein present. It has been shown that cysteine, cystine, tryptophan, tyrosine, and peptide bonds are able to reduce Cu^{2+} to Cu^{1+} . BCA forms a purple-blue complex with Cu^{1+} in alkaline environments, thus providing a basis to monitor the reduction of alkaline Cu^{2+} by proteins.



Creatinine Serum & Urinary Detection Kits / Solutions

KB02-H1 (2 Plate) | KB02-H2 (4 Plate) | Creatinine Solution: X116-100ML (10 mg/dL)
 KB02-H1D (384-Well Plate) K002-H1 (2 Plate) | K002-H5 (10 Plate)

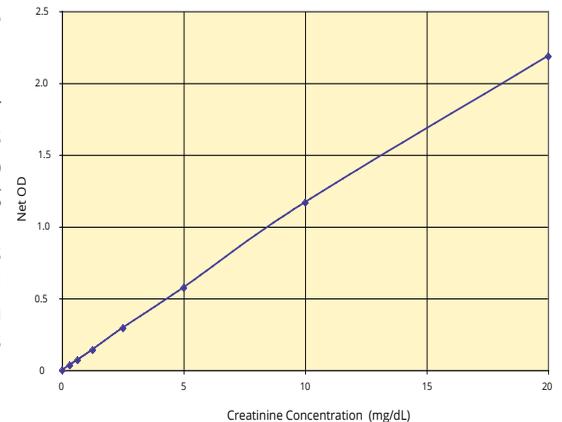
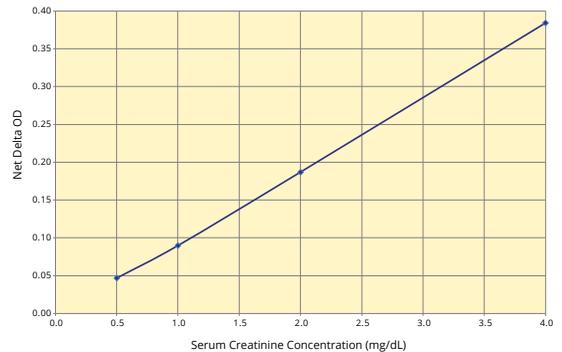
FEATURES

- ▶ Use KB02-H: Kidney Damage Assessment
 K002-H: Urine Volume Marker
- ▶ Sample KB02-H: Serum, Plasma
 K002-H: Urine
- ▶ Calibrated NIST Standard Reference #914a
- ▶ Species Species Independent
- ▶ Time to Answer 30 Minutes
- ▶ Samples/Kit KB02-H: 91 or 187 in Duplicate, KB02-H1D: 187 in Duplicate
 K002-H: 88 or 472 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Readout KB02-H1: Colorimetric, 490 nm
 K002-H: Colorimetric, 450 nm



SCIENTIFIC RELEVANCE

Creatinine (2-amino-1-methyl-5H-imadazol-4-one) is a metabolite of phosphocreatine (p-creatine), a molecule used as a store for high-energy phosphate that can be utilized by tissues for the production of ATP. Creatine either comes from the diet or is synthesized from the amino acids arginine, glycine, and methionine. This occurs in the kidneys and liver, although other organ systems may be involved and species-specific differences may exist. Creatine and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. Creatinine forms spontaneously from p-creatine. Under normal conditions, its formation occurs at a rate that is relatively constant and as intra-individual variation is <15% from day to day, creatinine is a useful tool for normalizing the levels of other molecules found in urine. Additionally, altered creatinine levels may be associated with conditions that result in decreased renal blood flow such as diabetes and cardiovascular disease. In serum, increased levels are useful in diagnosis of kidney disease. A rise in blood creatinine levels is observed only with marked damage to functioning nephrons.



Cystatin C Human ELISA Kit

K012-H1 (1 Plate)

FEATURES

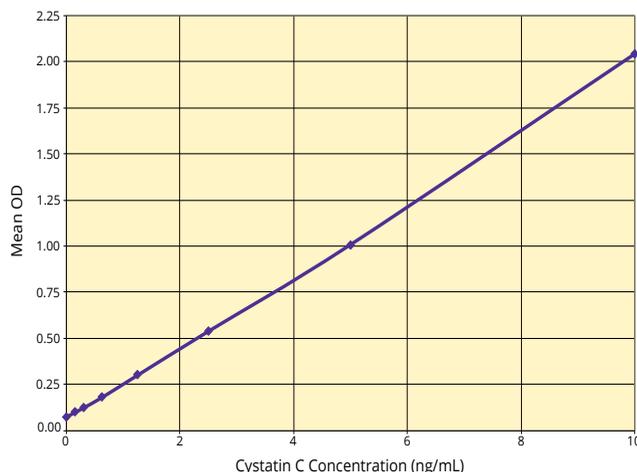
- ▶ Use Kidney Injury Marker
- ▶ Sample Type Serum, Plasma, Urine, TCM
- ▶ Samples/Kit 40 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Sensitivity 58 pg/mL
- ▶ Time to Answer 2 Hours
- ▶ Readout Colorimetric, 450 nm



**MOST
SENSITIVE**

SCIENTIFIC RELEVANCE

Cystatin C is a non-glycosylated protein of low molecular weight (13 kDa) in the cystatin superfamily. It is produced at a constant rate in all nucleated cells and then secreted, and thus is found in most body fluids. Cystatin C belongs to the cysteine proteinase inhibitor group and is associated with several pathological states. Imbalance between Cystatin C and cysteine proteinases is associated with conditions such as inflammation, renal failure, cancer, Alzheimer's disease, multiple sclerosis, and hereditary Cystatin C amyloid angiopathy. Cystatin C is removed from blood plasma by glomerular filtration in the kidneys. It is reabsorbed by the proximal tubular cells and degraded. There is a linear relationship between the reciprocal Cystatin C concentration in



plasma and the glomerular filtration rate (GFR). Cystatin C is suggested to be a better marker for GFR than serum creatinine as its serum concentration is not affected by factors such as age, gender and body mass. There is association of Cystatin C levels with the incidence of myocardial infarction, coronary death and angina pectoris, presenting a risk factor for secondary cardiovascular events.



Hemoglobin Colorimetric Detection Kits

Regular: K013-H1 (2 Plate)

High Sensitivity: K013-HX1 (2 Plate) | K013-HX5 (10 Plate)

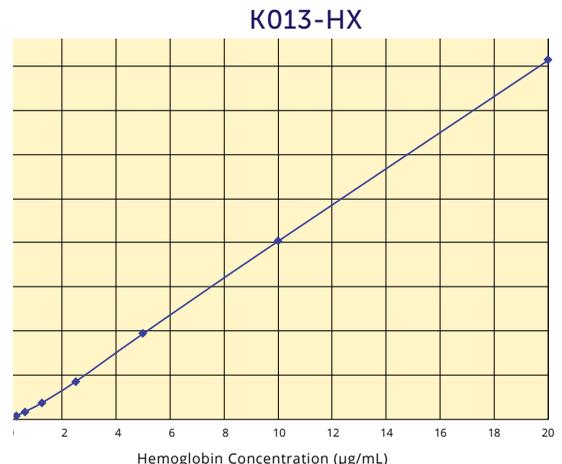
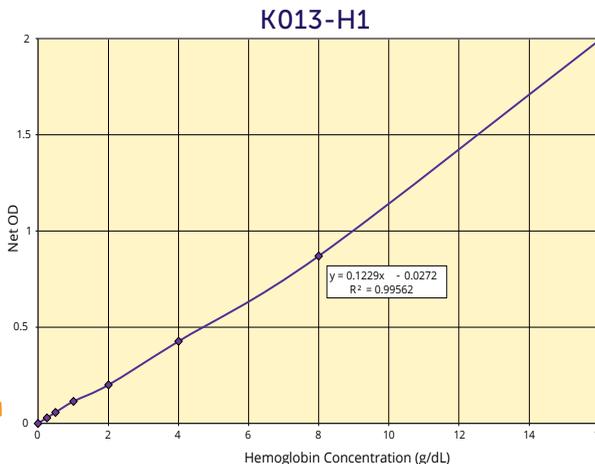
FEATURES

- ▶ Sample Type K013-H1: Whole Blood, RBCs
 K013-HX: Serum, Plasma
- ▶ Time to Answer 30 Minutes
- ▶ Range K013-H1: 16-0.25 g/dL
 K013-HX: 20-0.313 µg/mL
- ▶ Sensitivity K013-H1: 0.021 g/dL, 0.21 mg/mL
 K013-HX: 0.053 µg/mL
- ▶ Samples/Kit 88 in Duplicate
- ▶ Stable Liquid 4°C Stable Reagents
- ▶ Readout K013-H1: 560-580 nm
 K013-HX: 450 nm



SCIENTIFIC RELEVANCE

Hemoglobin (Hgb) is an erythrocyte protein complex comprised of two sets of identical pairs of subunits, each of which bind an iron-porphyrin group commonly called heme. Heme binds and releases oxygen or carbon dioxide in response to slight changes in local gas tension. Hemoglobin values are associated with a variety of conditions ranging from anemias (low Hgb), erythrocytosis (high Hgb), thalassemias (aberrant chain synthesis), and sickling disorders (abnormal complex shape).



Retinol Binding Protein Multi-Format ELISA Kits

K062-H1 (1 Plate) | K062-H5 (5 Plate)

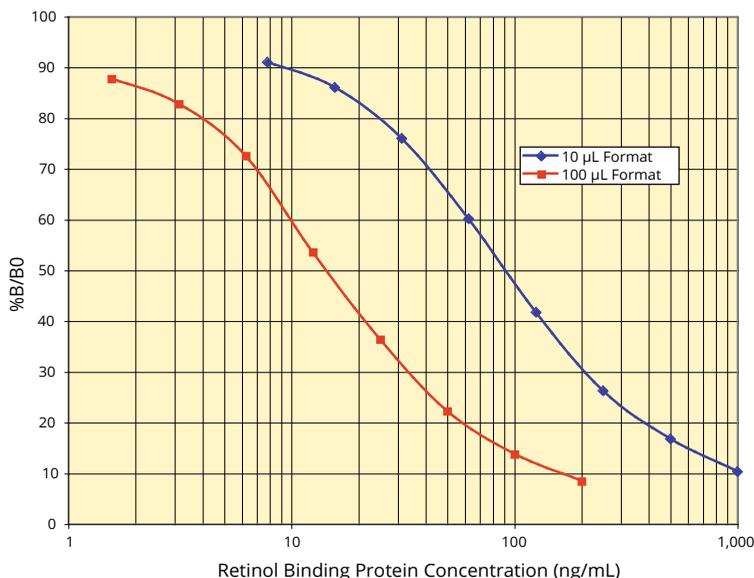
FEATURES

- ▶ Use Measure a Broad Range of RBP Concentrations
- ▶ Dual Range 7.81-1000 ng/mL or 1.56-200 ng/mL
- ▶ Sample Type Serum, Plasma, Urine, Dried Blood Spots
- ▶ Samples/Kit 38 or 230 in Duplicate
- ▶ Species Species Independent
- ▶ Time to Answer 90 Minutes
- ▶ Readout Colorimetric, 450 nm



SCIENTIFIC RELEVANCE

Retinol binding protein (RBP) is from a family of structurally related proteins that bind small hydrophobic molecules such as bile pigments, steroids, odorants, etc. RBP is a 21 kDa highly conserved, single-chain glycoprotein, consisting of 182 amino acids with 3 disulfide bonds and a hydrophobic pocket that binds retinol (Vitamin A). RBP is totally filtered by the glomeruli and reabsorbed by proximal tubules. Urinary RBP is used to study renal function in heart or kidney transplant recipients, type 1 and 2 diabetics, and in people exposed to uranium from mining operations. RBP may also be used to monitor Vitamin A deficiency.



Thiol Fluorescent Detection Kit

K005-F1 (1 Plate)

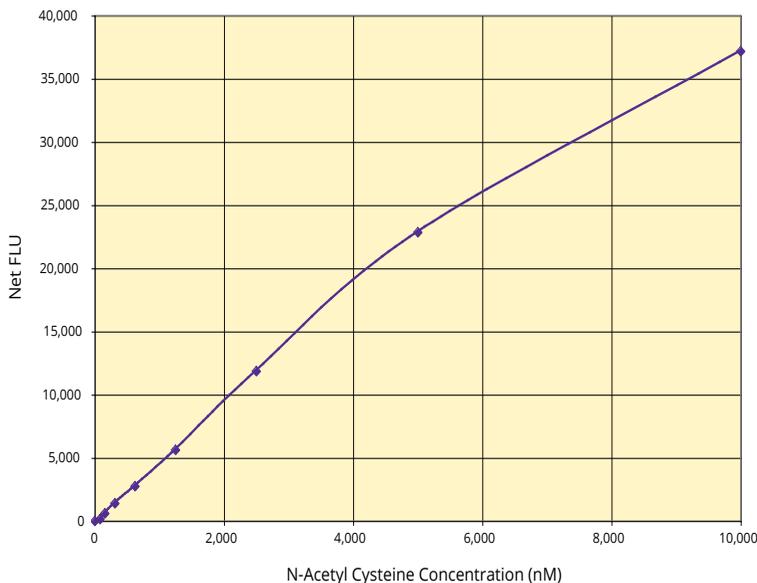
FEATURES

- ▶ Use Measure Thiol Content of Proteins and Peptides
- ▶ Adaptable Measure SH easily in 8M GuHCl Buffers
- ▶ Sensitivity 4.62 nM
- ▶ Time to Answer 30 Minutes
- ▶ Species Species Independent
- ▶ Samples/Kit 39 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Readout Fluorescent, 510 nm emission / 370-410 nm excitation



SCIENTIFIC RELEVANCE

Free thiols in biological systems have important roles. Oxidatively-modified thiol groups of cysteine residues are known to modulate the activity of a growing number of proteins. As such, it is important to be able to accurately determine the extent of modification of specific amino acids, such as cysteine residues. This is especially difficult in a complex protein sample, especially in the presence of chaotropic agents such as guanidine hydrochloride. Typical methods using Ellman's reagent do not have sufficient sensitivity to allow economical detection of free SH groups.



Urea Nitrogen (BUN) Detection Kit

K024-H1 (2 Plate) | K024-H5 (10 Plate)

FEATURES

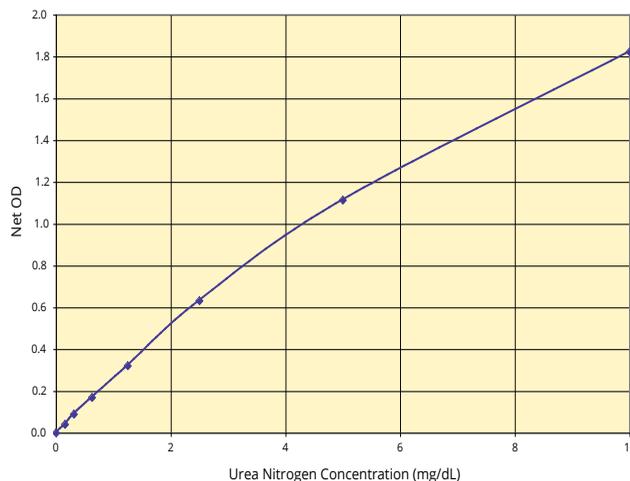
- ▶ Use Measure Urea Nitrogen
- ▶ Sample Type Serum, Plasma, Urine, Saliva
- ▶ Time to Answer 30 Minutes
- ▶ Calibrated NIST Standard Reference #912a
- ▶ Sensitivity 30 µg/dL
- ▶ Sample/Kit 88 or 472 in Duplicate
- ▶ Readout Colorimetric, 450 nm



SCIENTIFIC RELEVANCE

Urea is a by-product of protein metabolism by the liver, and is removed from the blood by the kidneys. Urea freely filters through the glomerulus, but is reabsorbed by the renal tubules in a flow-dependent fashion. The higher the flow rate, the greater amount of urea nitrogen is cleared from circulation and eliminated through the kidneys. As a result, the level of circulating urea nitrogen, along with serum creatinine, serves as a primary measure of kidney function. Normal adult blood urea nitrogen (BUN) levels should be between 7 and 21 mg urea nitrogen per 100 mL blood (mg/dL). Azotemia, poor kidney function, will cause elevated BUN levels (≥ 50 mg/dL) and is associated with acute kidney failure or injury, severe acute pancreatitis, congestive heart failure, or gastrointestinal bleeding. Azotemia also can occur with dehydration, as a result of alcohol abuse, or with high protein diets.

Lower than expected BUN levels are usually not clinically predictive, but are primarily associated with liver disease or malnutrition, including malabsorption and low protein diets. Urine and saliva are considered to be acceptable non-invasive samples for measurement of urea nitrogen.





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