



**ARBOR ASSAYS**  
Interactive Assay Solutions™

# KIDNEY INJURY ASSAY KITS

**WEB INSERT 181019**

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Arg<sup>8</sup>-Vasopressin (AVP) CLIA Kits

Catalog No: K049-C1 (1 Plate) K049-C5 (5 Plate)

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FEATURES

- ▶ Use Measure AVP in Mammals, Arg-Vasotocin in Birds and Reptile
- ▶ Sample Extracted Serum, Plasma, Buffers
- ▶ Time to Answer Overnight
- ▶ Format 96-Well, Break-Apart Strip
- ▶ Samples/Kit 38 or 230 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Readout Glow Luminescent

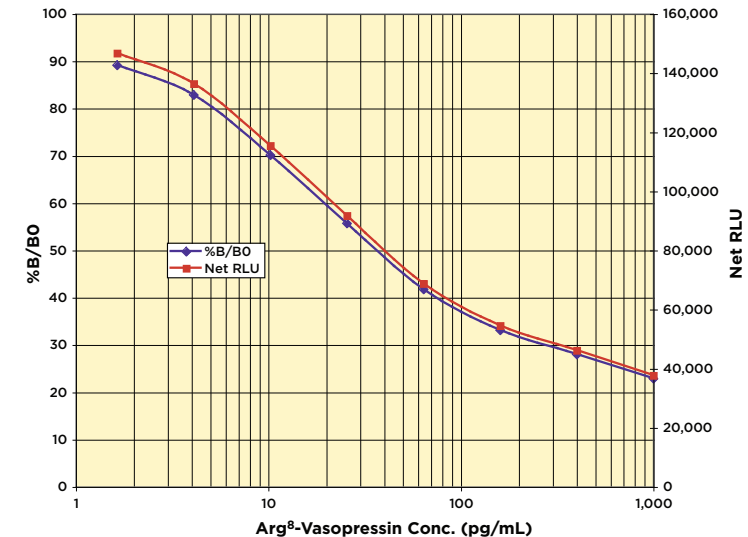


SCIENTIFIC RELEVANCE

The neurohypophysial hormone arginine vasopressin (AVP), also known as an antidiuretic hormone, 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 oxytocin, differing by 2 amino acids.

ORDERING

- Online:** [www.ArborAssays.com/order-form](http://www.ArborAssays.com/order-form)
- 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](mailto:Orders@ArborAssays.com)
- Distributors:** Check our website at [www.ArborAssays.com/distributors](http://www.ArborAssays.com/distributors) for a list of distributors.
- Mail:** Arbor Assays Inc., Sales Order Entry  
1514 Eisenhower Place, Ann Arbor, MI 48108-3284, USA



## Creatinine Serum Detection Kit

Catalog No: KB02-H1 (2 Plate) KB02-H2 (4 Plate)  
 Catalog No: KB02-H1D (384 Well, Low Volume)

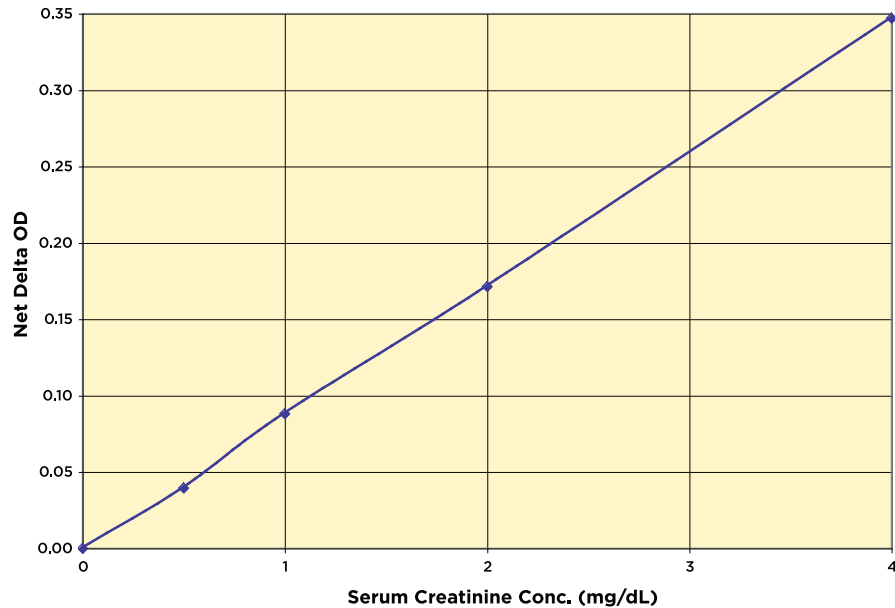
### FEATURES

- ▶ Use Kidney Damage Assessment
- ▶ Species Species Independent
- ▶ Calibrated NIST Standard Reference #914a
- ▶ Samples/Kit 91 or 187 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Readout Colorimetric, 490 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 and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. Its formation occurs at a rate that is relatively constant and intra-individual variation is <15% from day to day. Increased levels of creatinine in the serum are useful in diagnosis of kidney disease. A rise in blood creatinine levels is observed only with marked damaged to functioning nephrons.



## Creatinine Urinary Detection Kits

Catalog No: K002-H1 (2 Plate) K002-H5 (10 Plate)

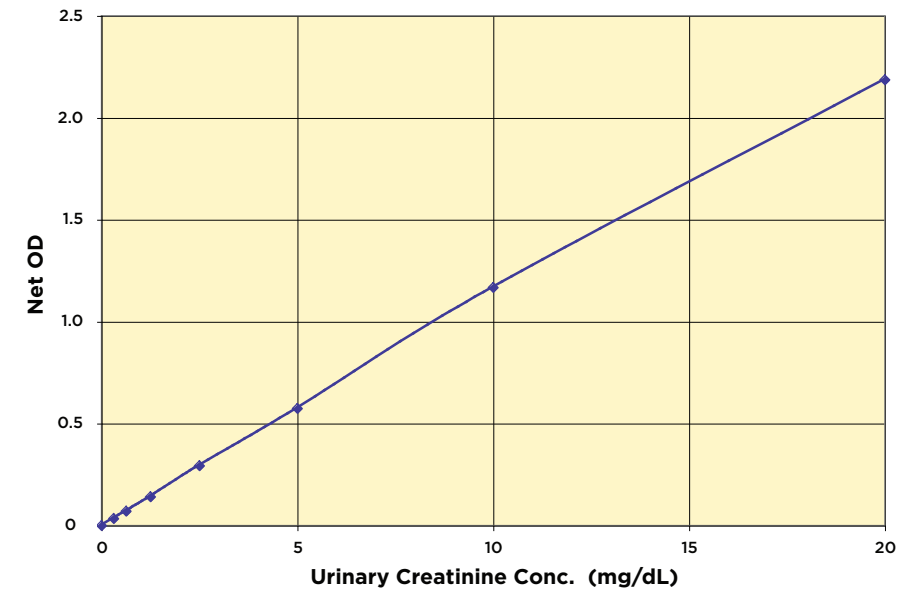
### FEATURES

- ▶ Use Normalization of Urine Volume
- ▶ Species Species Independent
- ▶ Calibrated NIST Standard Reference #914a
- ▶ Samples/Kit 88 or 472 in Duplicate
- ▶ Stability Liquid 4°C Stable Reagents
- ▶ Readout Colorimetric, 490 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 and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. Its formation occurs at a rate that is relatively constant and intra-individual variation is <15% from day to day. Under normal conditions creatinine is a useful tool for normalizing the levels of other molecules found in urine.



# Human Cystatin C EIA Kit

Catalog No: K012-H1 (1 Plate)

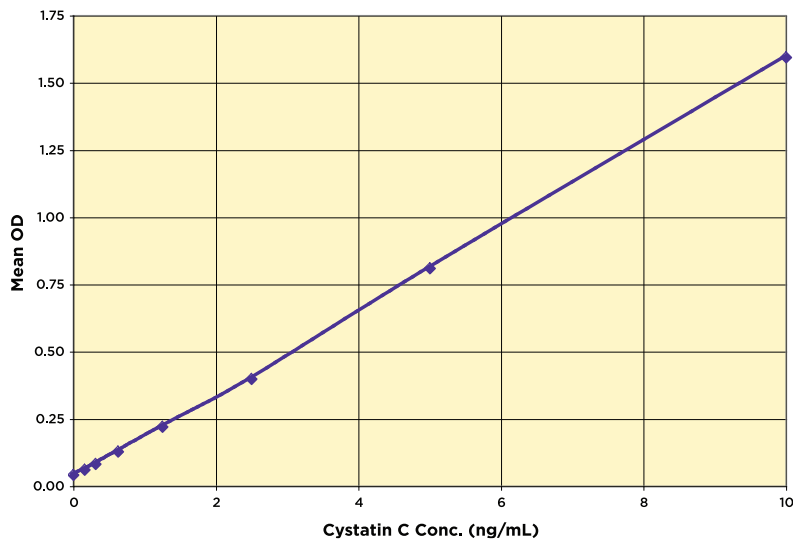
## FEATURES

- ▶ Use: Kidney Injury Marker
- ▶ Sample Type: Serum, Plasma, Urine or TCM
- ▶ Samples/Kit: 40 in Duplicate
- ▶ Stability: Liquid 4°C Stable Reagents
- ▶ Sensitivity: 0.058 ng/mL
- ▶ Time to Answer: 2 Hours
- ▶ Readout: Colorimetric, 450 nm



## SCIENTIFIC RELEVANCE

Cystatin C is a non-glycosylated protein of low molecular weight (13kDa) 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 Catalog No: K013-H1 (2 Plate)

High Sensitivity Catalog No: K013-HX1 (2 Plate) K013-HX5 (10 Plate)

## FEATURES

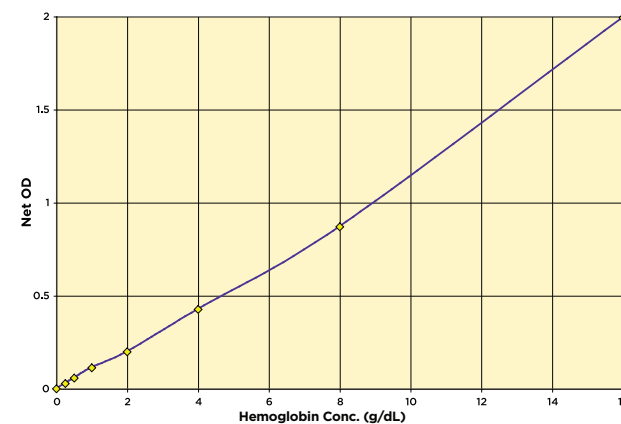
- ▶ Sample Type: K013-H: Whole Blood, RBC’s  
K013-HX: Serum, Plasma
- ▶ Time to Answer: 30 Minutes
- ▶ Range: K013-H: 16-0.25 g/dL  
K013-HX: 20-0.313 µg/mL
- ▶ Samples/Kit: 88 in Duplicate
- ▶ Stable: Liquid 4°C Stable Reagents
- ▶ Readout: K013-H: 560-580 nm  
K013-HX: 450 nm



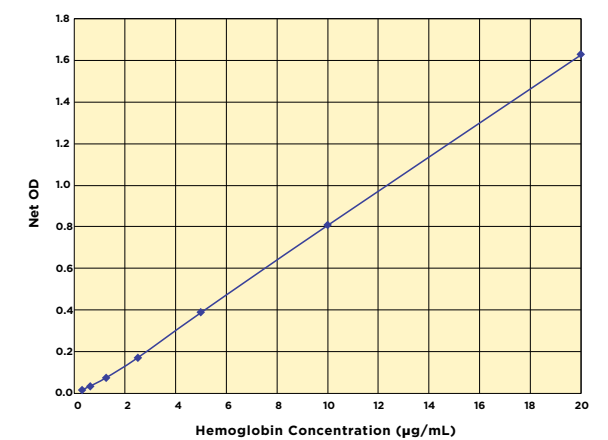
## SCIENTIFIC RELEVANCE

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).

K013-H Hgb Regular



K013-HX Hgb High Sensitivity



## BCA Protein Dual Range Colorimetric Detection Kit

Catalog No: K041-H1 (2 Plate)

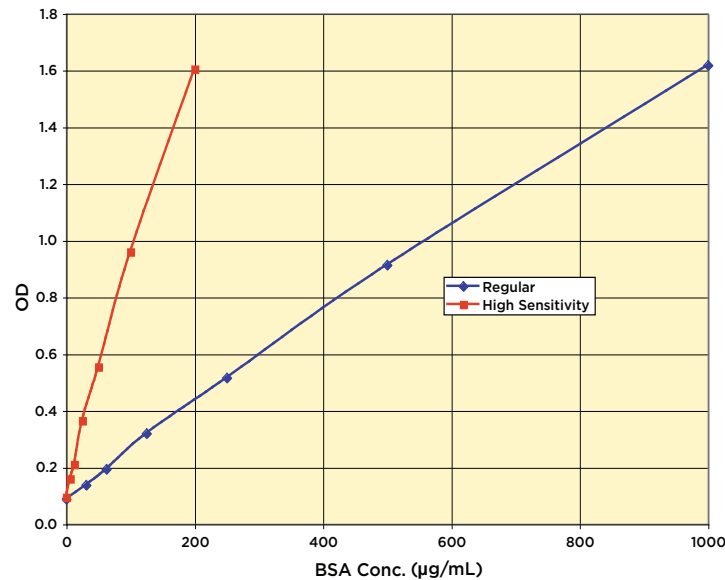
### FEATURES

- ▶ Use Measure Total Protein Content
- ▶ Sample Type Cell Lysates, Urine, Serum, Plasma, and Tissue Homogenates
- ▶ Samples/Kit 89 in Duplicate
- ▶ Sensitivity 1.68 µg/mL
- ▶ Stable Liquid, Room Temperature Stable Reagents
- ▶ 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<sup>2+</sup>-protein complex under alkaline conditions, followed by reduction of the Cu<sup>2+</sup> to Cu<sup>1+</sup>. 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<sup>2+</sup> to Cu<sup>1+</sup>. BCA forms a purple-blue complex with Cu<sup>1+</sup> in alkaline environments, thus providing a basis to monitor the reduction of alkaline Cu<sup>2+</sup> by proteins.



## Retinol Binding Protein Multi-Format EIA Kits

Catalog No: K062-H1 (1 Plate) K062-H5 (5 Plate)

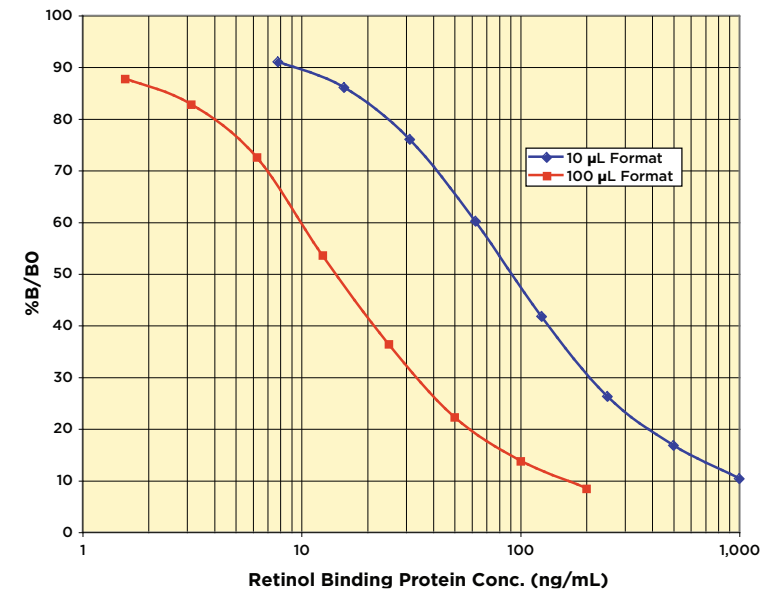
### FEATURES

- ▶ 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 which 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

Catalog No: K005-F1 (1 Plate)

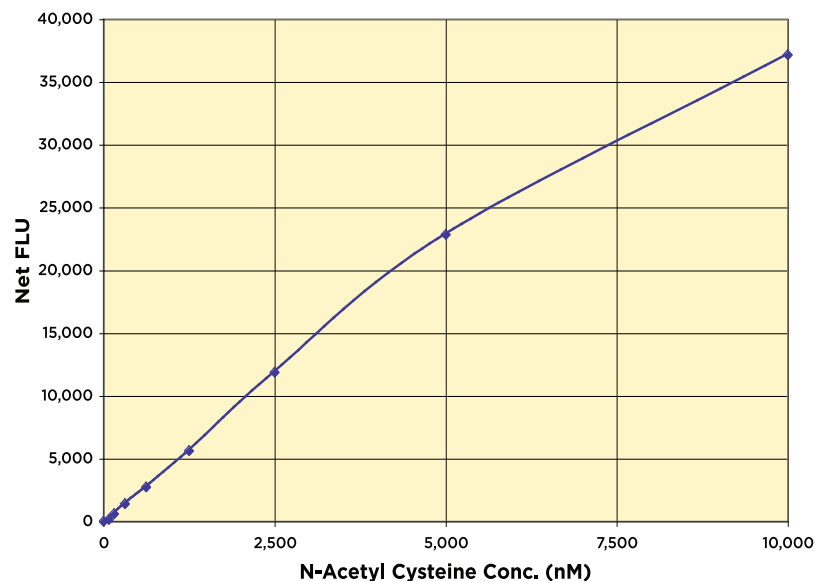
### FEATURES

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



### 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. One of the most pressing problems is 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

Catalog No: K024-H1 (2 Plate) K024-H5 (10 Plate)

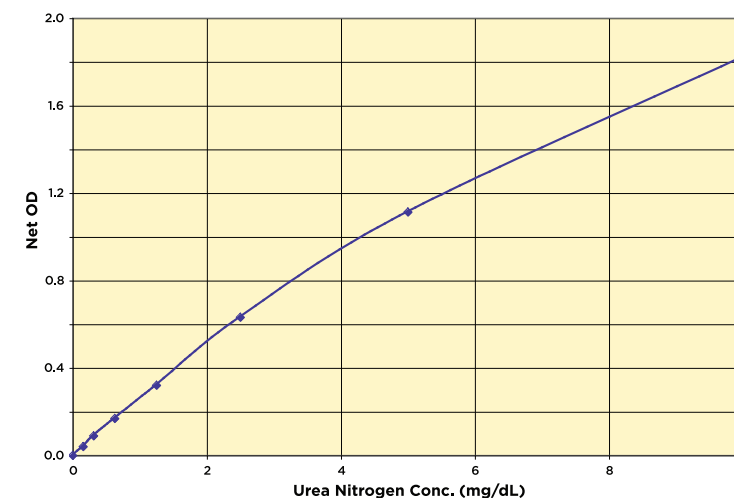
### FEATURES

- ▶ Use Measure Urea Nitrogen
- ▶ Sample Type Serum, Plasma, Urine, and 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 ( $\geq 50$  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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