

Creatinine Serum Detection Kit

Cat#: orb865241 (User Manual)

Colorimetric measurement of creatinine

Product Name	Creatinine Serum Detection Kit
Description	Colorimetric measurement of creatinine
Species Reactivity	Human, Mouse, Rabbit, Rat, Sheep
Platform	Microplate
Sample Types	Plasma, Serum
Detection Method	Colorimetric Assay
Assay Type	Direct Quantitative Assay
Utility	Colorimetric assay used to measure creatinine in samples.
Sensitivity	0.085 mg/dL
Assay Range	0.5 - 4 mg/dl
Precision	Intra Assay Precision: Four human serum samples were run in triplicate on a same-day assay determined that the mean and precision of the calculated concentrations were: Sample 1- 0.75 mg/dL, 5% CV Sample 2-0.78 mg/dL, 6% CV Sample 3- 0.6 mg/dL, 4% CV Sample 4- 0.76 mg/dL, 6% CV Inter Assay Precision: Four human serum samples were run in triplicate on a same-day assay determined that the total range of 4-6% represents the variation between different assays.
Number Of Samples	91 samples in duplicate
Other Resources	Kit Booklet , Kit Booklet Lot No. SC188754 , MSDS
Field Of Use	Not for use in humans. Not for use in diagnostics or therapeutics. For in vitro research use only.

Properties

Storage Temperature	4°C
Shipping Temperature	Blue Ice
Product Type	Detection Kits
Assay Overview	The Creatinine Serum Detection Kit is designed to quantitatively measure creatinine present in serum samples. A creatinine standard, calibrated to a creatinine standard, is provided to generate a standard curve for the assay and all samples should be read off the standard curve. Standards or samples are

	pipetted into a clear microtiter plate. An assay diluent is added to all standards, controls and samples. The color generating reaction is initiated with the Biorbyt Creatinine Reagent, which is pipetted into each well. The assay utilizes a kinetic absorbance method to overcome interference by colored compounds in serum. The absorbance of the colored product is read in a microtiter plate reader capable of measuring 490nm wavelength. For a total of 30 minutes, the optical density is read at 1 minute intervals. The concentration of creatinine is calculated using the Kinetic Mode software and samples are compared to the curve generated from the standards, or by using the Excel worksheet available for free download at our web site. The Jaffe reaction used in this kit has been modified to read creatinine levels in serum (8).
--	--

Kit Overview

Component No.

Item

Quantity / Size

Clear 96 well Half Area Plates

2 Plates

Creatinine Standard

100 µl

Assay Diluent

6 ml

Biorbyt Creatinine Reagent

20 ml

Cite This Product

Creatinine Serum Detection Kit

Biological Description

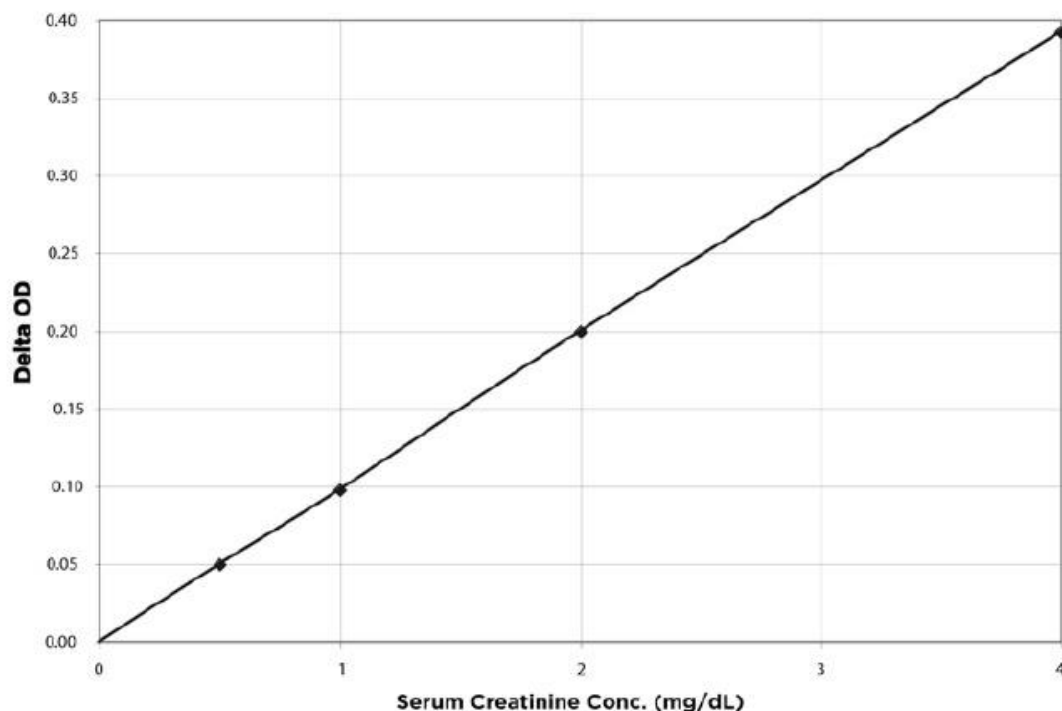
Alternative Names	N-Carbamimidoyl-N-methylglycine Detection Kit, Methylguanidoacetic acid Detection Kit
Research Areas	Cardiovascular System, Cell Signaling
Scientific Background	Creatinine (2-amino-1-methyl-5H-imadazol-4-one) is a metabolite of phosphocreatine (p-creatine), a molecule used as a store for high-energy phosphate that can be utilized by tissues for the production of ATP (1). Creatine either comes from the diet or 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 (2). Creatine and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. In vivo, this conversion appears to be irreversible and in vitro it is favored by higher temperatures and lower pH2. Creatinine forms spontaneously from p-creatine (3).

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 other conditions that result in decreased renal blood flow such as diabetes and cardiovascular disease (4-6).

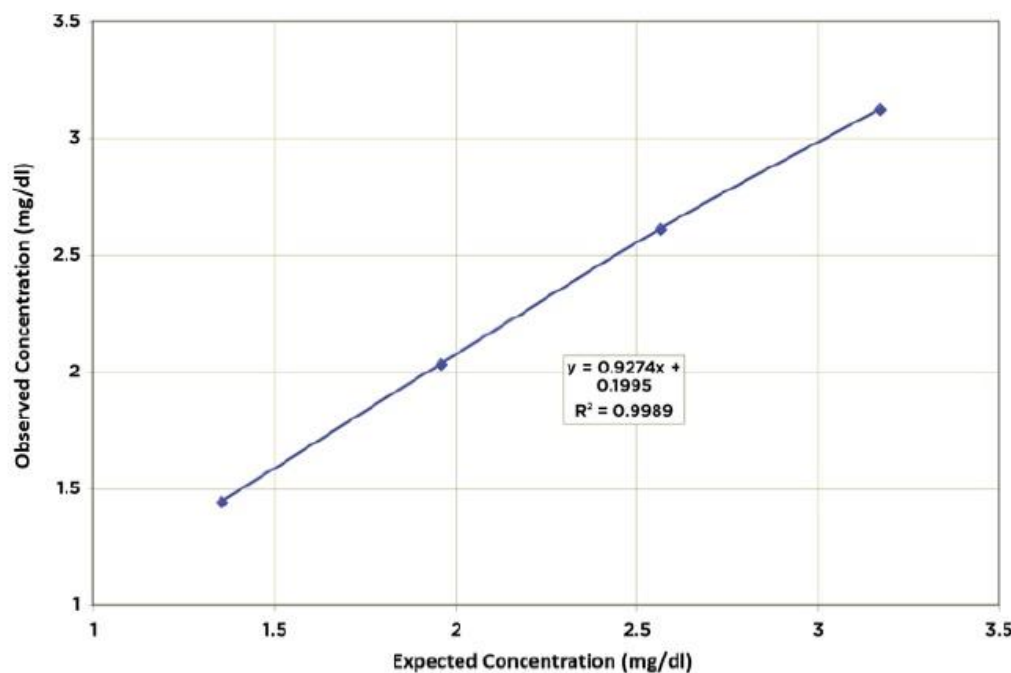
References

1. Wallimann, T. et al., Biochem. J., 2000, 281, 21-40.
2. Wyss, M. and Kaddurah-Daouk, R., Physiol. Rev., 2000, 80, 1107-1213.
3. Raja Iyengar, M. et al., J. Biol. Chem, 1985, 260, 7562-7567.
4. Manjunath, G. et al., Postgrad. Med. 2001, 110, 55-62.
5. Gross, J.L. et al., Diabetes Care, 2005, 28, 164-176.
6. Anavekar, N.S. et al., New Engl. J. Med., 2004, 351, 1285-1295.

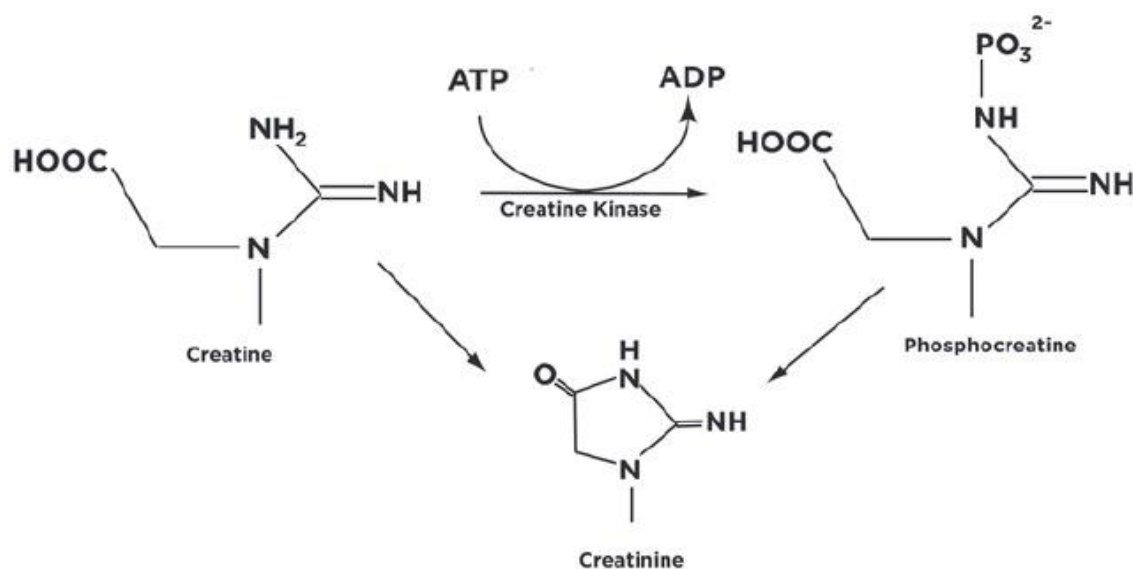
Product Images



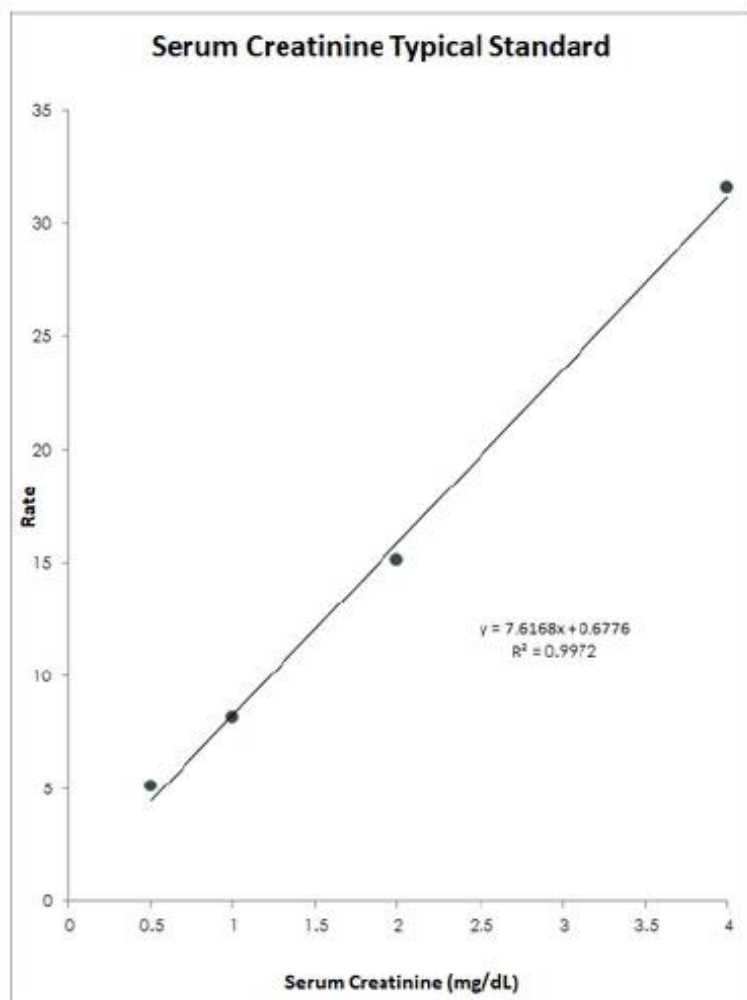
Typical Standard Curve for Creatinine Serum Detection Kit. Assay Type: Direct Enzyme. Detection Method: Colorimetric Assay. Assay Range: 0.5 – 4 mg/dl.



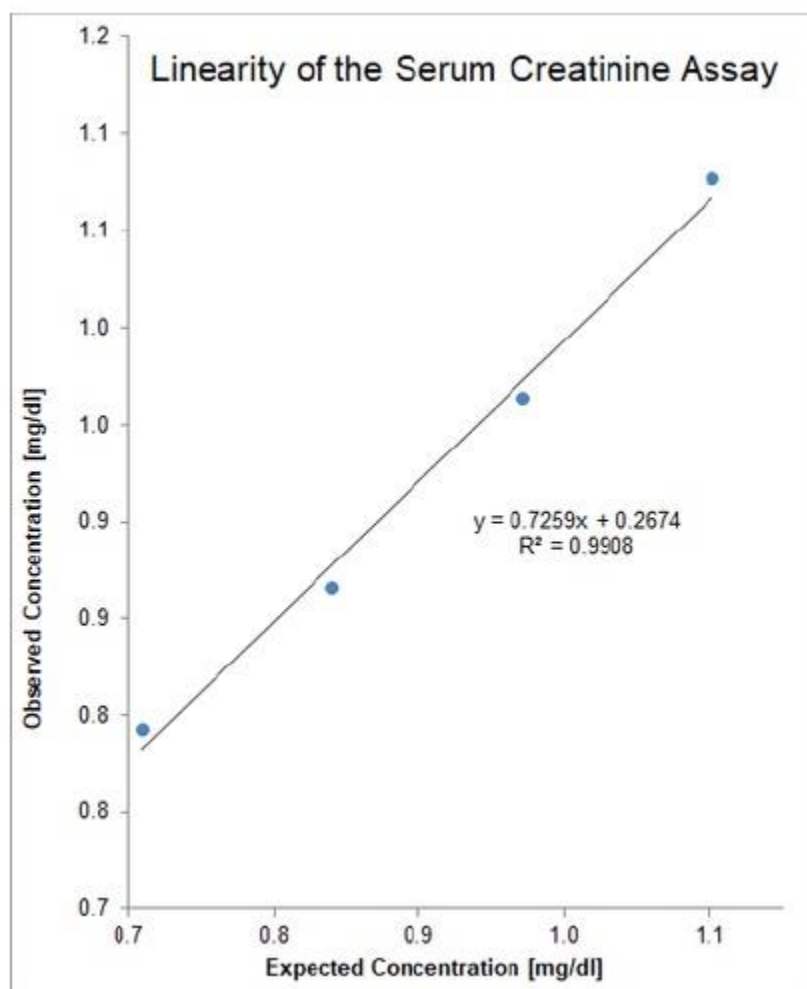
Linearity was determined by taking two human serum samples, one with a low diluted creatinine level of 0.75 mg/dL and one with a higher level of 3.78 mg/dL and mixing them in given ratios. The measured concentrations were compared to the expected values.



Creatine and p-creatine are converted non-enzymatically to the metabolite creatinine, which diffuses into the blood and is excreted by the kidneys. In vivo, this conversion appears to be irreversible and in vitro it is favored by higher temperatures and lower pH2. Creatinine forms spontaneously from p-creatine.



Typical Standard Curve for the Creatinine Serum Detection Kit. Assay Type: Direct Enzyme. Detection Method: Colorimetric Assay. Assay Range: 0.5 – 4 mg/dl



Linearity was determined by taking two human serum samples, one with a low diluted creatinine level of 0.58 mg/dL and one with a higher level of 1.23 mg/dL and mixing them in given ratios. The measured concentrations were compared to the expected values.