

Zinc Assay Kit

(Catalog #K387-100; 100 assays; Store kit at +4°C)

I. Introduction:

Zinc, a metallic chemical element, symbol Zn and atomic number 30 is chemically similar to magnesium due to its similar size and sole oxidation state of +2. Zinc is an essential mineral of great biological significance since many enzymes require it as an essential cofactor. Examples of zinc's biological roles include signal transduction, gene expression, regulation of apoptosis, synaptic plasticity and prostate gland function. BioVision's Zinc Assay Kit is a convenient colorimetric assay in which Zinc binds to a ligand with development of OD at 560nm. It can be used with biological samples such as serum, plasma, csf or urine.

II. Kit Contents:

Components	100 assays	Cap Code	Part Number
Zinc Reagent 1	16 ml	WM	K387-100-1
Zinc Reagent 2	4 ml	Amber	K387-100-2
7% TCA	5 ml	Clear	K387-100-3
Zinc Standard (50 mM)	0.1 ml	Yellow	K387-100-4

III. Storage and Handling:

Store the kit at +4°C and protect from light. Read the entire protocol before performing the assay. **Synthetic rubber and glass can contain zinc which may leach into samples. For highest accuracy all glassware should be washed with dilute HCl, rinsed with distilled water and dried prior to use. Sample tubes such as Vacutainer® and similar devices should be sealed with Parafilm® rather than the butyl rubber stopper. Chelators such as EDTA will give artifactually low Zinc levels and should be avoided. Heparin, citrate and oxalate are acceptable anticoagulants. Most blood zinc (80%) is contained in erythrocytes and hemolysis will release large amounts into the serum. Abnormally high serum values obtained suggest the collection of another sample and retesting.**

IV. Reagent preparation:

The reagents are ready to use as supplied. Add 4 parts of Zinc reagent 1 to 1 part Zinc reagent 2. Make only as much Zinc reaction mix as is needed for samples and standards to be run. Each sample or standard requires 200 µl of reagent mix. Once mixed, the Zinc reaction mix is good for 2 days at room temperature or 1 week at 4°C.

V. Assay Protocol:

1. Standard Curve Preparation:

Dilute the Zinc Standard to 0.5 mM by adding 10 µl of the 100 mM Zinc Standard to 990 µl of dH₂O, mix well. Add 0, 2, 4, 6, 8, 10 µl into a series of wells. Adjust volume to 50 µl/well with dH₂O to generate 0, 1, 2, 3, 4, 5 nmol/well of the Zinc Standard.

2. Sample Preparation:

Samples containing significant amounts of protein such as serum, plasma or csf should be deproteinized by adding 50 µl of the 7% TCA solution to 50 µl of the sample. Spin at top speed for 5 minutes. Add 20-50 µl of the sample(s) to a 96 well plate; bring the volume to 50 µl/well with dH₂O. Urine samples should be acidified to pH 3-4 to dissolve any sediment which can bind zinc. 1-2 drops of concentrated HCl per 15 ml should be sufficient for this purpose. Acidified urine can be used directly (20-50 µl per well)

3. Reaction:

Add 200 µl of Zinc reaction mix to each standard and sample, incubate 10 min at room temperature.

4. Read:

Measure OD 560 nm in a microplate reader.

5. Calculation:

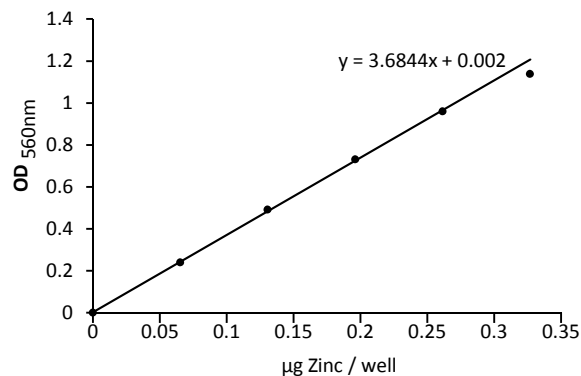
Correct background by subtracting the value derived from the 0 Zinc Standard from all readings (The background reading can be significant and must be subtracted). Plot the Zinc Standard curve. Read Zinc sample concentrations from the standard curve:

$$C = S_a/S_v \quad \text{nmol/}\mu\text{l or mM,}$$

Where S_a is the sample amount (in nmol) from standard curve

S_v is the sample volume (µl) added into the wells

Zinc MW: 65.384 g/mol



VI. Related Products:

NAD(P)/NAD(P)H Quantification Kit
 Ascorbic Acid Quantification Kit
 Glucose Assay Kit
 Uric Acid Assay Kit
 Pyruvate Assay Kit
 Triglyceride Assay Kit
 Choline/Acetylcholine Quantification Kit
 Antioxidant Capacity (TAC) Assay Kit
 L-amino Acid Assay Kit
 Ethanol Assay Kit

ADP/ATP Ratio Assay Kit
 Glutathione Detection Kits
 Fatty Acid Assay Kit
 Alanine Assay Kit
 Lactate Assay Kit/ II
 Phosphate Assay Kit
 Hemin Assay Kit
 Glycogen Assay Kit
 Nitric Oxide Assay Kits
 Urea Assay Kit

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