Zinc Microplate Assay Kit

Instructions for Use | Cat. No.: ARS6717

Detection and Quantification of Zinc (Zn^{2+})Content inSerum, Urine, Saliva and Other biological fluids Samples.

For research use only . Not for diagnostic or therapeutic procedures .

1. 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] [1]. Zinc is an essential mineral of great biological significance, because 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.

Zinc Colorimetric Microplate Assay Kit provides a convenient tool for sensitive detection of the Zinc in a variety of samples. Zinc reacts with the special dye, andcan be measured at a colorimetric readout at 558 nm.

2. Kit Components

Component	Volume	Storage
96-Well Microplate	1 plate	-
Assay Buffer I	15 mlx 1	4 °C
Assay Buffer II	15 mlx 1	4 °C
Reaction Buffer	15 mlx 1	4 °C, keep in dark
Dye Reagent	Powder x 1	4 °C
Standard (400μmol/L)	1 mlx 1	4 °C
Technical Manual	1 Manual	-

3. Materials Required But Not Provided

1. Microplate reader to read absorbance at 558 nm
2. Distilled water
3. Pipettor , multi-channel pipettor
4. Pipette tips
5. Ethanol
6. Centrifuge
7. Timer

4. Reagent Preparation

Standard: Briefly centrifuge prior to opening.Perform 2 -fold serial dilutions of the top standardsolution using distilled water to make the standard curve.The concentration of standard curve could be 400/200/100/50/25/12.5/6.25 μmol /L.

Dye Reagent: Briefly centrifuge prior to opening. Add 1 mL ethanol to dilute before use.Keep in dark and store at 4°C for 1-2 weeks after reconstitution.

5. Sample Preparation

1. For liquid sample Add 40 μL serum and 40 μL Assay Buffer Iinto the micro centrifuge tube, mix ,centrifuged at 10,000g 4°C for 10 minutes ,transfer the supernatant into a new centrifuge tube ; then add 40 μL Assay Buffer IIinto the micro centrifuge tube, mix, centrifuged at 10,000g 4°C for 10 minutes ,transfer the supernatant into a new centrifuge tube for detection.

6. Assay Procedure

Add following reagents in to the microplate :

Reagent*	Blank	Standard	Sample**
Assay BufferI	20μl	20μl	--
Assay Buffer II	20μl	20μl	--
Distilled water	20μl	--	--
Standard	--	20μl	--
Sample	--	--	60μl
Reaction Buffer	130 μl	130 μl	130 μl
Dye Reagent	10μl	10μl	10μl
Mix, wait for 2 minutes, measured at 558 nm and recordthe absorbance.			

Note:

*Reagents must be added sequentially and should not be premixed prior to addition.

**The concentrations can vary over a wide range depending on the different samples. For unknown samples, we recommend doing a pilot experiment & testing several doses to ensure the readings are within the standard curve range.

7. Calculation

1. Calculate the sample concentration in ASSAY PROCEDURE according to the slope of

the standard curve

$$C = \frac{(OD_{Sample} - OD_{Blank}) - Intercept}{Slope} \times n \ (\mu mol/L)$$

Calculate the initial concentration according to sample preparation procedure .

2. According to one point of the standard OD and concentration

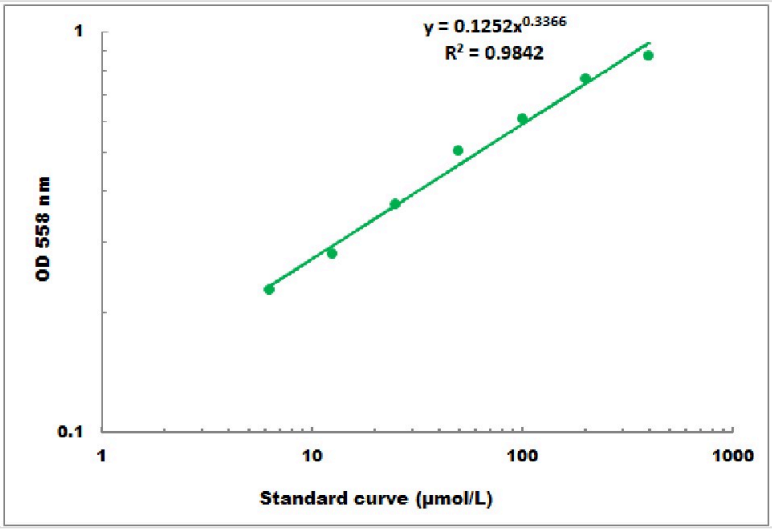
According to the volume of sample

$$C = \frac{(C_{Standard} \times V_{Standard}) \times (OD_{Sample} - OD_{Blank})}{(OD_{Standard} - OD_{Blank}) \times V_{Sample}} \ (\mu mol/L)$$

Item	Definition
Slope	the absorbance slope of standard curve
n	the dilution factor
$C_{Standard}$	the standard concentration, μmol/L
$V_{Standard}$	the volume of standard in assay procedure, μl
V_{Sample}	the volume of sample in assay procedure, μl

8. Typical Data

The standard curve is for demonstration only. A standard curve must be run with each assay.



Detection Range : 4μmol /L - 400μmol/ L