

Zinc GENLISA™ Assay

(Complexation colorimetry)

Cat No: KBCA2421

Pack: R1: 40 ml × 1 bottle / R2: 10 ml × 1 bottle

[Seviceable range]

This kit applies to measure zinc ion content in blood serum (or plasma), urine in vitro.

[Assay principle]

At room temperature, zinc ion in sample combines with 5-Br-PAPS in reagent to produce colored complex. In the range of ≤400 ug/dl, its color intensity appears direct proportion with zinc ion concentration.

[Main composition]

Reagent	Composition	Final concentration
R1	Ascorbic Acid	50 mmol/L
	hydroxyethyl piperazine ethanesulfonic acid (HEPES) buffer (pH=6.0)	200 mmol/L
	Trisodium citrate (enhancer)	0.2 mol/L
R2	2-(5-Bromo-2-pyridylazo)-5-[N-n-propyl-N-(3-sulfopropyl)amino]phenol, disodium salt, dihydrate (5-Br-PAPS)	20 umol/L

[Storage condition & expiration date]

Can be stored at 2~8°C away from light for 12 months.

[Equipment required]

Automatic biochemistry analyzer or semi-automatic biochemistry analyzer.

[Sample requirement]

Blood serum, blood plasma (anticoagulated by heparin), urine or sperm, avoid hemolysis, samples keep stable at 2~8°C for 8 days.

[Assay method]

1. Main technical parameters :

Main wavelength	578 nm	Light path	1 cm	Reaction method	Endpoint method
Adjunctive wavelength	800 nm	Temperature	37°C	Reaction direction	Upward

2. Operation method:

Sample	15 ul
R1	240 ul
Mix sufficiently, incubate at 37°C for 3~5 minutes, measure absorbance as A1.	
R2	60 ul
Mix sufficiently, incubate at 37°C for 5 minutes, measure absorbance as A2, $\Delta A = A2 - A1$	

3. Formula:

$$\text{Zn}^{2+} \text{ concentration } (\mu\text{mol/L}) = C_{\text{Standard}} \times \frac{\Delta A_{\text{Sample}}}{\Delta A_{\text{Standard}}}$$

[Referenced value]

Blood serum (or plasma)

Male adult: 10.8~19.4 $\mu\text{mol/L}$

Female adult: 10.7~17.5 $\mu\text{mol/L}$

Child: 9.8~16.8 $\mu\text{mol/L}$

Infant: 7.6~15.6 $\mu\text{mol/L}$

Gravidas, menstrual phase women, children and newborns have low zinc level

Urine 150~1200 $\mu\text{mol/L}$

Sperm 300~1500 $\mu\text{mol/L}$

These values are based on health people data, can be used as reference only. It is suggested to set up referenced value range of your own lab.

[Performance]

Reagent blank absorbance: $A_{578 \text{ nm}} (1.0 \text{ cm}) \leq 0.3$;

Linear range: 0~61.2 $\mu\text{mol/L}$ (determine according to $r^2 \geq 0.995$) ;

Accuracy: Relative deviation $\leq 15.0\%$;

Precision: CV in batch $\leq 4.0\%$; CV between batches $\leq 6.0\%$

Sensitivity: Limit of quantitation $\leq 3.0 \mu\text{mol/L}$

[Announcements]

1. Do not use hemolysis blood serum, blood serum has low Zn concentration, please avoid Zn pollution.
2. You can adjust volumes of reagents and samples according to equipment requirement, but please keep same ratio.
3. If result is out of linear range, then dilute sample with deionized water, measure again, multiply result with dilution times.
4. If your equipment hasn't required wavelength, then please use proximal wavelength.
5. This method needn't sample deproteinization and sample blank.
6. If reagents contact with human body such as skin, eyes, etc, then rinse with water. If somebody eat reagents, then call hospital treatment immediately.
7. This kit is without toxic and hazard.

Pure Zn²⁺ Standard Introduction**[Product name]**Approved name: Pure Zn²⁺ Standard**[Pack]**

1mLx1 vial

[Seviceable range]

Pure Zn²⁺ standard can be used as standard solution to measure Zn²⁺ concentration in human blood serum, blood plasma or urine in scientific research.

[Main composition]

Composition	Source	Concentration	Unit
Zinc chloride	Chemical synthesis	30.6	umol/L

[Storage condition & expiration date]

Can be stored at 2~8°C away from light for 12 months.

[Equipment required]

Automatic biochemistry analyzer or semi-automatic biochemistry analyzer.

[Assay method]

- ① This standard is liquid, can be used directly.
- ② Before use, please take this standard out of fridge and place it at room temperature for 20 minutes to make temperature balanced.
- ③ Rotate vial softly to mix sufficiently, then you can use it. Do not shake vial acutely in order to avoid bubbles.

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