

Calcium Arsenazo

(Arsenazo III method)

Diagnostic reagent for quantitative in vitro determination of calcium in serum, plasma or urine on photometric systems.



ORDER INFORMATION

Cat no. Kit Information
LG111-200 Reagent - 1x 50mL
Standard – 1 x 2mL

REAGENT

Reagent : Arsenazo solution
Standard : Calcium (10 mg/dL)

SUMMARY

Approximately 99% of Calcium is mainly found in bones, whereas in serum it found in free ionized form (Ca2+) or bound with Albumin. Thus increase or decrease of this protein causes increase or decrease of Calcium levels in blood respectively. Increased blood calcium may be observed in hyperparathyroidism, vitamin D intoxication, multiple myeloma and some neoplastic diseases of bone. Decreased serum calcium may be observed in hypoparathyroidism, vitamin D deficiency, steatorrhea, nephrosis, and nephritis.

PRINCIPLE

Ca2+ forms a blue colored complex with arsenazo III and the intensity of the color formed is directly proportional to calcium concentration present in the sample.

Reagents Storage Instructions and Stability

The reagent and standard is stable till the date of expiry, if stored at 2° - 30°C, protected from light and contamination is avoided. Do not freeze the reagent.

Composition and Concentrations

Arsenazo 0.1 g/L, Imidazole 7 g/L, 8- Hydroxyquinoline 0.5 g/L. Standard: Calcium - 10.0 mg/dL

WASTE MANAGEMENT

Please refer to local legal requirements.

REAGENT PREPARATION & STORAGE

All the reagents are ready to use and Stable till expiry when stored at recommended temperature and avoid contamination. Do not freeze the reagents!

MATERIALS REQUIRED BUT NOT PROVIDED

NaCl solution 9g/L.
General laboratory equipments.

SPECIMEN

Serum, Heparin plasma or Urine
In Serum or Plasma may be stored for 10 days at 2-8°C & 8 months at -200C.
In urine 4 days at 2-80C.
21 days at -200C

Add 10 mL of concentrated HCl to 24 h urine and heat the specimen to dissolve calcium oxalate.
Discard contaminated specimens. Freeze only once!

ASSAY PROCEDURE

Wavelength : 630 nm
Light path : 10 mm
Temperature : R.T°C
Measurement : Against reagent blank

	Blank	Standard	Sample
Reagent	1000 µL	1000 µL	1000 µL
Standard	-----	20 µL	-----
Sample	-----	-----	20 µL
Mix, incubate for 2-3 min. at R.T°C. Read absorbance against the reagent blank.			

CALCULATION

Calculation of the concentration “C” of calcium in the sample

$$C = 8.0 \times \frac{A \text{ sample}}{A \text{ standard}} \text{ (mg/dL)}$$

QUALITY CONTROLS

For internal quality control any normal and abnormal controls should be assayed with each batch of samples.
Each laboratory should establish corrective action in case of deviations in control recovery.

WARNING AND PRECAUTIONS

- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Wear suitable gloves and eye/face protection.
- Always use safety pipettes to pull the reagents into a pipette.
- Reagents may contain some non-reactive and preservative components. It is suggested to handle carefully, avoid direct contact with skin and do not swallow.
- For professional use only!

PERFORMANCE CHARACTERISTICS MEASURING RANGE

Measuring Range of assay is 0.20 mg/dL–20 mg/dL. If such value is exceeded the sample should be diluted 1+4 with NaCl solution (9g/L) and results multiplied by 5.

Linearity/Limit of maximum Detection

The maximum limit of detection is 20 mg/dL.

SENSITIVITY/LIMIT OF DETECTION

The lower limit of detection is 0.20 mg/dL.

SPECIFICITY/INTERFERENCES

No interference was observed by Bilirubin up to 40 mg/dL, Triglyceride up to 2000 mg/dL.

PRECISION

Total Bilirubin			
Intra assay n=20	Mean (mg/dL)	SD (mg/dL)	CV (%)
Sample 1	8.36	0.22	2.66
Sample 2	12.26	0.21	1.73
Sample 3	17.46	0.19	1.08
Inter assay n=20	Mean (mg/dL)	SD (mg/dL)	CV (%)
Sample 1	7.34	0.14	1.89
Sample 2	12.55	0.17	1.36
Sample 3	17.77	0.17	0.96

METHOD COMPARISON

A comparison of Precision Biomed Calcium mono (y) with a commercially available test (x) using 15 samples gave following results:
 $y = 1.005x - 0.098$; $r^2 = 0.984$

REFERENCE RANGE

In Serum/Plasma	8.1 - 10.4 mg/dL (2.02 - 2.6 mmol/L)
In Urine	Woman < 250 mg/24h (6.24 mmol/24h)
	Men < 300 mg/24h (7.49 mmol/24h)

Note: It is recommended that each laboratory should establish its own reference range based on the patient population.

QUICK REFERENCE

Parameter	Calcium mono
Mode	End Point
Wavelength	630 nm
Path length	10 mm
Standard	10 mg/dL
Reagent volume	1000 µL
Sample volume	20 µL
Incubation time	2-3 min
Temperature	R.T°C
Blanking	Reagent blank
Normal range	8.1 - 10.4 mg/dL
Linearity	20 mg/dL
Sensitivity	0.20 mg/dL

LITERATURE

- Smith, H.G. Jr. and Bauer, P.J. (1979) Biochemistry 18,
- Budesinsky, b. (1969) in chlantes in analytical chemistry.
- Cadwell P.C. (1970) in Calcium An. Cellular function.
- Cuthbert, A.W. Ed., PP-10-16 Macmillan, London.
- Tietz, N.W., Fundamentals of Clinical Chemistry, Philadelphia, W.B. Saunders, p. 149 (1984).
- Henry, J.B., Clinical Diagnosis and Management by Laboratory Methods, Philadelphia, W.B. Saunders, p. 149 (1984).

INDEX OF SYMBOLS

	International Organization or Standardization		Keep out of Sunlight
	Manufacturer		For invitro diagnostic use only
	Expiry date		Read product insert before use.
	Lot (batch) number		Do not use if package is damaged
	Store between 2-8°C		Keep Away From Moisture
ART/IFU/PRC-133-01			

Manufactured by:
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“Thanks for you”