50X1 mL

Calcium Mono Vials

Arsenazo III

Quantitative determination of Calcium by means of photometric method.

Only for *in vitro* use in clinical laboratory (IVD).

Clinical Significance

Calcium plays an essential role in many cell functions: intracellulary in muscle contraction and glycogen metabolism, extracellularly, in bone mineralization, in blood coagulation and in transmission of nerve impulses. Calcium is present in plasma in three forms: free, bound to proteins or complexes with anions as phosphate, citrate and bicarbonate. Decreased total calcium levels can be associated with diseases of the bone apparatus (especially osteoporosis), kidney diseases (especially under dialysis), defective intestinal absorption and hypoparathyroidism. Increased total calcium can be measured in hyperparathyroidism, malignant diseases with metastases and sarcoidosis. Calcium measurements also help in monitoring of calcium supplementation mainly in the prevention of osteoporosis.

Principle

Calcium with arsenazo III at neutral pH yields a blue Purple colored complex, whose intensity is proportional to the calcium concentration. Interference by magnesium is eliminated by addition of 8-hydroxyquinoline-5-sulfonic acid.

Reagents

Reagent 1: Calcium Reagent
Reagent 2: Standard: 10mg/dL

Storage Instructions and Reagent Stability

The reagent is stable up to the end of the indicated month of expiry, if stored at RT/<30 °C, protected from light and contamination is avoided.

Reagent Preparation & Stability

Reagents are ready to Use.

Warnings and Precautions

1. As calcium is a ubiquitous ion, essential precaution must be taken against accidental contamination. Only use disposable materials.
2. Traces of chelating agent, such as EDTA can prevent the formation of the colored complex.

Specimen

Serum, heparin plasma or urine.
Do not use EDTA plasma.

Stability in serum /plasma	Urine
7 days at 20 – 25 °C	2 days at 20 – 25 °C
3 weeks at 4 – 8 °C	4 days at 4 – 8 °C
8 months at - 20 °C	3 weeks at - 20 °C

Add 10 ml of concentrated HCl to 24 h urine and heat the specimen to dissolve calcium oxalate.
Discard contaminated specimens.

Equipment Required

Photometer,
Liquid dispensing systems
General laboratory Equipment

Assay Procedure

Application sheets for automated systems are available on request.

Wavelength. . . . . 630 nm, Hg 623 nm (630 – 670 nm)
Optical path . . . . . .1 cm
Temperature . . . . . .20–25 °C / 37 °C / RT
Measurement against reagent blank

Dispense	Blank	Standard	Samples
Calcium Reagent	1000 µL	1000 µL	1000 µL
Standard	-	10 µL	-
Sample	-	-	10 µL

Mix well and incubate at RT (<30°C) for 3 min. Measure the absorbance of the Standard and Test against the blank.

Calculation

$$\frac{\text{Abs. of Sample}}{\text{Abs. of Standard}} \times \text{Concentration of Standard}$$

Calibrators and Controls

It is recommended that appropriate quality control sera and/or controls be run with each assay batch to monitor procedural parameters.

Reference Range

Serum / Plasma : 8.7 – 11 mg/dL
Urine : 100-400 mg/24 hours

According to IFCC (International Federation of Clinical Chemistry) recommendations, each laboratory should establish its own reference range amongst a group or patient population selected by relevant criteria (age, sex, life habits, economic status etc) and using the method under study.

It is suggested that each laboratory establish its own reference range.

Linearity:

Up to 20 mg/dL, under the described assay conditions. When values exceed this range the samples should be diluted appropriately with NaCl solution (9 g/l) and the result multiplied by the dilution factor.

Test Parameters

Mode	End point
Wavelength(nm)	630 (600 – 670)
Sample Volume (µl)	10
Reagent Volume (µl)	1000
Incubation	3 min
Standard Conc. (mg/dl)	10
Reaction Temperature (° C)	37
Reaction Direction	Increasing
Normal Low	8.7
Normal High	11
Linearity Limit	20
Blank with	Reagent
Units	mg/dl

Literature

1. Thomas L. Clinical Laboratory Diagnostics. 1st ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998. P.192-202.
2. Endres DB, Rude RK. Mineral and bone metabolism. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of Clinical Chemistry. 3rd ed. Philadelphia: W.B Saunders Company; 1999. p. 1395-1457.

Manufactured by: Asritha Diatech India Pvt.Ltd. Hyderabad, India.

Marketed by

Euro Diagnostic Systems Pvt. Ltd.
36/37,Millennium House, M.K.Srinivasan Nagar Main Road,
Rajiv Gandhi Salai,Perungudi,Chennai-600096,Tamil Nadu,
India. phone: +91 44 24960541;Fax:+91 44 24962825 E-mail: euro@vsnl.net, www.eurodiagnostics.in
Customer care no.: 09382717071