AGD

CliniPak

CALCIUM

(Arsenazo III)

Code	Pack Size
AGDSP - CA160	8 X 20 mL
AGDSP - CA144	8 x 18mL
AGDSP - CA184	8 x 23mL

INTENDED USE

Calcium Arsenazo III is a reagent set for in vitro quantitative determination of Calcium concentration in serum or urine.

CLINICAL SIGNIFICANCE

Calcium is the most abundant cation in the body. Calcium is present in the body in two forms as ionized cation and as complexed with salts of organic acids, citrate and bicarbonate. The ratio of ionized calcium in normal person is around 0.50 or 50%. These relationship may alter due to acid base metabolism.

Increased Levels : are associated with hyper-para-thyroidisim, multiple myeloma, neoplasis of bone and parathyroid,and conditions of rapid demineralization of bone.

Decreased Levels : are associated with hypo-para-thyroidism, tetany and occasionally with nephrosis and pancreatitis. Severe nephritis and uremia may cause either elevated or lowered calcium values.

PRINCIPLE

At acidic pH, the Ca^{2+} forms a complex with Arsenazo III, the colour intensity of which is directly proportional to the concentration of calcium in the sample.

$$Ca^{2+} + \text{Arsenazo III} \xrightarrow{\text{Acidic Medium}} \text{Ca-Arsenazo III complex (purple)}$$

PROCEDURE

Reagent + Sample + Incubation ⟶ Measurement

(300µL) (7.5 µL) (300sec) (630nm)

REAGENT COMPOSITION

Imidazole buffer pH 7.0	≈ 100 mmol/L
Arsenazo III	≈ 100 µmol/L
8-Hydroxyquinoline	≈ 5 mmol/L

REAGENT STORAGE AND STABILITY

It is a single reagent system ready to use.

The reagent is stable till the expiry date stated on the reagent bottle label when stored at 2-8°C and protected from light. Contamination of reagent should be strictly avoided.

SAMPLE

Non - Hemolyzed serum sample.

Urine diluted in ratio of 1:3 with distilled water, adjust the pH 3-4 with 0.1N HCL.

BASIC PARAMETER

SHORT NAME	Calcium
NAME	Calcium
METHOD	Arsenazo III
ASSAY	End point (two point reagent blank)
MAIN WAVE	630 nm
SUB WAVE	0
DECIMAL	2
UNIT	mg/dL
R1 VOLUME	300µL
INCUBATION	36 secs
R2 VOLUME	0
SAMPLE VOLUME	7.5µL
INCUBATION	0 secs
MIXING SPEED	0
REACTION TIME	260 secs
CHECK TIME	40 secs
LINEAR RANGE	0 -16
ABSORBANCE RANGE	0 - 2.5
CALIBRATION TYPE	SINGLE SPOT LINEARITY
DILUTION RATIO	6
SAMPLE VOLUME	50

*Enter calibrator value as per the lot of calibrator and method.

LINEARITY

Reagent is linear up to 16 mg/dL. Dilute the sample appropriately and re-assay if calcium concentration exceeds 16 mg/dL. Multiply results with dilution factor.

PRECISION

Reproducibility of within run determined using quality control sera as shown below. n=15.

Quality control material	Mean mg/dL	SD mg/dL	% CV
Low Control serum	9.7	0.038	0.039
High Control serum	12.37	0.073	0.057

REFERENCE NORMAL VALUE

8.8 - 10.2 mg/dL

QUALITY CONTROL

To ensure adequate quality control,it is recommended that the laboratory should use a normal and abnormal commercial reference control serum.The quality control material is used to check the function of reagents and the machine together.

LIMITATIONS & PRECAUTIONS

- Do not freeze or expose the reagents to higher temperature as it may affect the performance of the kit.
- Storage condition as mentioned on the kit to be adhered.
- Before the assay bring all the reagents to the room temperature.
- Avoid contamination of the reagent during assay process.
- Use clean glassware free from dust and debris.
- Reagent to sample ratio as mentioned above must be strictly adhered, as any changes it affects the factor and result.
- In case reagent comes in contact with eyes,immediately rinse with plenty of water and seek medical advice.

REFERENCES

- Tietz Textbook of clinical Chemistry.Burtis C.A.and Ashwood ER,Fifth Edition,2012.
- Budesinsky,B(1969) in chlantes in Analytical Chemistry.
- Smith, H.G.Jr and Bauer, P.J.(1979) Biochemistry 18,5067- 5073

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EU REP

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