LIQUIZYME

CALCIUM

(Arsenazo III Method)

BEACON

Code	Product Name	Pack Size
LS034A	Liquizyme Calcium (Arsenazo III)	25 T
LS034B	Liquizyme Calcium (Arsenazo III)	50 T
LS034H	Liquizyme Calcium (Arsenazo III)	1x120 ml

Intended Use

Diagnostic reagent for quantitative in vitro determination of Calcium in human serum.

Clinical Significance

Calcium has numerous function within the body, not only as a structural factor in bones and teeth, but also in normal neuromuscular function and the clotting of blood.

Hypercalcaemia may develop in patients with Paget's disease of bone and hyperparathyroidism. The cause of hypercalcaemia in malignancy is an increased bone resorption either caused by metastasis or by humoral factors produced by the tumor cell.

In Rickets, Coeliac diseases, idiopathic steatorrhea, osteomalacia, tropical sprue and following surgical resection of the small intestine, serum calcium is often moderately reduced, usually in association with low plasma protein concentration.

Principle

Arsenazo III combines with calcium ions at pH 6.5 to form a colored chromophore, the absorbance of which is measured at 650 nm (650-660 nm) and is proportional to calcium concentration.

Arsenazo III has a high affinity ($k° = 1 \times 10^{-7}$) for calcium ions and shows no interference from other cations normally present in serum, plasma or urine.

Reagent Composition

Reagent 1 : Calcium Reagent

Arsenazo III : < 0.10 mmol/l

Buffer : > 50 mmol/l

Reagent 2 : Calcium Standard : 10 mg/dl

Ready to use

Reagent Preparation

Reagent are liquid. ready to use.

Materials Required But Not Provided

- Clean & Dry container.
- Laboratory Glass Pipettes of Micropipettes & Tips.
- Colorimeter or Bio-Chemistry Analyzer.

Stability And Storage

The unopened reagents are stable till the expiry date stated on the bottle and kit label when stored at Room temperature.

Specimen Collection And Handling

Use unheamolyse serum.

It is recommended to follow NCCLS procedures (or similar standardized conditions).

Stability In Serum :

7 days : at +20 – +25°C

3 week : at +4 – +8°C

Calibration

Calibration with the Calcium standard provided in the kit is recommended.

Quality Control

It's recommended to run normal and abnormal control sera to validate reagent performance.

Unit Conversion

mg/dl x 0.25 = mmol/L

Expected Values

Serum : 8.5-11.0 mg/dl

It is recommended that each laboratory verify this range or derives reference interval for the population it serves.

Performance Data

Data contained within this section is representative of performance on Beacon system.

Data obtained in your laboratory may differ from these values.

Limit of quantification : 0.6 mg/dl

Linearity : 15 mg/dl

Measuring range : 0.6 – 15 mg/dl

Precision

Intra-assay precision Within run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	8.65	0.08	0.94
Sample 2	12.13	0.09	0.78

Inter-assay precision Run to run (n=20)	Mean (mg/dl)	SD (mg/dl)	CV (%)
Sample 1	6.96	0.10	1.37

Comparison

A comparison between Liquizyme Calcium (y) and a commercially available test (x) using 20 samples gave following results :

y = 1.064 x - 0.472 mg/dl

r = 0.997

Interferences

Following substances do not interfere :
haemoglobin up to 10 g/l, bilirubin up to 40mg/dl, triglycerides up to 500 mg/dl.

Warning And Precautions

For in vitro diagnostic use. To be handled by entitled and professionally educated person.
Reagents of the kit are not classified like dangerous.

Waste Management

Please refer to local legal requirements.

Assay Procedure

Wavelength : 630 nm
Cuvette : 1 cm

Pipette into clean dry test tubes labeled as Blank (B), Standard (S) and Test (T) :

Addition Sequence	Reagent Blank	Standard	Sample
Reagent 1	1000 µl	1000 µl	1000 µl
Standard	-	20 µl	-
Sample	-	-	20 µl
Distilled Water	20 µl	-	-

Mix and incubate at RT for 2 min. Measure absorbance of standard (Abs. S) and test (Abs. T) against reagent blank at 630 nm.

Calculation

$$\text{Calcium (mg/dl)} = \frac{\text{Abs. T}}{\text{Abs. S}} \times 10$$

Applications for automatic analysers are available on request.

Assay Parameters For Photometers

Mode	End point
Wavelength 1 (nm)	630
Sample Volume (µl)	20
Reagent Volume (µl)	1000
Incubation time (min.)	2
Incubation temp. (°C)	Room Temperature
Normal Low (mg/dl)	8.5
Normal High (mg/dl)	11.0
Linearity Low (mg/dl)	0.6
Linearity High (mg/dl)	15
Standard Concentration	10 mg/dl
Blank with	Reagent
Unit	mg/dl

References

1. Bishop, M. C DUBEB-VON LAUFEN, J,L.,Burtis, carl Aa and ashwood, Tiet 110,61

Symbols Used On Labels

REF	Catalogue Number		Manufacturer
	See Instruction for Use	LOT	Lot Number
CONT	Content		Storage Temperature
	Expiry Date	IVD	In Vitro Diagnostics

BEA/24/CAL/LS/IFU Ver-03
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JAS-ANZ BSCIC ISO 9001 : 2015 BSCIC ISO 13485:2016