respons®910

Calcium P FS*

Diagnostic reagent for quantitative in vitro determination of calcium in serum or plasma on DiaSys respons®910

Order Information

Cat. No. 1 1181 99 10 920
4 twin containers for 200 tests each

Method

Photometric endpoint determination with Phosphonazo III

Principle

In an acidic medium calcium forms a purple-blue colored complex with phosphonazo III. In a second step calcium is bound to a chelating agent whereby the specific signal is eliminated. The resulting difference in absorbance is directly proportional to the calcium concentration in the sample. This guarantees a specific measurement of calcium.

Reagents

Components and Concentrations

R1:	Malonic acid buffer	pH 5.0	150 mmol/L
	Phosphonazo III		150 µmol/L
	Detergents, preservatives		
R2:	Malonic acid		150 mmol/L
	Chelating agent		
	Preservatives		

Storage Instructions and Reagent Stability

Reagents are stable up to the end of the indicated month of expiry, if stored at 2 - 8 °C and contamination is avoided. Do not freeze the reagents!

Warnings and Precautions

1. Samples of patients with myeloma or suspected of myeloma might give false values due to unspecific turbidity by paraprotein precipitation. In case of implausible calcium results in samples of myeloma patients, the sample should be retested after dilution or using a different method.
2. As calcium is a ubiquitous ion, special precaution must be taken against accidental contamination.
3. Traces of chelating agent, such as EDTA can prevent the formation of the colored complex.
4. In very rare cases, samples of patients with gammopathy might give falsified results.
5. Please refer to the safety data sheets and take the necessary precautions for the use of laboratory reagents. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings.

Waste Management

Please refer to local legal requirements.

Reagent Preparation

The reagents are ready to use. The bottles are placed directly into the reagent rotor.

Specimen

Serum or heparin plasma
Do not use EDTA plasma.

Stability [1]:

7 days	at	20 - 25 °C
3 weeks	at	4 - 8 °C
8 months	at	-20 °C

Discard contaminated specimens. Freeze only once.

Calibrators and Controls

For calibration, DiaSys TruCal U calibrator is recommended. This method has been standardized against the reference method Atomic Absorption Spectrometry (AAS). For internal quality control DiaSys TruLab N and P controls should be assayed. Each laboratory should establish corrective action in case of deviations in control recovery.

	Cat. No.	Kit size
TruCal U	5 9100 99 10 063	20 x 3 mL
	5 9100 99 10 064	6 x 3 mL
TruLab N	5 9000 99 10 062	20 x 5 mL
	5 9000 99 10 061	6 x 5 mL
TruLab P	5 9050 99 10 062	20 x 5 mL
	5 9050 99 10 061	6 x 5 mL

Performance Characteristics

Measuring range up to 25 mg/dL calcium (in case of higher concentrations re-measure samples after manual dilution or use rerun function)	
Limit of detection**	0.35 mg/dL calcium
On-board stability	10 days
Calibration stability	10 days

Interfering substance	Interferences < 10%	Calcium [mg/dL]
Ascorbate	up to 30 mg/dL	9.47
Hemoglobin	up to 1000 mg/dL	7.81
	up to 1000 mg/dL	12.3
Bilirubin, conjugated	up to 70 mg/dL	9.10
	up to 70 mg/dL	16.2
Bilirubin, unconjugated	up to 70 mg/dL	9.10
	up to 70 mg/dL	16.2
Lipemia (triglycerides)	up to 1900 mg/dL	7.75
	up to 1900 mg/dL	13.8
Magnesium	up to 20 mg/dL	10.3
Strontium salts in medicine may lead to strongly increased calcium values.		
For further information on interfering substances refer to Young DS [2].		

Precision			
Within run (n=20)	**Sample 1**	**Sample 2**	**Sample 3**
Mean [mg/dL]	7.11	9.87	12.1
Coefficient of variation [%]	2.94	1.39	1.50
Between run (n=20)	**Sample 1**	**Sample 2**	**Sample 3**
Mean [mg/dL]	7.84	9.86	11.3
Coefficient of variation [%]	2.99	3.28	3.36

Method comparison (n=97)	
Test x	DiaSys Calcium P FS (Hitachi 911)
Test y	DiaSys Calcium P FS (respons®910)
Slope	1.017
Intercept	-0.097 mg/dL
Coefficient of correlation	0.998

** according to NCCLS document EP17-A, vol. 24, no. 34

Conversion factor

Calcium [mg/dL] x 0.2495 = Calcium [mmol/L]

Reference Range [3]

8.6 - 10.3 mg/dL (2.15 - 2.57 mmol/L)

Each laboratory should check if the reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

Literature

1. Guder WG, Zawta B et al. The Quality of Diagnostic Samples. 1st ed. Darmstadt: GIT Verlag; 2001. p. 20-1.
2. Young DS. Effects of Drugs on Clinical Laboratory Tests. 5th. ed. Volume 1 and 2. Washington, DC: The American Association for Clinical Chemistry Press, 2000.
3. 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. 1395-1406.
4. Thomas L. Clinical Laboratory Diagnostics. 1st ed. Frankfurt: TH-Books Verlagsgesellschaft; 1998. p. 231-241

Manufacturer

IVD CE

DiaSys Diagnostic Systems GmbH
Alte Strasse 9 65558 Holzheim Germany

respons®910

Calcium P FS

Application for serum and plasma samples

This application was set up and evaluated by DiaSys. It is based on the standard equipment at that time and does not apply to any equipment modifications undertaken by unqualified personnel

Identification	
This method is usable for analysis:	Yes
Name:	CAP
Shortcut:	
Reagent barcode reference:	021
Host reference:	

Technic	
Type:	Endpoint
First reagent:[µL]	180
Blanc correction	Yes
Second reagent:[µL]	45
Blanc correction	Yes
Main wavelength:[nm]	660
Secondary wavelength:[nm]	800
Polychromatic factor:	1.000
1 st reading time [min:sec]	(04:24)
Last reading time [min:sec]	07:00
Reaction way:	Decreasing
Linear Kinetics Substrate deplation: absorbance limit	
Linearity: Maximum deviation [%]	
Fixed Time Kinetics Substrate deplation: absorbance limit	
Endpoint Stability: largest remaining slope	-
Prozone Limit [%]	-

Sample	
Diluent	NaCl
Concentration technical limits-Lower	0.35
Concentration technical limits-Upper	25
SERUM	
Normal volume [µL]	5
Normal dilution (factor)	1
Below normal volume [µL]	8
Below normal dilution (factor)	1
Above normal volume [µL]	5
Above normal dilution (factor)	6
URIN	
Normal volume [µL]	5
Normal dilution (factor)	1
Below normal volume [µL]	8
Below normal dilution (factor)	1
Above normal volume [µL]	5
Above normal dilution (factor)	6
PLASMA	
Normal volume [µL]	5
Normal dilution (factor)	1
Below normal volume [µL]	8
Below normal dilution (factor)	1
Above normal volume [µL]	5
Above normal dilution (factor)	6
CSF	
Normal volume [µL]	5
Normal dilution (factor)	1
Below normal volume[µL]	8
Below normal dilution (factor)	1
Above normal volume [µL]	5
Above normal dilution (factor)	6

Results	
Decimals	2
Units	mg/dL
Correlation factor-Offset	0.000
Correlation factor-Slope	1.000

Range	
Genre	All
Age	
SERUM	>=8.60 <=10.3
URINE	
PLASMA	>=8.60 <=10.3
CSF	
Genre	
Age	
SERUM	
URINE	
PLASMA	
CSF	

Contaminants	
Contaminant 1	CREA PAP
Wash with	CLN A
Cycle	1
Volume [µL]	250
Contaminant 2	CREA
Wash with	CLN A
Cycle	1
Volume [µL]	250

Calibrators details	
Calibrator list	**Concentration**
Cal. 1	0
Cal. 2	*
Cal. 3	*
Cal. 4	*
Cal. 5	*
Cal. 6	*
	Max delta abs.
Cal. 1	0.015
Cal. 2	0.015
Cal. 3	
Cal. 4	
Cal. 5	
Cal. 6	
Drift limit [%]	0.8
Calculations	
Model	X degree
Degree	1

* Enter calibrator value