

cTnI

Cardiac Troponin I Test Kit
(Rate Scattering Turbidimetric Method)

Instructions for Use

Version: D/0

REF HP-cTnI-25

Manufacturer

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Product Name

General Name: Cardiac Troponin I Test Kit (Rate Scattering Turbidimetric Method)

Specification

Package Specification

25 Tests/ Kit

Intended Use

This product is used to determine the content of Cardiac Troponin I (cTnI) in human serum.

cTnI is present in cardiomyocytes and is the major regulatory protein of myocardial excitation-contraction coupling. When myocardial injury, cTnI occurs early in the blood and has a long duration. It has a high degree of tissue-specificity and detection sensitivity and is used as a diagnosis. The preferred serum marker for myocardial injury and has important value in the assessment of the prognosis of the disease.

Test Principle

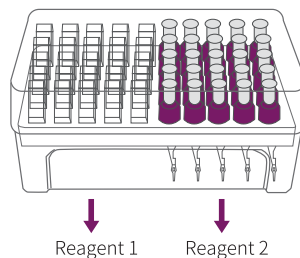
The antibody of Cardiac Troponin I is coated on the latex surface. The cTnI in the sample and the antibody become to immune complexes by Latex agglutination reaction. The immune complexes will produce the phenomenon of light scattering which is proportional to the intensity of scattered light and samples of cTnI levels. Using specific protein analyzer to measure the intensity of scattered light, the concentration

of cTnI is determined by comparing the turbidity of samples to the standard concentration.

Component

The cTnI test kit consists of two reagents R1 and R2, as shown on Figure 1.

Figure 1



Name	Content	Quantity
Reagent 1 (R1)	Phosphate buffer	0.1mol/L
	Polyethylene glycol 6000	0.5%
	Sodium azide	0.1%
Reagent 2	Phosphate buffer	0.1mol/L
	Cardiac troponin I antibody with latex	20mL/L
IC Card (optional)	/	1

Do not mix different batches of reagents.

Storage&stability

Store the test kit at 2°C-8°C until the expiration date indicated on the label. The test kit is stable for one year when unopened.

Use up the test kit within one month after opening the package.

Do not freeze the test kit.

Do not mix different lots of the test kit.

Special Instrument Requirements

HP-083/4-I POCT Immunoassay System,
HP-083/4-II POCT Immunoassay System,
HP-AFS/1 Automatic Immunoassay System ,
HP-AFS/3 Automatic Immunoassay System.

Specimen type

Serum, avoid hemolysis. Fasting blood collection and separation of serum as soon as possible. The sample store at 2-8°C for 3 days, -20°C for 1 month. Avoid repeated freezing. Before test, ensure fully mixed.

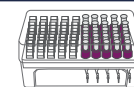
Procedures

HP-083/4-I&HP-083/4-II POCT Immunoassay System

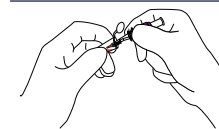
Note:

- Please read user manual of HP-083/4-I and HP-083/4-II before use;
- The analyzer will finish self check after start-up;
- Insert the IC card of cTnI test kit to let analyzer read the parameter;
- The analyzer calibration can be done with app. It is recommended that analyzer calibration should be done for each new lot of test kit.

Step 1 Sample Preparation



- 1a Allow the test kit back to room temperature for 30 minutes before use.



- 1b Use the R2 with quantitative capillary to collect sample.

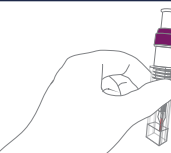


- 1c Insert the R2 into R1.

Note:

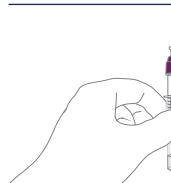
- The parameter is built in the IC card.
- Please insert the corresponding IC card into analyzer to let the analyzer read the parameter before each assay test.
- The capillary of the R2 should be fully filled.

Step 2 Testing



- 2a Hold the narrow side of R1 and shake from left to right for 12 times to let the sample completely mix with R1.

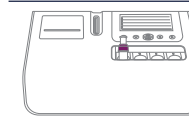
Note: Do not hold the wide sides of R1



- 2b Press the piston on R2.



- 2c Hold the narrow sides of R1 and shake for 3-5 seconds to let R1 and R2 mix well.



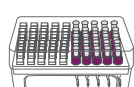
- 2d Insert the R1 into test channel of HP-083/4-II and the analyzer will finish the test and print out results automatically.

HP-AFS/1&HP-AFS/3 Automatic Immunoassay System

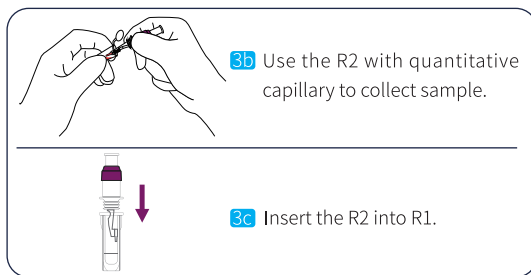
Note:

- Please read user manual of HP-AFS/1 and HP-AFS/3 before use
- The analyzer will finish the self check after start-up
- It is recommend to do analyzer calibration monthly and for each new lot of test kit.

Step 1 Sample Preparation



- 3a Allow the test kit back to room temperature for 30 minutes before use.



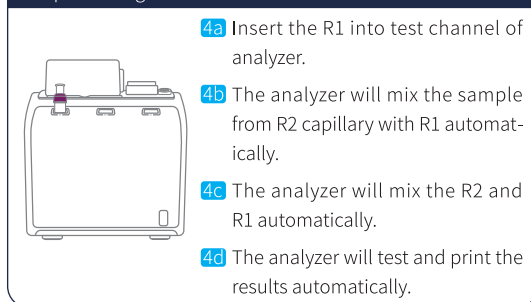
3b Use the R2 with quantitative capillary to collect sample.

3c Insert the R2 into R1.

Note:

- Please update the standard curve with the barcode on the R1 cuvette if a new lot test kit is to be used.
- The capillary of the R2 should be fully filled.

Step 2 Testing



4a Insert the R1 into test channel of analyzer.

4b The analyzer will mix the sample from R2 capillary with R1 automatically.

4c The analyzer will mix the R2 and R1 automatically.

4d The analyzer will test and print the results automatically.

Calibration

The calibration values for the different lots of the kits are stored on the calibration IC card or the two-dimensional code on the cuvette. Before test the new lot of kits, read the calibration card parameters first. Or the instrument automatically scan the two-dimensional code on the cup to obtain the corresponding calibration curve during testing.

Quality control

3- level calibration system guarantee the results' reliability for each lot of test kits, including the instrument calibration, remote reagent calibration and the third party calibration.

The third party calibration applicable for:

1. The daily indoor quality control test.
2. New lots of reagent.
3. New operator training.
4. The results can not match the clinical symptoms.
5. The first use of the reagent.

If still can not be calibrated, contact the manufacture for further technical support.

Reference Value

Normal reference range: <0.5ng/mL.

Recommended that each laboratory establish its own reference range.Recommended refer to Roche reference value.

Interpretation

The test results $\geq 0.5\text{ng/mL}$ indicate myocardial injury, it is recommended to look for the specific cause .

The result only for clinical reference, comprehensive consideration should be combined with the clinical management of patients with symptoms / signs, medical history, other laboratory tests and treatment response.

All laboratory tests depend on random errors. If the test results are in doubt, or if they do not match the clinical symptoms, re-test the sample or confirm the results with other methods.

Limitations

Hemoglobin>5g/L, triglyceride>10mmol/L, bilirubin>200μmol/L will affect the test result.

Performance Characteristics

1. Linearity range: 0.05ng/mL ~ 30ng/mL.
2. Detection limit: $\leq 0.03\text{ng/mL}$.

The limit of detection means the lowest detectable analyte level that can distinguish the concentration. Calculate based on the minimum standard above the two standard deviation of the data (Blank table, 1+2SD, within-run precision, n=20).

3. Precision

Test the control material by Cardiac Troponin I Test Kit 2 times per day for 20 days (n=80) according to EP5-A2 of CLSI.

The data as below:

a.

HP-083/4-II POCT Immunoassay System					
Sample	Mean ng/mL	Within-Run		Between-Run	
		S.D.	%C.V.	S.D.	%C.V.
Control 1	1.17	0.07	6.0	0.08	6.8
Control 2	4.76	0.27	5.6	0.28	5.9
Control 3	12.56	0.53	4.3	0.57	4.5

b.

HP-AFS/1 Automatic Immunoassay System					
Sample	Mean ng/mL	Within-Run		Between-Run	
		S.D.	%C.V.	S.D.	%C.V.
Control 1	1.17	0.07	6.0	0.09	6.7
Control 2	4.76	0.25	5.2	0.28	5.7
Control 3	12.56	0.50	4.0	0.51	4.1

c.

HP-AFS/3 Automatic Immunoassay System					
Sample	Mean ng/mL	Within-Run		Between-Run	
		S.D.	%C.V.	S.D.	%C.V.
Control 1	1.13	0.06	5.3	0.05	4.4
Control 2	4.72	0.23	4.9	0.32	6.8
Control 3	12.60	0.62	4.9	0.48	3.8

4. Methodology comparison

Compared to cTnI LIA (x) by test the same serum sample, the relative data as below:

HP-AFS/3 Automatic Immunoassay System				
Site No.	Sample Type	No.of Assays	Regression Line	Coefficient correlation
1	Serum	50	Y= 0.94X+0.10	0.95

The concentration of sample is about 0.05ng/mL -30 ng/ mL.

Precautions

⚠ Attention:

Only for in vitro diagnostic.

Only for professional use.

All samples and reactive wastes are treated as sources of infection.

Do not use the kits beyond shelf life.

Do not mix different batches of reagents.

⚠ Warning:

To avoid error, do not forced to take out the cuvette from the device. Follow the device operation manual strictly, If the problem cannot be solved, contact the manufacturer for further technical support.

SYMBOLS USED ON LABELS

Symbol	Usage	Symbol	Usage
	Use-By date		Do not freeze
	Batch code		Biological risks
	Manufacturer		Do Not Reuse
	Temperature Limit		
	Contains sufficient for <n> tests		
	Do not use if package is damaged		
	Consult Instructions for use		
	Keep Away from Sunlight		
	In Vitro Diagnostic Medical device		
	Authorized Representative in the European Community		

References

- 1.Dong,X., Sumandea,C.A., Chen,Y.-C. et al.Augmented phosphorylation of cardiac troponin I in hypertensive heart failure [J].The Journal of biological chemistry, 2012, 287(2): 848-857.
- 2.Wilson SR, Sabatine MS, Braunwald E, et al. Detection of myocardial injury in patients with unstable angina using a novel nanoparticle cardiac troponin I assay: observations from the PROTECT-TIMI 30 Trial[J]. Am Heart J, 2009, 158(3):386-391.
- 3.Thuraia Nageh Roy A . Sherwood, Beverly M . H arris. Cardiac-troponin T and I and creatine kinase-MB as markers of myocardial injury and predictors of outcom e following percutaneous coronary intervention [J]. International Journal of Cardiology, 2003, 107(03): 499-511.

Approval Date&Revision Date

Approval Date: Dec 22,2023

尺寸:24*25cm展开尺寸,横向三折页再垂直方向两次对折