

Bioway Chemistry Reagent Series

C-Reactive Protein Reagent Kit

Detection of CRP in Human Serum on Chemistry Analyzers



Cat. No. R023K11

CRP Reagent Kit

SUMMARY OF TEST PROCEDURE

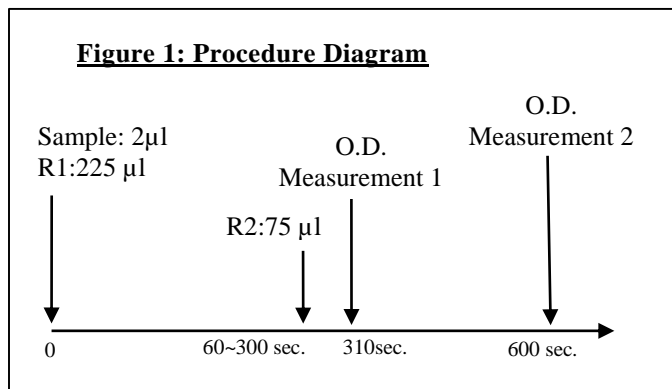


Table 1: Instrument Parameters*

Calibration method	6 point non-linear	Slope of reaction	increase
Wavelength	Pr:570 nm Se: 700 nm	Sample volume	2 µl
Test method	2 point end	R1 volume	225 µl
Reaction temperature	37°C	R2 volume	75 µl

*Refer to Figure 1 and the package insert for detail

INTENDED USE

Bioway Chemistry Reagent Series CRP Reagent Kit (the Kit) is a latex-enhanced immunoturbidimetric assay intended for *in vitro* quantitative detection of C-reactive protein in human serum on automated clinical chemistry analyzers.

SUMMARY AND EXPLANATION

C-reactive protein (CRP) is an acute-phase reactant that reflects low-grade systemic inflammation. In response to an inflammatory stimulus, a rise in CRP level up to 1000 fold may be detected within 6 hours. CRP is sensitive but the increase in CRP is non-specific, thus interpretation of CRP value should be complimented by complete clinical history. CRP measurements may also be performed for early detection of infection in pediatrics and risk assessment of coronary heart disease.

TEST PRINCIPLES

The Kit utilizes latex-enhanced immunoturbidimetry to measure the CRP level in human serum. During the test, CRP in the sample binds with the specific anti-CRP antibody that is coated on latex particles to cause agglutination. The turbidity caused by agglutination is detected optically by chemistry analyzer. The change in absorbance is proportional to the level of CRP in the sample. The actual concentration is obtained by comparing with a calibration curve with known concentrations.

MATERIALS PROVIDED

Reagents:

R1	Glycine buffer solution. Sodium azide < 0.1%
R2	Latex suspension, anti-CRP antibodies, glycine buffer, sodium azide < 0.1%

MATERIALS NEEDED BUT NOT PROVIDED

1. Automated chemistry analyzer.
2. CRP calibrator set (available for purchase) and control set (commercially available).

INSTRUMENT

The Kit is applicable on most automated chemistry analyzers. Refer to specific instrument application for suggested settings.

STORAGE AND STABILITY

Store the reagents at 2-8°C. Avoid direct sunlight. The Kit is stable through the expiration date when stored properly. R1 and R2 reagents are stable for 1 month at 2-8°C after opening.

PRECAUTIONS

1. The Kit is for *in vitro* diagnostic use only. Not for use in humans or animals.
2. The instructions must be followed to obtain accurate results.
3. Do not use the reagents beyond the expiration date.
4. Treat all specimens as infectious. Proper handling and disposal procedures of specimens and test materials should be strictly followed.
5. Reagents contain less than 0.1% sodium azide as preservative; avoid contact with skin and eyes, flush with copious amounts of water when disposing.

SPECIMEN COLLECTION AND HANDLING

Follow standard laboratory procedures to collect serum samples. It is recommended to perform test immediately after sample collection. If the test cannot be done immediately, store sample at 2- 8° C for up to 5 days or at -20° C for up to 6 months. Avoid repeated freezing and thawing.

TEST PROCEDURE (see Figure 1)

No pretreatment required for reagents and samples.

Calibration: 6 level calibrator set available for purchase. Recommend using Bioway calibrators for optimal results. Use multi-point non-linear calibration method.

Test procedure: see Figure 1 and Table 1 for instrument parameter setup. Refer to specific instrument application for suggested setting.

1. Add 2 µl of sample and 225 µl of R1; mix well and incubate at 37°C for 1~5 minutes.
2. Add 75 µl of R2, mix well and incubate at 37°C for 10 seconds.
3. Take optical density measurement OD 1.
4. Take optical density measurement OD 2 at 5 minutes after the first measurement.
5. Calculate $\Delta OD = OD 2 - OD 1$

RESULT

The CRP value can be obtained by using the calculated ΔOD to find the corresponding value on a calibration curve prepared with known values.

EXPECTED VALUES

< 6.0 mg/L.

It is recommended for each laboratory to establish its own expected values.

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QUALITY CONTROL

Using commercially available controls with known concentration is recommended before each batch of tests to ensure the test is properly performed and all reagents and the instrument are functional as specified.

LIMITATIONS

1. The Kit is for *in vitro* use on automated chemistry analyzers only.
2. Hemolysis samples may cause inconsistent results.
3. The test result from the Kit should not be used as the only basis for definite diagnosis.

PERFORMANCE CHARACTERISTICS

Linearity: 0.3 – 150 mg/L ($R \geq 0.990$)

Precision: Within Run: $CV \leq 6\%$;
Run-to-Run: $CV \leq 10\%$

Interference: no interference detected for: Bilirubin (684 $\mu\text{mol/dL}$), triglycerides (22.6 mmol/dL), and hemoglobin (5 g/L).

Reagent Blank Absorbance: at 570nm wavelength and 10 mm optical diameter, O.D. ≤ 1.50

REFERENCES

1. Osmond, A.P., et al, Proc. Natl. Acad. Sci. 74:739-743, 1977.
2. Pepys, M.B. Lancet. 1:653-657, 1981.
3. Liuzzo, G., et al, N ENG J Med, 331:417-424, 1994.
4. Rifai, N. High-sensitivity C-reactive protein: a novel and promising marker of coronary heart disease. Clin Chem 47: 403-11; 2001.
5. Burtis C, Ashwood, ER (ed). Tietz Textbook of clinical Chemistry, 7th ed. Philadelphia, PA; WB Saunders Co; 493; 1999.
6. Wasunna A, et al. C-reactive protein and bacterial infection in preterm infants. Eur J Pediatr 1990; 149: 424-427.

Not Intended for Sale in the United States.

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