



**(For scientific research use only, not for clinical diagnosis!)**

**Rabbit high-sensitivity C-reactive protein**

**(hs-CRP) ELISA kit Instructions for use**

**Product number: BY-ER772076**

**Specifications: 48T/96T Detection range:**

**0.5 mg/L-16 mg/L.**

**Sensitivity: The lowest detectable dose is less than 0.1 mg/L.**

**Precision: intra-batch variation coefficient CV% is less than 10%; inter-batch variation coefficient CV% is less than 15%.**

**Recovery rate: The recovery rate is between 85%-115%.**

**Specificity: This kit recognizes native and recombinant rabbit high-sensitivity C-reactive protein (hs-CRP) and has no crossover with structural analogs. Stability: Stored at 2°C-8°C, validity period is 6 months.**

**Purpose: Used to detect the concentration of rabbit high-sensitivity C-reactive protein (hs-CRP) in samples such as serum, plasma, cell culture supernatant, and tissue.**

**Please read the instructions carefully before use. If you have any questions, please contact us through the following methods: Official hotline: 025-5229-8998 Sales department phone: 13914481711 Technical phone: 15950492658**

**Company website: [www.byabscience.cn](http://www.byabscience.cn) For the specific shelf life, please refer to the outer packaging label of the kit. Please use the kit within the**

**shelf life.**

When contacting us, please provide the product number and production date (see box label) so that we can serve you more efficiently.

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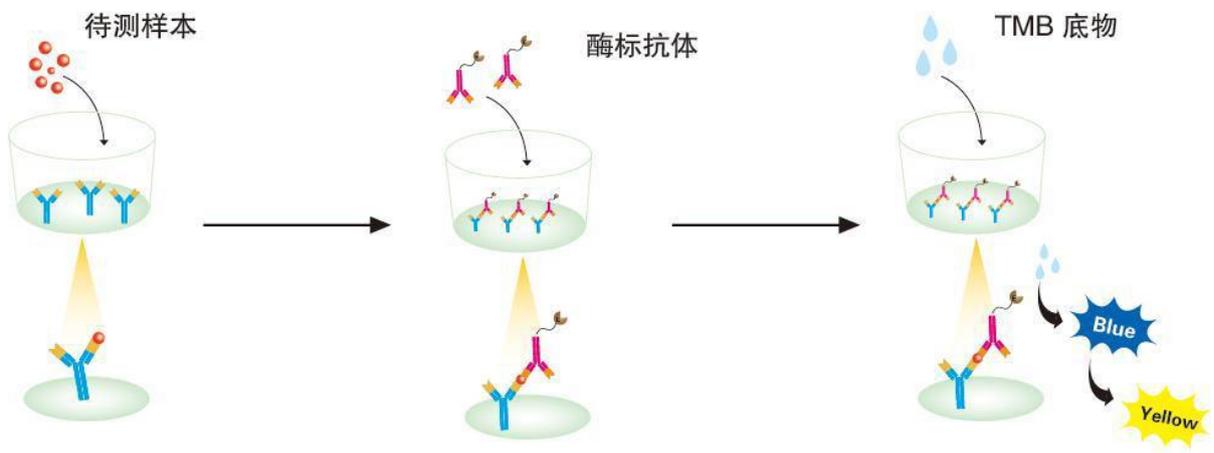
**Supervision phone number:**



## Experimental principle

This kit uses a double-antibody sandwich enzyme-linked immunosorbent assay (ELISA). In the microwell enzyme plate pre-coated with anti-rabbit high-sensitivity C-reactive protein (hs-CRP) antibody (solid-phase antibody), add rabbit high-sensitivity C-reactive protein (hs-CRP) calibrator and the sample to be tested, and then Add HRP-labeled anti-rabbit high-sensitivity C-reactive protein (hs-CRP) antibody (enzyme-labeled antibody), and after incubation and sufficient washing, unbound components are removed, and a solid-phase antibody-antigen is formed on the solid surface of the microplate. -Sandwich complex of enzyme-labeled antibodies. Add substrates A and B. The substrates are catalyzed by HRP to produce a blue product, which is finally converted to yellow under the action of the stop solution (acidic solution). The absorbance (OD value) was measured at a wavelength of 450 nm on a microplate reader. The absorbance (OD value) was positively correlated with the concentration of rabbit high-sensitive C-reactive protein (hs-CRP) in the sample to be tested. The concentration of rabbit high-sensitivity C-reactive protein (hs-CRP) in the sample can be calculated by fitting the calibrator curve.

## Experimental schematic diagram



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试剂盒组分与保存 未开封的试剂盒保存在 2-8 度，不得使用过期试剂盒。

组分	48 孔配置	96 孔配置	开封后储存
预包被酶标板	48T	96T	2-8℃14 天
标准品	0.3mL*6 管	0.3mL*6 管	2-8℃14 天
样本稀释液	3 ml	6 ml	2-8℃180 天
HRP 标记抗体	5 ml	10 ml	2-8℃14 天
显色底物 A	3 ml	6 ml	2-8℃180 天
显色底物 B	3 ml	6 ml	2-8℃180 天
终止液	3 ml	6 ml	2-8℃180 天
20×洗液	15 ml	25 ml	2-8℃180 天
封板膜	2 张	2 张	
说明书	1 份	1 份	
自封袋	1 个	1 个	

校准品浓度依次为：16、8、4、2、1、0.5 mg/L。

注意：1：使用前请检查试剂盒中试剂的标签和数量与表格是否一致。

2：如果试剂盒的组份需要再次使用，请确保上一次使用之后没有被污染。

3：酶标板单次未使用完，要谨记密封放到 2-8℃保存。

#### 试验所需自备试验器材 (不提供，但可协助购买)

- 1) 能够检测 450 nm 吸光度的酶标仪
- 2) 移液器及枪头、加样槽
- 3) 37℃恒温箱或水浴锅
- 4) 准备试剂用的试管、离心管、量筒等
- 5) 蒸馏水或去离子水

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6) 涡旋振荡器、微孔板振荡器

注意事项 1) 仅供科研使用，不得用于临床诊断。

- 2) 在试剂盒标示的有效期内使用，过期产品不得使用。
- 3) 跟其他厂家的试剂盒或者组分不能混用，使用试剂盒配套的样品稀释液。
- 4) 如果样本值高于最高标准品浓度值，请将样本适当稀释后，再重新测定。
- 5) 待测样本中存在的人抗鼠等异嗜抗体会干扰检测结果，检测前，请排出该因素。
- 6) 通过其他方法得到的检测结果，与本试剂盒测定结果不具有直接的可比性。
- 7) 试验中请穿着实验服并戴乳胶手套做好防护工作。特别是检测血液或者其他体液样品时，请按国家生物试验室安全防护条例执行。
- 8) Carry out incubation strictly according to the specified time and temperature to ensure accurate results. All reagents must reach room temperature 20-25°C before use. Store reagents refrigerated immediately after use.
- 9) Improper plate washing can lead to inaccurate results. Make sure to absorb as much liquid as possible from the wells before adding substrate. Do not allow the microwells to dry out during incubation.
- 10) Eliminate residual liquid and fingerprints on the bottom of the plate, otherwise it will affect the OD value.
- 11) The substrate chromogenic solution should be colorless or very light in color.
- 12) Avoid cross-contamination of reagents and specimens to avoid erroneous results.
- 13) Avoid direct exposure to strong light during storage and incubation.

14) The microplate reader used for detection needs to be equipped with a filter capable of detecting a wavelength of  $450\pm 10\text{nm}$ , and the optical density range is between 0-3.5. It is recommended to preheat 15 minutes in advance before use.

15) The EP tubes and suction tips used in the test are single-use and are strictly prohibited from mixing.

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## Sample preparation and storage

The following lists only general guidelines for sample collection and preservation. During the collection and storage of all samples, sodium azide shall not be used as a preservative. If the sample is not analyzed immediately, it should be aliquoted and stored frozen, and repeated freezing and thawing should be avoided.

**Cell culture supernatant - centrifuge to remove precipitate, analyze immediately or aliquot and store frozen at -20°C.**

**Serum - Collect blood in a clean test tube, coagulate at room temperature for 30 minutes, centrifuge at 2000×g for 20 minutes, and collect serum. Analyze immediately or aliquot and store frozen at -20°C.**

**Plasma—anticoagulate with heparin, citrate, or EDTA, and centrifuge at 2000×g for 20 minutes at 2-8°C within 30 minutes of blood draw. To eliminate the influence of platelets, it is recommended to further centrifuge at 10,000 × g for 10 minutes at 2-8°C. Analyze immediately or aliquot and store frozen at -20°C.**

**Cell lysis buffer - For adherent cells, remove the culture medium and wash with PBS, normal saline or serum-free culture medium. Add an appropriate amount of lysis solution and pipet several times with a gun to fully contact the lysate and cells. Typically after 10 seconds, cells are lysed. For suspended cells, collect the cells by centrifugation and wash them with PBS, physiological saline or serum-free culture medium. Add an appropriate amount of lysis solution, blow the cells with a gun, and flick them with your fingers to fully lyse the cells. After full lysis, centrifuge at 10000-14000×g for 3-5 minutes and take the supernatant. Analyze immediately or aliquot and store frozen at -20°C.**

**组织匀浆——用预冷的 PBS (0.01M, pH=7.4)冲洗组织，去除残留血液（匀浆中裂解的红细胞会影响测量结果），称重后将组织剪碎。将剪碎的组织与对应体积的 PBS（一般按 1:9 的重量体积比，比如 1g 的组织样品对应 9mL 的 PBS，具体体积可根据实验需要适当调整，并做好记**

录。推荐在 PBS 中加入蛋白酶抑制剂) 加入玻璃匀浆器中, 于冰上充分研磨。为了进一步裂解组织细胞, 可以对匀浆液进行超声破碎, 或反复冻融。最后将匀浆液于  $5000\times g$  离心 5~10 分钟, 取上清检测。

尿液——用无菌管收集, 离心  $2000\times g$  20 分钟。仔细收集上清。如有沉淀形成, 应再次离心。

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试剂准备 1、使用前，所有的组分都要至少复温 60min，确保充分复温到室温。

2、浓缩洗涤液：从冰箱取出的浓缩洗涤液，会有结晶产生，这属于正常现象，水浴加热使结晶完全溶解。浓缩洗涤液与蒸馏水，按 1:20 稀释，即 1 份的浓缩洗涤液，添加 19 份的蒸馏水。3、底物：底物液 A 和 B，在使用前，按 1:1 体积充分混合，混合后 15 分钟内使用。

操作程序 所有试剂和组分都先恢复到室温，标准品、质控品和样品，建议做复孔。

- 1、按前面说明书描述的方法，配制好试剂盒各种组分的工作液。
- 2、从铝箔袋中取出所需板条，剩余的板条用自封袋密封放回冰箱。
- 3、设置标准品孔、0 值孔、空白孔和样本孔，标准品孔各加不同浓度的标准品 50 $\mu$ L，0 值孔加样本稀释液 50 $\mu$ L，空白孔不加，样本孔加待测样本 50 $\mu$ L。
- 4、除空白孔外，标准品孔、0 值孔和样本孔，加入辣根过氧化物酶（HRP）标记的检测抗体 100  $\mu$ L。
- 5、用封板膜盖住反应板，37 $^{\circ}$ C 水浴锅或恒温箱避光孵育 60min。
6. Uncover the sealing film, discard the liquid, pat dry on absorbent paper, fill each well with washing liquid, let it stand for 20 seconds, shake off the washing liquid, pat dry on absorbent paper, repeat this 5 times. If you use an automatic plate washer, please wash the plate according to the operating procedures of the plate washer. Adding a soaking program for 30 seconds can improve the detection accuracy. After washing the plate and before adding substrate, pat the reaction plate dry on clean, lint-free paper. (Tip: In order to obtain ideal experimental results, the residual liquid must be completely removed. After washing the plate, please proceed to the next step immediately and do not let the microplate dry.)
7. Mix substrates A and B at a volume of 1:1 Mix thoroughly and add 100  $\mu$ L of substrate mixture to all wells.

Cover the reaction plate with sealing film and incubate in a 37°C water bath or incubator in the dark for 15 minutes.

8. Add 50 µL of stop solution to all wells, and read the absorbance (OD value) of each well on a 450nm wavelength microplate reader.

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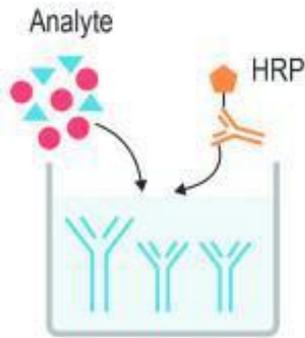
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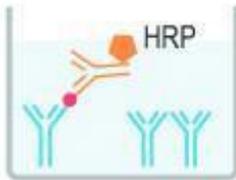
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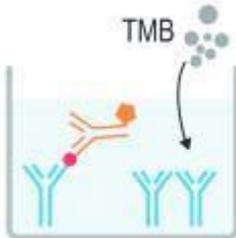
**[Operation flow chart]**



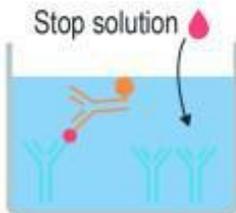
1. 对应板孔中加入50 $\mu$ L标准品工作液或样本后，立即每孔加入100ulHRP酶标抗体工作液，37 $^{\circ}$ C孵育60分钟



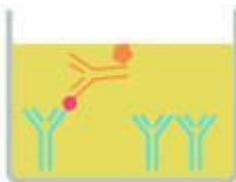
2. 弃掉板内液体，洗板5次



3. 每孔加入底物A溶液50ul，底物B溶液50ul



4. 每孔加入50 $\mu$ L终止液

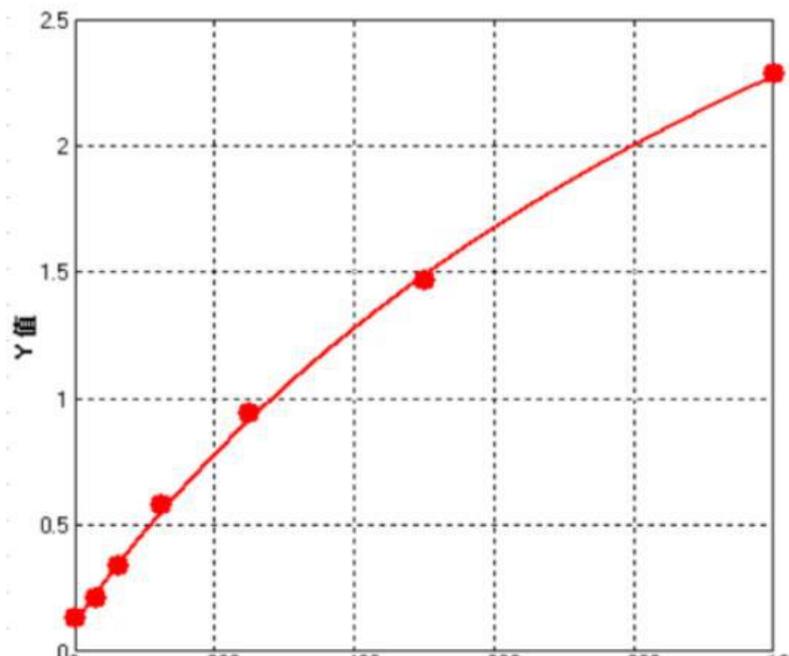


5. 立即在450nm波长下读数，处理数据



## Result calculation

9. Use the concentration of the standard substance as the abscissa and the corresponding absorbance (OD value) as the ordinate. Use computer software and four-parameter Logistic curve fitting (4-pl) to create a standard curve equation. Through the absorbance (OD value) of the sample value), use the equation to calculate the concentration value of the sample. [Calculate using ELISA Calc software. It is recommended to use four-parameter fitting for the standard curve, but it is not the only fitting method]
10. If the sample is diluted, the concentration value measured by the above method must be multiplied by the dilution factor to determine the final value of the sample. concentration. Note: Experimenters need to establish a standard curve based on their own experiments. For each test, a standard curve must be established for each enzyme plate. The following curves are for reference only!



(Schematic diagram of the music, for reference only)

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**[Problem Analysis] If the experimental results are not good, please take pictures of the color development results in time, save the experimental data, keep the used strips and unused reagents, and then contact our company's technical support to solve the problem for you. At the same time, you can also refer to the following information:**

**[Questions and Answers]**

Problem description	Possible reasons	Corresponding countermeasures Corresponding countermeasures
standard curve gradient difference	Incorrect liquid aspiration or	Check pipettes and tips
	Equilibration time is too short	Ensure sufficient balancing time
	Incomplete washing	Ensure the washing time and number of washes and the amount of liquid added to each hole
Very weak or colorless	Incubation time too short	Ensure adequate incubation time
	The experimental temperature is incorrect	Use recommended experimental temperatures
	Insufficient reagent volume or missing addition	Check the liquid aspirating and adding process to ensure that all reagents are added in order and in
	Incorrect dilution	
	Enzyme label inactivation or substrate failure	Mix enzyme conjugate and substrate and check by rapid color development
Reading value is low	Microplate reader settings are incorrect	Check the wavelength and filter
		Turn on the microplate reader and preheat it in advance
Large coefficient of variation	Adding fluid incorrectly	Check the filling situation
High background value	The working concentration of the	Use the recommended dilution
	Incomplete washing of enzyme plate	Ensure that each step of cleaning is complete; if using an automatic plate washer, please check whether all outlets are blocked;
	The lotion is contaminated	Prepare fresh lotion
Low sensitivity	Improper storage of ELISA kits	Store relevant reagents according to
	Not terminated before reading	Stop solution should be added to

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## statement

1. Due to the current conditions and scientific and technological level, it is not possible to conduct comprehensive identification and analysis of all raw materials.

This product may have certain quality and technical risks.

2. This kit removes/reduces some endogenous interfering factors in biological samples during the development process. Not all possible influencing factors have been removed.

3. The final experimental results are closely related to factors such as the effectiveness of the reagents, the relevant operations of the experimenter, and the experimental environment at the time. Our company is only responsible for the kit itself and is not responsible for the sample consumption caused by the use of the kit. Please use The user should fully consider the possible usage of the sample and reserve sufficient samples before use.

4. In order to achieve good experimental results, please only use the reagents provided in our company's kits, do not mix products from other manufacturers, and operate in strict accordance with the instructions.

5. Due to incorrect reagent preparation and microplate reader parameter settings during the operation, abnormal results may occur. Please read the instructions carefully and adjust the instrument before the experiment.

6. Even if operated by the same personnel, different results may be obtained in two independent experiments. In order to ensure the reproducibility of the results, it is necessary to control every step of the experimental process.

7. The kits will undergo strict quality inspection before shipment. However, due to factors such as transportation conditions, differences in experimental equipment, etc., user test results may be inconsistent with factory data.

8. This kit has not been compared with similar kits from other manufacturers or products that detect the same target substance using different methods, so inconsistent test results cannot be ruled out.

9. The kit is for research use only. If it is used for clinical diagnosis or any other purpose, our company will not be responsible for any problems arising therefrom, nor will we assume any legal liability.

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