

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

**Human Anti-Quadrivalent Influenza Vaccine BV IgG Antibody (BV IgG)  
Quantitative Detection Kit (ELISA) Instructions for Use Specifications:  
48T/96T**

Please read the instructions carefully before use. If you have any questions,  
please contact us through the following methods: Official hotline: 400-999-  
8863 Technical phone: 18358180525 Email: UpingBio@163.com Company  
website: [www.upingbio.com](http://www.upingbio.com) For the specific shelf life, please see 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.



**Kit performance Physical properties:** Each liquid component is clear and transparent, with no precipitation or floc. Microplate aluminum foil bags should be vacuum packed without damage or leakage.

Standard curve linearity: Calibrator dose-response curve correlation coefficient  $r$  value, greater than or equal to 0.9900.

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

Sensitivity: The lowest detectable dose is less than 0.1 ng/mL.

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

Sensitivity: This kit recognizes natural and recombinant human anti-quadrivalent influenza vaccine BV IgG antibodies (BV IgG) and has no crossover with structural analogs.

Stability: Stored at 2°C-8°C, validity period is 6 months.

Detection range: 0.25 ng/mL – 8 ng/mL.

Purpose: Used to detect the concentration of human anti-tetavalent influenza vaccine BV IgG antibody (BV IgG) in serum, plasma, cell culture supernatant and other samples.

**Experimental principle** This kit uses an indirect two-step enzyme-linked immunosorbent assay (ELISA). In the microwell enzyme plate pre-coated with the quadrivalent influenza vaccine BV protein (BV) (solid-phase antigen), add different concentrations of calibrators and samples to be tested, and after incubation and sufficient washing, unbound components are removed. Then add anti-human IgG-HRP (enzyme-labeled antibody), and after incubation and sufficient washing, unbound components are removed, and a solid-phase antigen-antibody-enzyme-labeled antibody sandwich complex is formed on the solid surface of the microplate. Add substrates A and B. The

**substrates are catalyzed by HRP to produce a blue product. Under the action of the stop solution, they are finally converted into yellow. The absorbance (OD value) is measured on a microplate reader. The absorbance (OD value) is consistent with that of the product to be measured. There is a positive correlation between the concentration of the antibody to be tested in the sample. By fitting the calibrator curve, the sample can be calculated**

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The concentration of the antibody to be tested.

**Kit components and storage: Store unopened kits at 2-8**

**degrees Celsius. Do not use expired kits.**

| Components                     | quantity           | Main ingredients                          |
|--------------------------------|--------------------|-------------------------------------------|
| Calibrator                     | 0.3ml/tube*6 tubes | Antibody preparations in 6 concentrations |
| coated microplate              | 96T                | Pre-coated solid phase antigen            |
| HRP labeled antibodies         | 10mL               | HRP-labeled detection antibodies          |
| Substrate solution A           | 6mL                | hydrogen peroxide working fluid           |
| Substrate solution B           | 6mL                | TMB working fluid                         |
| sample diluent                 | 60mL               | PBS                                       |
| stop solution                  | 6mL                | acidic solution                           |
| 20×concentrated washing liquid | 30mL               | PBS with 0.15% Tween20                    |
| manual                         | 1 serving          | --                                        |
| ziplock bag                    | 1                  | --                                        |
| Self-adhesive                  | 2 tablets          | --                                        |

The concentrations of calibrators are: 8, 4, 2, 1, 0.5, 0 ng/mL.

Note: 1: Before use, please check whether the label and quantity of

the reagents in the kit are consistent with the table.

2: If the components of the kit need to be used again, please ensure that they have

not been contaminated since the last use. 3: If the enzyme plate is not used up in a

single time, remember to seal it and store it at 2-8°C.

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**Self-prepared test equipment required for the test**

**(not provided, but can be purchased with**

**assistance) 1. Standard specification microplate**

**reader.**

2. Automatic plate washing machine.

3. Oscillator.

4. A series of adjustable pipettes and tips. When testing a large number of samples at one time, it is best to use a multi-channel pipette.

**Restrictions on the kit: 1. For scientific**

**research use only and not for clinical**

**diagnosis.**

2. Use within the validity period marked on the kit. Expired products must not be used.

3. Do not mix with kits or components from other manufacturers.

4. Use the sample diluent provided with the kit.

5. If the sample value is higher than the highest standard concentration value, please dilute

the sample appropriately and then re-measure. 6. Human anti-mouse and other heterophilic

antibodies present in the sample to be tested will interfere with the test results. Please

eliminate this factor before testing.

7. The test results obtained by other methods are not directly comparable to the test results of this kit.

**Notes: 1) This kit is for in vitro research only and**

**not for clinical diagnosis.**

2) Please wear a lab coat and latex gloves for protection during the test. Especially when testing blood or other body fluid samples, please follow the national biological laboratory safety protection regulations.

3) 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.

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- 4) 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.
- 5) Eliminate residual liquid and fingerprints on the bottom of the plate, otherwise it will affect the OD value.
- 6) The substrate chromogenic solution should be colorless or very light in color.
- 7) Avoid cross-contamination of reagents and specimens to avoid erroneous results.
- 8) Avoid direct exposure to strong light during storage and incubation.
- 9) Equilibrate to room temperature before opening the sealed bag to prevent water droplets from condensing on the cold slats.
- 10) Any reaction reagents must not come into contact with bleaching solvents or strong gases emitted by bleaching solvents. Any bleaching ingredients will destroy the biological activity of the reagents in the kit.
- 11) 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.
- 12) Do not mix or replace the reagents in this kit with reagents from other batch numbers or other sources.
- 13) The EP tubes and tips used in the test are single-use and are strictly prohibited from mixing.
- 14) Do not use expired reagents.

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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 must 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 once 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.**

**Urine - Collect in sterile tubes and centrifuge at 2000×g for 20 minutes. Carefully collect the supernatant. If a precipitate forms, centrifuge again.**

**Reagent preparation 1. Before use, all components must be rewarmed for at least 120 minutes to ensure sufficient rewarming to room temperature.**

2. Concentrated washing liquid: The concentrated washing liquid taken out from the refrigerator will produce crystals. This is a normal phenomenon. Heating in a water bath will completely dissolve the crystals. Concentrated washing liquid and distilled water are diluted 1:20, that is, 1 part of concentrated washing liquid is added to 19 parts of distilled water.

3. Substrate: Substrate solutions A and B, mix thoroughly at a volume of 1:1 before use, and use within 15 minutes after mixing.

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## Operating procedures

**Recommended sample dilution scheme:** It is recommended that teachers conduct preliminary experiments to explore the optimal dilution ratio of samples before conducting formal experiments.

1. Return all reagents and components to room temperature first. It is recommended to perform duplicate holes for standards, quality control materials and samples.
2. Prepare working solutions for various components of the kit according to the method described in the previous reagent preparation.
3. Take out the required slats from the aluminum foil bag, seal the remaining slats in a ziplock bag and return it to the refrigerator.
4. Set up standard wells, sample wells and blank wells. Add 50  $\mu\text{L}$  of standards of different concentrations to each standard well. Add 50  $\mu\text{L}$  of the sample to be tested to the sample well. Do not add any to the blank well. Cover the reaction plate with a sealing film and place in a 37°C water bath. Incubate in a pot or incubator for 30 minutes.
5. Uncover the sealing film, discard the liquid, pat dry on absorbent paper, fill each well with washing solution, let stand for 20 seconds, shake off the washing solution, and pat dry on absorbent paper. Repeat this 4 times (wash the plate 5 times in total). 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 20 seconds can improve the detection accuracy. After washing the plate and before adding substrate, pat the reaction plate dry on clean, lint-free paper.
6. In addition to the blank wells, add 100  $\mu\text{L}$  of horseradish peroxidase-labeled detection antibody to the standard wells and sample wells.
7. Cover the reaction plate with sealing film and incubate it in a 37°C water bath or incubator for 30 minutes.
8. Uncover the sealing film, discard the liquid, pat dry on absorbent paper, fill each well with washing solution, let stand for 20 seconds, shake off the washing solution, and pat dry on absorbent paper. Repeat this 4 times (wash the plate 5 times in total). 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 20 seconds can improve the detection accuracy. After washing the plate and before adding substrate, pat the reaction plate dry on clean, lint-free paper.

9. Mix substrates A and B thoroughly at a volume of 1:1, 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 for 15 minutes.

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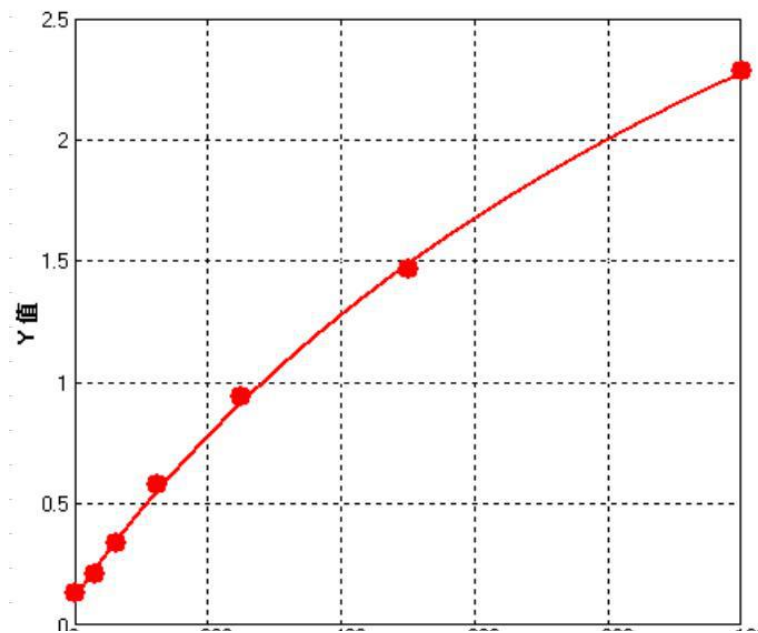
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10. Add 50  $\mu\text{L}$  of stop solution to all wells, and read the absorbance (OD value) of each well at a wavelength of 450 nm on a microplate reader.

### Result calculation

11. 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. [Calculation using ELISA Calc software]

12. If the sample is diluted, the concentration value measured by the above method must be multiplied by the dilution factor to obtain the final concentration of the sample.



(Schematic diagram, 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 Causes                                 | Corresponding countermeasures<br>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 washings 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 existing 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. 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 Before use, the user should fully consider the possible usage of the sample and reserve sufficient samples.
3. 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.
4. Due to incorrect reagent preparation and microplate reader parameter settings during the operation, abnormal results may result. Please read the instructions carefully and adjust the instrument before the experiment.
5. 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.
6. The kit 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. Differences between kits from different batches may also result from the above reasons.

7. 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.

8. 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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