

# FOOT-AND-MOUTH DISEASE VIRUS (FMDV) TYPE O ANTIBODY ELISA KIT

Cat. No.: IP100200

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## Foot-and-Mouth Disease Virus (FMDV) Type O Antibody ELISA Test Kit

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### 1. Usage

The competitive ELISA kit for Foot and Mouth Disease Virus Type O Antibodies is used for the detection of FMD Type O antibody in serum of pig, bovine and goat. It is suitable for the detection of animal vaccine immune antibodies.

### 2. Principle

Foot-and-Mouth Disease (FMD) is an acute, febrile and highly contagious infectious disease caused by foot-and-mouth disease virus (FMDV), which mainly affects cloven-hoofed animals. Once it occurs, it will cause serious economic losses. FMDV belongs to the foot-and-mouth disease virus genus of the family MicroRNA viridae. There are currently 7 known serotypes, namely O, A, C, SAT1, SAT2, SAT3 and Asia 1. After FMDV infection or immunization, the main neutralizing epitope of antibodies is in VP1 protein. Based on VP1 protein, this kit adopts competitive enzyme-linked immunosorbent assay (C-ELISA) and is equipped with a full set of diagnostic reagents and materials. It can be used to detect Foot-and-mouth disease virus type O (FMDV-O) antibody in serum or plasma of pig, cattle, and sheep. It is suitable for the qualitative detection of animal vaccine immune antibodies and the assessment of the ability of animal groups to resist FMDV-O infection risk. The kit has the characteristics of high sensitivity, strong specificity, good stability, and simple and quick operation.

### 3. Introduction

The kit adopts Competitive ELISA method. Fmdv-o VP1 recombinant protein is pre coated on the enzyme label plate as antigen, and the epitope specific monoclonal antibody against VP1 protein is used as neutralizing competitive antibody (i.e. enzyme marker). In the experiment, when the serum to be tested and the monoclonal antibody enzyme marker are added, the fmdv-o specific antibodies such as the serum species to be tested compete with the enzyme marker to bind the fmdv-o VP1 recombinant protein coated on the enzyme marker plate. Unbound antibodies and other components were removed by washing, and the substrate was added for color development. The OD value of the reactants was measured by ELISA reader at 450 nm wavelength to determine the experimental results.

### 4. Kit Components

1	FMDV-O antigen coated microplate	96T X 2	
2	FMDV-O Enzyme conjugate	12ml	yellow lid
3	Sample diluent	12ml	transparent lid
4	FMDV-O Negative control	1.5ml	green lid
5	FMDV-O Positive control	1.5ml	red lid
6	Substrate	12ml	orange lid
7	Stop solution	12ml	blue lid
8	10×concentrated washing buffer	50ml	white lid
9	Adhesive Foil	2 pieces	
10	Instruction	1 piece	

## 5. Material required not provided

- 1) Precise micropipette (Single-channel 0.5-10ul, 1ul-100ul, multi-channel 30-300ul).
- 2) Constant temperature box or water bath box.
- 3) Microplate Reader (double-wave length:450nm)
- 4) Oscillator.
- 5) Disposable tips (10ul, 200ul).
- 6) Deionized water

## 6. Sample Requirement

Try to use freshly collected serum samples; It cannot be used to detect samples with serious pollution or hemolysis; If the serum sample is turbid, take the supernatant after centrifugation for detection; The test sample can be stored at 2 ~ 8°C for 5 days. If it is stored for a long time, it needs to be transferred to - 20 °C or lower temperature.

## 7. Preparation

- 1) Bring ELISA reagents to the room temperature (25±3°C) for at least 30 min to get best results. Microplate should return to room temperature and dry before opening the package.
- 2) Washing buffer preparation: Dilute the 10×concentrated washing buffer with deionized water at 10 times (for example: 10ml 10×concentrated washing buffer + 90ml deionized water).

## 8. Procedure

- 1) **Add sample** :- Add 50ul of negative control serum (NC) and 50ul of positive control serum (PC) to the control wells; firstly add 30ul of sample diluent to the sample wells, then 20ul of serum to each well; add 50ul of Enzyme conjugate, gently shake to mix (do not spill), cover with sealing film, and incubate at 37°C for 30 min.
- 2) **Washing plate**: Remove adhesive foil. Pour the liquid out of the wells, add the diluted washing buffer into each well, 300ul/well, pour out. Repeat 3 times, at last time pat to dry on absorbent paper stack. It's strictly forbidden for the wells to dry out between steps.
- 3) **Add substrate**: Add substrate 50μl into each well, mix properly, cover plate with adhesive foil, incubate for 15 min at 37 °C in dark.
- 4) **Stop reaction**: Add stop solution 50μl into each well, shake it for 10s and mix it evenly, and determine the result immediately.
- 5) **Reading**: Use a microplate reader to measure the optical density value (OD value) at a wavelength of 450nm.

## 9. Results

- 1) For the assay to be valid, average OD value of Positive control <0.4; average OD value of Negative control >0.6.
- 2) Calculation method: ODNC Average value = (ODNC1 + ODNC2)/2
- 3) Sample S/N value calculation formula: S/N = Sample OD value / ODNC Average value
- 4) Judgment standard:  
S/N < 0.5, judged as positive;  
S/N ≥ 0.5, judged as negative.

## 10. Precautions and warnings for users

- 1). Storage conditions are 2~8°C. The batch number and expiry date of the kit should be confirmed before opening.
- 2). Do not use expired products, and do not mix kit components from different batches.
- 3). All components of the kit must be returned to room temperature (25±3°C) before use, and stored at 2~8°C after use.
- 4). Care should be taken to avoid introducing contamination into the kit. Pipette tips must be changed one at a time.
- 5). The instruments used in the experiment (such as: micropipettes, constant humidity incubators, ELISA plate washers, microplate readers) need to be functionally checked before use to ensure their usability and accuracy.
- 6). All reagents are strictly prohibited from contacting skin and mucous membranes. After the inspection, the consumables used shall be harmlessly disposed according to the national regulations.
- 7). Unused microplate strips can be stored in a sealed bag at 2-8°C.
- 8). Each component container in the kit is only used for this component and cannot be reused.

**Specifications:** 96 wells×2.

**Expiry date:** On outer-packing of the test kit. (12 months)

**Storage:** Store at 2~8°C, in the dark, no freezing.