Technical Manual

Human Hepatitis D Virus (HDV) IgM ELISA Kit

- Catalogue Code: HDES0066
- Antibody ELISA Kit
- Research Use Only

1. Test principle

This ELISA kit uses Capture-ELISA as the method to detect the Hepatitis D Virus (HDV) IgM in human serum and plasma. The ELISA Microtiter plate is pre-coated with Mouse-anti-human IgM (μ chain). HDV-IgM in samples will be captured after adding the samples to wells. After washing completely, add HDV antigen conjugated Horseradish Peroxidase (HRP), and it will react with the "anti-μ chain HDV IgM" compound to form "anti-μ chain- HDV IgM-HRP conjugated HDV antigen". Wash and remove the free components. Add the TMB substrate to initiate color developing reaction. The presence of HDV -IgM antibody can be determined according to the OD value after colorimetric assay with the Microplate Reader.

2. Kit components

Item	Specification
ELISA Microtiter plate	96 wells
HRP Conjugate	12 mL
Sample Diluent	12 mL
20×Concentrated Wash Buffer	50 mL
Substrate Reagent A	6 mL
Substrate Reagent B	6 mL
Stop Solution	6 mL
Positive Control	1 mL
Negative Control	1 mL
Plate Sealer	3 pieces
Sealed Bag	1 piece
Manual	1 copy

Note: All reagent bottle caps must be tightened to prevent evaporation and microbial pollution.

3. Other materials required but not supplied

- Microplate Reader with 450 nm wavelength filter or dual-wavelength (450/630 nm)
- High-precision transferpettor, EP tubes and disposable pipette tips
- 37° C Incubator or water bath
- Deionized or distilled water
- Absorbent paper

4. Notes

1. Please read the manual carefully before use, changes of operation may result in unreliable results.

2. Wear gloves and work clothes during experiment, and the disinfection and isolation system should be strictly executed. All the waste should be handled as contaminant.
3. The stop solution is corrosive, it should be avoided to contact with skin and clothing. Wash immediately with plenty of water if contact it carelessly.
4. The ELISA Microtiter plate obtained from cold storage conditions should be adjusted to room temperature before use. The unused plate should be kept in a sealed bag with desiccant.
5. Concentrated washing liquid at low temperature condition is easy to crystallization, it should be adjusted to room temperature in order to dissolve completely before use.
6. The results shall depend on the readings of the micro-plate Reader.
7. **Each reagent is optimized for use in the HDES0066. Do not substitute reagents from any other manufacturer into the test kit. Do not combine reagents from other HDES0066 with different lot numbers.**
8. All the samples and waste material should be treated as infective material according to the relevant rules of biosafety.

5. Storage and expiry date

Store at 2-8° C. Avoid freeze.
Please store the opened plate at 2-8° C, the shelf life of the opened kit is up to 1 month.
Expiry date: expiration date is on the packing box.

6. Sample preparation

1. **Serum/plasma:** Human serum and plasma can be used as detected sample. Fresh collected samples should be fully centrifuged, then take clear liquid for test. Suspended fibrous protein may cause a false positive. Samples can be stored at 2-8° C for one week and stored at -20° C for more than a week. Avoid freeze-thaw cycles. Freezing samples should be mixed fully before test.
2. Anticoagulant (EDTA, sodium citrate and heparin sodium) in samples do not affect the result of the experiment in general. Endogenous interference substances in serum such as fat, cholerythrin, and hemoglobin will not affect the results. Positive samples like HCV, HEV and RF may not affect the results in general.
3. **Wash Buffer**: The **20×Concentrated Wash Buffer** should be adjusted to room temperature to make the sediment dissolved fully before use, and then dilute it with deionized water at 1:19.

7. Assay procedure

Restore all reagents and samples to room temperature (25° C) before use. All the reagents should be mixed thoroughly by gently swirling before pipetting. Avoid foaming. The unused ELISA Microtiter plate should be sealed as soon as possible and stored at 2-8° C.

1. **Number:** number the sample and standard in order (multiple well), and keep a record of standard wells and sample wells. Set 1 well for blank control, 3 wells for negative control and 2 wells for positive control. **Samples need test in duplicate** (Blank well is not necessary for dual-wavelength detection).
2. **Add sample:**
   (1) Add 100 μL of **Positive/Negative Control** respectively to **Positive/Negative Control** well, keep the blank control well empty.
   (2) Dilute the tested **Serum/plasma** with **Sample Diluent** at 1:1 into sample well (add 50 μL of Sample Diluent to the well, and then add 50 μL of **s**erum/plasma), mix fully.
3. **Incubate:** gently tap the plate to mix thoroughly. Cover the ELISA Microtiter plate with sealer. Incubate for 30 min at 37° C in shading light.
4. **Wash:** remove the plate sealer and aspirate the liquid of each well. Repeat the washing procedure for 5 times with **Wash Buffer** and immerse for 30-60 sec each time. Invert the plate and pat it against thick clean absorbent paper (If bubbles exist in the wells, clean tips can be used to prick them).
5. **HRP conjugate:** add 100 μL of **HRP Conjugate** to each well except the blank control well, mix fully.
6. **Incubate:** gently tap the plate to mix thoroughly, cover the ELISA Microtiter plate with sealer. Incubate for 30 minutes at 37° C in shading light.
7. **Wash:** repeat step 4.
8. **Add substrate:** add 50 μL of **Substrate Reagent A** and 50 μL of **Substrate Reagent B** to each well. Gently tap the plate to mix thoroughly. Cover with a new plate sealer. Incubate for 15 min at 37° C in shading light.
9. **Stop reaction:** add 50 μL of **Stop Solution** to each well, gently tap the plate to mix thoroughly.
10. **OD Measurement:** set the Microplate Reader wavelength at 450 nm (it is recommended to set the dual wavelength at 450 nm/630 nm) to detect A value of each well. Blank well is not essential when using dual wavelength 450 nm/630 nm for detection. **Note: Read the results within 10 min.**

8. Reference value

Normally, blank well (just **s**ubstrate agent and stop solution) absorbance: A450 ≤ 0.08;
positive control (PC): A450 > 0.30 and average A value of negative control (NC): A450 < 0.10.

9. Interpretation of test results

Calculate the Cut Off: Cut Off(C.0) = 0.10 + average A value of negative control (NC) (when average A450 of NC < 0.05, calculate at 0.05; while average A450 of NC ≥ 0.05, calculate at the actual value).

1. Positive result: average A value of sample ≥ Cut Off.
2. Negative result: average A value of sample < Cut Off.
3. Negative result indicates no HDV-IgM antibody detected in samples, while positive result means the opposite.

10. Interpretation of results

1. This test is only used as the qualitative detection of HDV-IgM in serum and plasma of human.
2. The detection results of this kit are only for reference. For confirmation of the result, please combine the symptoms and other methods of detection, this detection cannot be used as the only criteria for result.

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