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Instructions for Use of T7 RNA Polymerase ELISA Detection Kit

The kit is intended for scientific research only and should not be used for diagnosis

Cat. No. HG- TP001

Introduction

This product uses the double-antibody sandwich method to detect T7 RNA polymerase in samples, which involves coating microplate wells with a monoclonal antibody specific to T7 RNA polymerase, and adding the standard and the test sample to the reaction well for incubation. T7 RNA Polymerase in the test sample will quantitatively bind to the antibody in the microplate, and the test procedure is to remove the unbound complex by washing, add the antibody against T7 RNA Polymerase (detection antibody), and finally add H + L secondary antibody (enzyme conjugate) to form an antibody-antigen-antibody-secondary antibody complex, and indicate the protein content in the sample by observing the intensity of TMB color development. Please read the instructions for use carefully and check the components of the kit before use.

Assay range: 4-256 ng/mL
Limit of quantification: 4 ng/mL
Limit of detection: 2 ng/mL
Precision: CV%≤10%, RE%≤±15%

Specification

96 T.

Usage

This kit is applicable for rapid detection of T7 RNA polymerase content in samples.

Kit components

Components	Specification	Preparation
T7 RNA Polymerase Coated Plate	8 wells × 12 strips	Ready-to-use
Anti-T7 RNA Polymerase(detection antibody)	150 μL × 1 vial	1:100, dilute with Antibody Diluent Buffer
Streptavidin HRP (enzyme conjugate)	150 μL × 1 vial	1:100, dilute with Enzyme Conjugate Diluent Buffer
T7 RNA Polymerase Standard	30 μL × 1 vial (0.668 mg/mL)	Operate as per the recommended dilution procedure
Sample Diluent Buffer	60 mL× 1 bottle	Ready-to-use
Antibody Diluent Buffer	12 mL× 1 bottle	Ready-to-use
Enzyme Conjugate Diluent Buffer	12 mL× 1 bottle	Ready-to-use
20×PBST Wash Buffer (20×PBST)	50 mL× 1 bottle	1:20, dilute with deionized water
Color Reagent	12 mL× 1 bottle	Ready-to-use
Stop Solution	7 mL× 1 bottle	Ready-to-use
Plate Sealer	5 pieces	Ready-to-use
Instructions for Use	1 copy	Ready-to-use

Note: Detection antibody , enzyme conjugate and Standard store at 2-8℃; Others store at 2-8℃, protected from light with a shelf life of 12 months.

Apparatus and materials to be prepared by the user:

(1) Plate reader
(2) Constant temperature incubator
(3) Micro pipette and tips
(4) Deionized water
(5) Unused filter paper
(6) Vortex shaker

Reagent preparation

(1) Temperature equilibration: Transfer reagents to be used to room temperature (18 ~ 25℃) environment and equilibrate the temperature for 30 minutes.

(2) Preparation:

① 1× PBS-T Wash Buffer: Calculate the volume of working buffer required, measure an appropriate amount of 20× PBS-T Wash Buffer, dilute with deionized water at 1:20, and mix well for later use.

② Detection antibody working solution: Calculate the volume of working solution required for the test, dilute an appropriate amount of biotin antibody with diluent in a ratio of 1:100, and mix well for later use.

③ Enzyme conjugate working buffer: Calculate the volume of working solution required for the test, dilute an appropriate amount of enzyme conjugate with enzyme conjugate diluent in a ratio of 1:100, and mix well for later use.

④ The standard and test samples should be diluted with the Diluent Buffer.

(3) Dilution of standard:

Vial No.	Standard solution concentration (ng/mL)	Standard solution volume (μL)	Diluent Buffer volume (μL)	Total volume (μL)	Final concentration (ng/mL)	Remaining volume (μL)
Pre-1	668000	5	395	400	8350	369.3
8	8350	30.7	969.3	1000	256	700
7	256	300	300	600	128	300
6	128	300	300	600	64	300
5	64	300	300	600	32	300
4	32	300	300	600	16	300
3	16	300	300	600	8	300
2	8	300	300	600	4	600
1	/	/	300	300	0	300

Operation procedures

(1) Mix all reagents well before use to avoid bubbles.

(2) Confirm the number of stripe plates required based on the number of experimental wells. Put remaining strip plates back to aluminum foil bags with desiccants and seal the bag.

(3) Loading: Add standard, sample dilution working buffer, and negative control into respective wells at 100 μL/well. Seal the microplate with microplate sealer and incubate in a 37℃ constant temperature shaking incubator at 200-300 rpm for 60 minutes.

(4) Plate washing: Discard the liquid in each well, and fill the wells with 1× PBST Wash Buffer (300 μL/well). Stand for 30 seconds and discard the liquid in each well. Repeat the procedure for 3 times, and pat the plate dry on the filter paper

after each washing.

(5) Addition of detection antibody working buffer: Add 100 µL of detection antibody working solution into each well, seal the microplate with microplate sealer, and incubate in a 37℃ constant temperature shaking incubator at 200-300 rpm for 60 minutes.

(6) Plate washing: Discard the liquid in each well, and fill the wells with 1× PBST Wash Buffer (300 µL/well). Stand for 30 seconds and discard the liquid in each well. Repeat the procedure for 3 times, and pat the plate dry on tissue after each washing.

(7) Addition of enzyme conjugate working buffer: Add 100 µL of enzyme conjugate working buffer to each well. After sealing the plate with a plate sealer, place the plate in a thermostat shaking incubator at 37℃, and incubate for 60 minutes at 200 ~ 300 rpm.

(8) Plate washing: Discard the liquid in each well, and fill the wells with 1× PBST Wash Buffer (300 µL/well). Stand for 30 seconds and discard the liquid in each well. Repeat the procedure for 3 times, and pat the plate dry on tissue after each washing.

(9) Color development: Add 100 µL of Color Reagent to each well, shake gently to mix well, and then seal the plate with microplate sealer at 25℃ for 10 minutes.

(10) Assay: Add 50 µL of Stop Solution to each well and gently shake to mix well. Measure the optical density (OD) value of each well with a microplate reader at a primary wavelength of 450 nm and a reference wavelength of 630 nm.

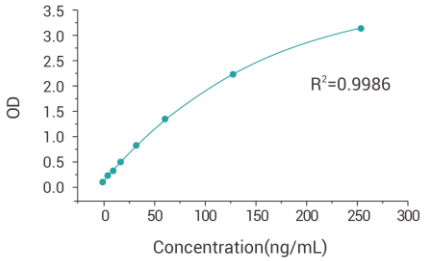
Results process

The 4-parameter fitting method is recommended for the linear fitting and calculation of the product.

(1) OD processing of the standard curve (the following example is provided as reference only, and the results from actual detection shall prevail)

Standard concentration (ng/mL)	OD value (1)	OD value (2)	Mean value
256	3.109	3.183	3.146
128	2.281	2.213	2.247
64	1.411	1.394	1.4025
32	0.787	0.845	0.816
16	0.463	0.447	0.455
8	0.299	0.307	0.303
4	0.235	0.235	0.235
0	0.141	0.133	0.137

(2) A standard curve will be obtained by a four-parameter fit of the theoretical concentration of the standard to the corresponding OD value (as shown in the figure below)



Limitations of the assay method

This reagent is only used to detect the content of T7 RNA Polymerase in samples.

Precautions

(1) If the test samples are purified, it is usually recommended to detect with the original solution or 2-fold diluted solution. When testing for the first time, it is recommended to perform dilution with at least 3 consecutive dilution factors, so as to generate at least one diluted sample within the range of the standard curve. Diluent should be mixed thoroughly before further analysis or dilution. Analyze each sample in duplicate to determine the correct residual T7 RNA polymerase value in the original sample.

(2) The reagents should be stored as indicated on the label, and should be equilibrated to room temperature before use.

(3) Before using the pre-coated strips, please equilibrate to room temperature and then open the secondary packaging. The strips not used in the test should be immediately placed back into the package and sealed, and can be stored at 4℃ for one month. Other unused reagents should be packaged or covered.

(4) Standards, biotin and enzyme conjugates are provided in small volumes, and it is necessary to centrifuge briefly at high speed before use to allow the liquid on the wall or cap to settle at the bottom of the tube.

(5) Please use disposable tips during experimental operation to avoid cross contamination.

(6) Please check each reagent in the kit before use. To obtain accurate assay results, it is of special importance to mix well or shake well the reagents for dilution, loading, and reaction termination.

(7) When washing residual Wash Buffer in the reaction wells, pat the plate dry adequately on clean tissue papers until watermark is no longer visible. Do not put the tissue paper into the well to absorb the liquid.

(8) The TMB Substrate is photosensitive, thus long-time exposure to illumination should be avoided; avoid contact with metal, otherwise, the assay results may be affected.

(9) The kit is for single use. Please use within the shelf life.

Disclaimer

Under all circumstances, the liability of our company for this product is only limited to the value of the product itself.