



User's Manual

# Bordetella pertussis (ACT) Quantitation Kit

**REF** DEIASL125

**Σ** 96T

**RUO**

This product is for research use only and is not intended for diagnostic use.

For illustrative purposes only. To perform the assay the instructions for use provided with the kit have to be used.

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## PRODUCT INFORMATION

### Intended Use

Bordetella pertussis (ACT) Quantitation Kit is designed for quantitative detection of the contents of ACT in the samples.

### General Description

Whooping cough is a disease of the respiratory tracts which is caused by Bordetella pertussis bacteria. It is transmitted by airborne infection. The gram-negative Coccobacillus produces a series of biologically active molecules. The different compounds appear either during the pathogenesis or during the process of immunization against pertussis and show different effects. A characterisation has been made for the pertussis toxin (pt), the filamentary haemagglutinin (fha) and different lipopolysaccharides (lps). Pertussis shows a high rate of transmission (rates of infection of over 90 % have been found for non-vaccinated household members) and can cause severe diseases, especially for very young children. From 10749 patients under one year between 1980 and 1989 69 % were brought into hospital, 22 % suffered from pneumonia, 0.9 % showed an Encephalopathy and 0.6 % died. For older children and adults (including already vaccinated persons) the infection may be observed by an unspecified bronchitis or inflammation of the upper respiratory tracts. Even asymptomatic cases are quite common.

### Principles of Testing

This product adopts the principle of Double Antibody Sandwich Method (Sandwich Elisa). The flat-bottom 96-well plates are coated with anti-ACT polyclonal antibody. After adding the samples, the anti-ACT monoclonal antibody labeled with HRP is used for detection. The content of the ACT in the samples can be detected by the degree of TMB color development.

### Reagents And Materials Provided

1. Coated plate, 12 wells x 8 strips 2. Biotin conjugate, 120µl x 1 tube (diluted 100 times for use) 3. Enzyme conjugate, 120µLx1 tube (diluted 100 times for use) 4. Enzyme solution, 12m Lx1 vial 5. BSA, 3G x1 pack 6. 20x Washing Buffer, 50mLx1 vial 7. Substrate Solution A, 7mLx1 vial 8. Substrate Solution B, 7mLx1 vial 9. Termination Solution, 7mLx1 vial 10. Sealing plate film, 2 pieces 11. Instruction book

### Storage

1. All components remain stable under the condition of 2-8°C;
2. Avoid light. Valid for six months

### Reagent Preparation

1. 1xwashing buffer: Take 1 bottle of 20xwashing buffer, dilute it to 1000ml with deionized water, mix well.
2. 3% BSA buffer: Dissolve BSA (3g/pack) completely into 100ml of the prepared 1xwashing buffer (step 1),

mix well.

3. Dilution buffer (1% BSA).
4. Biotin conjugate solution: Take the required Biotin conjugate, dilute it 100 times with the solution buffer prepared in step 2, mix well.
5. Enzyme solution: Take the required enzyme conjugate, dilute it 100 times with the solution buffer prepared in step 3, mix well.

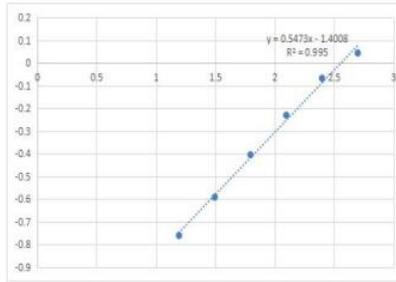
## Assay Procedure

1. Equilibration: Equilibrate the required reagents at room temperature (18~25°C) for 30 minutes.
2. Adding standard and samples: Remove the coated plate from the sealed bag and dilute the standard to the different concentrations. After adding 100µl of standard or sample to each well (including negative control), seal the plate with sealing film. Place the plate in a shaking incubator (37°C, 200 rpm) and incubate for 60 minutes.
3. Washing: Discard the liquid in each well, fill the microwells (350µl/well) with 1× washing buffer, and discard the liquid in the wells after 30 seconds. Repeat these steps for 3 times, then pat the plate on the paper towel after the last wash.
4. Adding the biotin conjugate solution: Add the biotin conjugate solution to the microplate (100µl per well). Seal the plate with sealing film. Place the plate in a shaking incubator (37°C, 200 rpm) and incubate for 60 minutes.
5. Washing: Repeat step 3.
6. Adding enzyme solution: Add the enzyme solution to the microplate (100µl per well). Seal the plate with sealing film. Place the plate in a shaking incubator (37°C, 200 rpm) and incubate for 45 minutes.
7. Washing: Discard the liquid in each well, fill the microwells (350µl/well) with 1× washing buffer, and discard the liquid in the wells after 30 seconds. Repeat these steps for 5 times, then pat the plate on the paper towel after the last wash.
8. Coloring: Add 50µl each of Substrate Coloring Solution A and B into each well. Mix well with gentle tapping. Then incubate the plate at room temperature for 5~10 minutes in the dark.
9. Termination Terminate the reaction by adding 50µl of 0.2M H<sub>2</sub>SO<sub>4</sub> into each well and mix gently. Set the main wavelength of the microplate reader at 450nm and the reference wavelength at 630nm. Measure the absorbance (OD value) of each well.

## Typical Standard Curve

It is recommended to adopt the fitting method of four parameters or double logarithm for fitting and calculation.

Standard Curve Concentration	OD Value		Mean Value
1	1.349	1.287	1.318
0.5	1.131	1.08	1.1055
0.25	0.852	0.858	0.855
0.125	0.59	0.585	0.5875
0.0625	0.403	0.384	0.3935
0.03125	0.266	0.246	0.256
0.015625	0.17	0.177	0.1735
NC	0.091	0.085	0.088



### Precision

CV% ≤15% (n=10)

### Detection Range

0.0156~0.5µg /ml

### Detection Limit

Detection limit: ≤0.03125µg/ml

### Precautions

1. Avoid cross contamination.
2. Follow reader measure as a standard.
3. All samples and buffers should be added or removed with pipette.
4. Do not mix reagents from different batches.

### Limitations

1. This kit is only used to detect the content of ACT antigen in samples.
2. Results out of the measurement range of the kit are unreliable.
3. Severe hemolysis, chyle, and bilirubin samples may cause abnormal test results.
4. This kit is developed for in vitro research only.