

OXYTETRACYCLINE ELISA TEST KIT
MANUAL

Oxytetracycline ELISA Test Kit

Catalogue Number. IP100023

Principle

This test kit is based on the competitive enzyme immunoassay for the detection of Oxytetracycline in the sample. The coupling antigens are pre-coated on the micro-well stripes. The Oxytetracycline in the sample and the coupling antigens pre-coated on the micro-well stripes compete for the anti-Oxytetracycline antibody. After the addition of the enzyme conjugate, the TMB substrate is added for coloration. The optical density (OD) value of the sample has a negative correlation with the Oxytetracycline in it. This value is compared to the standard curve and the Oxytetracycline concentration is subsequently obtained.

Technical specifications

Sensitivity: 0.2 ppb

Incubation Temperature: 25°C

Incubation Time: 30min—15min

Detection limit: Tissue about 6ppb, Honey about 10ppb, Milk (method 1) about 10ppb, Milk (method 1) about 20ppb

Cross-reaction rate: Oxytetracycline 100%, Tetracycline 200%, Chlortetracycline 240%, Doxycycline 20%,

Recovery rate: Tissue 90±15%

Components

1	Micro-well strips	12 strips with 8 removable wells each
2	10× standard solution (1mL each)	0 ppb, 2ppb, 6ppb, 18ppb, 54ppb (0.5ml/bottle)
3	Enzyme conjugate	7ml
4	Antibody working solution	7ml
5	Substrate A	7ml
6	Substrate B	7ml
7	Stop solution	7ml
8	20× concentrated washing buffer	30ml
9	20× concentrated redissolving solution	10ml

Materials required but not provided

Equipments: microplate reader (450nm, 630nm), rotary evaporator/nitrogen-drying device, homogenizer, oscillator, centrifuge (4000g and above), balance (a sensibility reciprocal of 0.01 g), measuring pipets, incubator (adjustable 25°C、 37°C、 60°C),timer

Micropipettors: single-channel 20~200 μL and 100~1000 μL, and multi-channel 30~300 μL;

Reagents: deionized water, HCl.

Sample pre-treatment

Instructions

- 1) Only the disposable tips can be used for the experiments and the tips must be changed when used for absorbing different reagents;
- 2) Before the experiment, each experimental equipment must be clean and should be re-cleaned if necessary, in order to avoid the contamination that interferes with the experimental results.

Solution preparation before sample pre-treatment

- 1) Dilute 20× concentrated redissolving solution with deionized water at 1:19(1 part concentrated redissolving solution + 19 parts deionized water).
- 2) Washing buffer: 1 part 20× concentrated washing buffer + 19 parts deionized water
- 3) 1M HCl: take 1ml concentrated HCl, add 11ml deionized water to dissolve and mix it evenly.

Samples preparation

a) Tissue

- 1) Take 1 ± 0.01 g of the homogenized sample into 10 mL centrifuge tube, add 5 mL deionized water, shake with oscillator for 2min, centrifuge at above 4000 r/min at room temperature (20 - 25 °C) for 10 minutes.
- 2) Take 500ul supernatant, add 500ul diluted redissolving solution, shake with oscillator for 10min;
- 3) Take 50 μ L for analysis.

Fold of dilution of the sample: 12

b) Honey

- 1) Take 1 ± 0.01 g honey sample into 10 mL centrifuge tube; Add 2ml deionized water, shake with oscillator fully for 1 min to dissolve; take 100ul dissolved solution, add 400ul diluted redissolving solution, oscillator for 10S to mix it evenly;
- 2) Take 50ul for analysis immediately.

Fold of dilution of the sample: 10

c) Milk

Method 1

- 1) Thaw the collected liquid milk sample, then put at room temperature for 30min;
- 2) Put tips in the down-layer of milk, take 1ml sample into 2ml centrifuge tube(note: do not take the up-layer cream);
- 3) Add 50ul 1M HCl, shake strongly for 1min(or oscillator for 30s);
- 4) Centrifuge at above 4000 r/min at room temperature (20 - 25 °C) for 10 minutes;
- 5) Take up-layer clear liquid 50ul into another clean centrifuge tube(note: do not take the up-layer cream), add 450ul diluted redissolving solution, shake strongly for 1min(or oscillator for 30s);
- 6) Take 50ul for analysis immediately.

Fold of dilution of the sample: 10

Method 2

- 1) Take 50ul liquid sample into 1950ul diluted redissolving solution; oscillator fully for 1min evenly;
- 2) Take 50ul for analysis immediately.

Fold of dilution of the sample: 40

ELISA procedures

Instructions

- 1) Bring all reagents and micro-well strips to the room temperature (20-25 °C).
- 2) Return all reagents to 2-8 °C immediately after use.
- 3) The reproducibility of the ELISA analysis, to a large degree, depends on the consistency of plate washing. The correct operation of plate washing is the key point in the procedures of ELISA.
- 4) For the incubation at constant temperatures, all the samples and reagents must avoid light exposure, and each microplate should be sealed by the cover membrane.

Operation procedures

1. Take out all the necessary reagents from the kit and place at the room temperature (20-25 °C) for at least 30 min. Note that each reagent must be shaken to mix evenly before use.
2. Take the required micro-well strips and plate frames. Re-sealed the unused microplate, stored at 2-8°C, not frozen.
3. Solution preparation: dilute 40 mL of the concentrated washing buffer (20×concentrated) with deionized water at 1:19 (1 part concentrated washing buffer + 19 parts deionized water), or prepare as quantity needed.
4. Numbering: number the micro-wells according to samples and standard preparation; each testing sample and standard solution should be performed in duplicate; record their positions.
5. Add 50 µL of the sample or standard solution to separate duplicate wells, and add 50 µL of the antibody working solution into each well. Mix gently by shaking the plate manually, seal the microplate with the cover membrane, and incubate at 25 °C for 30 min.
6. Pour the liquid out of the wells, wash the microplate with the washing buffer at 250 µL/well for 4-5 times. Each time soak the well with the washing buffer for 15-30 seconds and then flap to dry on absorbent paper (if there are the bubbles after flapping, cut them with the clean tips).
7. Add 100 µL of the enzyme conjugate into every well, seal the microplate with the cover membrane, and incubate at 25 °C for 30 min, continue as subscribed in 6.
8. Coloration: add 50 µL of the substrate A solution and then 50 µL of the B solution into each well. Mix gently by shaking the plate manually, and incubate at 25 °C for 15min at dark for coloration.
9. Determination: add 50 µL stop solution into each well. Vortex evenly. Set the wavelength of the microplate reader at 450 nm to determine the OD value.(we recommend to read the OD value at the dual-wavelength 450/630 nm within 5 min).

Result judgment

There are two methods to judge the results; the first one is the rough judgment, while the second is the quantitative determination. Note that the OD value of the sample has a negative correlation with the Benzyl penicillin in the sample.

Qualitative determination

The concentration range (ng/mL) can be obtained from comparing the average OD value of the sample with that of the standard solution. Assuming that the OD value of the sample I is 0.3, and that of the sample II is 1.0, while those of the standard solutions are as the followings: 2.243 for 0 ppb, 1.816 for 0.1 ppb, 1.415 for 0.3 ppb, 0.74 for 0.9 ppb, 0.313 for 2.7 ppb and 0.155 for 8.1 ppb, accordingly the concentration range of the sample I is 2.7 to 8.1 ppb, and that of the sample II is 0.3 to 0.9 ppb.

Quantitative determination

The mean values of the absorbance values obtained for the percentage of the average OD value (B) of the sample and the standard solution divided by the OD value (B₀) of the first standard solution (0 standard) and subsequently multiplied by 100%, that is,

$$\text{Percentage of absorbance value} = (B / B_0) \times 100\%$$

B—the average OD value of the sample or the standard solution

B₀—the average OD value of the 0 ng/mL standard solution

Draw the standard curve with the absorption percentages of the standard solutions and the semilogarithmic values of the Benzyl penicillin standard solutions (ng/mL) as Y- and X-axis, respectively. Read the corresponding concentration of the sample from the standard curve by incorporating its absorption percentage into the standard curve. The resulting value is subsequently multiplied by the corresponding dilution fold, thus finally obtaining the actual concentration of Benzyl penicillin in the sample.

Using the professional analyzing software of this kit will be more convenient for the accurate and rapid analysis of a large amount of samples. (Please contact us for this software).

Precautions

1. The room temperature below 25 °C or the temperature of the reagents and the samples being not returned to the room temperature (20-25 °C) will lead to a lower standard OD value;
2. Dryness of the microplate in the washing process will be accompanied by the situations including the non-linear standard curves and the undesirable reproducibility;
3. Mix every reagent and reaction mixture evenly and wash the microplate thoroughly, otherwise there will be the undesirable reproducibility;
4. The stop solution is the 2 M sulfuric acid solution, avoid contacting with the skin;
5. Put the unused microplate into an auto-sealing bag to re-seal it. The standard substance and the colourless color former is light sensitive, and thus they cannot be directly exposed to the light;
6. Do not use the kit exceeding its expiry date. The use of diluted or adulterated reagents from the kits will lead to the changes in the sensitivity and the detecting OD values. Do not exchange the reagents from the kits of different lot numbers to use;
7. Discard the colouration solution with any color that indicates the degeneration of this solution. The detecting value of standard solution 1 (0 ppb) of less than 0.5 indicates its degeneration;
8. The optimum reaction temperature is 25 °C, and too high or too low temperatures will result in the changes in the detecting sensitivity and OD values.

Storage: store at 2-8 °C, not frozen.

Expiry date: 12 months; date of production is on box.