

**TILMICOSIN ELISA TEST KIT**  
**MANUAL**

## Tilmicosin ELISA Test Kit

Catalogue Number. IP100030

### Principle

This test kit is based on the competitive enzyme immunoassay for the detection of Tilmicosin in the sample. The coupling antigen is pre-coated on the micro-well stripes. The Tilmicosin in the sample and the coupling antigen pre-coated on the micro-well stripes compete for the anti-Tilmicosin 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 Tilmicosin in it. This value is compared to the standard curve and the Tilmicosin concentration is subsequently obtained.

### Technical specifications

Sensitivity: 0.5ppb

Incubation Temperature: 25°C

Incubation Time: 20min~10min

Detection limit: Pork, Chicken 2ppb

Recovery rate: Chicken, Pork 90±30%

Cross-reaction rate: Tilmicosin 100%

### Components

1	Micro-well strips	12 strips with 8 removable wells each	
2	6× standard solution (1mL each)	0ppb, 1.5ppb,13.5ppb,0.5ppb,4.5ppb,40.5ppb	
3	Enzyme conjugate	7ml	red cap
4	Antibody working solution	7ml	blue cap
5	Substrate A	7ml	white cap
6	Substrate B	7ml	black cap
7	Stop solution	7ml	yellow cap
8	20× concentrated washing buffer	15ml	white cap
9	5× Sample extract solution	100ml	transparent cap

### Materials required but not provided

Equipments: microplate reader, homogenizer, nitrogen-drying device, vortex, centrifuge, measuring pipets, and balance( a sensibility reciprocal of 0.01 g), incubator, printer.

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

Reagents: HCl, NaOH.

### 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 checked to be clean and should be re-cleaned if necessary, in order to avoid the contamination which interferes with the experimental results.

#### *Solution preparation before sample pre-treatment*

- 1) 0.2M HCl: take 17.2ml HCl, add deionized water to 1L.
- 2) 1M NaOH: take 4g NaOH, add deionized water to 100ml.
- 3) Sample extract solution: the 5×Sample extract solution is diluted with deionized water at 1:4.

#### **Samples preparation**

##### **a) Chicken, Pork**

1. Take  $2 \pm 0.05$ g of the homogenized sample into a 50ml centrifuge tube, add 3mL 0.2M HCl, shake for 3min.
2. Add 600ul 1M NaOH and 2.4ml Sample extract solution, shake for 3min, centrifuge at above 4000 r/min at 20°C for 10 min.
3. Take 50  $\mu$ L of the up-layer liquid for analysis (note: if there is fat layer after centrifuge, firstly discard fat layer or separate fat layer to take clear liquid to test).

*Fold of dilution of the sample: 4*

#### **ELISA procedures**

##### **Instructions**

1. Bring all reagents and micro-well strips to the room temperature (20-25 °C) before use;
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 ELISA the procedures;
4. For the incubation at constant temperatures, all the samples and reagents must avoid light exposure, and each micro-plate 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, store at 2-8°C, not frozen.
3. Solution preparation: dilute 15 mL of the concentrated washing buffer (20 × concentrated) with the deionized water at 1:19 (1 part of 20X concentrated washing buffer + 19 parts of deionized water), or prepare as quantity needed.
4. Numbering: number the micro-wells according to samples and standard solution; each sample and standard solution should be performed in duplicate, record their positions.
5. Add 50  $\mu$ L of the sample or standard solution to separate duplicate wells; then add 50  $\mu$ L enzyme conjugate into each well, at last add 50  $\mu$ L of antibody working solution into each well. Mix gently by shaking the plate manually, seal the micro-plate with the cover membrane, and incubate at 25 °C for 20 min.
6. Pour the liquid, wash the micro-plate with the diluted washing buffer at 250  $\mu$ L/well for 4-5 times. Each time soak the well with the washing buffer for 15-30 sec, flap to dry with absorbent paper (if there are the bubbles after flapping, cut them with the clean tips).
7. Coloration: add 50  $\mu$ L of the substrate A solution and then 50  $\mu$ L of the B solution into each well. Mix gently by shaking the plate manually, and incubate at 25 °C for 10 min at dark for coloration.

8. Determination: add 50  $\mu\text{L}$  of the stop solution into each well. Mix gently by shaking the plate manually. Set the wavelength of micro-plate reader at 450nm to determine the OD value. (recommend to read the OD value at the dual-wavelength 450/630nm 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 content of Tilmicosin.

### **Qualitative determination**

The concentration range (ng/mL) can be obtained from the comparison the average OD value of the sample with that of the standard solution. Assuming that the OD value of the sample I is 0.2, and that of the sample II is 1.0, while those of the standard solutions are as the followings: 2.005 for 0ppb, 1.643 for 0.5ppb, 1.19 for 1.5ppb, 0.67 for 4.5ppb, 0.26 for 13.5ppb and 0.13 for 40.5ppb, accordingly the concentration range of the sample I is 13.5 to 40.5ppb, and that of the sample II is 1.5 to 4.5ppb.

### **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 (B<sub>0</sub>) of the first standard solution (0 standard) and subsequently multiplied by 100%, that is,

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

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

B<sub>0</sub>—the average OD value of the 0 ng/mL standard solution

Draw the standard curve with the absorption percentages of the standard solution and the semilogarithm values of the Tilmicosin standard solution (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 Tilmicosin concentration 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 the 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.