

## Phenylethanolamine A ELISA Test Kit

Catalog No. LSY-10040



### 1. Principle

The test kit is based on the competitive enzyme immunoassay for the detection of Phenylethanolamine A in the sample. The conjugated antigen is pre-coated on the micro-well stripes. The Phenylethanolamine A in the sample and the coupling antigens pre-coated on the micro-well stripes compete for anti-

Phenylethanolamine A antibodies. 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 Phenylethanolamine A concentration in the sample. The value is compared to the standard curve and the Phenylethanolamine A concentration is subsequently obtained.

## **2. Technical specifications**

**Sensitivity: 0.3 ppb**

**Incubator temperature: 25°C**

**Incubator time: 30min~15min**

**Detection limit**

Urine 0.3 ppb

**Cross-reactions**

Phenylethanolamine A 100%

Ractopamine <1%

Salbutamol <1%

Clenbuterol <1%

**Recovery rate**

Urine 80±25%

## **3. Components**

- 1) Micro-well strips: 12 strips with 8 removable wells each
- 2) 6x standard solution (1 mL each): 0ppb, 0.3ppb, 0.9ppb, 2.7ppb, 8.1ppb, 24.3ppb

- 3) Enzyme conjugate (7 mL)red cap
- 4) Antibody working solution (10 mL)blue cap
- 5) Substrate A solution (7 mL)white cap
- 6) Substrate B solution (7 mL)black cap
- 7) Stop solution (7 mL)yellow cap
- 8) 20x concentrated washing buffer (40 mL)white cap

#### **4. Materials required but not provided**

**1) Equipments:** microplate reader, printer.

**2) Micropipettors:** single-channel 20-200  $\mu\text{L}$  and 100-1000  $\mu\text{L}$ , and multi-channel 30-300  $\mu\text{L}$ ;

#### **5. Sample pre-treatment**

***Instructions*** (The following points must be dealt with before the pre-treatment )

- 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 utensil must be clean and should be re-cleaned if necessary, in order to avoid the contamination that interferes with the experimental results.

#### ***Samples preparation***

##### **Urine**

Take 20  $\mu\text{L}$  clear urine, directly detect it (If urine is muddy, must filter or centrifuge at 4000 r/min for 10 min, then take clear urine). Store at frozen environment if don't use.

**Fold of dilution of sample: 1**

*(Because there is sample disturbance, recommend 2PPB as sample CUT OFF value. The recovery rate is high when testing bovine urine sample )*

**6. ELISA procedures**

**6.1 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 points 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.

**6.2 Operation procedures**

- 1 Bring test kit to the room temperature (20-25 °C) for at least 30 min, note that each liquid reagent must be shaken to mix evenly before use.
- 2 Solution preparation: Dilute the 40ml 20x concentrated washing buffer with deionized water at 1:19 (1 part 20x concentrated washing buffer + 19 parts deionized water), or prepare as quantity needed.
- 3 Put the required micro-well strips into plate frames. Re-sealed the unused microplate, stored at 2-8 °C, not frozen.
- 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 20 µL of the sample or the standard solution into separate duplicate wells; add 50 µL of enzyme conjugate and 80 µL of the antibody working solution into each well, seal the microplate with the cover membrane, and **incubate at 25 °C for 30 min.**

6 Pour liquid out of microwell, flap to dry on absorbent paper; add 250  $\mu\text{L}$ /well of deionized water, wash for 15-30 seconds, then take out and flap to dry with absorbent paper, repeat 4-5 times.

6 Coloration: add 50  $\mu\text{L}$  of the substrate A solution, 50  $\mu\text{L}$  of the B solution into each well. Mix gently by shaking the plate manually, and **incubate at 25 °C for 15 min at dark for coloration**.

7 Determination: add 50  $\mu\text{L}$  of the stop solution into each well. Mix gently by shaking the plate manually. Set the wavelength of the microplate reader at 450 nm to determine the OD value of every well. (Recommend to read the OD value at the dual-wavelength 450/630 nm within 5 min).

## 7. 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 Phenylethanolamine A in the sample.

### 7.1 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, the OD value of standard solutions is: 2.243 for 0 ppb, 1.816 for 0.3 ppb, 1.415 for 0.9 ppb, 0.74 for 2.7 ppb, 0.313 for 8.1 ppb, 0.155 for 24.3 ppb, accordingly the concentration range of the sample

I is 8.1 to 24.3 ppb, and that of the sample II is 0.9 ppb to 2.7ppb.

### 7.2 Quantitative determination

The mean values of the absorbance values obtained for the average OD value (B) of the sample and the standard solution divided by the OD value ( $B_0$ ) of the first standard solution (0 standard) and subsequently multiplied by 100%, that is

$$\text{Percentage of absorbance value} = \frac{B}{B_0} \times 100\%$$

$B_0$

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

$B_0$ —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 semilogarithm values of the Phenylethanolamine A 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, finally obtaining the actual concentration of Phenylethanolamine A 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)

## 8. 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; So continue to next step immediately after washing.

3 Mix evenly, wash plate completely, the reproducibility of the ELISA analysis, to a large degree, depends on the consistency of plate washing.

4 The stop solution is the 2 M sulfuric acid solution, avoid contacting with skin.

5 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.

6 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.

7 Discard the colouration solution with any color that indicates the degeneration of this solution. The detecting value of the 0 standard solution of less than 0.5 ( $A_{450\text{ nm}} < 0.5$ ) indicates its degeneration.

8 The optimum reaction temperature is 25 °C, and too high or low temperatures will result in the changes in the detecting sensitivity and OD values.

## 9. Storage and expiry date

**Storage:** store at 2-8 °C, not frozen.

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

**Note:** If the Vacuum package of microplate has leakage, it is still valid to use, do not affect the test result, be relax to use.

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