# TECHNICAL MANUAL

# T-2(T-2 Toxin) ELISA Kit

- **SKU CODE:** FSES0111
- **SIZE:** 48T/96T
- **DETECTION PRINCIPLE:** Competitive
- **RUO:** Research-Use-Only

Revised: 11/2025

# T-2(T-2 Toxin) ELISA Kit

*Please read entire manual carefully before starting experiment. DO NOT mix reagents and use reagents from different kits or batches to prevent assay failure.*

## Table of Contents


**1. Key Features** 3

**2. Storage & Expiry** 3

**3. Product Description** 4

**4. Kit Contents** 5

**5. Precautions** 6

**6. Experimental Preparation** 7

**7. Assay Procedure** 9

**8. Data Analysis** 10

**9. ELISA Troubleshooting** 11

# 1. Key Features

**Detection Method:**

Competitive (Antigen Coated)

**Detection limit:**

Cereals, Feed ---20 ppb

**Cross-reactivity:** T-2 Toxin ---100%, Zearalanone ---59%, HT-2 Toxin---＜1%

**Sample recovery rate:**

100%±30%

# 2. Storage & Expiry

Assay Genie ELISA Kits are shipped on ice packs. Please store this ELISA Kit and/or components as described in section 4. Date of expiration is on the ELISA Box label.

# 3. Product Description

The Assay Genie T-2 (T-2 Toxin) ELISA Kit is a highly sensitive assay for the quantitative measurement of a T-2 in the following samples: Grain, Feed, etc.

Based on the competitive ELISA principle, the assay relies on the competition between free T-2 in the sample and a pre-coated T-2-conjugated antigen immobilized on the microtiter plate for binding to a specific anti-T-2 antibody. Following this competitive binding step, Horseradish Peroxidase (HRP) conjugate is introduced to form an enzyme-linked complex, which catalyzes a colorimetric reaction upon addition of the substrate reagent. The resulting optical density (OD) is measured spectrophotometrically and exhibits an inverse relationship with T-2 concentration—higher T-2 levels yield lower OD values. Quantification is achieved by comparing sample OD readings against a standard calibration curve provided in the kit.

Each component, including the antibody working solution, standards, and supplementary reagents, is optimized to ensure reproducibility and accuracy across a wide dynamic range. This kit is ideal for laboratories conducting food safety screening, veterinary drug residue monitoring, and pharmacological research.

# 4. Kit Contents

| No | Component Name | Specifications | Storage |
|---|---|---|---|
| **1** | ELISA Microtiter plate | 96 wells | Store the kit at 2-8℃. Do not freeze any test kit components. |
| **2** | Standard Liquid | 1 mL each (0 ppb,0.2 ppb, 0.6 ppb, 1.8 ppb, 5.4 ppb, 16.2 ppb) | |
| **3** | HRP Conjugate | 12 mL | |
| **4** | Antibody Working Solution | 10 mL | |
| **5** | Substrate Reagent A | 7 mL | |
| **6** | Substrate Reagent B | 7 mL | |
| **7** | Stop Solution | 7 mL | |
| **11** | 20x Concentrated Wash Buffer | 25 mL | |
| **12** | Sample diluent | 50 mL | |
| **13** | Plate Sealer | 3 pieces | |
| **14** | Sealed Bag | 1 piece | |
| **15** | Technical Manual | 1 piece | |

## Additional materials required:

1. 25°C incubator.
2. Plate Reader with 450nm filter.
3. Precision pipettes and disposable pipette tips.
4. Distilled water.
5. Disposable tubes for sample dilution.
6. Absorbent paper.
7. Ethanol (Analytical reagent)

# 5. Precautions

1. This kit is ideal for research purposes only and not for diagnostics or therapeutic uses.

2. To identify the concentration of your target, a pilot experiment using standards and a small number of samples is recommended.

3. Store all components as listed in this manual. Do not use the ELISA Kit after its expiration date

4. Ensure unopened and unused plate is kept dry to avoid contamination.

5. Before using the kit, centrifuge tubes to spin down standard & antibodies.

6. Substrate Reagent should be abandoned if it turns blue color. When OD value of standard (concentration: 0) < 0.8 unit (A450nm < 0.8), it indicates the reagent be deteriorated.

7. Wash steps are critical for the success of the assay, deviations from wash steps may cause false positives and result in a high background.

8. Duplicate wells are recommended for both standard and sample testing.

9. Do not let the microplate wells dry during assay.

10. Do not reuse tips and tubes to avoid cross contamination.

11. Avoid using the reagents from different batches together.

# 6. Experimental Preparation

The procedures outlined in this document are provided as general recommendations for sample preparation in ELISA assays. Due to the variability of biological samples and specific assay requirements, users are advised to optimize protocols based on their own experimental conditions.

***Note**: For information regarding validation data in specific samples, please contact our Technical Support Team at techsupport@assaygenie.com.*

Bring all reagents and samples to room temperature before use. Open the microplate reader in advance, preheat the instrument, and set the testing parameters.

## A. Sample pretreatment Precautions

Experimental apparatus should be clean, and the pipette should be disposable to avoid cross-contamination during the experiment.

## B. Solution preparation:

***Note:** Please prepare solution according to the number of samples. Don't use up all components in the kit at once.*

Solution 1: 50% Ethanol

Ethanol (Vol) : Deionized water (Vol)=1:1

Solution 2: Wash Buffer

Dilute **20x Concentrated Wash Buffer** with deionized water. (20x Concentrated Wash

Dilution (V): Deionized water (V) = 1:19).

### C. Sample pretreatment procedure

**1. Pretreatment of grain (beans, rice, corn, oats, wheat), feed sample:**

1- **Homogenize** the representative dry sample with a homogenizer and mix fully.

2- Weigh 2±0.05 g of homogenate sample in to 50 mL centrifuge tube, add 10 mL of **50% Ethanol** (Solution 1), vortex for 5 min, centrifuge at 4000 r/min for 5 min at room temperature.

3- **Transfer 30 µL of the supernatant** to a new centrifuge tube, **add 450 µL of deionized water,** and mix thoroughly.

4- Use 20 µL of the final solution for analysis.

***Note:*** **Sample dilution factor: 80; detection limit: 20 ppb.**

# 7. Assay Procedure

1. **Plate Setup:** Designate standard wells, test sample wells, and control (blank) wells on the pre-coated plate, and record their positions. It is recommended to measure each standard and sample in duplicate. ***Note:*** *Determine the optimal dilution ratio for samples through preliminary experiments or by following technical support recommendations*.
2. **Standard, Samples & Antibody working solution:** Add 20 µL of Standard or Sample per well, then add 80 µL of Antibody working solution**.** Incubate for 15 min at 25°C in protected from light.
3. **Washing:** Uncover the sealer carefully, remove the liquid of each well. Immediately add 260 µL of Wash Buffer (Solution 2). Repeat wash procedure for 4 times, 30 s intervals/time. Invert the plate and pat it against thick clean absorbent paper (If bubbles exist in the wells, clean tips can be used to prick them).
4. **HRP Conjugate:** Add 100 µL of HRP Conjugate working solution to each well. Cover the plate and incubate at 25°C for 10 minutes.
5. **Washing:** Repeat the wash process for 3 times as conducted in step 3.

6. **Substrate Reagent:** Add 50 µL of Substrate Reagent A and 50 µL Substrate Reagent B mixture. Gently oscillate for 5 s to mix thoroughly. Incubate 25°C for 15-20 min at in shading light. ***Note:*** *the reaction time can be shortened or extended according to the actual color change, but not more than 30 min. Preheat the Microplate Reader for about 15 min before OD measurement*.
7. **Stop Solution:** Add 50 µL of Stop Solution to each well and mix thoroughly. The colour will change to yellow immediately.
8. **OD Measurement:** Read the optical density (OD) at 450 nm (reference wavelength 630 nm) in a microplate reader immediately after adding the Stop Solution.

# 8. Data Analysis

**Absorbance% =A/A0×100%**

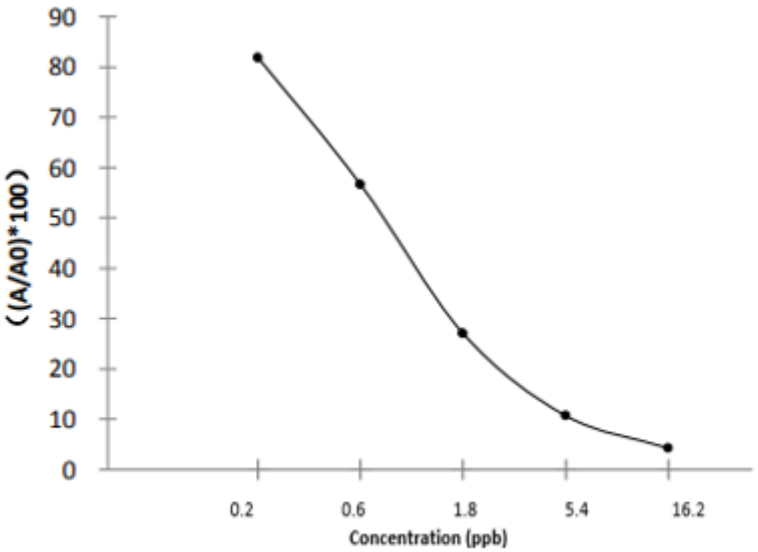
A: Average absorbance of standard solution or sample

A0: Average absorbance of 0 ppb Standard solution

**Drawing and calculating the standard curve:**

Create a standard curve by plotting the absorbance percentage of each standard on the y-axis against the log of its concentration on the x-axis to generate a semi-logarithmic plot. Use the sample's average absorbance value to determine the corresponding concentration from the standard curve. If any samples were diluted, multiply the concentration obtained from the curve by the dilution factor.

For this kit, using the professional analysis template is recommended to ensure accurate and rapid analysis of batch samples**.**



# 9. ELISA Troubleshooting

| Problem | Possible Causes | Solutions |
|---|---|---|
| **Standard curve without signal** | Incorrect reagent order; Mixed components from different kits; Missing reagents. | Ensure correct reagent order and use components from the same kit. Verify all reagents are added. |
| **Overflow OD** | Mixed components from different kits; Over-concentrated working solution | Use correct components and prepare solutions at recommended concentrations. |
| **Poor standard curve** | Incorrect curve fitting model. | Try alternative curve fitting models. |
| **Samples without signal** | Sample concentration too low; Incompatible buffer; Incorrect preparation; Sample degradation or excessive freeze-thaw. | Reduce dilution or concentrate sample. Check buffer compatibility and follow proper preparation and storage. |
| **High CV%** | Precipitate formation; Unclean plate; Foaming; Uneven washing; Incomplete reagent mixing; Pipetting inconsistency. | Dilute samples if needed, avoid foaming, ensure uniform washing, mix reagents thoroughly, and use calibrated pipettes. |
| **Low standard signal** | Improperly reconstituted standards; Degraded standards; Incorrect pipetting; Expired kit; Improper storage; Over-dried wells. | Reconstitute standards properly, use fresh kits, follow storage recommendations, and prevent wells from drying. |
| **Slow colour development** | TMB not equilibrated; Incorrect microplate reader wavelength; Over-washing. | Pre-warm TMB (30 min at 37°C), confirm correct wavelength (450 nm), and follow recommended washing times. |
| **High background** | Insufficient washing; Contaminated wash buffer; Excess detection reagents; Delayed reading; TMB exposed to light. | Wash adequately, prepare fresh wash buffer, use correct reagent amounts, read results promptly, and incubate TMB in the dark. |

## Notes:

**Assay Genie 100% money-back guarantee!**

If you are not satisfied with the quality of our products and our technical team cannot resolve your problem, we will give you 100% of your money back.