Elabscience®

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MQCA (Methyl-3-quinoxaline-2-car-boxylic acid) ELISA Kit

Catalog No: E-FS-E008

96T

This manual must be read attentively and completely before using this product.

If you have any problems, please contact our Technical Service Center for help.

Phone: 240-252-7368(USA) 240-252-7376(USA)
Email: techsupport@elabscience.com
Website: www.elabscience.com

Please kindly provide us the lot number (on the outside of the box) of the kit for more efficient service.

Test principle

This kit uses Indirect-Competitive-ELISA as the method. It can detect MQCA in samples. This kit is composed of Micro ELISA Plate, HRP conjugate, antibody, standard and other supplementary reagents. The micro-plate provided in this kit has been pre-coated with MQCA. During the reaction, MQCA in the samples or standard competes with MQCA on the solid phase supporter for sites of MQCA antibody. Then Horseradish Peroxidase (HRP) conjugate is added to each micro plate well, and TMB substrate is for color development. There is a negative correlation between the OD value of samples and the concentration of MQCA. The concentration of MQCA in the samples can be calculated by comparing the OD of the samples to the standard curve.

Technical indicator

Sensitivity: 0.3 ppb (ng/mL)

Reaction mode: 25℃, 30 min~30 min~15 min

Detection limit: Muscle---0.5 ppb, Porcine liver---1 ppb

Cross-reactivity: MQCA ---100%, QCA ---＜1.0%,
Olaquindox ---＜1.0%, Deoxyquinoxaline ---＜1.0%
Quinacetone ---＜1.0%, Deoxyquinonone ---＜1.0%
Acetylquine ---＜1.0%

Sample recovery rate: Tissue ---85%±25%

Kits components

Item	Specifications
Micro ELISA Plate	96 wells
Standard Liquid (Black cap)	1 mL each (0ppb,0.3ppb,0.9ppb,2.7ppb,8.1ppb,24.3ppb)
High Concentrated Standard (100 ppb)	1 mL
HRP Conjugate (red cap)	11 mL
Antibody Working Solution(blue cap)	6 mL
Substrate Reagent A(white cap)	6 mL
Substrate Reagent B(black cap)	6 mL
Stop Solution(yellow cap)	6 mL
20×Concentrated Wash Buffer(white cap)	40 mL
2×Reconstitution Buffer (yellow cap)	50 mL
Plate Sealer	3 pieces
Sealed Bag	1 piece
Manual	1 copy

Other supplies required

Instruments: Micro-plate reader, Printer, Homogenizer, Nitrogen Evaporators, Oscillators, Centrifuge, Graduated pipette, Balance (sensibility 0.01 g).

High-precision transferpettor: single channel (20-200 μL, 100-1000 μL), Multichannel (300 μL).

Reagents: Ethyl acetate, concentrated HCl, NaCl, n-hexane.

Experimental preparation

Bring all reagents and samples to room temperature before use.

Open the micro-plate reader in advance, preheat the instrument, and set the testing parameters.

1. **Sample pretreatment Notice:**

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

2. **Solution preparation**

   Solution 1: 1.5 M HCL

   Take 40 mL concentrated HCl, slowly add to 280 mL deionized water, mix well, store at room temperature

   Solution 2: 33.3% NaCl

   Add 100g NaCl to 300 ml distilled water, heat to dissolve, mix fully, store at room temperature

   Solution 3: 1×Reconstitution Buffer

   Dilute the 2×Reconstitution Buffer with deionized water at dilution of 1:1, for sample re-dissolution. It can be stored at 4℃ for one month.

   Solution 4: Wash Buffer

   Dilute 20×Concentrated Wash Buffer with deionized water. (20×Concentrated Wash Buffer (V): Deionized water (V) = 1:19)

3. Sample pretreatment procedure

3.1 Pretreatment of muscle (porcine, chicken, fish, shrimp):

(1) Weigh 2±0.05 g of homogenate sample without fat, add 8 mL of Ethyl acetate, vortex for 5 sec to separate the matrix (Do not vortex for too long, or there is a certain matrix interference), add 4 mL of HCl (1.5 M), vortex for 3 min, Centrifuge at 4000 r/min at room temperature for 10 min.; (after adding the Ethyl acetate to vortex, immediately add HCl and start to vortex, or the tissue would form into group, which may affect the extract result. After adding the HCl to vortex, it may be pasty, which is normal, vortex for 2 min.)

(2) Take 5 mL of upper Ethyl acetate to another centrifuge tube, add 3 mL 33.3% NaCl, vortex for 1 min, wait to be layered(if it's not well layered, centrifuge at 4000 r/min at room temperature for 10 min which is good for follow-up.).

(3) Take 4 mL of upper Ethyl acetate to a clean glass tube, blow-dry at 50-60℃ nitrogen or air.

(4) Dissolve the dried material with 1 mL of n-hexane, vortex 1 min and add 1mL of 1×Reconstitution

Buffer, mix fully, centrifuge at 4000 r/min at room temperature for 5min;(if there are too much bubble or jelly that is hard to take enough lower liquid, water-bath the sample bottle at 80℃ for 5 min, and then centrifuge).

(5) Remove the upper organic phase, take 50 μL of lower liquid for analysis.
Note: Sample dilution factor: 1, minimum detection dose: 0.5ppb

3.2 Pretreatment of porcine liver:

(1) Weigh 2± 0.05 g of homogenate sample without fat, add 8 mL of Ethyl acetate, vortex 5 s to separate the matrix (Do not vortex for too long, or there is a certain matrix interference), add 4 mL HCl (1.5 M), vortex for 3 min, centrifuge at 4000 r/min at room temperature for 10 min; (After adding the Ethyl acetate to vortex, immediately add HCl and start to vortex, or the tissue would form into group, which may affect the extract result. After adding the HCl to vortex, it may be pasty, which is normal, vortex for 2 min.)

(2) Take 5 mL of upper Ethyl acetate to another centrifuge tube, add 3 mL of 33.3% NaCl, vortex for 1 min, and centrifuge at 4000 r/min at room temperature for 10 min.

(3) Take 2 mL of upper Ethyl acetate to a clean glass tube, blow-dry at 50-60℃ nitrogen or air.

(4) Dissolve the dried material with 2 mL n-hexane, vortex 1 min and add 1 mL of 1×Reconstitution Buffer, mix fully, centrifuge at 4000 r/min at room temperature for 5 min; (if there are too much bubble or jelly that is hard to take enough lower liquid, water-bath the sample bottle at 80℃ for 5 min, and then centrifuge).

(5) Remove the upper organic phase, take 50 μL lower liquid for analysis.
Note: Sample dilution factor: 2, minimum detection dose: 1ppb

Assay procedure

Centrifuge the sample again after thawing before the assay. Bring all reagents to room temperature before use. All the reagents should be mixed thoroughly by gently swirling before pipetting. Avoid foaming.

1. **Number:** number the sample and standard in order (multiple well), and keep a record of standard wells and sample wells.
2. **Add sample:** add 50 μL of Standard, Blank, or Sample per well, then add 50 μL of HRP Conjugate to each well, then add 50 μL of antibody working solution, cover the plate with sealer we provided, oscillate for 5 sec gently to mix thoroughly, incubate for 45 min at 25℃.
3. **Wash:** uncover the sealer carefully, remove the liquid in each well. Immediately add 250 μL of wash buffer to each well and wash. Repeat wash procedure for 5 times, 30 sec 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 to each well, shading light incubation for 30 min at 25℃.
5. **Wash:** repeat step 3.
6. **Color Development:** add 50 μL of substrate solution A to each well, and then add 50 μL of

substrate solution B. Gently oscillate for 5 sec to mix thoroughly. Incubate shading light for 15min at 25℃.

7. **Stop reaction:** add 50 μL of stop solution to each well, oscillate gently to mix thoroughly.
8. **OD Measurement:** determine the optical density (OD value) of each well at 450 nm with a microplate reader (the 450/630 nm double wavelength is recommended). This step should be finished in 10 min after stop reaction.

Result analysis

1. **Absorbance (%)=A/A_0×100%**

   A: Average absorbance of standard or sample

   A_0: Average absorbance of 0 ppb Standard

2. **Drawing and calculation of standard curve**

   Create a standard curve by plotting the absorbance percentage of each standard on the y-axis against the log concentration on the x-axis to draw a semi-logarithmic plot. Add average absorbance value of sample to standard curve to get corresponding concentration. If samples have been diluted, the concentration calculated from the standard curve must be multiplied by the dilution factor.

   For this kit, it is more convenient to use professional analysis software for accurate and fast analysis on a large number of samples.

Notes

1. Overall OD value will be lower when reagents is not brought to room temperature before use or room temperature is below 25℃.
2. During the washing procedure, if the wells turn dry, it will lead to bad linear standard curve and poor repeatability, move on to the next step immediately after wash.
3. Mix thoroughly and wash the plate completely. The consistency of wash procedure can strongly affect the reproducibility of this ELISA kit.
4. Micro ELISA plate should be covered by plate sealer. Avoid the reagents to strong light.
5. Do not use expired kit and reagents of different batches.
6. TMB should be abandoned if it turns color. When OD value of standard(concentration: 0)＜0.5 unit(A_{450nm}＜0.5), it indicates reagent is deteriorated.
7. Stop solution is caustic, avoid contact with skin and eyes.

Storage and valid period

Storage: Store at 2-8℃. Avoid freeze / thaw cycles.

Valid Period: 1 year, production date is on the packing box.