

Instruction for Free Thyroxine (FT4) Test Kit (Immunofluorescence)

1. PRODUCT NAME

Generic name: Free Thyroxine (FT4) Test Kit (Immunofluorescence)

Trade name: FT4

2. PACKAGE

Specification 1: 25T/kit REF:52026121

Specification 2: 50T/kit REF:52027116

Quality Control (optional):

Specification: Level 1 : 0.5mL × 1 REF: 52105099

Level 2 : 0.5mL × 1 REF: 52105100

Level 3 : 0.5mL × 1 REF: 52105101

3. INTENDED USE & INDICATION

Used for in vitro quantitative determination of FT4 level in human serum, plasma and whole blood, and is mainly used to assist in the diagnosis of thyroid diseases.

For professional use only.

4. TEST PRINCIPLE

This kit adopts the competition method. After the samples containing FT4 are fully mixed with the sample diluent, an appropriate amount of the solution is taken and added into the sample well. The FT4 in the sample binds to the mouse anti-FT4 monoclonal antibody coupled to the fluorescent particles to form a fluorescent particle-antibody-antigen complex. This immune complex is then chromatographed along the nitrocellulose membrane to the determination area (T). The unbound fluorescent particle-antibody conjugate binds to the precoated FT4-conjugated antigen and continues to chromatograph to the quality control area (C). The fluorescent particle-labeled goat anti-rabbit IgG binds to the precoated rabbit IgG and presents the quality control line. The fluorescence intensity of the assay area is inversely proportional to the level of FT4 in the sample.

5. MAIN COMPONENTS& ADDITIONAL REQUIRED EQUIPMENT

The test kit consists of test card, magcard, sample diluent, quality control (optional) and the instruction.

- (1) The test card consists of card shell and test strip. The test strip contains sample pad/markings pad, nitrocellulose membrane, absorbent paper and PVC plate.
- (2) Magcard: load calibration curve information for this batch of reagents.
- (3) Sample diluent: The main ingredient is phosphate buffer(PBS).
- (4) Quality control (optional): Self-prepared lyophilized powders, mainly consist of FT4 recombinant antigen and PBS. All are free of human-derived substances and have batch specificity. Please find target values in the target value list.
- (5) Equipment: Applicable to FA50 and FA120 Quantitative Immunoassay Analyzer manufactured by Genrui Biotech Inc.

Note: Components of kits from different batches should not be used interchangeably.

6. ACCESSORIES REQUIRED BUT NOT PROVIDED

- (1) Pipettes and pipette tips: 100 μ L
- (2) Timer

7. SPECIAL STORAGE &TRANSPORT CONDITIONS

- (1) The test kit should be stored at 2-30 $^{\circ}$ C, and the shelf life of test cards and sample diluent is 18 months when sealed. After the test card and sample diluent are opened, the shelf life is 1 hour at 18-30 $^{\circ}$ C and 40%-65% humidity. When the humidity is > 65%, it should be used right after opened.
- (2) The unopened QC is stable for 18 months (see the label for specific date) at -25 $^{\circ}$ C to 8 $^{\circ}$ C, the reconstituted QC is stable for 6 days at -20 $^{\circ}$ C or 1 day at 2-8 $^{\circ}$ C in the

shade, and can be freeze-thawed once.

- (3) Transport: The test kit is at 2-30 $^{\circ}$ C, the QC is at -25-8 $^{\circ}$ C.

8. SAMPLE REQUIREMENTS

- (1) The optimal sample is fresh non-hemolyzed serum, plasma or whole blood. It is recommended to use sample from venous blood, as results of other body fluids and samples may not be accurate.
- (2) Serum/plasma: After sample collection, serum should be separated as soon as possible to avoid hemolysis. Serum and plasma should complete the test within 6 hours at room temperature. The samples that cannot complete the test should be refrigerated at 2-8 $^{\circ}$ C for no more than 7 days; serum and plasma should be frozen below -18 $^{\circ}$ C for no more than 1 month.
- (3) Whole blood: It should be used immediately after collection. If it cannot be tested within 4 hours, it should be refrigerated at 2-8 $^{\circ}$ C no for more than 3 days. Samples should not be frozen.
- (4) The samples should be brought to room temperature before determination. The frozen samples should be completely thawed, rewarmed and mixed well before use. Do not freeze and thaw repeatedly.
- (5) Human serum is preferred for determination, and EDTA-K₂ is recommended as an anticoagulant for plasma and whole blood testing.

9. TEST METHOD

Carefully read the instruction before using the test kit and operate in strict accordance with the instruction to ensure reliable results. Bring all reagents to room temperature (18-30 $^{\circ}$ C) before use.

- (1) Startup: Click "STD Mode" in the main menu to enter the measurement interface, click "Item" to select the test item and click "Type" to select the sample type.
- (2) Click "Lot No." to enter the card reading interface, place magcard of the corresponding item to the magnetic card reader area, when the magcard is read successfully, check whether the magcard and the test card are of the same batch. (Note: reagents are precalibrated and specific calibration curve parameters for each batch of reagents have been stored in the magcard.)
- (3) Quality control procedure: It is recommended to refer to the instrument manual and use the Genrui quality control to verify whether the target value of the test quality control is under control during the measurement procedure after calibration. The quality controls should be used as follows.
 - a) Bring the quality control to room temperature (18-30 $^{\circ}$ C) before use.
 - b) Carefully open the bottle cap to avoid spraying of the contents.
 - c) Add 0.5mL of purified water.
 - d) Put on the bottle cap and leave it at room temperature for 15 minutes, gently shake the bottle to fully dissolve the dry powder.
 - e) After the dry powder is fully dissolved, repeat the operation for the sampling.

If the measured values of quality controls are within the given range of target values, the determination of clinical samples and data analysis can be continued; otherwise, the causes should be identified before test.

(4) Sampling:

Add 0.1mL of plasma, serum or whole blood into the container with sample diluent, mix thoroughly for 1min. Take 0.1mL of diluted sample, and drop it vertically to the sample well on the test card directly and start timing.

- (5) Insert it into the analyzer's test card slot (the sample well end towards the inside).

Click "Measure", the instrument will automatically detect and print out the results after 15 minutes (If using "Fast Mode", after 15 minutes of external incubation, quickly insert card and click "Measure", then instantly the instrument will detect and print out the results).

Note: For detailed instructions on how to operate the instrument, please refer to the manual of Quantitative Immunoassay Analyzer.

10. REFERENCE RANGE

Reference range: 12-22 pmol/L

Note: Due to geographical, ethnic, gender and age differences, it is recommended that each laboratory establishes its own reference range.

11. EXPLANATION FOR TEST RESULTS

(1) When the control area (C) appears fluorescent strips, the analyzer will automatically detect the fluorescence and analyze the test card, and then provide quantitative results.

(2) When the control area (C) does not appear fluorescent strips, the analyzer cannot detect the fluorescence and alarm will be activated automatically, indicating that the operation is incorrect or the test card is damaged. In this case, carefully read the instructions again and re-test with a new test card, if the problem still exists, immediately stop using products of this batch and contact your supplier.

(3) When the measured value of the sample is higher than 100 pmol/L, the instrument shows > 100 pmol/L, and when the measured value of the sample is less than 0.3 pmol/L, the instrument shows < 0.3 pmol/L.

12. DETECTION LIMIT

- (1) This test kit is for in vitro diagnostic use only.
- (2) Diagnosis and treatment can not solely base on this test result, please taking into account the clinical history and other laboratory test results. Each laboratory is recommended to establish its own reference range based on its patient population.

13. INTERFERING SUBSTANCE

- (1) When hemoglobin < 1.0 g/dL, triglyceride < 2000 mg/dL, cholesterol < 1000 mg/dL, bilirubin < 2 mg/dL, rheumatoid factor (RF) < 1200 IU/mL, total protein < 500 g/L and HAMA < 1000 ng/mL in the sample, there shall be no interference on the test value of reagent.
- (2) Potential analogue interference is as follows: L-T3: concentration 500 ng/mL; D-T3: concentration 500 ng/mL; rT3: concentration 1900 ng/mL; 3-iodo-L-tyrosine: concentration 100000 ng/mL; 3,5-diiodo-L-tyrosine: concentration 100000 ng/mL; 3,3',5'-triiodothyroacetic acid: concentration 1000 ng/mL; 3,3',5,5'-tetraiodothyroacetic acid: concentration 1000 ng/mL, the interference deviation of test results is within ± 15%.

14. PRODUCT PERFORMANCE INDICATORS

- (1) Limit of detection: ≤ 0.3 pmol/L
- (2) Linearity range: 3-100 pmol/L (Linear correlation coefficient: r ≥ 0.9900)
- (3) Precision: intra-batch precision: CV ≤ 15%; inter-batch precision of the kit CV ≤ 15%
- (4) Accuracy: -15% ≤ Bias% ≤ +15%
- (5) QC precision: CV ≤ 15%
- (6) Expected results of QC: the test results shall be within the target range
- (7) Moisture content: the moisture content of the QC (lyophilized powder) is ≤ 10%

15. PRECAUTIONS

- (1) Once opened, use the test cards as soon as possible, which may be exposed to moisture in the air. Do not reuse the test cards.
- (2) Components in test kit of different batches cannot be used interchangeably.
- (3) For substances containing sources of infection or suspected of containing sources of infection, there should have proper bio-safety assurance procedures. Pay attention to the following notes:
 - Wear gloves when handling sample or disinfecting the reagent.
 - Disinfect spilled sample or reagent with disinfectant.
 - Disinfect or handle potential contamination sources of all samples or reagents in accordance with local regulations.

16. EXPLANATION OF GRAPHIC SYMBOL

	Consult instructions for use		Temperature limit
	Batch code		Use-by date
	In vitro diagnostic medical device		CE Marking
	Date of manufacture		Biological risks
	Manufacturer		Volume
	Contains sufficient for < n>tests		Keep away from sunlight
	Do not re-use		Keep dry
	Authorized representative in the European community		Catalogue number

17. REFERENCE

- (1) Kronenberg HM, Melmed S, Polonsky KS, et al. Williams Textbook of Endocrinology. Saunders Elsevier, Philadelphia, 12th edition, 2011.
- (2) DeGroot LJ, Larsen PR, Hennemann G. Transport of thyroid hormone and cell uptake. The thyroid and its diseases. Wiley and Sons, New York, 1984:62-65.
- (3) Wada N, Chiba H, Shimizu C, et al. A novel missense mutation in codon 218 of the albumin gene in a distinct phenotype of familial dysalbuminemic hyperthyroxinemia in a Japanese kindred J Clin Endocrinol Metab 1997;82(10):3246-3250.

18. METROLOGICAL TRACEABILITY

The kit is traceable to the FT4 Test Kit (ECLIA), produced by Roche Diagnostic GmbH.

19. HELP INFORMATION

If you need help, please contact after sales department.

20. MANUFACTURER

Genrui Biotech Inc.
 Address: 4-10F, Building 3, Geya Technology Park, Guangming District, 518106, Shenzhen, China.
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21. INSTRUMENTS & APPLICATIONS

Genrui's Immunofluorescence products are designed to work in automated lab, which are compatible with the FA50/FA120 Quantitative Immunoassay Analyzer. There may or may not be an application developed for your particular instrument, please visit the instrument section of our website.

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