Human Testosterone CLIA Kit

Chemiluminescence Immunoassay for the quantitative determination of testosterone in human serum

REF SKT-020 CE IVD 100, 150 +2 +8 °C

INTENDED USE

Human Testosterone CLIA Kit is a Chemiluminescence Immunoassay (CLIA) intended for the quantitative measurement of human testosterone concentration in serum.

For in-vitro diagnostics purposes only

SUMMARY OF PHYSIOLOGY

Testosterone (Tes) is a steroid hormone secreted by the testes of men or the ovaries of women, and in small amounts by the adrenal glands. More than 97% of testosterone exists in the blood as binding protein and circulates: Most of them bind to serum proteins such as sex hormone-binding globulin (SHBG) or testosterone-binding globulin (TeBG) with strong affinity. Testosterone can also bind weakly to corticosteroid binding globulin (CBG) and albumin, and the amount of free testosterone depends on the change of SHBG.[1-4]
Serum testosterone measurement has important clinical significance in the analysis of some endocrine disorders. In males, testosterone measurement is an important reference indicator of hypogonadism or hypogonadotropic, and it is also used to evaluate precocious puberty or delayed sexual development in adolescent males. Serum t levels in normal women are lower than in men, but serum t levels in women with androgen hyperplasia, such as congenital hirsutism and adrenal hyperplasia, polycystic ovary syndrome, and adrenal tumors, are also important indicators.

ASSAY PRINCIPLE

The Human Testosterone CLIA Kit is designed, developed, and produced for the quantitative measurement of human Tes level in serum samples. The assay utilizes competition law for testing.
The calibrators, controls, or sample, monoclonal antibody to Tes labeled with microparticles are mixed and incubated, forming an antigen-antibody immuno-complex.Acridinium ester labeled Tes are added and incubated.
Acridinium ester labeled Tes analog unbound to the sample binds to the Magnetically microgranular Tes monoclonal antibody, After precipitation in a magnetic field, the supernatant is decanted, and then a wash cycle is performed to remove any remaining substances that are not bound to the magnetic microbeads. Subsequently, the washed compound is sent into the measurement chamber where trigger solution is automatically added to initiate a chemiluminescence reaction. The light signal is measured by a photomultiplier as relative light units (RLUs), which is inversely proportional to the concentration of Tes present in the sample.
The test result is automatically calculated by the system according to the working curve.

REAGENTS: PREPARATION AND STORAGE

This test kit must be stored at 2℃~8℃ upon receipt. For the expiration date of the kit refer to the label on the kit box. All components are stable until this expiration date.It can be stored for 1 month at 2℃~8℃ after kit opening.

1. Tes Magnetic Particle Solution (02001)

Qty: 6.0mL (100/kit); 8.5mL (150/kit)
Storage: 2 – 8°C
Preparation: Ready to Use

2. Acridinium ester Tes (02003)

Qty: 6.0mL (100/kit); 8.5mL (150/kit)
Storage: 2 – 8°C
Preparation: Ready to Use

3.Tes Calibrators (02006-02008)

Qty: 3 x vials
Storage: 2 – 8°C
Preparation: Ready to Use
After the first use, it is recommended to storage at 2 - 8℃ and can be used within one month. Do not freeze.

4.Tes Controls (02009-02010)

Qty: 2 x vials
Storage: 2 – 8°C
Preparation: Ready to Use
After the first use, it is recommended to storage at 2 - 8℃ and can be used within one month. Do not freeze.

SAFETY PRECAUTIONS

The reagents must be used in a professional laboratory environment and are for in vitro diagnostic use. Source material which contains reagents of bovine serum albumin was derived in New Zealand. It was obtained only from healthy donor animals maintained under veterinary supervision and found free of contagious diseases. Wear gloves while performing this assay and handle these reagents as if they were potentially infectious. Avoid contact with reagents containing hydrogen peroxide. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale fumes. On contact, flush with copious amounts of water for at least 15 minutes. Exercise Good Laboratory Practices.

MATERIALS REQUIRED BUT NOT PROVIDED

1. ECL100 Immunoassay Analyzer (ECL100) or ECL25 Immunoassay Analyzer (ECL25)
2. CL011 Cuvettes (for ECL100) or CL010 Cuvettes (for ECL25)
3. EDI™ Wash Reagent (P-594)
4. EDI™ Trigger Solutions A and B (P-595A, P-595B)

The instrument must operate using materials supplied by Epitope Biotechnology, Co.,Ltd. or Epitope Diagnostics, Inc. When materials are sourced from third-party suppliers are being used, Epitope Biotechnology, Co.,Ltd. and Epitope Diagnostics, Inc. takes no responsibility of the validity for obtained results. Materials are available to purchase from Epitope Biotechnology, Co.,Ltd. and Epitope Diagnostics, Inc. Please contact your distributor for more information.

SPECIMEN COLLECTION AND PREPARATION

1. Blood sample should be collected under sterile conditions.
2. For human serum samples, other body fluids and samples may not get accurate results.

3. Clinical samples shall be tested within 2 hours after collection;If the measurement cannot be completed within 2 hours, please store the following way:
   - Store at low temperature and away from light (2℃~8℃) for 2 days.
   - Store at -20℃ or below for 6 months.
   - Freeze and thaw only once.
4. Avoid heating inactivated samples, mixed, contaminated and hemolysis samples should be discarded.
5. Samples should be restored to room temperature before testing. Samples stored in freezer should be completely melted, and mixed evenly before use.Due to possible volatilization, samples, calibrators and controls on the ECL platform should be tested within 2 hours.
6. Some substances in the samples will interfere with the test results. The common interfering substances and maximum allowable concentrations are as follows:
   - bilirubin: 10 mg/dL
   - triglyceride: 1800 mg/dL
   - hemoglobin: 500 mg/dL
   - biotin: 220 nmol/L
   - For patients receiving high-dose biotin therapy (5 mg/ day), samples must be collected 8 hours after intaking the last dose of biotin.
7. A single assay of this item requires 50 µL of sample. This quantity does not include the amount of dead volume in the sample container, the capacity required for retesting, and other measurement items. For the definition of minimum required sample size, refer to the equipment manual.

CALIBRATION

An active calibration curve is required for all tests. For the assay, calibration is required for the first time use of a reagent lot and every 14 days thereafter or when either kit control is out of range. Refer to appropriate system manuals for configuring calibrators.

QUALITY CONTROL

The characteristics of patient samples are simulated through controls and are critical to validate the performance of CLIA assays due to the random access format. Use of controls is left to the discretion of the user, based on good laboratory practices, requirements, and applicable laws. We suggest performing a control test once every day. Quality control results that do not fall within acceptable ranges may indicate invalid test results.

ASSAY PROCEDURE

1. Reagents from different kit lot numbers should not be combined or interchanged. Make sure that there are no air bubbles in any reagents, calibrator and control vials.

2. Reagent Preparation

2.1 Remove reagent cartridges from packaging and replace the solid caps with the provided soft caps for ECL100. For ECL25, carefully remove the aluminum foil seal on each container on the cartridges and insert soft caps.

2.2 For the ECL100, take out the Magnetic Particle bottle make sure to roll between hands and gently but thoroughly mix until the magnetic particle solution is homogenous. The solution should be uniform with no clumps of magnetic particles visible; this step is vital for assay performance. For ECL25, mix the magnetic beads by moving back and forth the bottom part of the cartridge at upright position. Make sure to look inside the cartridge until the solution is uniform with no clumps of magnetic particles visible and no air bubbles. Recap the bottle. Open the top soft cap of all reagent bottles, leaving only the hollow soft rubber. The reagents are now ready to be loaded into the ECL100 or ECL 25 for calibration.

3. Assay Program

The following table illustrates the protocol used by the ECL100 or ECL25 for instrument operation.

Component	Quality Control Hole (µL)	Sample Hole (µL)
Tes Controls (02009-02010)	50	-
Samples	-	50
Tes Magnetic Particle Solution (02001)	50	50
Incubate at 37°C for 20 minutes		
Acridinium ester Tes (02003)	50	50
Incubate at 37°C for 10 minutes		
Wash the reaction cuvette 3 times with wash reagent.		
Trigger Solution A (P-595)	100-200	100-200
Trigger Solution B (P-595)	100-200	100-200

NOTE FOR ASSAY PROCEDURE

Reagents from different kit lot numbers should not be combined or interchanged. Make sure that there is no air bubble in any reagents, calibrator and control vials.

All the reagents in this kit are ready-to-use. Different lots of the same reagents are not inter-changeable and must not be used.

Please read the reagent instructions and equipment instructions carefully before using this kit and perform the test according to relevant requirements. When reagents are loaded, the equipment will automatically stir the magnetic particles to resuspend them. Allow the regent to mix for minimum 15 min before starting the assay program.

INTERPRETION OF RESULTS

1. The default unit for the testosterone project is ng/mL or Nmol/L.(Conversion factor: ng/mL×3.47=nmol/L.)

2. Due to methodological or antibody specificity differences, there may be deviations between the test results of reagents from different manufacturers, so direct comparisons should not be made to avoid false interpretation.

3. When the sample concentration of testosterone is lower than the detection lower limit, the test results can be reported as < 0.100 ng/mL. When the sample concentration is higher than the detection upper limit, it can be reported as >16.00 ng/mL.

EXPECTED VALUES

Patient Group	**sample size**	**95% reference interval(ng/mL)**
Male	300	1.75-7.81
Female	300	0.100-0.750

Note: each Laboratory is recommended to determine and establish its own reference range with local population.

LIMITATIONS OF THE PROCEDURE

1. This product is for use on the ECL100 Immunoassay Analyzer or ECL 25 Immunoassay Analyzer only. Refer to the appropriate system manuals and/or Help system for a specific description of installation, start-up, operation, system performance, instructions, calibration, precautions, hazards, maintenance, and troubleshooting.
2. Reagents from different kit lot numbers should not be combined or interchanged.
3. Test results obtained from the proposed kit should not be served as a sole basis for clinical diagnosis or patient management.
4. If the test sample result is higher than the upper limit of the calibration curve, it is recommended to re-measure after dilution according to a certain ratio. The measured value is recalculated according to the dilution ratio to ensure the accuracy of the result.

PERFORMANCE CHARACTERISTICS

1. Limit of Detection (LoD):
- ≤0.100 ng/mL.

2. Linearity:
- 0.100ng/mL to 16.00ng/mL,
- Linearity correlation coefficient R ≥0.990.

3. Accuracy:
- Relative deviation within ±10%.

4. Precision:
- Intra-assay repeatability: CV≤8%;
- Inter-assay reproducibility: CV≤15%.

NOTES

1. Read the instructions carefully and gently mix the reagent well before use. Avoid any air bubbles before loading the reagents onto the equipment.
2. Keep the reagent in storage condition as indicated in this IFU and on the reagent label. Do not freeze reagents.
3. Avoid contact with skin, eyes and mucous membrane, and flush the contact area with clean water immediately.
4. All patient samples must be treated as potential infectious material.
5. Components in different kits cannot be mixed.
6. All waste must be disposed complying with local regulations and laws

WARRANTY

This product is warranted to perform as described in its labeling and literature when used in accordance with all instructions. Epitope Biotechnology Co,Ltd and its distributors DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and in no event shall Epitope Biotechnology Co,Ltd.. be liable for consequential damages. Replacement of the product or refund of the purchase price is the exclusive remedy for the purchaser. This warranty gives you specific legal rights and you may have other rights, which vary from state to state.

REFERENCE

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2.Rinaldi S, Geay A, DéchaudH,etal.Validity of free testosterone and free estradiol determinationsin serum samples from postmenopausal women bytheoretical calculations.CancerEpidemBiomar,2002, 1065–1071.
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4. WilkeTJ,UtleyDJ.Total testosterone, free-androgen index, calculated free testosterone, and free testosterone by analog RIA compared in hirsute women and in otherwise-normal women with altered binding of sex-hormone-binding globulin. ClinChem,1987,33(8): 1372-1375.

TECHNICAL ASSISTANCE AND CUSTOMER SERVICE

For technical assistance or to place an order, please contact Epitope Diagnostics, Inc. in USA at +1 858-693-7877 or email to cs@epitopediagnostics.com

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GLOSSARY OF SYMBOLS (EN 980/ISO 15223)