Human Gastrin-17 CLIA Kit

Chemiluminescence Immunoassay for the quantitative determination of Gastrin-17 in human serum

REF SKT-045 CE IVD 50, 100 2-8°C

INTENDED USE

Human Gastrin-17 CLIA Kit is a Chemiluminescence Immunoassay (CLIA) intended for the quantitative measurement of human Gastrin-17(G-17) concentration in serum using the ECL100 or ECL25 Fully Automated Chemiluminescence Analyzer. This test aids in diagnosis of achlorhydria or pernicious anemia, Zollinger-Ellison syndrome, etc.

For in-vitro diagnostics purposes only

SUMMARY OF PHYSIOLOGY

Gastrin is a major gastrointestinal hormone. It serves to stimulate gastric acid secretion and exists in a number of molecular forms, differing from one another in the length of the polypeptide backbone and in derivatizations of individual amino acids.[10] The three principal forms G-17, G-34 and G-14 are named for the number of amino acids they contain.

The molecular weight of G-17 is about 2098g/mol, which is secreted only by G Cells in the gastric antrum, and is a biomarker (G Cells) of the gastric antrum. There is a strict negative feedback mechanism between G-17 and gastric acid which can maintain the dynamic balance of gastric acid secretion when gastric antrum is normal. However, in gastric antrum atrophy, this mechanism fails. Therefore, G-17 is an important indicator of gastric mucosa injury.

At present it has different methodologies to detect Gastrin-17 in clinical practice such as the enzyme-linked fluorescence method, and the electrochemiluminescence method.

ASSAY PRINCIPLE

The Human Gastrin-17 CLIA Kit is designed, developed, and produced for the quantitative measurement of human G-17 level in serum samples. The assay utilizes a two-site "sandwich" technique with two antibodies that bind to different epitopes of G-17.

Assay calibrators, controls, or patient serum samples are added directly to a reaction vessel together with streptavidin coated magnetic particles, acridinium ester conjugated G-17 monoclonal antibody and biotinylated anti-G-17 polyclonal antibody. The magnetic particles capture the biotin antibody as well as an immune-complex in the form of "magnetic particles–biotin G-17 antibody–G-17–acridinium ester G-17 antibody". Materials bound to the solid beads are held in a magnetic field while unbound materials are washed away. Then trigger solutions are added to the reaction vessel, and light emission is measured with the ECL100 analyzer. The relative light units (RLU) are *proportional* to the concentration of a G-17 in the sample. The amount of analyte in the sample is determined from a stored, multi-point calibration curve and reported in serum G-17 concentration.

REAGENTS: PREPARATION AND STORAGE

This test kit must be stored at 2 – 8°C 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°C~8°C after kit opening.

1. G-17 Magnetic Particle Solution (04501)
Qty: 2.0 mL (50/kit),3.0 mL (100/kit)
Storage: 2 – 8°C
Preparation: Ready to Use

2. Biotin G-17 antibody (04502)
Qty: 3.5 mL (50/kit),6.0 mL (100/kit)
Storage: 2 – 8°C
Preparation: Ready to Use

3. Acridinium ester G-17 antibody (04503)
Qty: 3.5 mL (50/kit),6.0 mL (100/kit)
Storage: 2 – 8°C
Preparation: Ready to Use

4. G-17 Calibrators (04506-04507)
Qty: 2 x vials
Storage: 2 – 8°C
Preparation: Ready to Use. Mix well. (Suggestion: use rotator to mix for a preferred time of 10 minutes. Make sure there are no air bubbles.)
After the first use, it is recommended to storage at 2 - 8℃ and can be used within one month. Do not freeze.

5. G-17 Controls (04508-04509)
Qty: 2 x vials
Storage: 2 – 8°C
Preparation: Ready to Use. Mix well. (Suggestion: use rotator to mix for a preferred time of 10 minutes. Make sure there are no air bubbles.)
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-595)

The instrument must operate using materials supplied by Epitope Biotechnology, Co., Ltd. or Epitope Diagnostics, Inc. When materials sourced from third-party suppliers are being

used, Epitope Biotechnology, Co., Ltd. and Epitope Diagnostics, Inc. takes no responsibility for the validity of 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 only; other body fluids and samples may not yield accurate results.
3. Clinical samples should be tested within 2 hours after collection. If the measurement cannot be completed within 2 hours, please store under the following conditions:
    - storage at low temperature and away from light (2℃~8℃) for 7 days,
    - storage at -20℃ or below for 30 days
    - Freeze and thaw three times
4. Avoid heat-inactivated samples. Mixed, contaminated and hemolysis samples should be discarded.
5. Samples should be restored to room temperature before testing. Frozen samples should be completely melted and mixed well 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 60 mg/dL
    - triglycerides 1500 mg/dL
    - hemoglobin 900 mg/dL
    - biotin 200 nmol/L
    - For patients receiving high-dose biotin therapy (5 mg/ day), samples must be collected 8 hours after taking the last dose of biotin
7. A single assay of this item requires 50 µL 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. Calibration is required for the first-time use of a reagent lot and is valid for 28 days. However, we recommend calibration every 14 days after initial calibration 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.

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.
- Note: For ECL 100, if the Magnetic Particle Solution volume is over 3 mL, it will be provided in a glass bottle. It will need to be transferred from the glass bottle to the plastic vial in the cartridge with the rest of the reagents. Make sure the Magnetic Particle Solution is mixed well before transferring.

2.3 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.

2.4 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)
G-17 Controls (04508-04509)	50	-
Samples	-	50
G-17Magnetic Particle Solution (04501)	20	20
Biotin G-17 antibody (04502)	50	50
Acridinium ester G-17 antibody (04503)	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

All the reagents in this kit are ready-to-use. Make sure that there is **no air bubble** in any reagents, calibrator and control vials. Reagents from different kit lot numbers must not be combined or interchanged.

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 reagent to mix for minimum 15 min before starting the assay program.

INTERPRETATION OF RESULTS

1. The default unit for the Gastrin-17 project is pmol/L or ng/L. Conversion factor:
    - pmol/L×2.098=ng/L
    - ng/L×0.477= pmol/L

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

3. When the concentration of G-17 in the sample exceeds 104.00 pmol/L, the sample can be diluted (10 times is recommended) before measurement.

4. When the sample concentration of Gastrin-17 is lower than the detection lower limit, the test result will be reported as <0.2

pmol/L; any result above the maximum detection limit will be reported as >104.00 pmol/L.

EXPECTED VALUES

Normal reference range: 1~7 pmol/L.

This range is determined by the 95 percentile of serum G-17 concentrations obtained by measurement of G-17 with this assay from 546 healthy donors.

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. Hook Effect:
   - The assay showed no hook effect up to 4000 pmol/L
2. Limit of Detection (LoD):
   - 0.200 pmol/L
3. Linearity:
   - 0.200 pmol/L~104.00 pmol/L
   - linear correlation coefficient r≥0.9900
4. Accuracy:
   - relative deviation within ±10%
5. Precision:
   - Intra-assay precision: CV≤8%.
   - Inter-assay precision: CV≤15%

NOTES

1. Read the instructions carefully and gently but thoroughly mix the reagent before use. Remove any air bubbles before loading the reagents onto the equipment.
2. Keep the reagent in the storage conditions indicated in this IFU and on the reagent label. Do not freeze reagents.
3. Avoid contact with skin, eyes and mucous membrane. Upon contact, flush the 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 of in compliance 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

1. Sun.L, Tu.H, et al. A comprehensive evaluation of fasting serum gastrin-17 as a predictor of diseased stomach in Chinese population.Scand J Gastroenterol, 2014, 49(10): 1164-1172.
2. Cavallaro G, Nouvenne A, et al. Gastrin-17 (G-17) as a sensitive serological bio-marker for diagnosis of gastro-esophageal reflux disease (GERD) independently of H. pylori status. Gastroenterol, 2006, 130(4): A-168.

TECHNICAL ASSISTANCE AND CUSTOMER SERVICE

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GLOSSARY OF SYMBOLS (EN 980/ISO 15223)

In Vitro Diagnostic Device

European Conformity

Lot Number

Catalog Number

Read Instructions before Use

Number of Tests

Store at

Use by

Keep Away from Heat and Direct Sun light

Manufacturer

Authorized Representative in Europe

Distributor