Instruction for Use

【Product Name】

Pepsinogen I (Electrochemiluminescence Immunoassay)

【Package】

REF NO.	Package Size
696023	50T
696024	2×50T
696011	100T
696012	2×100T

【Intended Use】

Immunoassay for in vitro quantitative determination of Pepsinogen I in human serum and plasma. This assay is intended for use in assisting diagnosis and monitoring of atrophic gastritis .

Pepsinogen is an inactive precursor of pepsin in gastric juice. It's immunochemically classified into two types, Pepsinogen I (PG I)，and Pepsinogen II (PG II)[1]. PG II is derived from the pyloric glands in the gastric antrum and from the chief and mucus neck cells of the fundic glands in the gastric body[2], while PG I is derived only from the fundic glands[3]. Study have clarified that serum pepsinogen levels reflect the morphological and functional status of the stomach mucosa and the diagnostic value in various gastroduodenal disorders, especially peptic ulcer and atrophic gastritis, has been widely[4-7].

In atrophic gastritis, The gastric chief cells, producting PG I mainly decrease and number of pyloric glands increase resulting in PG I/PG II ratio is lowered.

Therefore, the ratio of pepsinogen I to pepsinogen II (PGR), in combination with pepsinogen I, is predictive of the histologic status of the gastric mucosa. they can be useful for studies of the genetic, immunologic, epidemiologic, and clinical correlates of chronic gastritis[8].

【Test Principle】

Sandwich principle.Total duration of assay: 18 minutes.

30 μL of sample, biotinylated monoclonal PGI-specific antibody and monoclonal PGI-specific antibody labeled with a ruthenium complex react to form a sandwich complex. 2nd incubation: After addition of streptavidin-coated microparticles, the complex binds to the solid phase via interaction of biotin and streptavidin. The reaction mixture is aspirated into the measuring cell where the microparticles are magnetically captured onto the surface of the electrode. Unbound substances are then removed with Buffer. Application of a voltage to the electrode then induces chemiluminescent emission which is measured by a photomultiplier.Results are determined via calibration and a master curve provided via the reagent barcode.

【Main Components】

The reagent pack consists of MB, RA, RB, calibrators and control materials (Optional), different lots cannot be used at the same time or mixed up together.

Components	Ingredients	Volume (50T)	Volume (2×50T)	Volume (100T)	Volume (2×100T)
(MB)	Streptavidin-coated microparticles 0.75 mg/mL: 0.1 M PBS; 0.05% ProClin™ 300	1×3.0 mL	2×3.0 mL	1×5.0 mL	2×5.0 mL
(RA)	Anti-PG I-Ab~Ru(bpy)$_3^{2+}$: 0.05 M MES buffer; ProClin™ 300	1×5.0 mL	2×5.0 mL	1×8.0 mL	2×8.0 mL
(RB)	Anti-PG I-Ab~biotin: 0.05 M MES buffer; ProClin™ 300	1×5.0 mL	2×5.0 mL	1×8.0 mL	2×8.0 mL
Calibrators	Tris buffer, BSA,ProClin™ 300	High: 1×1.0 mL Low: 1×1.0 mL			
Control Materials (Optional	Tris buffer, BSA,ProClin™ 300	High: 1×1.0 mL Low: 1×1.0 mL			

ProClin™ is a trademark of the Dow Chemical Company or an affiliated company of Dow.

Traceability: This method can be traced back to Abbott ARCHITECT Pepsinogen I.

See the control material value sheet for the target values and ranges of control materials.

Additional materials for Automated ECL Immunoassay Analyzer eCL8000, eCL8000i, eCL8000p, eCL8000x:

- REF 679005, Auffer, 480 mL, or REF 679004, Auffer, 6×480 mL
- REF 679007, Buffer, 480 mL, or REF 679006, Buffer, 6×480 mL
- REF 679009, Concentrated Washing Buffer, 1 L, or REF 679008, Concentrated Washing Buffer, 6×1 L
- REF 679011, Assay Cup, 300 T, or REF 679012, Assay Cup, 3000 T

Additional materials for Automated ECL Immunoassay Analyzer eCL8600, eCL8600i, eCL8600p, eCL8800, eCL8800i, eCL8800p:

- REF 0320501804, Auffer, 2×1 L, or REF 0320501805, Auffer, 4×1 L
- REF 0320501904, Buffer, 2×1 L, or REF 0320501905, Buffer, 4×1 L
- REF 0320507502, PreClean, 2×800 mL, or REF 0320507503, PreClean,
- REF 0320510001, Assay Cup/Assay Tip, 6×6×105, or REF 032120111, Assay Cup/Assay Tip, 12×2×105

Additional materials for Automated ECL Immunoassay Analyzer eCL9000, eCL9600, eCL9900, eCL9900i:

- REF 0320501801, Auffer, 2×2 L, or REF 0320501806, Auffer, 4×2 L
- REF 0320501901, Buffer, 2×2 L, or REF 0320501906, Buffer, 4×2 L
- REF 0320507501, PreClean, 2×2 L, or REF 0320507504, PreClean, 4×2 L
- REF 0320510001, Assay Cup/Assay Tip, 6×6×105, or REF 0320510002, Assay Cup/Assay Tip, 1×6×105

【Storage and Shelf Life】

Store at 2ºC~8ºC.

Do not freeze.

Store the reagent kit upright in order to ensure complete availability of the microparticles during automatic mixing prior to use.

Stability of the reagents	
Unopened store at 2ºC~8ºC	18 months
Store at 2ºC~8ºC after opening	8 weeks
Stored on the analyzers at 2ºC~15ºC	8 weeks

The Calibrators and Control Materials are stable up to the stated expiration date.

Stability of the Calibrators and Control Materials	
Unopened store at 2ºC~8ºC	18 months
Store at 2ºC~8ºC after opening	8 weeks

【Applicable Instrument】

Automated ECL Immunoassay Analyzers: eCL8000, eCL8000i, eCL8000p, eCL8000x, eCL8600, eCL8600i, eCL8600p, eCL8800, eCL8800i, eCL8800p, eCL9000, eCL9600, eCL9900, eCL9900i.

【Specimen collection, handling and storage】

Human serum and plasma added with heparin lithium, heparin sodium and EDTA-K_2, EDTA-K_3, anti-coagulants are recommended. Blood samples should be collected by standard operation of venous puncture; after complete coagulation, the tangible component should be removed by centrifugation. The sample should avoid bubbling during testing. Lipid layer floating on the upper of the sample should be removed. Samples with severe hemolysis are not recommended. Samples would better to be tested in 8 hours at 18~28ºC, otherwise, should be stored 2~8ºC for no more than 7 days or -25~-15ºC for 3 months. Freezing and thawing cycle is permitted only once.

【Assay Procedure】

Testing procedures and precautions

Previous to operation, one should read the operational manual carefully to obtain system operation procedure, sample processing, security precaution, maintenance and other related information.

Set up Pepsinogen I (PG I) test according to the operational manual.

Put the PG I rack pack into the correct analyzer slot to automatically suspend magnetic beads at least 30 min before testing.

Calibration

Calibration should be performed using lot-matching reagent and calibrators.

Before calibration, the reagent and main curve information should be imported into the analyzer via radio frequency identification reagent card (refer to instrument user manual). The analyzer adjusts the main curve to produce working curve according to the calibrator results, and identifies validity of the working curve automatically.

Recalibration is recommended when:

(1) The reagents of different lot are used;

(2) The same lot of reagents were used on the analyzer beyond 4 weeks;

(3) Quality control findings outside the defined limits.

(4) The Buffer of different lots are used.

Quality control

For quality control, use PG I control materials.

In addition,other suitable control material can be used.

Control materials for the various concentration ranges should be run individually at least once every 24 hours when the test is in use, once per reagent kit, and following each calibration.

The control intervals and limits should be adapted to each laboratory's individual requirements. Values obtained should fall within the defined limits. Each laboratory should establish corrective measures to be taken if values fall outside the defined limits.

If necessary, repeat the measurement of the samples concerned.

Follow the applicable government regulations and local guidelines for quality control.

Please make sure that the correct values are used.

Calculation

The system software automatically calculates the analyte concentration using particular algorithm, and the result unit is ng/mL .

Specimen dilution

Samples with PG I concentrations above the measuring range can be diluted with PG I negative sample . The recommended dilution ratio is 1:5. After manual dilution, multiply the result by the dilution factor.

【Biological reference interval】

Mike *et al*[9-11] Reporeted, that the combination analysis of PG I level in serum or plasma, and PG I/PG II ratio was useful as an indicator for the degree of atrophy in the fundic gland mucosa. They[12] further reporeted, that less than 70 ng/mL for the PGI level and less than 3.0 for the PG I/II ratio as cut-off values gave the hightest detection rate in the diseases with atrophy of fundic gland mucosa. Those cut-off values resulted in 80% specificity with non-atrophy of fundic gland mucosa.

Each laboratory should investigate transferability of the reference range to its local population and if necessary determine its own reference ranges.

【Result Interpretation】

In interpreting the results, the patient's overall clinical situation should be referred to, including symptoms, medical history and other relevant data and information.

【Limitations】

Test results are used only for clinical reference and cannot be used as the basis for diagnosis or rule-out of diseases alone.

The measuring range of the kit is 0.5~250 ng/mL. Values below lower detection limit are reported as <0.5 ng/mL. Values above the measuring range are reported as >250 ng/mL (or up to 250 ng/mL for 5-fold diluted samples).

There is no high-dose hook effect at PG I concentration 1600 ng/mL.

When samples containing bilirubin ≤50 mg/dL, triglyceride ≤2000 mg/dL, biotin ≤ 25 ng/mL,total protein≤10 g/dL, hemoglobin ≤200 mg/dL, HAMA ≤ 100 ng/mL,the interference bias of determination results deviation within ± 10%.

【Analytical Performance】

Lower limit of measurement

The lower detection limit is 0.5 ng/mL.

Accuracy

The recoveries of different concentrations of PG I were in the range of 90%~110%.

Linearity

The correlation coefficient (r) was not less than 0.9900 in the interval of 0.5~ 250 ng/mL.

Within-run precision (repeatability)

The coefficient of variation (CV) ≤ 8.0%.

Between-lot precision

The coefficient of variation (CV) ≤ 10.0%.

Analytical specificity

Test the following analog-additive blank samples, the results were lower than 0.5 ng/mL.

Analog	Concentration
PG II	500 ng/mL

【Method Comparison】

A comparison of the Lifotronic PG I assay (y) with the commercial PG I Method (x) using clinical samples gave the following correlations:

Number of serum samples measured: 120

Linear regression:

Y=0.96147X+1.1881

r=0.9960

The sample concentrations were between approx 12.47 and 239.1 ng/mL

【Precaution and Warning】

The kit is only used for in vitro diagnostics.

Exercise the normal precautions required for handling all laboratory reagents.

All reagents and samples including specimen, reagents, calibrators and control materials should avoid foaming before and during test.

Disposal of all waste material should be in accordance with local guidelines.

Safety data sheet available for professional user on request.

This product contains animal-sourced materials and may have potential biological risk. All samples and test wastes should be treated as the source of infection, and all wastes must be disposed according to local regulations.

Any serious incident that would be occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user and/or the patient is established.

The preservative ProClin™300 which contain Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H-isothiazol-3-one (3:1): May cause an allergic skin reaction. thus, proper personal protection should be adopt while handling the reagent: avoid breathing dust/fume/gas/mist/vapours/ spray, wear protective gloves and contaminated work clothing should not be allowed out of the workplace. If skin irritation or rash occurs: get medical advice/attention, take off contaminated clothing and wash it before reuse, and dispose of contents/container to an approved waste disposal plant..

【Symbols Explanation】

Symbol	Title of Symbol	Symbol	Title of Symbol
	Manufacturer		Consult instructions for use
	Use-by date	IVD	In vitro diagnostic medical device
LOT	Batch code	Σ	Sufficient for <n> tests
SN	Serial number		Biological risks
	Temperature limit		This way up
EC REP	Authorized representative in the European Community	CE	Indicates this device is in compliance with Europe Directive.
REF	Catalogue number	P/N	Material code
	Warning		Date of manufacture
UDI	Unique device identifier		

【Reference】

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