

ORDERING INFORMATION

Format	Code	Composition
Kit 1 x 40mL – 1 x 6 mL	[REF] B78182256	n° 1 vials x 40 mL R:A n° 1 vials x 6 mL R:B n°1 vial x 60 mL R.C

* in case of use on Indiko Analyser transfer the content into the additional empty vial

INTENDED USE

Diagnostic immunoturbidimetric test for the quantitative determination [IVD] of C1 Esterase Inhibitor (CEI) in human serum and plasma. All results must be interpreted in conjunction with the clinical context. FOR PROFESSIONAL USE ONLY.

CLINICAL SIGNIFICANCE

The complement is a family of interacting plasma proteins which are able to cause limited proteolysis and assemble in active complexes to lyse cells and generate immuno-adherences. This family of proteins also includes inhibitors of the active components which serve as regulators of the reaction cascade that activates the system.

In this ambit, the most important chemical reaction is due to the action of C1 on its natural substrate C2; a type of choline is produced which, among other functions, is a factor of basal permeability. The C1 esterase inhibitor (CEI) is a natural inhibitor which inhibits the production of this choline, in addition to that of callicrein.

A deficiency of this serum inhibitor causes an increased production of choline, as occurs in a rare human disease known as hereditary angioneurotic edema.

PRINCIPLE OF THE METHOD

Immunoturbidimetric method. The CEI contained in the test sample reacts with the specific antibodies, resulting in immunocomplexes. The turbidity formed in this way is read photometrically at λ 340nm and it is proportional to the CEI concentration in the sample. The quantitative analysis is obtained by interpolation of this photometric value with those found by testing known concentrations of CEI.

Storage and stability



= Storage temperature 2-8 °C

If stored at 2-8°C avoiding direct light, the intact reagents remain stable until the expiration date, printed on the label. Slight variations in composition among batches will not affect test results.

Concentrations

Reagent A			
Protein Buffer	TRIS	0.05	mol/L
	PEG	5	%
	NaN ₃	< 0.1	%
Reagent B			
CEI	NaN ₃	< 0.1	%
Goat antiserum			
Reagent C			
Sample Diluent	PBS	0,015	mol/L
	NaN ₃	< 0,1	%

Materials included in the kit

Reagent as described above.

Necessary materials not included in the kit

Controls and calibrators.

PRECAUTIONS and WARNINGS

1. Reagents and waste materials shall be disposed of in accordance with Community waste provisions or national or regional provisions.
2. Reagents may contain non-active components such as preservatives and detergents. The total concentration of these components is below the limits set out in Regulation 1272/2008 EC and subsequent amendments and additions.
3. It is recommended that the reagent be handled in accordance with the rules of good laboratory practice and that appropriate personal protective equipment be used.
4. Do not use the reagent if it is visibly degraded (e.g. presence of corpuscles).
5. All human samples shall be handled and disposed of as potentially infectious material.
6. The kit should only be used by qualified and properly trained technical personnel.
7. Diagnoses shall be carried out exclusively by authorised and qualified personnel.
8. Comply with national directives on occupational safety and quality assurance.
9. Use equipment that complies with current regulations.

Reporting of serious incidents

In the event of a serious incident in relation to the use of the device, please inform the manufacturer (via your distributor) and the competent authority of the European Union member state where the incident occurred. For other jurisdictions, reporting must be made in accordance with regulatory requirements. Reporting serious incidents helps provide more information about the safety of the diagnostic medical device.

PREPARATION OF THE REAGENT

The Reagents are liquid, ready for use. After opening, the Reagents are stable until the expiry date if kept as indicated in "Storage and stability".

PROCEDURE

Quality Control

Use the Sclavo Diagnostics Int. Control Sera for specific Proteins Low [REF] B47182064 and High [REF] B47182065 for your quality control purposes at least once a day. Repeat the analysis also after calibration. Obtained values must be within the range of acceptability.

ANALYTICAL TECHNIQUE

For automatic procedures, consult the instruction manual and applicable notes for the Konelab® - Indiko® analyzers. All applications not specifically approved by Sclavo Diagnostics Int. cannot be guaranteed in terms of performance and must be evaluated by the user.

Calibration

For calibration, use the Sclavo Diagnostics Int. Specific Proteins Single Level Calibrator [REF] B47182273, in accordance with methodology applying to Konelab® - Indiko® series.

Traceability

The CEI value has been determined according to the reference material WHO-IFCC1st International Reagent-CDC2010..

SAMPLE

Sample types and storage

Serum or plasma obtained by normal medical techniques can be used. No special preparation of the patient is necessary.

The samples must be pre-diluted 1:10 before analysis.

Strongly lipemic samples or those which present a high degree of turbidity or precipitates must be clarified by centrifugation (10 min. at 15,000xg), before testing.

Calculation of results on Konelab® - Indiko® systems

Results are automatically calculated by analyzer based on the calibration curve. The analyzer automatically performs serial dilutions from a primary standard according to the method protocol. The calibration curve is obtained by interpolating the values obtained with an appropriate algorithm.

REFERENCE RANGE

The typical reference range is 0.10 g/L a 0.17 g/L.

As sex, age, geographical location and other factors can influence the normal values found in the population, each laboratory should determine its own normal, medium and pathological values for its own population.

CHARACTERISTICS/PERFORMANCE

Analytical Range – Antigen excess

The analytical range was tested using a strongly positive sample and serial dilutions of this serum in saline solution. The method guarantees a correct response throughout the minimal detectable measurement range and the calibrator higher concentration.

The present method does not show Antigen Excess until 1.4 g/L

Trueness

The Trueness of the analytical results has been determined according to the CLSI EP15-A2 guideline, using commercial control sera. The data obtained are shown in the following table (confidence interval 95%).

Level	Replicates	Mean (g/L)	SD	CV%
Low	25	0.062	0.0008	6.6
High	25	0.186	0.0051	2.7

Specificity

The method is 100% specific for human A2M.



Interferences

The influence of the following substances on the analytical response was tested up to the concentrations reported below:

Bilirubin 50 mg/dL, Ascorbic Acid 50 mg/dL, EDTA 10 mM, Hemoglobin 500 mg/dL, Sodium citrate 1000 mg/dL, Sodium Heparin 40 mg/mL, Triglycerides 2%, Rheumatoid Factor 2000 IU/mL.

No appreciable interference was found in any case, and the variations observed were within the expected precision range. Higher concentrations were not tested.

However, in view of the wide heterogeneity of potentially interfering substances and pharmaceuticals, for diagnostic purposes the results of this test must always be taken into consideration in conjunction with the clinical history of the patient, other clinical tests and medical investigations.

Precision

The Precision of the analytical results has been determined as Repeatability and Total Precision according to the CLSI EP15-A2 guideline, using commercial control sera. The data obtained are shown in the following table (confidence interval 95%).

Within-run Precision – Repeatability				
Level	Replicates	Mean (g/L)	DS	CV%
Low	25	0.062	0.000	0.0
High	25	0.186	0.002	1.1
Total Precision (Within-lab Precision)				
Level	Replicates	Mean (g/L)	DS	CV%
Low	25	0.062	0.004	7.2
High	25	0.186	0.005	3.0

Limits of sensitivity








The Sensitivity limit has been measured using serial dilutions of a high concentrated serum. The smallest measurable concentration is 0.01 g/L.

Comparison between methods

The present method was compared with another commercially available method following the guidelines of the CLSI EP09-A2-IR, analyzing 60 human sera with a concentration between 0.06 e 0.2 g/L. The correlation data between the two methods are reported in the table below.

Parameter	Estimation
Intercept	0.0071
Slope	0.888
Correlation Coeff. (R)	0.975

Symbols used in IFU and Packaging

 In vitro diagnostic medical device vitro	 Manufacturer
 Catalogue Number	 Instruction for use
 Lot Number	 Temperature limitation
 Expiration date	

Bibliography

1. **Blombäck B. And Hanson Å.** (1979) Plasma Proteins. J. Kiley & Sons ed., Chichester
2. **Hafner G., Endler Th., Oppitz M., Merten U.P., Töpfer G., Dubois H., Hallstein A., Higer B., And Domke I.** (1995); Effects of Standardization with the New International Reference Preparation for Proteins in Human Serum on Method Comparability and Reference Values. Clin Lab. 41, 743-748
3. **Shahangian S., Agee K.A. And Dickinson R.P.** (1992); Concentration Dependencies of Immunoturbidimetric Dose-response Curves: Immunoturbidimetric Titer and Reactivity, and Relevance to Design of Turbidimetric Immunoassay. Clin. Chem. 38(6), 831-840
4. **Thomson D., Milford-Ward A., And Whicherj.T.** (1992) The value of Acute Phase Protein Measurements in Clinical Practice. Ann. Clin. Biochem. 29, 123-131.
5. **Whicher J.T., Price C.P. And Spencer K.** (1983). Immunonephelometric and Immunoturbidimetric Assay for Proteins. Crit. Rev. Clin. Lab. Sci 18(3), 213-260.
6. **Baudner S, Bienvenu J, Blirup-Jensen S, Carlstroem A, Johnson AM, Milford Ward A, et al.:(1993)** The certification of a matrix reference material for immunochemical measurement of 14 human serum proteins, CRM 470. EUR 15243 EN, 1993:1-186;
7. **Dati F, Schumann G, Thomas L, Aguzzi F, Baudner S, Bienvenu J, Blaabjerg O, Blirup-Jensen S, Carlström A, Petersen PH, Johnson AM, Milford-Ward A, Ritchie RF, Svendsen PJ, Whicher J.** (1996) Consensus of a group of professional societies and diagnostic companies on guidelines for interim reference ranges for 14 proteins in serum based on the standardization against the IFCC/BCR/CAP Reference Material (CRM 470). International Federation of Clinical Chemistry. Community Bureau of Reference of the Commission of the European Communities. College of American Pathologists. Eur J Clin Chem Clin Biochem. 6:517-20
8. **Clinical Laboratory Standards Institute (CLSI).** User Verification of Performance for Precision and Trueness; Approved Guideline – Second Edition. EP15-A2. Vol 25 N. 17
9. **Clinical Laboratory Standards Institute (CLSI).** Evaluation of Precision Performance of Quantitative Measurements Methods; Approved Guideline – Second Edition. EP05-A2. Vol 24 N. 25
10. **Clinical Laboratory Standards Institute (CLSI).** Measurement Procedure Comparison and Bias Estimation Using Patient Samples; Approved Guideline – Third Edition. EP09-A3. Vol 33 N. 11

REVISION	DATE	CHANGE
Rev.E	06/2024	New Issue for IVDR Regulation (UE) 2017/746 compliance

