

## ORDERING INFORMATION

| Format                  | Code            | Composition   |
|-------------------------|-----------------|---|
| Kit 1 x 40mL – 1 x 6 mL | [REF] B78182252 | n° 1 vials x 40 mL R:A<br>n° 1 vials x 6 mL R:B<br>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  $\alpha$ 2-Macroglobulin (A2M) in human serum and plasma. All results must be interpreted in conjunction with the clinical context. FOR PROFESSIONAL USE ONLY.

## CLINICAL SIGNIFICANCE

A2M is a wide-spectrum protease inhibitor with a molecular weight of 720 KD, containing 9% of carbohydrates. This protein has a complex structure formed of eight polypeptide chains arranged in stable dimers around the active site. A2M is produced by the liver and has a half-life of 9 days. The serum concentration varies greatly according to age and sex; it is higher in females and in the elderly.


The physiological function of A2M involves the inhibition of the enzymatic activity of trypsin, plasmin, thrombin etc.; it also has an important role in the control of inflammation, coagulation and fibrinolysis.

This protein also has a role in the transportation of some polypeptide hormones such as somatotropin and insulin. In pathological conditions, A2M shows a marked increase in the nephritic syndrome and in diabetes mellitus. A decrease in A2M is also quite frequent in situations involving the activation of plasminogen due to fibrinolytic therapy with uro- or streptochinase.

## PRINCIPLE OF THE METHOD

Immunoturbidimetric method. The A2M contained in the test sample reacts with the specific antibodies, resulting in immunocomplexes. The turbidity formed in this way is read photometrically at  $\lambda$  340nm and it is proportional to the A2M concentration in the sample. The quantitative analysis is obtained by interpolation of this photometric value with those found by testing known concentrations of A2M.

## 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      |                  |       |       |
|----------------|------------------|-------|-------|
|                |                  | Conc. | U.M.  |
| Protein Buffer | TRIS             | 0.05  | mol/L |
|                | PEG              | 5     | %     |
|                | NaN <sub>3</sub> | < 0.1 | %     |
| Reagent B      |                  |       |       |
| A2M            | NaN <sub>3</sub> | < 0.1 | %     |
| Goat antiserum |                  |       |       |
| Reagent C      |                  |       |       |
| Sample Diluent | PBS              | 0,015 | mol/L |
|                | NaN <sub>3</sub> | < 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 AAT value has been determined according to the IRMM using the reference material ERM®-DA470k/IFCC.

## 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 :

Male: 1,2 - 2,7 g/L

Female: 1,4 - 3,2 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.

## 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         | 1.447      | 0.0174 | 1.2 |
| High  | 25         | 4.321      | 0.0823 | 1.9 |



### 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         | 1.447      | 0.008 | 0.5 |
| High                                   | 25         | 4.321      | 0.025 | 0.6 |
| Total Precision (Within-lab Precision) |            |            |       |     |
| Level                                  | Replicates | Mean (g/L) | DS    | CV% |
| Low                                    | 25         | 1.447      | 0.019 | 1.3 |
| High                                   | 25         | 4.321      | 0.089 | 2.1 |

### Limits of sensitivity








The Sensitivity limit has been measured using serial dilutions of a high concentrated serum. The smallest measurable concentration is 0.12 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 59 human sera with a concentration between 0.88 e 3.195 g/L. The correlation data between the two methods are reported in the table below.

| Parameter              | Estimation |
|------------------------|------------|
| Intercept              | 0.0999     |
| Slope                  | 0.943      |
| Correlation Coeff. (R) | 0.995      |

### 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

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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 |

