**ALBUMIN**

BC 0100 CH 2 x 50 ml
BC 0500 CH 4 x 125 ml
BC 1500 CH 6 x 250 ml

**SUMMARY OF TEST**

Plasma levels of albumin, because they depend on protein intake, are frequently used to assess nutritional status. Moderate to large changes in plasma concentration of albumin have significant effects on the relative amounts of the bound and free concentrations of the ligands it carries; because free ligands are those that interact with tissue receptor sites and that can be excreted, plasma albumin levels have important influences on the metabolism of endogenous substances such as calcium, bilirubin, and fatty acids and on the effects of drugs and hormones. Albumin levels, although important for management and follow-up, have very little value in diagnosis. Hyperalbuminemia is of little diagnostic significance except in dehydration. Hypoalbuminemia, however, is very common in many illnesses and results in most instances from one or more of the following factors:

1. Impaired synthesis, either primary as in liver disease or secondary to diminished protein intake.
2. Increased catabolism as a result of tissue damage and inflammation.
3. Reduced absorption of amino acids caused by malabsorption syndromes or malnutrition.
4. Protein loss: in urine, due to nephrotic syndrome, chronic glomerulonephritis, diabetes, or systemic lupus erythematosus; in feces, due to protein-losing enteropathy arising from inflammatory or neoplastic disease; or from the skin through burns.
5. Altered distribution that may sequester large amounts of albumin in an extravascular compartment, as for instance in ascites, when high pressure in the portal circulation drives albumin into the peritoneal fluid.

Determination of albumin in serum or plasma is usually based on the binding behavior of the protein with the anionic dyes brom cresol green (BCG) or brom cresol purple (BCP) in a manual or automated procedure. The present method is based on BCG in acidic environment.

**PRINCIPLE OF THE METHOD**

Albumin and BCG are followed to bind at pH 4.2, and absorption of the BCG-albumin complex is determined spectrophotometrically at 628 nm. At pH 4.2, albumin acts as a cation to bind the anionic dye.

**KIT COMPONENTS**

For in vitro diagnostic use only. The components of the kit are stable until expiration date indicated on the label. Keep away from direct light sources.

**MATERIALS REQUIRED BUT NOT SUPPLIED**


**REAGENT PREPARATION**

Use reagent ready to use. Stability: up to expiration date on label at 2-8°C. Stability after first opening of vials: preferably within 60 days at 2-8°C.

**PRECAUTIONS**

Reagent may contain some non-reactive and preservative components. It is suggested to handle carefully it, avoiding contact with skin and swallow. Perform the test according to the general “Good Laboratory Practice” (GLP) guidelines.

**SPECIMEN**

Serum (preferred), plasma (heparin or EDTA). Venostasis should be avoided in specimen collection because hemoconcentration increases the apparent concentrations of albumin and other plasma proteins.

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**RESULTS CALCULATION**

serum/plasma sample:

\[
\text{albumin} \text{ g/dl} = \frac{Ax}{As} \times 4 \text{ (standard value)}
\]

**EXPECTED VALUES**

Men: 4.2 - 5.5 g/dl
Women: 3.7 - 5.3 g/dl

Each laboratory should establish appropriate reference intervals related to its population.

**QUALITY CONTROL AND CALIBRATION**

It is suggested to perform an internal quality control. For this purpose the following human based control sera are available:

- **QN 0050 CH QUANTINORM CHEMA**: 10 x 5 ml
  - with normal or close to normal control values
- **QP 0050 CH QUANTIPATH CHEMA**: 10 x 5 ml
  - with pathological control values

If required, a multiparametric, human based calibrator is available:

- **AT 0030 CH AUTOCAL H**: 10 x 3 ml

Please contact Customer Care for further information.

**TEST PERFORMANCE**

- **Linearity**: the method is linear up to 6 g/dl.
  - If the limit value is exceeded, it is suggested to dilute sample 1:9 with saline and to repeat the test, multiplying the result by 10.
- **Sensitivity/limit of detection (LOD)**: the limit of detection is 0.01 g/dl.

**Interferences**

- no interference was observed by the presence of:
  - hemoglobin ≤ 350 mg/dl
  - bilirubin ≤ 27 mg/dl
  - lipids ≤ 850 mg/dl

**Precision**

Intra-assay (n=10) mean (g/dl) SD (g/dl) CV%

<table>
<thead>
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<th>Sample</th>
<th>Mean (g/dl)</th>
<th>SD (g/dl)</th>
<th>CV%</th>
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Inter-assay (n=20) mean (g/dl) SD (g/dl) CV%

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<th>SD (g/dl)</th>
<th>CV%</th>
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**Methods comparison**

A comparison between Chema and a commercially available product gave the following results:

\[
\text{Albumin Chema} = \frac{x}{y} \times 4 \text{ (standard value)}
\]

**REFERENCE**


**MANUFACTURER**

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phone +39 0731 213360
fax +39 0731 213361
e-mail: mail@chema.com
website: http://www.chema.com

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**SYMBOLS**

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