OBio...
Supporting Care to Cure
A Division of Orchard Medical

Total Protein (Biuret Method)

Order Information

Cat. No.	Kit Configuration
OMR1156	Reagent: 4 x 40 mL

Summary

Proteins form an integral part of our external and internal structures. They are the main components of muscles, enzymes and hormones which regulate our entire activities. They are also involved in maintained water balance between blood and tissues. Proteins mainly divided into two types' albumin and globulins. The increase or decrease in the levels of these, are responsible for the diseases.

Principle

Serum Proteins together with copper ions form a violet blue color complex in alkaline solution. The absorbance of the color is directly proportional to the concentration.

Method

Photometric Test according to Biuret method.

Principle

At a slightly acid pH, serum albumin gives a color change in the presence of Bromocresol green of the indicator which is measured photometrically.

Reagent Storage instruction and stability

The reagents is stable till the date of expiry, if stored at 2°C - 30°C, protected from light. And contamination is avoided. Do not freeze the reagents
Reagent: Biuret Solution
Standard: Protein Standard (6g/dL)

Composition

Reagent: Sodium hydroxide 100 mmol/L, Potassium Sodium tartarate 16 mmol/L, Copper Sulphate 0.2 mmol/L. Standard: Protein (Conc. 6 g/dL)

Warnings and Precautions

1. In serum or plasma from patients who have received large intravenous amounts of polydextrans too high values can be measured with the biuret method. In such cases an alternative method (e.g. kjeldahl) has to be used.
2. Please take the necessary precautions for the use of laboratory reagents.
3. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings
4. Avoid direct contact with skin and do not swallow.
5. In very rare cases, samples of patients with gammopathy might give falsified results.
6. For professional use only.

Waste Management

Please refer to local regulatory requirements.

Reagent Preparation

The reagent and the standard are ready to use.

Materials required but not provided

NaCl solution 9 g/L
General laboratory equipment

Specimen

Serum, heparin plasma or EDTA plasma
Stability: 1 months at 2° – 8 °C, 3 months at -20 °C
Only freeze once!
Discard contaminated specimens.

Assay Procedure

Wavelength	546 nm
Light path	10 mm
Temperature	37°C

Measurement Against reagent blank

	Blank	Sample/Standard
Sample/Standard	--	10 µL
Dist. Water	10 µL	--
Reagent	1000 µL	1000 µL
Mix, incubate for 10 min. at 37°C and read absorbance against reagent blank.		

Calculation

$$\text{Total protein (g/dL)} = \frac{\Delta A \text{ Sample}}{\Delta A \text{ Std/Cal}} + \text{conc. std (g/dL)}$$

Quality Control

For internal quality normal and abnormal controls should be assayed with each batch of samples.

Each laboratory should establish corrective action in case of deviations in control recovery.

Performance Characteristics Measuring Range

Measuring Range of the assay is 0.1 – 10 g/dL. If such value is exceeded the sample should be diluted 1 + 1 with NaCl solution (9 g/L) and results multiplied by 2.

Interferences

No Interferences was observed by Ascorbic acid up to 30 mg/dL, Bilirubin up to 40 mg/dL and Triglycerides up to 2000 mg/dL.

Sensitivity/Limit of Detection

The lower limit of detection is 0.1 g/dL.

Linearity

The maximum limit of detection is 10 g/dL.

Precision

Intra assay n = 20	Mean [g/dL]	SD [g/dL]	CV [%]
Sample 1	5.69	0.03	0.53
Sample 2	8.27	0.08	0.92

Inter assay n = 20	Mean [g/dL]	SD [g/dL]	CV [%]
Sample 1	5.28	0.06	1.04
Sample 2	8.88	0.13	1.41

Method Comparison

A comparison of Nucleus Diagnosys Total Protein (y) with a commercially available test (x) using 15 samples gave following results:
$y = 0.906x + 0.684$; $r^2 = 0.952$.

Reference Range

	g/dL	g/L
Adults	6.6 – 8.7	66 - 87
Neonates (1 day - 4 weeks)	4.6 - 6.8	46 - 68
Infants (2-12 months)	4.8 - 7.6	48 -76
Children (over 12 months)	6.0 - 8.0	60 - 80

Each laboratory should check if references ranges are transferable to its own patient population and determine own reference ranges if necessary.

Literature

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