Ver.A261101

Albumin & Total Protein Assay Kit

ORG2852 (100Tests)

FOR RESEARCH USE ONLY, DO NOT USE IT IN CLINICAL DIAGNOSIS

Product Description

Albumin which is synthesized in the liver constitutes a major part of the total proteins in the body, the other part being globulin, they form the major portion of the dissolved substances in the plasma. Functions of albumin includes distribution of extracellular fluid, regulation of osmotic pressure, acts as transport agent for a wide variety of substance such as hormones, lipids, vitamins etc.

Proteins form the major portion of dissolved substances in the plasma. They form the basic structural components of the body. They constitute the enzymes present in our body & also act as secondary source of energy. The other functions include distribution. of water, buffering, transport of various components, defense & coagulation of blood in our body.

Principle

Albumin Assay: The reaction between albumin from serum or plasma and the dye bromocresol-green produces a change in colour that is proportional to the albumin concentration

Total Protein Assay: Colorimetric determination of total protein based on the principle of the Biuret reaction (copper salt in an alkaline medium). Protein in plasma or serum sample forms a blue colored complex when treated with cupric ions in alkaline solution. The intensity of the blue color is proportional to the protein concentration.

Kit components

Reagent	Volume	Storage
Extraction Reagent	110mL	2-8°C
Albumin Reagent	2 × 50mL	2-8°C
Total Protein Reagent	2 × 50mL	2-8°C
Albumin Standard (concentration 3g/dL)	1 × 3mL	2-8°C
Total Protein Standard (concentration 6g/dL)	1 × 3mL	2-8°C

Open Vial Stability

Once opened, the reagent is stable up to 20 days if contamination is avoided

Reagents and Equipment Required but Not Provided

Constant temperature water bath, cooling centrifuge, spectrophotometer 1mL cuvette plate and distilled water.

Reagent Deterioration

Turbidity or precipitation in any kit component indicates deterioration and vine component must be discarded. Values outside the recommended acceptable range for the Qualicheck Norm & Path control may also be an indication of reagent instability and associated results are invalid. Sample should be retested, using a fresh vial of reagent.

Reagent Preparation

Albumin and Total protein Reagents and Standards are ready to use.

Precaution

- To avoid contamination, use clean laboratory wares. Use clean, dry disposable pipette tips for dispensing. Close reagent bottles immediately after use.
- Avoid direct exposure of reagent to light. Do not blow into the reagent bottles.

Operation Procedures

Sample Preparation

1. **Bacteria or cells**
   Harvest the cells and wash twice with PBS. Ideal to use 5 million cells for the assay. Add 1mL Extraction Reagent to 5 million cells and ultrasonicate (200W, work time 3 second / interval 10 second repeat for 30 times) for complete lysis. Perform ultrasonication while keeping the cells in ice bath. Centrifuge at 8000 rpm, 4°C for 10 minutes and collect the supernatant. The supernatant should be kept on ice.

   Note: Ideal proportion of Cells/Bacteria to Extraction Reagent is 1:5-10.
2. **Tissue**
   Prepare 10% tissue homogenate by adding 1mL Extraction Reagent to 0.1g tissue. Grind completely to make a homogenate. Centrifuge at 8000 rpm, 4°C for 10 minutes and collect the supernatant.
3. **Serum or Plasma**
   Directly use for the assay.

Unit Conversion

Traditional Unit	SI Unit	Conversion from Traditional to SI
g/dL	g/L	× 10

Procedure Notes

Albumin Assay:

	Blank	Standard	Sample
Albumin Reagent	1000µL	1000µL	1000µL
Albumin Standard	-	10µL	-
Sample	-	-	10µL
Mix and incubate for 1 minutes at 37°C. Measure the change in absorbance of standard and sample against reagent blank.			

Calculation

$$\text{Albumin Con. (g/dL)} = \frac{\text{Absorbance of Sample}}{\text{Absorbance of Standard}} \times 3$$

Performance

Linearity

This reagent is linear up to 6g/dL.

If the concentration is greater than linearity (6g/dL), dilute the sample with normal saline and repeat the assay. Multiply the result with dilution factor.

Sensitivity

Lower detection Limit is 0.2g/dL.

Total Protein Assay:
Procedure Notes

	Blank	Standard	Sample
Total Protein Reagent	1000µL	1000µL	1000µL
Total Protein Standard	-	10µL	-
Sample	-	-	10µL
Mix and incubate for 1 minutes at 37°C. Measure the change in absorbance of standard and sample against reagent blank.			

Calculation

$$\text{Total Protein Con. (g/dL)} = \frac{\text{Absorbance of Sample}}{\text{Absorbance of Standard}} \times 6$$

Performance

Linearity

This reagent is linear up to 15g/dL.

If the concentration is greater than linearity (15g/dL), dilute the sample with normal saline and repeat the assay. Multiply the result with dilution factor.

Sensitivity

Lower detection Limit is 0.2g/dL.