

QuantiChrom™ Total Protein Assay Kit

Quantitative Colorimetric Determination of Total Protein

DESCRIPTION

Total protein concentration can be determined by several methods. However, protein dye-binding procedures are simple, reliable, rapid, readily automated and are becoming increasingly popular in assessing renal and blood brain barrier functions.

BioAssay Systems' Total Protein Assay Kit is based on an improved pyrogallol red-molybdate protein dye-binding assay. The color intensity at 600nm is directly proportional to the total protein concentration in the sample. This single reagent can be used for the quantitative determination of total protein in urine (proteinuria) and cerebrospinal fluid (blood brain barrier).

KEY FEATURES

Fast and sensitive. Assay takes 10 min. Linear detection range of 5 - 200 mg/dL protein.

Robust and Reliable. Substances in urine have minimal interference (< 2%).

Convenient and high-throughput. Homogeneous "mix-incubate-measure" type assay. Can be readily automated on HTS liquid handling systems for processing thousands of samples per day.

APPLICATIONS

Determination of total protein in biological samples (e.g. urine, CSF).

KIT CONTENTS

Catalog#	Reagent	Standard	Tests (96-well)	Tests (Cuvette)
QTPR-100	20 mL	1 mL 100 mg/dL	100	20
QTPR-01K	200 mL	1 mL 100 mg/dL	1000	200

For bulk orders of > 1000 mL Reagent, please inquire for a quote.

Storage conditions. This product is shipped at room temperature. Store kit at 2-8°C. Shelf life of 12 months after receipt.

Precautions: Reagents are for research use only. Normal precautions for laboratory reagents should be exercised while using the reagents. Please refer to Material Safety Data Sheet for detailed information.

ASSAY PROCEDURE FOR 96-WELL PLATE READER

Prior to assay, bring all reagents to room temperature.

- Standards and Samples.** Pipette 5 µL dH₂O, 5 µL provided Protein Standard and 5 µL Samples into separate wells of a clear flat-bottom 96-well plate.
- Assay.** Add 200 µL Reagent to all assay wells. Tap plate to mix. Incubate for 10 min. Measure OD_{600nm} on a plate reader.

ASSAY PROCEDURE FOR CUUVETTE

- Standards and Samples.** Pipette 20 µL dH₂O, 20 µL provided Protein Standard and 20 µL Samples into separate cuvettes.
- Assay.** Add 1 mL Reagent to each cuvette. Mix and incubate for 10 min. Measure OD_{600nm} on a spectrophotometer.

CALCULATION

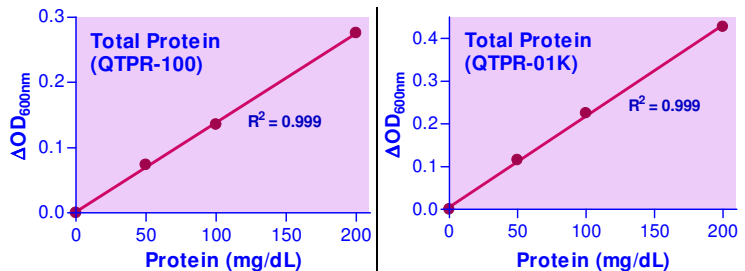
Total protein concentration of a Sample is calculated as

$$[\text{Total Protein}] = \frac{OD_{\text{SAMPLE}} - OD_{\text{H}_2\text{O}}}{OD_{\text{STANDARD}} - OD_{\text{H}_2\text{O}}} \times n \times 100 \text{ (mg/dL)}$$

where OD_{SAMPLE}, OD_{STANDARD} and OD_{H₂O} are the optical density values of the Sample, the Standard and the H₂O (blank), respectively. If calculated protein concentration is higher than 200 mg/dL dilute Sample in water and repeat assay. Multiply the results by the dilution factor *n*.

MATERIAL REQUIRED BUT NOT PROVIDED

For 96-well plate assays: pipetting devices, clear flat bottom 96-well plates, and plate reader. For cuvette assays: pipetting devices, cuvettes and spectrophotometer capable of reading OD_{600nm}.



Left: Standard curve performed on a 96-well plate reader (Spectramax M2);
Right: Standard curve using the cuvette procedure.

LITERATURE

- Joern WA, Schmoele L (1981). Urinary protein measurement by the Coomassie blue dye-binding method adapted to the ABA-100 bichromatic analyzer. Clin Chem27:1305.
- Sano K, et al (1981). Automatic assay of urinary protein using Coomassie Brilliant Blue G-250. Anal Biochem 113:197-201.
- Watanabe N, et al (1984). Automatic method for determination of protein in urine with a Hitachi 726 analyzer: a modification of Bradford's method. Anal Chem Specimen 7:27-31.

RELATED PRODUCTS

- QuantiChrom™ Protein Assay Kit (Bradford method): cat# QCPR-500.
- QuantiFluo™ Protein Assay Kit (o-phthalaldehyde method): cat# QFPR-200.