



MICROPROTEIN-Dye Binding Method
FOR BECKMAN CX AND LX SYSTEMS

MTP

INTENDED USE

For the quantitative determination of albumin in urine and CSF.

CLINICAL SIGNIFICANCE

Measurement of total protein in urine and in cerebrospinal fluid (CSF) is important in the detection of renal pathology. Proteinuria can occur in increased glomerular permeability, defective tubular re-absorption and glomerular permeability, defective tubular reabsorption and abnormal secretion of protein into the urinary tract. Albumin-urea has been recognized as an early indicator of renal damage in diabetes, that can be reversed if detected and treated sufficiently early.

The measurement of CSF total protein is used to detect increased permeability of the blood/brain barrier to plasma proteins or to detect increased intrathecal secretion of immunoglobulins.

PRINCIPLE

This test is based on the procedure developed by Watanabe et. al. which is a dye-binding method utilizing pyrogallol red-molybdate complex, and modified to equalize the reactivity of albumin and γ -globulin, and provide good precision and linearity. The reaction formula is as follows:

Pyrogallol red (PR) + Molybdate (Mo) + Protein \longrightarrow PR-Mo-Protein complex.

REAGENT

- 2 cartridge/kit (2 \times 300 tests)
- Ready-to-use
- Components :
 - pyrogallol red 2.4 mg/dl
 - molybdate 0.96 mg/dl
 - Urine/CSF Total Protein Standard 1g/L : an aqueous solution of Bovine serum albumin with sodium azide as preservative.

STORAGE: 2~8 $^{\circ}$ C

PRECAUTIONS:

1. For in vitro diagnostic use only.
2. Since all specimens are potentially infectious, they should be handled with appropriate precautions and practices in accordance with Biosafety level 2 as recommended by USA NIH manual Biosafety in Microbiological and Biomedical Laboratories, and in accordance with National or local regulations related to the safety precautions of such materials.
3. Each laboratory has to perform the quality control test to assure the results being reliable before running the specimen tests

PROCEDURES: Use open channel and follows the attached parameters and procedures to perform the tests.

SPECIMEN COLLECTION AND PREPARATION

Urine samples collected randomly or 24 hour specimens may be used. Store at 2~8 $^{\circ}$ C or freeze the specimens until assayed. No special additives or preservatives are required.



CSF should be free from hemolysis. Centrifuge any specimens containing red blood cells or particulate matter. CSF may be stored at 2~8°C for several days until assay.

EXPECTED VALUE:	CSF	15~45 mg/dl (0.015 to 0.045 g/L)
	Urine	< 140 mg/day (< 0.14 g/24hrs)
	Random Urine	< 10 mg/dl (< 0.01 g/L)

NOTE

It is generally recommended that each laboratory establish its own range of normal values for commonly performed tests.

REFERENCES:

1. MeElderry LA, Tarbit IF, Cassells-Amith AJ. Six methods for urinary protein compared. Clin Chem 1982; 28:356-60.
2. Dilena BA, Penberthy LA, Fraser CG. Six methods for determining urinary protein compared. Clin Chem 1983;29:553-7.
3. Watanabe N, Kamei S, Ohkubo A, et al. Urinary protein as measured with a pyrogallol red-molybdate complex, manually and in a Hitachi 726 automated analyzer. Clin Chem 1986; 32:1551-4.
4. Fujita y, Mori I, Kitano S. COLOR Reaction Between Pyrogallol red-molybdenum (VI) Complex and Protein. Benseki Kagaku 1983; 32:379-86.