PROTEIN in CSF

Folin-Lowry Colorimetric Method 100 Tests

PRINCIPLE :
Two reactions are involved: (a) an initial interaction of protein and Cu^{2+} in alkali (related to biuret reaction); (b) a reduction of the phosphotungstic and phosphomolybdic acids to molybdenum blue and tungsten blue both by the Cu-protein complex and by the tyrosine and tryptophan of the protein. The latter two give color in the absence of Cu^{2+}, but the rest of the protein gives no color without Cu^{2+}. About 75% of the color is dependent on the Cu^{2+}. The maximum absorption of the colored products is at 750 nm.

SAMPLE :
CSF

Normal Values :
15 - 45 mg / dl

REAGENTS :

1-	Standard	50 mg / dL
2-	Alkaline Copper - Tartrate	
	Sodium Carbonate	200 mmol / L
	Sodium Tartrate	20 mmol / L
	Sodium Hydroxide	800 mmol / L
	Copper Sulphate	6 mmol / L
3-	Folin and Ciocalteu phenol Reagent	

STABILITY :
The reagents are stable up to the expiry date specified when stored at +4 to +8 °C away from light .

REFERENCE :
Daughaday WH, Lowry OH, Rosebrough NJ, Fields Ws. J, Lab. Clin. Med. 39, 663, (1952).

PROCEDURE:

	Blank (ml)	Standard (ml)	Sample (ml)
D. Water	**0.05**	**-**	**-**
Standard	**-**	**0.05**	**-**
Sample	**-**	**-**	**0.05**
Reagent 2	**1.0**	**1.0**	**1.0**
Mix well, let Stand 15 min. add rapidly:			
Reagent 3	**0.05**	**0.05**	**0.05**

Mix well immediately. Incubate for 10 min. at 37°C. Read absorbances at 700 (650 – 750 nm) for sample (A_{Sample}) and standard ($A_{standard}$) against reagent blank. Color stable for Several hours.

CALCULATION :

$$\text{Protein concentration (mg/dL)} = \frac{A_{Sample}}{A_{Standard}} \times 50$$

PROTEIN in CSF

Folin – Lowry Colorimetric Method

+4 ºC 100 Tests

In vitro diagnostic use

CAT. NO. TP 20 21

REAGENTS

R1	**Standard**	**2**	**ml**
R2	**Alkaline reagent**	**100**	**ml**
R3	**Phenol reagent**	**5**	**ml**

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PROTEIN in Urine

Folin-Lowry Colorimetric Method 100 Tests

PRINCIPLE :
Two reactions are involved: (a) an initial interaction of protein and Cu^{2+} in alkali (related to biuret reaction); (b) a reduction of the phosphotungstic and phosphomolybdic acids to molybdenum blue and tungsten blue both by the Cu-protein complex and by the tyrosine and tryptophan of the protein. The latter two give color in the absence of Cu^{2+}, but the rest of the protein gives no color without Cu^{2+}. About 75% of the color is dependent on the Cu^{2+}. The maximum absorption of the colored products is at 750 nm.

SAMPLE :
Urine

Normal Values :
40 -400 mg/ 24 hrs

REAGENTS :

1-	Standard	50 mg / dL
2-	Alkaline Copper - Tartrate	
	Sodium Carbonate	200 mmol / L
	Sodium Tartrate	20 mmol / L
	Sodium Hydroxide	800 mmol / L
	Copper Sulphate	6 mmol / L
3-	Folin and Ciocalteu phenol Reagent	

Additional Reagents:
- Trichloro acetic acid (TCA) 20 g/dL
- Sodium hydroxide (NaOH) 1 g/dL

STABILITY :
The reagents are stable up to the expiry date specified when stored at +4 to +8 °C away from light .

REFERENCE :
Daughaday WH, Lowry OH, Rosebrough NJ, Fields Ws. J, Lab. Clin. Med. 39, 663, (1952).

PROCEDURE:

STEP FOR ELIMINATION THE INTERFERENCE:
Precipitation of protein:

Urine	**2.0 ml**
TCA 20%	**0.5 ml**

Mix well. Leave for 10 min. at R. Temp. Centrifuge for 15 min. at 3000 rpm. Discard supernatant. Dissolve ppt in 0.05 ml NaOH (1g/dL) then add 1.95 ml d. water, mix Well, use for assay:

	Blank (ml)	Standard (ml)	Sample (ml)
D. Water	**0.05**	**-**	**-**
Standard	**-**	**0.05**	**-**
Sample	**-**	**-**	**0.05**
Reagent 2	**1.0**	**1.0**	**1.0**
Mix well, let Stand 15 min. add:			
Reagent 3	**0.05**	**0.05**	**0.05**

Mix well immediately. Incubate for 10 min. at 37°C. Read absorbances at 700 (650 - 750 nm) for sample (A_{Sample}) and standard ($A_{standard}$) against reagent blank. Color stable for several hours.

CALCULATION :

$$\text{Protein Concentration (mg/dL)} = \frac{A\ \text{sample}}{A\ \text{standard}} \times 50$$

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PROTEIN in Urine

Folin – Lowry Colorimetric Method

+4 ºC 100 Tests

In vitro diagnostic use

CAT. NO. TP 20 21

REAGENTS

R1	**Standard**	**2**	**ml**
R2	**Alkaline reagent**	**100**	**ml**
R3	**Phenol reagent**	**5**	**ml**

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