

Comenius University in Bratislava, Faculty of Medicine
Institute of Medical Chemistry, Biochemistry and Clinical Biochemistry

LABORATORY PROTOCOL SS - 10th seminar
Determination of total proteins and albumin in serum

Name, study group:	Date:
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Principle:

Peptide bonds present in the blood serum proteins react in the alkaline solution with copper cations forming violet-colored complex. Color intensity of the complex is proportional to amount of proteins present. Bromocresol green (anionic dye) is used for determination of albumin. Quantification of albumin is based on the albumin binding to the anionic dye bromocresol green (BCG), whereas other blood serum proteins do not bind to BCG. The intensity of the blue-green color in the sample is proportional to amount of albumin.

Procedure:

Total proteins (TP)	TP1	TP 2	reference sample
biuret reagent	1 000 µL	1 000 µL	1 000 µL
serum TP 1	100 µL	---	---
serum TP 2	---	100 µL	---
distilled water	---	---	100 µL
Mix the samples, let them stand for 10 minutes and measure absorbance at 546 nm.			

Albumin (AL)	AL 1	AL 2	reference sample
bromocresol green	1 000 µL	1 000 µL	1 000 µL
serum AL 1	100 µL	---	---
serum AL 2	---	100 µL	---
distilled water	---	---	100 µL
Mix the samples, let them stand for 10 minutes and measure absorbance at 600 nm.			

Calculation:

	Patient 1		Patient 2	
	total proteins	albumin	total proteins	albumin
absorbance				
amount (g/L)				

Reference values:

Total proteins: **60 – 80 g/L**; albumin: **35 – 50 g/L**

Conclusion:

Next week:

Lippincott's:

- Chapter 21: part II - Porphyrin metabolism