

## Plasma proteins – Past papers

1- After a traffic accident, a 34-year-old lady was admitted to the intensive care unit (ICU) for monitoring. On the second day of admission a blood sample was taken and sent to the laboratory for biochemical analyses. The liver function and renal function test were normal. The following findings would be consistent with: Albumin 30 g/L (reference 35-45 g/L), C-reactive protein 68mg/L (reference < 10 mg/L), plasma immunoglobulin levels normal?

- A. Liver cirrhosis
- B. Acute nutritional deficiency
- C. Chronic infection
- D. Acute phase response to injury
- E. Nephrotic syndrome

Answer: D

2- Patient with albuminemia have moderate edema because:

- A. Patients can compensate by increasing the expression of other plasma proteins
- B. Normal kidneys prevent the loss of any amount of albumin
- C. Prealbumin can always be processed to mature albumin,
- D. Gene expression of albumin increase to compensate for the low albumin level
- E. There are multiple albumin genes and , hence, deleting one of them wouldn't affect the patient much

Answer: A

3- A patient presents with blood in the urine (hematuria). You wish to assess yet whether this patient has a hemoglobinuria or a myoglobinuria (hemoglobin or myoglobin in urine). A blood test for one of these proteins should help you to arrive at the correct conclusion?

- A) Hemoglobin
- B) CRP
- C) Transferrin
- D)  $\alpha$ -antitrypsin
- E) Haptoglobin

Answer: E

4- After performing a serum electrophoresis, you noticed a dramatic decrease in all bands on the gel. This would indicate?

- A) Analbuminemia
- B) Multiple myeloma
- C) Kidney failure
- D) Liver cirrhosis
- E) Inflammation

Answer: C

5- Which of the following proteins you would expect to run faster (compared to others) in gel electrophoresis?

- A) Albumin
- B)  $\alpha$ -antitrypsin
- C) Hemoglobin
- D) Haptoglobin
- E) Prealbumin

Answer: E

6. Prealbumin represents:

- A. band that runs faster on gel electrophoreses
- B. An acute phase protein
- C. Inactive form of albumin
- D. A higher molecular weight protein compared to albumin

Answer: A

7. A decrease in which of the following proteins will result in deposits of copper in the lens of the eyes, liver, skin and kidneys:

- A. Ceruloplasmin
- B. Albumin
- C. Transferrin
- D. CRP
- E. Prealbumin

Answer: A

8. After performing a serum electrophoresis, you noticed a dramatic increase in alpha-1, alpha-2, beta, and gamma globulin bands on the gel but not albumin. This would indicate:

- A. Multiple myeloma
- B. Liver cirrhosis
- C. Inflammation
- D. Kidney failure

E. Analbuminemia

Answer: E

9. Decrease in Which of the following may cause lung disease?

- a-Albumin
- b- $\alpha$ 1 fetoprotein
- c-Haptoglobin
- d- $\alpha$ 1 antitrypsin

Answer D

10. Which of the following is found mainly during inflammation?

- a-Albumin
- b-C-reactive protein
- c-prealbumin
- d-Transferrin

Answer B

11. The correct order of the amount (abundance) of the globulin plasma proteins is :

- a) Albumin >  $\alpha$ 1 >  $\alpha$ 2 >  $\beta$  >  $\gamma$
- b)  $\gamma$  >  $\beta$  >  $\alpha$ 2 >  $\alpha$ 1 > albumin
- c) Albumin >  $\gamma$  >  $\beta$  >  $\alpha$ 2 >  $\alpha$ 1
- d)  $\gamma$  >  $\beta$  >  $\alpha$ 2 >  $\alpha$ 1
- e)  $\alpha$ 1 >  $\alpha$ 2 >  $\beta$  >  $\gamma$

Answer: D)  $\gamma$  >  $\beta$  >  $\alpha$ 2 >  $\alpha$ 1

12. Which of the following plasma protein has the higher molecular weight ?

- a) Haptoglobin.
- b)  $\alpha$ 1-antitrypsin.
- c)  $\alpha$ 2-macroglobulin.
- d) Albumin.

Answer: C

13. It is an acute phase protein:

- A) fibrinogen
- b) transferrin
- C) albumin
- D) transthyretin

Answer: A

14. Which of the following can be used to reduce the loss of hemoglobin in degradation of RBCs?

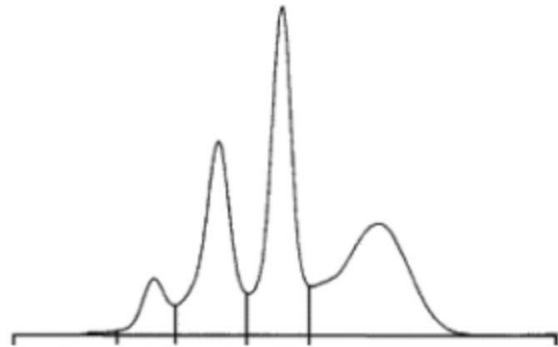
- a-Complexing it with  $\alpha_2$ -macroglobulin
- b-Binding to Albumin
- c-Complexing it with Haptoglobin
- d-Removing copper from diet

Answer: C

15. In this graph, which plasma protein is missing?

- A. Albumin
- B.  $\alpha_1$ -globulins
- C.  $\alpha_2$ -globulins
- D.  $\beta$ -globulins
- E.  $\gamma$ -globulins

Answer: A



16. Which plasma protein deficiency causes emphysema?

- A.  $\beta_2$ -microglobulin
- B.  $\alpha_2$ -macroglobulin
- C.  $\alpha_1$ -antitrypsin
- D. Haemopexin

Answer: C

17. Which plasma protein is considered an in vivo anti-coagulant?

- A.  $\alpha_1$ -antitrypsin
- B.  $\alpha_2$ -macroglobulin
- C. Ceruloplasmin
- D.  $\alpha_1$ -fetoprotein

Answer: A

Past Papers -

*Vitamins*

- *The active Form of VITAMIN D is*
- *A. Ergocalciferol*
- *B. 7-dehydrocholesterol*
- *C. 1,25-dihydroxycholecalciferol*
- *D. cholecalciferol*
- *E. 25-hydroxycholecalciferol*
  
- *Answer: C*

- *Fragility of RBCs caused by Deficiency Of*
- *A. Vitamin A*
- *B. Vitamin B*
- *C. Vitamin C*
- *D. Vitamin D*
- *E. Vitamin E*
  
- *Answer: E*

- *A Coenzyme produced from vitamin B12 is required in*
- *A. In production of phosphatidyl choline from phosphatidyl ethanolamine*
- *B. Carboxylation of propionyl CoA to methylmalonyl CoA*
- *C. The metabolism of propionyl CoA produced from fatty acids with odd number of carbon atoms.*
- *D. In using ketone bodies as a source of energy in the muscle*
- *E. In production of succinyl CoA from succinate in the muscle*
  
- *Answer: C*



- *Vitamin D can be produced by exposure of UV light in Form of*
- *A. farnesyl pyrophosphate*
- *B. lanosterol*
- *C. 7-dehydrocholesterol*
- *D. none of the above*
- *E. squalene 2,3 epoxide*
  
- *Answer: C*

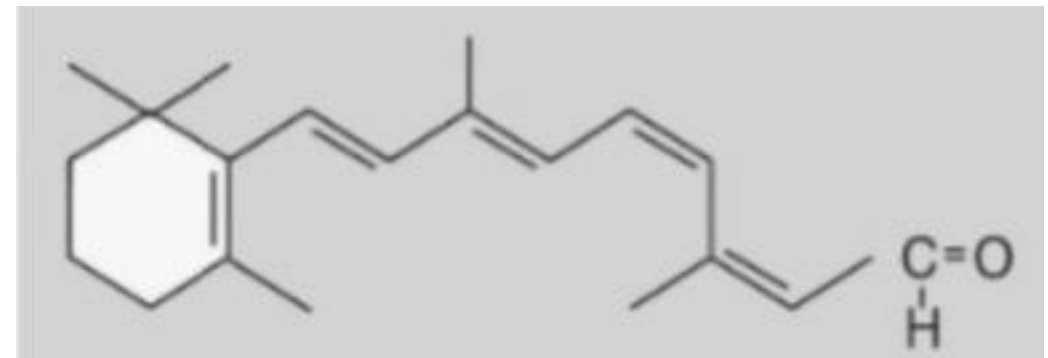
. 25-Hydroxycholecalciferol 1-hydroxylase activity is inhibited:

- A. Directly by low  $\text{PO}_4^{-3}$
- B. Indirectly by high serum  $\text{Ca}^{+2}$
- C. Indirectly by low serum  $\text{Ca}^{+2}$

Answer: B

- *The vitamin that the human body can make*
- *Answer: Cholecalciferol*

- *True about the structure in the photo:*
- *Answer: It has high affinity for opsin*



11-cis retinal has an affinity to:

Answer: Opsin

True about calcitriol function:

Answer: Inhibited by increased level of 1,25 dihydroxycholecalciferol

*The End*