



**QUIZ TIME**

# **Bio- chemistry**

**Lec9**

Done by:

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1. Which of the following best describes the mechanism of feedback inhibition in enzyme regulation?

- A) Repressor binds to DNA to stop enzyme synthesis
- B) Allosteric activator enhances enzyme activity
- C) End product inhibits the first committed step of the pathway
- D) Phosphorylation of the enzyme changes its shape
- E) Enzyme synthesis is increased by an inducer

Answer: C

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2. All of the following statements about allosteric regulation are true EXCEPT:

- A) It involves effector molecules binding at non-active sites
- B) It can activate or inhibit enzyme activity
- C) It always leads to permanent activation of enzymes
- D) It is a rapid and reversible form of regulation
- E) It changes the conformation of the enzyme

Answer: C

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3. Which covalent modification involves transferring a phosphate group to serine, threonine, or tyrosine?

- A) Glycosylation
- B) Acetylation
- C) Methylation
- D) Phosphorylation
- E) Ubiquitination

Answer: D

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4. A 60-year-old man presents with chest pain. His labs show elevated CK-MB levels. What is the most likely cause?

- A) Liver cirrhosis
- B) Brain tumor
- C) Myocardial infarction
- D) Prostate cancer
- E) Acute pancreatitis

Answer: C

5. Which of the following enzymes is classified as a non-functional plasma enzyme and increases in bone disease?

- A) ALT
- B) Lipase
- C) Alkaline phosphatase
- D) Pseudo-cholinesterase
- E) AST

Answer: C

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6. Which one of the following enzymes increases specifically in prostate cancer?

- A) ALT
- B) CK-MM
- C) Acid phosphatase
- D) Lipase
- E) Amylase

Answer: C

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7. All of the following are rapid, short-term methods of enzyme regulation EXCEPT:

- A) Allosteric regulation
- B) Covalent modification
- C) Feedback inhibition
- D) Proenzyme activation
- E) Induction

Answer: E

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8. Which of the following enzymes is released into blood following acute pancreatitis?

- A) ALT and AST
- B) Creatine kinase
- C) Lipase and amylase
- D) Alkaline phosphatase
- E) LDH

Answer: C

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9. Which of the following best defines a zymogen?

- A) Enzyme that catalyzes multiple reactions
- B) Enzyme with no biological function
- C) Inactive enzyme precursor activated by cleavage
- D) Enzyme regulated only by phosphorylation
- E) Enzyme that binds multiple cofactors

Answer: C

10. A 48-year-old woman presents with fatigue and mild right upper quadrant pain. Physical exam shows mild hepatomegaly. Which of the following enzymes is most helpful in diagnosing her condition?

- A) CK-MB
- B) Lipase
- C) ALT
- D) Amylase
- E) CK-BB

Answer: C

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11. Which of the following plasma enzymes is normally present in high concentrations in blood and has a functional role?

- A) AST
- B) Pseudo-choline esterase
- C) LDH
- D) CK-MB
- E) Amylase

Answer: B

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12. Which isoenzyme is primarily increased in skeletal muscle diseases?

- A) CK-BB
- B) CK-MB
- C) CK-MM
- D) LDH-1
- E) Acid phosphatase

Answer: C

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13. Which of the following best describes the effect of negative allosteric effectors?

- A) Increase  $K_m$  and  $V_{max}$
- B) Increase substrate binding
- C) Increase gene transcription
- D) Decrease enzyme activity
- E) Act through protein phosphorylation

Answer: D

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14. What is the role of protein kinase A activation by cAMP in enzyme regulation?

- A) Phosphorylates substrates directly
- B) Cleaves proenzymes
- C) Releases catalytic subunits from regulatory ones
- D) Promotes transcription of enzymes
- E) Prevents zymogen activation

Answer: C

15. Which of the following is an example of long-term enzyme regulation that occurs at the gene expression level?

- A) Activation by cAMP
- B) Induction
- C) Feedback inhibition
- D) Zymogen activation
- E) Allosteric regulation

Answer: B

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16. Which isoenzyme of LDH would be expected to increase in a patient with a liver disease?

- A) LDH-1
- B) LDH-2
- C) LDH-3
- D) LDH-4
- E) LDH-5

Answer: E

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17. In feedback inhibition, which of the following is most commonly inhibited?

- A) The final step in the pathway
- B) A reversible step
- C) A regulatory enzyme at the beginning of the pathway
- D) An isoenzyme
- E) Zymogen activation

Answer: C

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18. Which of the following explains why zymogens are synthesized in an inactive form?

- A) To conserve energy
- B) To allow feedback inhibition
- C) To protect tissues from self-digestion
- D) To enhance enzyme activity
- E) To promote phosphorylation

Answer: C

19. A patient with obstructive jaundice is likely to show elevation in which of the following enzymes?

- A) AST
- B) Lipase
- C) CK-MB
- D) Alkaline phosphatase
- E) Amylase

Answer: D

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20. Which of the following statements about isoenzymes is FALSE?

- A) They catalyze the same reaction
- B) They differ in tissue distribution
- C) They differ in inhibition susceptibility
- D) They have identical physical structures
- E) They help identify the diseased organ

Answer: D

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**QUIZ TIME**

# **Bio- chemistry**

**Lec10**

Done by:

Rahaf alfogaha

A 30-year-old male presents with bleeding gums, petechiae, and delayed wound healing. CBC shows microcytic hypochromic anemia. Which of the following is the most likely deficient vitamin?

- A. Vitamin B12
- B. Vitamin B6
- C. Vitamin C
- D. Vitamin B3
- E. Vitamin B2

Answer: C

Which of the following vitamins plays a direct role in collagen synthesis by hydroxylation of proline and lysine residues?

- A. Vitamin B1
- B. Vitamin B9
- C. Vitamin B6
- D. Vitamin C
- E. Vitamin B12
- F. Vitamin B2

Answer: D

Vitamin B1 is primarily required as a coenzyme for:

- A.  $\beta$ -oxidation of fatty acids
- B. Transamination reactions
- C. Oxidative decarboxylation of  $\alpha$ -keto acids
- D. Hydroxylation of tyrosine
- E. DNA synthesis

Answer: C

A young woman presents with dermatitis, diarrhea, and dementia. Which vitamin deficiency is most likely responsible for her symptoms?

- A. Thiamine
- B. Riboflavin
- C. Niacin
- D. Pyridoxine
- E. Folic acid
- F. Biotin

Answer: C

Which of the following statements regarding vitamin B12 is correct?

- A. It is absorbed in the jejunum with help of bile salts
- B. It is found in both plant and animal sources
- C. It does not require any carrier for absorption
- D. Its deficiency leads to peripheral neuropathy and megaloblastic anemia
- E. It functions mainly in collagen formation

Answer: D

Which of the following water-soluble vitamins is stored in the liver?

- A. Vitamin B6
- B. Vitamin B2
- C. Vitamin C
- D. Vitamin B12
- E. None of the above

Answer: D

A patient with history of gastrectomy is at high risk of deficiency of which vitamin?

- A. Vitamin B2
- B. Vitamin B12
- C. Vitamin C
- D. Vitamin B3
- E. Vitamin B6

Answer: B

Pyridoxal phosphate, the active form of vitamin B6, is required in all the following EXCEPT:

- A. Tryptophan to niacin conversion
- B. Antibody synthesis
- C. Hemoglobin production
- D. Hydroxylation of collagen
- E. Nervous system function

Answer: D

A man develops cracks at the corners of his mouth, glossitis, and seborrheic dermatitis. Which coenzymes are likely deficient?

- A. NAD and NADP
- B. FMN and FAD
- C. TPP and PLP
- D. Biotin and CoA
- E. THF and methylcobalamin

Answer: B

10 Which vitamin is involved in single-carbon transfers and plays a major role in DNA synthesis alongside vitamin B12?

- A. Vitamin B1
- B. Vitamin B2
- C. Folic acid
- D. Vitamin C
- E. Vitamin B6

Answer: C

11 A malnourished child presents with macrocytic anemia. Bone marrow shows large immature RBCs. Which combination of vitamins are most likely deficient?

- A. B1 and C
- B. B9 and B12
- C. B2 and B3
- D. B6 and B3
- E. C and B9

Answer: B

