

Endo – metabolism

Archive

Lecture 1&2

Bioenergetics & ETC

Done by :
Nour

metabolism-lecture (1&2)

1. A patient has been exposed to a compound that increases the protons permeability across the inner mitochondrial membrane.

what would be expected to happen?

- A- Increased oxygen utilization
- B- Decreased pyruvate dehydrogenase activity
- C- Decreased malate-aspartate shuttle activity
- D- Increased ATP levels
- E- Increased FO/F1 ATP synthase activity

Answer : A

Explanation : increasing the permeability means that there is less energy produced, as a compensation mechanism the cell does more and more ETC utilizing more oxygen

2. Super high energy molecules stored energy in which of the following:

- A- bond
- B- electrons
- C- atoms

Answer : A

metabolism-lecture (1&2)

3. All of the following are high energy molecules except:

A- NADH

B- FADH₂

C- Dihydroxyacetone phosphate

D- 1-3 biphosphoglycerate

E- phosphoenolpyruvate

Answer : C

4. Regarding the proton pump activity in ETC, what is correct?

A- Forms a pore within inner mitochondrial membrane

B- Causes asymmetrical transfer of protons through inner mitochondrial membrane

Answer : B

5. Antimycin A block between cytochrome c, then ?

Inhibition of all ATP synthesis

6. Differences in ATP production is due to?

shuttling of NADH molecules

metabolism-lecture (1&2)

7. A patient is poisoned with antimycin A that inhibits cytochrome c of ETC, what changes occur to energy production?

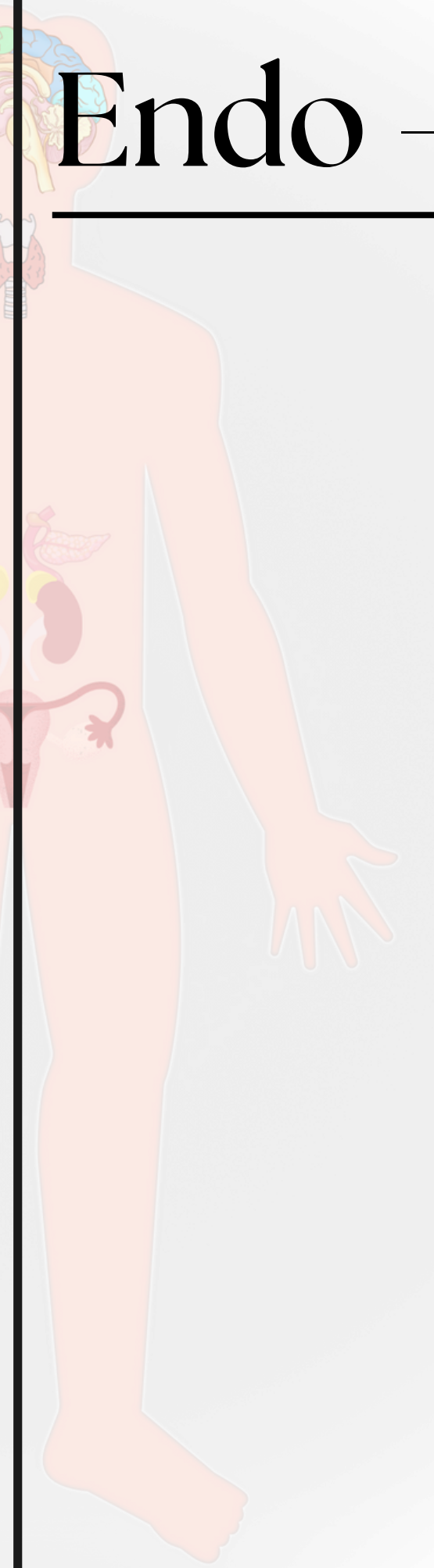
- A- no energy production at all
- B- energy is produced in less amounts
- C- energy is produced in slower rate
- D- energy is produced for short period of time
- E- energy production is not affected due to increased rates of ETC

Answer : A

8. Energy rich molecule ?

- A- NADH/ FADH₂
- B- phosphoenolpyruvate
- C- 1,3 biphosphoglycerate
- D- 1,3 disphosphoglycerate

Answer : A



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Lecture 3&6

Enzymes in medicine

Done by :

Nour

metabolism-lecture (3&6)

1.The biomarkers which used in acute pancreatitis, cholestasis and urinary bladder cancer :

- A- Amylase, ALP and beta glucorindase
- B- Streptokinase, ALP and beta glucorindase
- C- Amylase, beta glucorindase and ALP
- D- Lipase, AST and beta glucorindase
- E- Streptokinase, AST and beta glucorindase

Answer : A

2.To differentiate the diagnosis of biliary obstruction from bone disease, ALP used with :

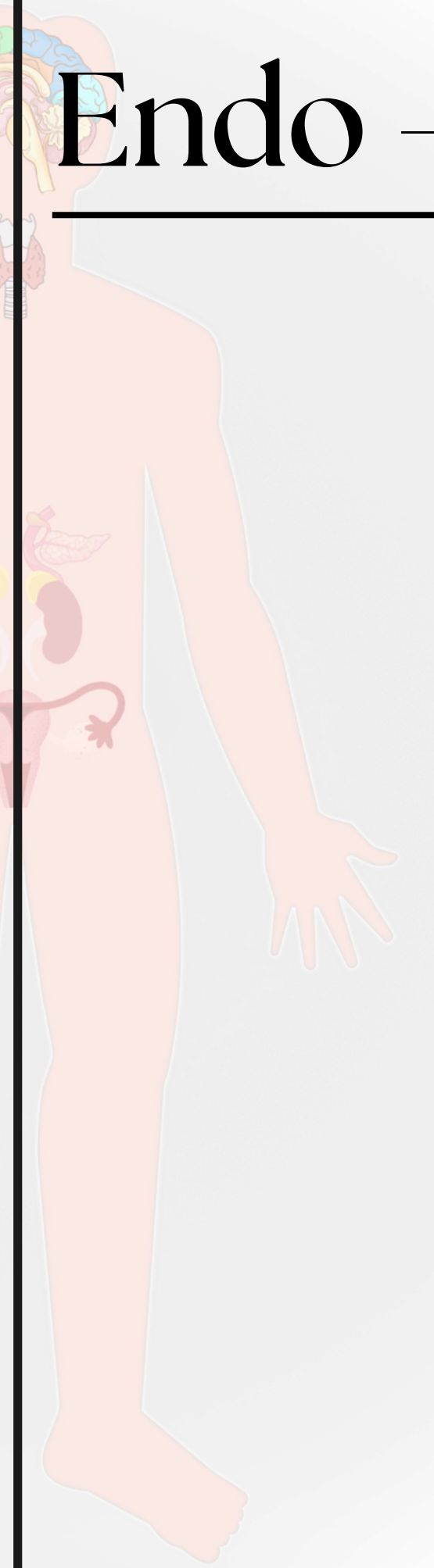
- A- AST
- B- CK
- C- LDH
- D- GGT

Answer : D

3.Which of the following enzymes increase in perforated peptic ulcer :

- A- ALP and AST
- B- creatinine kinase and phospholipase
- C- Amylase and Lipase

Answer : C



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Lecture 4+5

Glycolysis I + II

Done by :

sura qasem

metabolism-lecture (4+5)

1) Most regulatory and rate limiting step in glycolysis mediated by:

- A. Hexokinase.
- B. Pyruvate kinase.
- C. PFK-1.
- D. PFK-2

Answer: C

2) The enzyme that allosterically inhibited by accumulation of its own product is:

- A. Hexokinase.
- B. Glucokinase.
- C. PFK-1.
- D. Pyruvate kinase.
- E. PFK-2.

Answer: A

3) All of the following are link between carbohydrate and fatty acid except:

- A. DHAP.
- B. GAP.
- C. Acetyl CoA.
- D. Phosphoenolpyruvate

Answer: D

metabolism-lecture (4+5)

4) All of the following are high energy molecules except:

- A. NADH.
- B. FADH₂.
- C. Dihydroxyacetone phosphate.
- D. 1-3 bisphosphoglycerate.
- E. Phosphoenolpyruvate.

Answer: C

5) During gluconeogenesis, the conversion of glucose 6-P to glucose is catalyzed by glucose-6-phosphatase. Which of the following statement is true about this reaction?

- A. The reaction occurs in mitochondria
- B. Abnormal glycogen accumulation in liver is a result of this enzyme deficiency
- C. Conversion of glucose 6-phosphate to glucose releases a molecule of ATP
- D. It is a highly active enzyme in skeletal muscles
- E. It can be reversed also by hexokinase and/or glucokinase

Answer: E

6) Super high energy molecules stored energy in which of the following:

- A. bond
- B. electrons
- C. atoms

Answer: A

7) glycolysis has as the rate limiting enzyme, which is inhibited by

Answer: PFK-1, Citrate

metabolism-lecture (4+5)

8) About hexokinase IV, all of the following are true, except:

- A. has high K_m value and low affinity
- B. expressed in pancreas and liver
- C. add phosphate at carbon 1

Answer: C

9) in glucogenolysis and glucogenesis the enzyme used in both is ?

- A. Phosphoglucomutase
- B. Pyruvate kinase

Answer: A

10) carbohydrate and fat metabolism linked by ?

- A. DHAP
- B. 1,3 Bisphosphoglucerate

Answer: A

11) Energy rich molecule?

- A. NADH/FADH₂
- B. phosphoenolpyruvate
- C. 1,3bisphosphoglycerate
- D. 1,3disphosphoglycerate

Answer: A

12) The enzyme that is inhibited by fluoride?

- A. Fumarase
- B. Enolase
- C. malate dehydrogenase
- D. pyruvate kinase

Answer: B

metabolism-lecture (4+5)

13) The following reaction or step is reversible? Select one:

- A. Acetyl CoA formation reaction
- B. Formation of pyruvate from phosphoenolpyruvate
- C. Phosphorylation of fructose-6-phosphate to fructose 1,6 biphosphate
- D. Cleavage of fructose 1,6 biphosphate by aldolase enzyme
- E. Phosphorylation of glucose to glucose-6-phosphate

Answer: D

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Lecture 7

Citric Acid Cycle

metabolism-lecture (7)

1) Which of these enzymes is stereospecific:

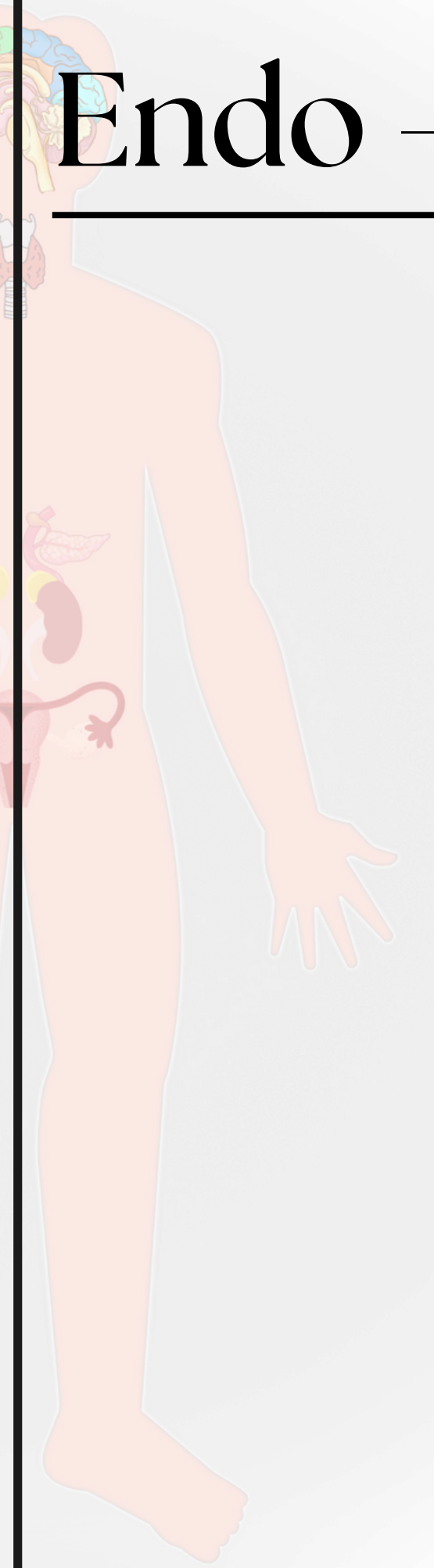
- .A- Isocitrate dehydrogenase
- .B- G6P Dehydrogenase
- .C- Fumarase
- .D- Pyruvate carboxylase

Answer: C

2) total ATP molecules in the liver

- A) 28
- B) 30
- C) 32
- D) 34

Answer: C



Endo – biochem

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Lecture 8

Gluconeogenesis

Done by :

Razan fawwaz

metabolism-lecture (8)

1. The enzyme that allosterically inhibited by accumulation of its own product is :

- A- Hexokinase.
- B- Glucokinase.
- C- PFK-1.
- D- Pyruvate kinase.
- E- PFK-2.

Answer: A

2. During gluconeogenesis, the conversion of glucose 6-P to glucose is catalyzed by glucose-6 phosphatase. Which of the following statement is true about this reaction?

- A) The reaction occurs in mitochondria
- B) Abnormal glycogen accumulation in liver is a result of this enzyme deficiency
- C) Conversion of glucose 6-phosphate to glucose releases a molecule of ATP
- D) It is a highly active enzyme in skeletal muscles
- E) It can't be reversed also by hexokinase and /or glucokinase

Answer: E

3. glycolysis has,
as the rate limiting enzyme, which is inhibited by__-

Answer: PFK-1, Citra

metabolism-lecture (8)

4. A patient has been exposed to a compound that increases the proton permeability across the inner mitochondrial membrane.

What would be expected to happen?

Select one:

- a. Increased oxygen utilization
- b. Decreased pyruvate dehydrogenase activity
- c. Decreased malate-aspartate shuttle activity
- d. Increased ATP levels
- e. Increased FO/F1 ATP Synthase activity

Answer: A

5. The glycolysis and gluconeogenesis linked by which enzyme?

- A. Phosphoglycerate kinase
- B. hexokinase
- C. pyruvate kinase
- D. PFK-2/FBPase-2

Answer D

6. Wrong about pyruvate carboxylase?

A) Its action in inner mitochondrial space

metabolism-lecture (8)

7. Enzyme/s is considered as a positive regulator for both glycolysis/gluconeogenesis?)

- A. Phosphoglycerate kinase
- B. hexokinase
- C. pyruvate kinase
- D. PFK-2/FBPase-2

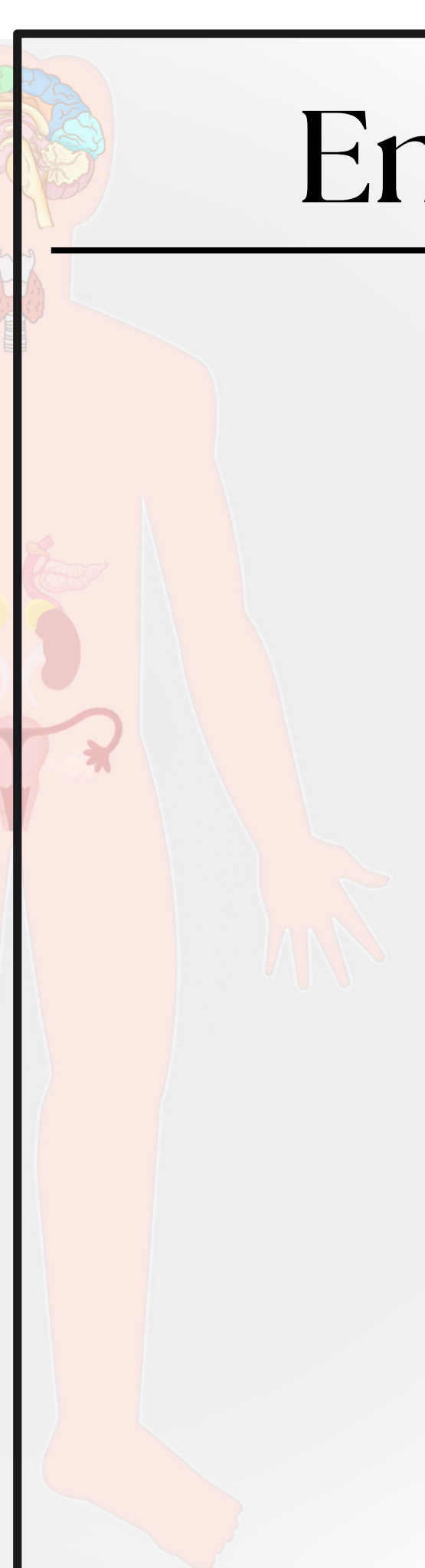
Answer D

8. According to the reactant in gluconeogenesis all are true except?

- A) 2 pyruvate
- B) 2NAD
- C) 4ATP
- D) 4Pi
- E) 2GTP

Answer: D

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Endo - meta

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Lecture 9

Done by :

banan al-khawaldeh.

metabolism-lecture (9)

1. Von Gierke's disease includes all the following manifestations except:
- A) muscle cramps and fatigue after exercise
 - B) fatty liver and hepatomegaly
 - C) renal failure
 - D) hyperlipidemia

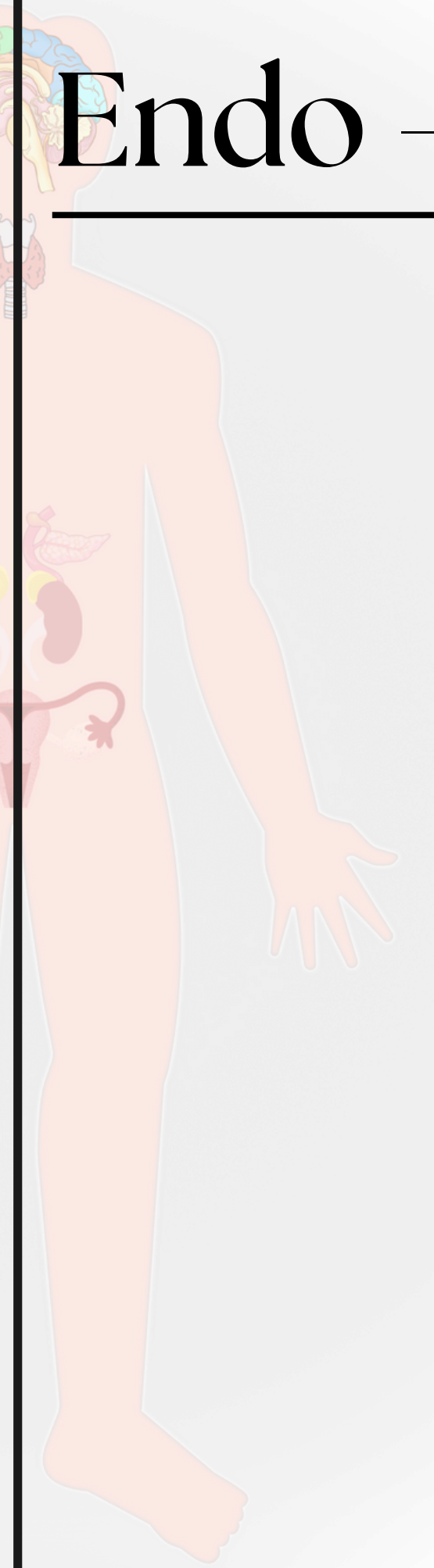
Answer: A

2. Glucagon and epinephrine action in liver ?

- A) **Activate glycogen phosphorelase inhibit glycogen synthase***

3. In glycogenolysis and glycogenesis the enzyme used in both is ?
- A. Phosphoglucomutase
 - B. Pyruvate kinase

Answer: A



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Lecture 10

Fructose & Galactose Metabolism

Done by :

sura qasem

metabolism-lecture (10)

1) One of the following is not regarding to Abnormalities in fructose metabolism:

- A. fructosuria = deficiency in fructokinase
- B. HFI is sever condition
- C. fructose malabsorbtion = deficiency in GLUT5
- D. fructosuria are asymptomatic
- E. HFI cause fasting hypoglycemia because of depletion of fructose-1-phosphate that required for glycolysis & glycogenesis

Answer: E

2) carbohydrate and fat metabolism linked by ?

- A. DHAP
- B. 1.3Bisphosoglucerate

Answer: A

3) All of the following are differences between aldolase A and aldolase B except?

- A. They are used in splitting, condensation reaction (الصياغة غير دقيقة)
- B. tissue
- C. substrate
- D. product
- E. the way of act

Answer: A