METABOLISM

بسم الله الرحمن الرحيم

FINAL

Past Papers

﴿ وَإِن تَتَوَلَّوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَالَكُم ﴾

اللهم استعملنا ولا تستبدلنا

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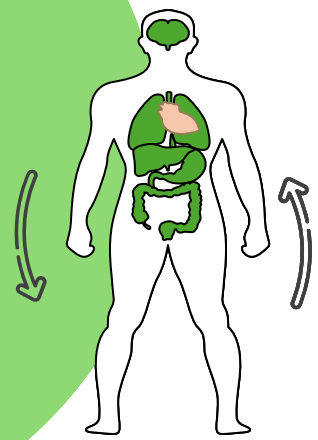

بسم الله
اللهم لا سهلا إلا ما جعلته سهلا وأنت تجعل الصعب إذا شئت سهلا

Phosphate Pentose Pathway

Question 1

Goal of pentose phosphate pathway:

a) Synthesize TAG from glycerol
b) Generate high amount of ATP
c) Generate NADPH and pentoses
d) Degrade glucose to generate NADH

Ans: c

Question 2

3 moles of glucose enter the PPP. What is the net product?

a) 3 moles of pentoses. 6 moles of NADPH. 3 moles of CO_2
b) 3 moles of pentoses. 6 moles of NADPH. 6 moles of CO_2
c) 6 moles of pentoses. 12 moles of NADPH. 6 moles of CO_2
d) 5 moles of pentoses. 6 moles of NADPH. 3 moles of CO_2

Ans: a

Question 3

The goal of Pentose Phosphate Pathway is:

a) Generation of NADPH + pentose
b) Generation of ATP
c) Generation of NADH
d) Generation of new glucose

Ans: a

Question 4

Which of the following products is not an intermediate of the pentosephosphate pathway ?

a) NADPH
b) CO_2
c) Ribose5-phosphate
d) NADH and ATP
e) Fructose 6-phosphate

Ans: d

Question 5

Which of the following enzymes is the first enzyme unique to PPP?

a) Glucose 6 phosphate dehydrogenase
b) 6-phosphogluconate dehydrogenase
c) Transaldolase

Ans: a

Question 6

True about characteristics of G6PD deficiency:

a) has low amount of NADPH.
b) RBCs most affected
c) Provide resistance to malaria
d) All of the above

Ans: d

Question 7

All of the following produces ROS except:

a) CoQ in normal respiratory chain
b) Oxidases
c) ionizing radiation
d) respiratory burst
e) lactic acid formation

Ans: e

Question 8

something wrong about pentose phosphate pathway (PPP):

a) necessary for synthesis of steroid hormones in testis and ovaries
b) produce intermediates of glycolysis
c) NADPH inhibits it
d) produces NADPH in the reversal pathway

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Ans: d

Question 9

3 carbons are transferred from sedoheptulose to another molecule.Which sentence describes this correctly?

a) A three-carbon molecule is formed
b) The produced molecules are a fructose derivative and a tetrose
c) The enzyme used is a transketolase
d) The remaining molecule is Xylulose 5-p

Ans: b

Question 10

All of the following regarding the oxidized form of glutathione are correct EXCEPT:

a) Its level in the RBC is increased in patients with G6PD deficiency.
b) It is converted to the reduced form in an NADPH requiring reaction
c) One molecule of the oxidized form contains two sulfur atoms
d) It is the substrate of glutathione peroxidase.
e) H_2O_2 leads to increase in oxidized/reduced ratio.

Ans: d

Question 11

Xylulose 5 Phosphate + Ribose 5-Phosphate → A + B). Considering this reaction, choose the TRUE answer:

a) It is catalyzed by transaldolase
b) The products are Erythrose 4-phosphate and fructose 6 phosphate
c) It is irreversible reaction
d) The products are aldose and ketose
e) It involves transfer of one carbon group

Ans: d

Question 12

6-phosphogluconate + A → B + C. What are substance B and C in this reaction?

a) $NAD^+ + H_2O$
b) $NADPH + CO_2$
c) $NADP^+ + CO_2$
d) $ADP + Pi$
e) $FADH_2 + CO_2$

Ans: b

Question 13

In the well-fed state, pentose phosphate pathway is affected, and the following change occurs:

a) The pathway is activated producing more NADH and pentoses.
b) Glutathione reductase is inhibited in red blood cells.
c) Nucleic acid synthesis is reduced due to consumption of ribose-5-phosphate.
d) Glucose-6-phosphate dehydrogenase is activated.
e) Insulin reduces the expression of glucose-6-phosphate dehydrogenase.

Ans: d

Question 14

The following is a source of reactive oxygen species:

a) Coenzyme A
b) Glutathione
c) Reactions catalyzed by oxidases
d) Reactions catalyzed by catalse.
e) Reactions catalyzed by superoxide dismutase

Ans: c

Question 15

Glucose-6-phosphate dehydrogenase deficiency?

a) Leads to the accumulation of glucose-6-phosphate in the blood.
b) Results in elevated levels of NADPH in cells.
c) Causes anemia due to decreased red blood cell production.
d) Provides resistance against bacterial infections.
e) Causes hemolytic anemia under oxidative stress.

Ans : e

Question 16

Synthesis of which of the following is not affected by glutathione?

a) Prostaglandins
b) Prostacyclins
c) Thromboxane
d) Lipoxins
e) Leukotriens

Ans: d

Question 17

About PPP, which is true?

a) First phase is oxidative & reversible while the second is non-oxidative &irreversible
b) Transketolase and transaldolases are used to transfer 2 & 3 carbons.
c) PPP produces pentoses and NADH
d) There is no production of ATP

Ans: b& d

Question 18

Deficiency in which enzyme protects from malaria?

a) G6PD
b) Lactate dehydrogenase
c) Phosphofructokinase

Ans: a

أستغفر الله العظيم وأتوب إليه

Question 19

What enzyme catalyzes the synthesis of reactive nitrogen in phagocytes

a) eNOS
b) nNOS
c) iNOS
d) P450

Ans : c

For any feedback, scan the code or click on it.

Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

Additional Resources:

رسالة من الفريق العلمي:

لا اله إلا أنت سبحانك إني كنت من الظالمين

سبحان الله وبحمده، سبحان الله العظيم