

CNS-Biochemistry

Archive

Lecture 2

Brain Energy Metabolism
II

Medical card

Name _____

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1. One of the following is not correct ?

- a. the uncoupling between O₂ and glucose in brain tissue indicates that not all glucose taken up will be consumed in aerobic respiration for energy generation
- b. circulating lactate can be used as energy substrates in brain
- c. neuronal cells can form lactate from pyruvate in reversible reaction catalysed by lactate dehydrogenase
- d. Astrocytes store small amount of glucose as glycogen
- e. GLuT 1 55KDa isoform is localized on endothelial cells of blood brain barrier

ليش C؟ لانها وظيفة الAstrocyts مش الneural cells و الastrocytes تعتبر nonneural

Answer : C

2. What is most energy consuming process in the brain ?

Select one:

- a. Restoring ionic gradient across the plasma membrane after excitation
- b. Passive transport of Na⁺/K⁺ pump

Answer : B

3. The RQ of the brain is ___, which strongly confirms that ___?

Select one:

- a. 1, the main substrate of the brain is lactate
- b. 1, the main substrate of the brain is glucose

Answer : B

4. What cell is responsible for postnatal development of BBB ?

- a. neurons
- b. Astrocytes

Answer : B

5. The junction between two communicating neurons is ?

- a. Synapse
- b. Neuromuscular junction
- c. Dendrite
- d. Axon
- e. Receptor

Answer : A

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6. How does the neurotransmitter produce a signal in the postsynaptic cell ?

- a. Binding to post-synaptic receptor
- b. Binding to pre-synaptic receptor
- c. Binding to auto-receptor

Answer : A

7. Postnatal development of BBB ?

- A. astrocyte
- B. pericyte
- C. astrocyte + pericyte
- D. microglial

Answer : C

8. Not found in cerebral tissue ?

- 1)HMG-CO synthase
- 2)glucose
- 3)SCOT
- 4)lactate

Answer : A

9. Cerebral tissue / Brain (utilize/consume) Of total body glucose utilization ?

- a. Quarter
- b. Two quarter
- c. Third
- d. Half

Answer : A

10. Which of the following does not happen in brain ?

- a) pyruvate convert to lactate
- b) pyruvate convert to acetyl-COA
- c) lactate convert to pyruvate
- d) glucose phosphorylation to G6P
- e) G6P dephosphorylation to glucose

Answer : E

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11. In breastfed neonate the primary and main source of energy is numerous?

- A- glucose only
- B- ketone body
- C- glucose, acetoacetate, B hydroxybutyrate
- D- mannose

Answer : C

12. All of the following are true about the fate of excess 4.4 mmol of glucose, EXCEPT ?

- a. Synthesis of glycogen in neuron
- b. Utilized in the synthesis of glutamate
- c. Utilized in the synthesis of GABA

Answer : A

13. All of the following are true about the fate of excess 4.4 mmol of glucose, EXCEPT ?

- a. Component of BBB
- b. Utilized in the synthesis of brain neurotransmitters

Answer : A

14. Which GLUT protein is specific for neurons ?

answer : GLUT3

15. More than 70% of ATP molecules generated in brain tissue are consumed in ?

answer : pumping ions actively against their concentration gradients by Na⁺/K⁺ ATPase pump

16. What is the most energy-consuming process in the brain ?

- a. Restoring ionic gradient across the plasma membrane after excitation
- b. Passive transport of Na⁺/K⁺ pump

Answer : A

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خير لنا ولأمتنا، وارزقنا همة لا تفتقر وعزيمة لا يلين،
وانصر أهلنا في غزاة نصرنا عزيزاً مؤزراً، وافتح لنا
أبواب النجاح والتوفيق برحمتك يا أرحم الراحمين.