

BIO303
Unit 4 Quiz

Comment [k1]: NOTE TO JEN:

The learning outcome "Define neurogenesis and understand the process of neurogenesis" doesn't match any of the resources. So I didn't include it in the quiz. Neurogenesis should be in this course, but we can discuss where and what resources after the assessments are done.

1. Why do young children learn foreign languages faster than their adult parents?
 - A) Children are able to focus on foreign sounds better than adults.
 - B) Adult brains are unable to memorize sounds.
 - C) Development of language involves a critical period of hearing and practicing and the nervous system becomes refractory after further development.
 - D) Development of language is more efficient in adult nervous systems than in developing nervous systems.

2. The fact that the human brain translates the effects of early experience into permanently altered wiring refers to which of the following nervous system functions?
 - A) Language and visual system development
 - B) Psychomotor skills
 - C) Control of visceral organ function
 - D) Long-term memory

3. What does it mean when we say that LTP exhibits the property of input specificity?
 - A) The degree of depolarization of the postsynaptic cells determines whether or not LTP occurs.
 - B) LTP does not occur in inactive synapses that contact the activated neuron.
 - C) When one pathway is weakly activated and neighboring pathways are strongly activated, both synaptic pathways trigger LTP.
 - D) If one neuron receives a visual signal, that neuron will remember only visual signals and not auditory signals.

4. According to Hebb's Postulate, synaptic terminals which are strengthened by correlated activity will be _____ and synaptic terminals which experience uncorrelated activity will be _____. Fill in the blanks
 - A) Eliminated, weakened
 - B) Eliminated, retained
 - C) Retained, maintained
 - D) Retained, eliminated

5. Which of the following is a fundamental difference between apoptosis and necrosis?



- A) Apoptosis occurs under normal physiological conditions, and the cell actively participates in the cell death process.
- B) Necrosis results in cell death, while apoptosis results in cell quiescence.
- C) Necrosis begins with DNA damage.
- D) Apoptosis occurs more quickly than necrosis.
6. Chromatolysis is a property in which type of neuronal death?
- A) Anterograde degeneration
- B) Wallerian degeneration
- C) Retrograde degeneration
- D) Apoptosis
7. Which receptor is primarily responsible for excitotoxicity in the CNS?
- A) GABA_A receptors
- B) Glutamate kainite receptors
- C) Nicotinic acetylcholine receptors
- D) Glutamate NMDA receptors
8. Excitotoxicity refers to one of the main processes by which the brain _____.
- A) Eliminates useless or poorly functioning neuronal connections.
- B) Initiates action potentials.
- C) Develops new neuronal connections.
- D) Uses apoptosis to kill neurons.
9. In which nervous system do Schwann cells proliferate, align to form longitudinal arrays, and increase production of neurotrophic factors?
- A) Peripheral nervous system
- B) Central nervous system
- C) Both peripheral and central nervous systems
- D) Neither peripheral or central nervous systems
10. What is one reason why CNS neurons are less able to regenerate than PNS neurons following injury?
- A) CNS axons cannot regrow at all.
- B) PNS axons are continuously growing.
- C) Important ECM molecules are not expressed in the adult CNS as well as other adhesion molecules which assist axon regrowth.
- D) CNS neurons always undergo apoptosis following injury.
11. Which of the following is a definition of "stem cells"?



- A) Cells that originate from plant stems that are capable of proliferating and differentiating into neuronal cells.
- B) Cells that are originally glial cells which can, upon exposure to growth factors, differentiate into neurons.
- C) Cells that have been shown to cure Parkinson's disease (PD) by repopulating the lost dopaminergic neurons in PD patients.
- D) Cells that are capable of prolonged self-renewal and can mature into multiple cell types.

12. Secondary injury in the CNS results from secondary events that impair function after a primary injury, such as a traumatic brain injury. Secondary injury usually occurs how long after a primary injury?

- A) Days
- B) Weeks
- C) Months
- D) All of the above

13. Which of the following is an approach to protecting the brain from excitotoxicity?

- A) Block NMDA receptors with antagonists.
- B) Activate NMDA receptors with agonists.
- C) Reduce dietary calcium intake.
- D) Activate GABA receptors.

14. In clinical trials with Huntington's disease patients, transplanting striatal primordial has shown which of the following improvements in human patients?

- A) Sensory functions
- B) Complete reversal of Huntington's disease symptoms
- C) Motor functions
- D) Visual functions

