

Name: _____

Date: _____

Quiz name: Quiz 7

1. The microtubule wall is composed of globular proteins arranged in longitudinal rows called _____.
- (A) microfilaments
 - (B) protofilaments
 - (C) prototubules
 - (D) microtubular subunits
-

2. Which of the following is NOT a function of microtubules?
- (A) They provide mechanical support for cells.
 - (B) They help to maintain cell shape.
 - (C) They are cytoskeletal elements in certain highly elongated cellular structures like the axons of nerve cells.
 - (D) They form most of the structure of mitochondria.
-

- A microscope is equipped with a laser that can be focused on a small region of the cell. The laser beam is used to bleach fluorescent tubulin in a small region of the cell. The specimen is then followed over time and the recovery of the fluorescent signal into the bleached zone is then measured. What is the name of this technique?
- 3.
- (A) TIRF
 - (B) FRAP
 - (C) atomic force microscopy
 - (D) DIC microscopy
-

4. What kinds of forces are thought to hold microtubular structure together?
- (A) strong interactions
 - (B) noncovalent interactions
 - (C) covalent interactions
 - (D) hydrophobic interactions
-

5. In what form are proteins like neurotransmitters transported down the axon of a nerve cell?
- (A) individually by diffusion
 - (B) inside transport vesicles
 - (C) inside the Golgi complex
 - (D) tied individually to microtubules
-

6. To which end of microtubules are tubulin subunits primarily added in vitro?
- (A) the minus end
 - (B) the N-terminal end
 - (C) the plus end
 - (D) the C-terminal end
-

E the positively charged end

7. Which of the following can speed up microtubule turnover?

- A MCAK
 - B Katanin
 - C Colchicine
 - D All of the above
-

8. You are performing an experiment on cultured animal cells and observing the Golgi complex as part of your study. You add colchicine to the cultured cells and when you do, the elements of the Golgi complex disperse into the cell periphery. When colchicine is removed, the Golgi membranes return to their normal position in the cell interior. What conclusion would you draw from this result?

- A The correct positioning of the Golgi complex is dependent upon microfilaments.
 - B The correct positioning of the Golgi complex is dependent upon microtubules.
 - C The correct positioning of the Golgi complex is dependent upon intermediate filaments.
 - D Colchicine kills the cell.
 - E Colchicine causes exocytosis of the Golgi complex.
-

9. Which of the following molecular motors is known to travel in an anterograde direction along microtubules?

- A kinesins
 - B dyneins
 - C myosins
 - D pitosins
-

10. What is the direct source of energy that powers molecular motors?

- A hydrolysis of GTP
- B hydrolysis of ATP
- C proton gradient
- D condensation of ATP

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Quiz name: Quiz 8

1. Which of the following words best describes the structure of an actin filament?

- (A) A single actin strand
 - (B) triple helix
 - (C) hyperpolar filament
 - (D) double helix
 - (E) supercoil
-

2. What motor is associated with microfilaments?

- (A) myoglobin
 - (B) kinesin
 - (C) myosin
 - (D) dynein
 - (E) myometrium
-

3. Individual monomers of a microfilament move down the length of the microfilament from the plus end to the minus end in vitro in a process known as _____.

- (A) walking
 - (B) transposition
 - (C) treadmilling
 - (D) subunit exchange
-

4. Actin-binding proteins influence which of the following activities?

- (A) the disassembly of actin filaments
 - (B) the interactions of actin filaments with each other and other cellular organelles
 - (C) the physical properties of actin filaments
 - (D) All of these answers are correct
-

5. Which of the following is NOT an actin-binding protein?

- (A) calmodulin
 - (B) Arp2/3 complex
 - (C) profilin
 - (D) thymosin
-

6. Proteins that accelerate the polymerization of actin filaments are called _____.

- (A) nucleons
 - (B) nucleating proteins
 - (C) monomer sequestering proteins
 - (D) end-blocking proteins
-

7. Which of the following can speed up microtubule turnover?

- A MCAK
- B Katanin
- C Colchicine
- D All of the above

8. Along which structure do membranous vesicles and organelles typically engage in local movement at the cell periphery of an animal cell?

- A mitochondria
- B microtubules
- C microfilaments
- D intermediate filaments
- E lysosomes

9. What blocks the myosin-binding sites on actin thin filaments in a stimulated sarcomere?

- A troponin
- B myosin itself
- C tropomyosin
- D titin
- E nothing

10. What is the name of the largest protein yet discovered? It extends from the M line in the center of the sarcomere along the myosin filament and past the A band to terminate at the Z line.

- A troponin
- B myosin
- C actinin
- D titin
- E tropomyosin

Name: _____

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Quiz name: Quiz 9

1. The stages through which a cell passes from one cell division to the next constitute the _____.

- (A) cell cycle
 - (B) life cycle
 - (C) energy cycle
 - (D) regeneration cycle
-

2. Based on cell activities readily visible in the light microscope, there are two major cell cycle phases, _____ and _____.

- (A) M phase, cytokinesis
 - (B) interphase, cytokinesis
 - (C) M phase, C phase
 - (D) M phase, interphase
-

3. The separation of the entire cell and its cytoplasm into two daughter cells is known as _____.

- (A) meiosis
 - (B) cytokinesis
 - (C) chromatosis
 - (D) mitosis
-

4. What evidence suggests that a cell spends the majority of its time in interphase?

- (A) Only a small percentage of cells in a tissue or cell culture are seen to be in mitosis at any given time.
 - (B) A large percentage of cells in a tissue or cell culture are seen to be in mitosis at any given time.
 - (C) A moderate percentage of cells in a tissue or cell culture are seen to be in mitosis at any given time.
 - (D) Mitosis is too intricate a process to last very long.
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5. When do most of the preparations for mitosis occur, including such activities as DNA replication?

- (A) M phase
 - (B) interphase
 - (C) telophase
 - (D) cytokinesis
-

6. Which of the cells below normally possess a relatively high level of mitotic activity?

- (A) stem cells of various adult tissues
 - (B) hematopoietic stem cells that give rise to red and white blood cells
 - (C) stem cells at the base of numerous epithelia that line the body cavities
 - (D) All of these are correct.
-

7. What disease can be defined as resulting from a breakdown in a cell's ability to regulate its own division?

- A multiple sclerosis
 - B cancer
 - C emphysema
 - D diabetes
-

8. The regulatory subunit of maturation-promoting factor _____.
- A transfers a phosphate group to certain serine and threonine residues of specific protein substrates
 - B is called cyclin because its concentration rises and falls predictably as the cell cycle progresses
 - C converts ATP to ADP
 - D converts ADP to ATP
-

9. What triggers the entry of a cell into mitosis?
- A the addition of inhibitory phosphate groups to Cdk1 by the Cdc25 phosphatase
 - B the removal of inhibitory phosphate groups from Cdk1 by the Cdc25 phosphatase
 - C the removal of inhibitory phosphate groups from Cdk1 by the Wee1 kinase
 - D the removal of phosphate groups from the Wee1 kinase
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10. At the outer surface of the centromere of each chromatid is a proteinaceous, buttonlike structure called the _____.
- A primary constriction
 - B kinetochore
 - C proteosome
 - D centrosome