

Guide Questions for Topic: Cytoskeleton

1. The three classes of cytoskeleton are _____.
2. How are the fundamental structures of actin filaments, intermediate filaments, and microtubules similar? How do they differ?
3. What fundamental role do the three classes of cytoskeleton all share in cells?
4. What is a tubulin dimer?
5. Microtubules are composed of 13 _____ assembled in a _____ fashion with a _____ core.
6. What is the difference between the + end and – end of a microtubule?
7. What role do centrosomes play within cells?
8. TRUE or FALSE: Once assembled, all microtubules remained anchored in centrosomes within all cells.
9. What are microtubule-associated proteins (aka, MAPs)?
10. How do MAPs influence microtubules in cells?
11. How do microtubules contribute to vesicular transport in cells?
12. What role do dynein and kinesin play within cells?
13. What is the difference between the head domain and tail domain of motor proteins?
14. TRUE or FALSE: Cells can transport vesicles only toward the + end of microtubules.
15. What is G actin?
16. Actin nucleation refers to _____.
17. How do the two ends of an actin filament differ?
18. TRUE or FALSE: Actin filaments can elongate only at their barbed end.
19. What are actin-binding proteins?
20. Gelsolin is an actin-severing protein. Based on this information, what can you tell me about gelsolin?
21. What actin bundles and actin networks have in common? How to they differ?
22. Fimbrin and filamen are examples of what class of actin-binding proteins?

23. During cell migration, actin filaments are _____ at the leading edge of a cell and _____ at the trailing/back edge of a cell.
24. Neurofilament L is an intermediate filament protein expressed in neurons. Keratin is an intermediate filament protein expressed in skin. Based on this information, what do neurofilament L and keratin have in common? How do they differ?
25. Which of the following is true of the nuclear lamina?