

Microtubule Quiz

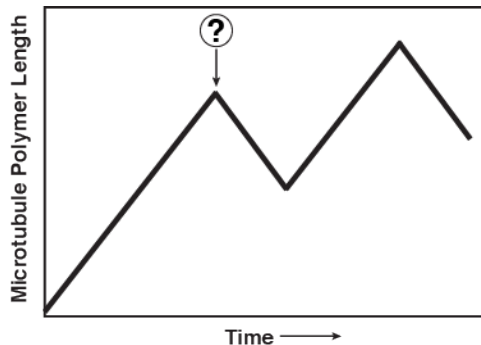
1. Actin and tubulin both use nucleotide binding and hydrolysis to control polymer polymerization and growth

Circle: **True** or False

2. Actin polymer nucleation is limited in a cell, but microtubule nucleation can occur anywhere.

Circle: True or **False**

3. What event does the question mark correspond to?

**Catastrophe**

4. Actin and microtubule polymers can both polymerize (grow) and depolymerize (shrink). Which of the following statements is true? (Circle the letter)

- A. **Actin polymers display a similar conformation regardless of whether they are growing or shrinking.**
 B. Microtubule polymers display a similar conformation regardless of whether they are growing or shrinking.
 C. A and B
 D. None of the above

5. You are measuring bulk microtubule assembly using a light scattering assay using a mixture containing buffer, tubulin heterodimers, and GTP. In each case below, **circle** the correct answer.

- A. If you added motor protein **Dynein** to this assay, how would this affect the net amount of microtubule polymer.

Increase / Decrease / **No change** / It's Impossible to tell

- B. At steady state, you now **remove the free tubulin heterodimers**. How would this affect the net amount of microtubule polymer.

Increase / **Decrease** / No change / It's Impossible to tell

- C. If you added the crosslinking protein **Prc1/Ase1** to this assay, how would this affect the net amount of microtubule polymer.

Increase / Decrease / **No change** / It's Impossible to tell

- D. If you added **taxol** to this assay, how would this affect the net amount of microtubule polymer.

Increase / Decrease / No change / It's Impossible to tell