Name _____

Microtubule Quiz

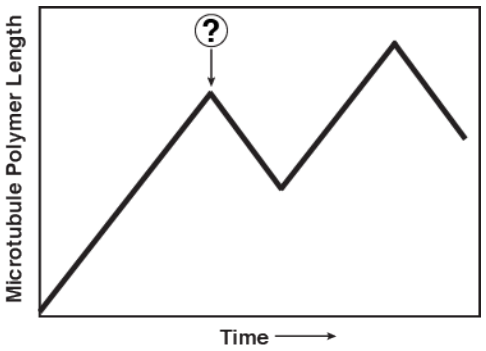
1. Actin and tubulin both use nucleotide binding and hydrolysis to control polymer polymerization and growth

   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?



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