Study guide 9

Lecture 13:

1. How is microtubules generally assembled from its basic building blocks? How to define its polarity
2. What are microtubule organization centers?
3. What is γ-tubulin ring complex, how is it arranged spatially in order for microtubules to be assembled?
4. Understand that microtubules are unstable; there are several states in microtubule dynamics.
5. What are the commonly used drugs to interfere with microtubule assembly? How do they generally work?
6. Understand that microtubules can be stabilized by associating proteins, such as MAP etc; it can be destabilized by kinesin-13, etc.
7. Certain microtubule associating protein can determine the interval between adjacent microtubules, e.g. tau, MAPs.
8. Be able to tell the names of different microtubule motor proteins, kinesins, dyneins. Understand their roles in anterograde or retrograde flow.
9. Generally know the working mechanisms for kinesins and dyneins in moving along microtubules.
10. Generally know the genetic diseases associated with the mutations for kinesins/dyneins.
11. Generally know different categories of intermediate filament (based on different cell types)
12. Know the general feature of intermediate filament and how they are generally assembled together.