

Motors, microtubules and axonal growth

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Abstract:

In this talk, we will discuss how microtubule motors organize microtubule cytoskeleton in developing *Drosophila* neurons and how movement of microtubules against each other drives initial neurite outgrowth. We will show how microtubule movement is powered by kinesin-1, a motor that is typically known for its ability to move organelles along microtubules and how it is regulated by another kinesin, “mitotic” kinesin-6. We will also show that microtubule sliding is downregulated during development and reactivated during axon regeneration after injury. Our data demonstrate new functions for two well-characterized kinesins in the formation of axons and suggest important parallels between the functions of motors during cell division and neurogenesis.

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