

1.10.2009

The mitotic kinesin Ncd causes sliding of anti-parallel microtubules but statically crosslinks those that are parallel.

During mitosis and meiosis, the bipolar spindle facilitates chromosome segregation through microtubule sliding as well as microtubule growth and shrinkage. These processes require plus- and minus-end-directed motor proteins. *D. melanogaster* kinesin-14 (Ncd), a minus-end directed motor is known to participate in spindle organization. However, the molecular mechanism underlying its activity was not known. Using single molecule imaging we have shown that Ncd alone causes sliding of anti-parallel microtubules but statically crosslinks those that are parallel. This mechanism accounts for the roles of kinesin-14 in spindle organization.

Fink G., Hajdo L., Skowronek K. J., Reuther C., Kasprzak A. A. and Diez S. (2009) **The mitotic kinesin-14 Ncd drives directional microtubule-microtubule slipping.** Nat. Cell Biol. 11, 717-723.