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Title:	A study on mitosis : role of kinesins and microtubule instability
Authors:	Krishnan, Nimisha
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Abstract:	Motor proteins play a very pivotal role in many cellular processes including cell cycle. Kinesin motor proteins move on microtubule tracks and are known to be extremely important during the process of mitosis. A defect in these proteins can adversely affect the cell cycle even causing cell death. In this thesis, we experimentally explored various situations. In fission yeast over expression of kinesin-5/cut7 and the presence of cut7-rigor are extremely toxic for cell growth and showed mono polar cell. But cut7-rigor when expressed with cut7-22 rescues temperature sensitivity of cut7-22. A few Kinsin-14 kifc1, kifc3, kif25 and Eg5 from the human and macaque when expressed in fission yeast cell resulted in varying level of toxicity for cell growth. We also theoretically explored dynamical instability of microtubules which is known to increase during mitosis. The model shows length versus time traces of microtubule instability which are similar to experimental results.
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