

# Modelling of T-Cell repositioning

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The repositioning of the microtubule organizing center is a part of many fundamental biological processes. It occurs in T-cell lymphocyte immediately after antigen presenting cell is recognized by T-cell. The Dynein's effort to walk to the minus end of the microtubule while being anchored at one place results in microtubule's sliding, and, hence in the repositioning of the microtubule organizing center. Our focus is on development of the model of microtubules and the microtubule organizing center and the calculation of experimental observables. Microtubule dynamics and bending shorter than persistence length plays important role in the process. Multiple mathematical models are used to mimic hydrodynamics of microtubules. Multiple algorithms for Brownian dynamics simulation of microtubules are presented. It is confirmed that algorithms yields predicted values for equilibrium properties. A model of the microtubule organizing center is presented. The entire structure of microtubule organizing center and microtubules is submitted to forces simulating actions of dynein.