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Can Intercellular Functions be Potentially Cell Specific? BRANDON ROSARIO, MARCOS HERNANDEZ, MITRA SHOJANIA FEIZABADI, Seton Hall University — Microtubules are one of the intracellular elements that are involved in cell division, cellular transportation, and cellular morphology. One of the critical microtubule roles is the capture of replicated chromosomes during mitosis. Microtubules are intrinsically dynamic polymers that display non-equilibrium behavior known as dynamic instability. Under these dynamics microtubule ends stochastically switch between growing and shortening states. As reported, one of the biological significance of dynamic of microtubules can be related to the time it takes for them to find chromosomes as their target and consequently go through the cell division process. Microtubules' dynamics are well dependent on their structural composition. Our recently reported evidence show that some of the cancer microtubules express more stability in their dynamics as compared to brain microtubules. This slow dynamic of cancer microtubules can potentially be one of the factors that effects the cell division mechanism in cancer vs. brain cells by influencing the time it takes them to capture the chromosomes. This work discusses the experimental and theoretical results of our recent studies in these two groups of microtubules.

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