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The Interplay between the C-Terminal Tails of Tubulins and the Motility Parameters of Kinesin-1 MITRA SHOJANIA FEIZABADI, Seton Hall University — The distribution of beta tubulin isoforms can be different from one cell to another. The distinctions among tubulin isoforms are mainly related to the existing differences in their Carboxy-terminal (C-terminal) tails. In this work, we examined the effects of C-terminal tails on the functions of one of the molecular motors, Kinesin-1. The results that will be presented here include the quantification of the motility parameters of a single Kinesin-1 molecule motor as well as multiple motors along bovine brain vs MCF7 microtubules. These two types of microtubules carry different compositional structures in terms of beta tubulin isoforms. We will then compare the results with the values of the similar parameters obtained from the motility of this motor along these two types of microtubules when they were treated with subtilisin. Our findings show that the nature of the microtubule track, along with the specifications of the C-terminal tails, significantly contribute to the functionality of a Kinesin-1 molecular motor.

Mitra Shojania Feizabadi
Seton Hall University

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