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Effect of myristoylated N-terminus of Arf1 on the bending rigidity of phospholipid membranes BEATRIZ BURROLA GABILONDO, University of Maryland, National Cancer Institute, HERNAN ZHOU, Eindhoven University of Technology, PAUL A. RANDAZZO, National Cancer Institute, WOLFGANG LOSERT, University of Maryland — The protein Arf1 is part of the COPI vesicle transport process from the Golgi to the ER. It binds to membranes via a myristoylated N-terminus and it has been shown to tubulate Large Unilamellar Vesicles. The effect of the N-terminus of Arf1 on physical properties of membranes has not been studied, with the exception of curvature. We previously found that the myristoylated N-terminus increases the packing of the lipid molecules, but has no effect on the lateral mobility. We tested the hypothesis that myristoylated peptides affect the bending rigidity of phospholipid Giant Unilamellar Vesicles (GUV). We use optical tweezers to pull tethers from GUV and measure the force of pulling the tether, as well as the retraction speed of the tether once it is released. We also used flicker spectroscopy to estimate the values of the mechanical properties of GUV. We will present results of the force and tether retraction measurements, as well as mechanical properties estimates from flicker, for GUV in the presence of varying concentrations of myristoylated and non-myristoylated N-terminus of Arf1, and compare these with measurements for GUV in the absence of peptide.

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