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**Polyunsaturated Fatty Acids in Lipid Bilayers and Tubules** LINDA

S. HIRST, Florida State Univ., JING YUAN, YOHANNES PRAMUDYA, LAM T. NGUYEN — Omega-3 polyunsaturated fatty acids (PUFAs) are found in a variety of biological membranes and have been implicated with lipid raft formation and possible function, typical molecules include DHA (Docosahexanoic Acid) and AA (Alpha-linolenic Acid) which have been the focus of considerable attention in recent years. We are interested in the phase behavior of these molecules in the lipid bilayer. The addition of lipid molecules with polyunsaturated chains has a clear effect on the fluidity and curvature of the membrane and we investigate the effects the addition of polyunsaturated lipids on bilayer structure and tubule formation. Self-assembled cylindrical lipid tubules have attracted considerable attention because of their interesting structures and potential technological applications. Using x-ray diffraction techniques, Atomic Force Microscopy and confocal fluorescence imaging, both symmetric and mixed chain lipids were incorporated into model membranes and the effects on bilayer structure and tubule formation investigated.

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