

Abstract Submitted
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Photo-induced Phase Separation Phenomena in Lipid Tubules

LINDA HIRST, JING YUAN, Florida State University — The self-assembly of biological amphiphiles has proved a fascinating topic in recent years, the hollow cylindrical lipid tubule morphology being of particular interest due to its potential relevance to intercellular transporting channels and applicability to controlled-release systems, chemical micro-reactors and nano-conduits. Co-existence of the liquid-ordered and liquid-disordered phases in the lipid bilayer has recently been observed in biologically-relevant three-component giant unilamellar vesicles. We have generated stable, photo-induced micron-scale phase separation in lipid tubules formed from ternary lipid mixtures, inducing a new bilayer disc structure. This investigation not only aids in our understanding of lipid sorting phenomena in cell membranes (suggesting a mechanism for bilayer disc formation in retinal rod-cells), but is also a fascinating route to the generation of new, functional structures. This work is supported by the MARTECH and the Institute of Molecular Biophysics, both at Florida State University.

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