

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Cooperativity in cholesterol-induced demixing of saturated and unsaturated lipids JAMES KINDT, Emory University — The ternary DPPC/DOPC/cholesterol system exhibits a phase separation between liquid-ordered and liquid-disordered domains that may capture some features of demixing believed to occur in biomembranes. Using semi-grand canonical ensemble Monte Carlo approaches on a model with atomistic detail, we have investigated the degree of non-ideality of mixing of DPPC and DOPC as influenced by cholesterol. While the signature of phase separation is observed, more surprising is that in the region of composition space characterized by low DPPC and low cholesterol content, the mixing is approximately ideal. Through simple models we have shown that this behavior is inconsistent with a simple nearest-neighbor description of the interactions between these membrane components.

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Date submitted: 23 Nov 2011

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