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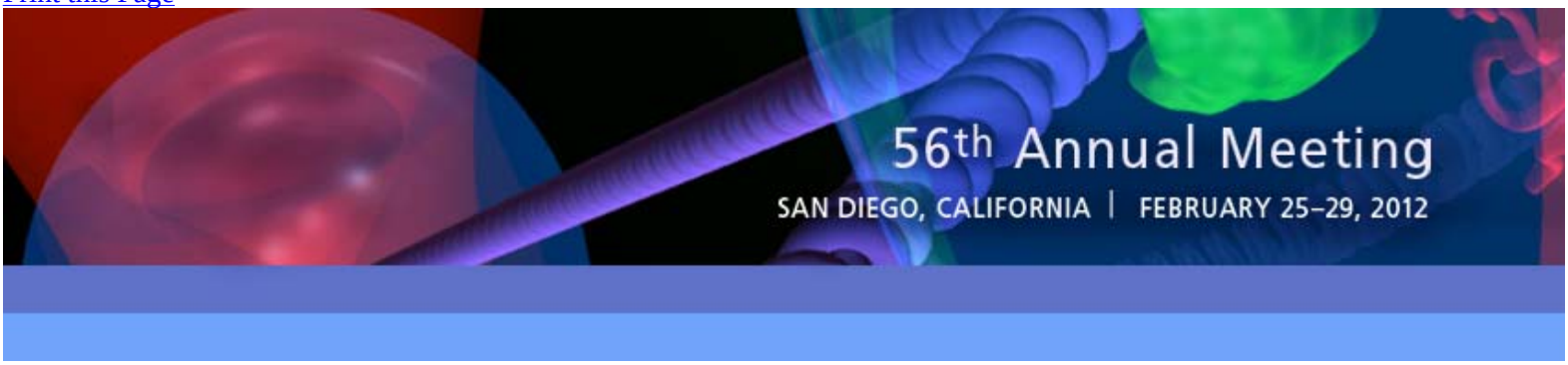

Presentation Abstract

Session Title:	Late Poster Presentations
Location:	Hall FGH
Presentation Number:	Pos-L131
Board Number:	LB131
Presentation Time:	2/29/2012 10:30:00 AM
Abstract Title:	THE DEPENDENCE OF MEMBRANE RAFT SIZE ON LIPID COMPOSITION: A SMALL-ANGLE NEUTRON SCATTERING STUDY
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Abstract Body:	Membrane rafts are small, transient assemblies of lipid and protein that are proposed to play a role in a variety of cellular processes including protein sorting, vesicular transport, viral entry and exit from cells, and signaling. The composition, size, and connectivity of rafts are all parameters available to the cell for regulating protein contacts, and hence controlling the chemistry that occurs in the membrane. We use small-angle neutron scattering to study unilamellar vesicle samples of a chemically simple model system, for which domain size is controlled by lipid composition. We vary the ratio of the unsaturated lipids POPC and DOPC, together with fixed mole fractions of chain-perdeuterated DSPC (dDSPC) and cholesterol, under conditions which contrast match the solvent to the mean vesicle scattering length density. Under these conditions, the formation of liquid-ordered domains enriched in dDSPC contrast with liquid-disordered domains, causing an increase in scattering at small momentum transfers. The intensity as a function of momentum transfer may then be compared to that of Monte Carlo simulations. We are able to match the model and experimental results to determine the average number of domains that form, and hence, from area conservation, domain size. We also observe a shift in the peak of the scattering intensity with increasing concentration of DOPC, suggesting that lateral domain size can be controlled by the level of unsaturated lipid found in the membrane.
Commercial Relationship:	**F.A. Heberle:** None. **R. Petruzielo:** None. **J. Pan:** None. **P. Drazba:** None. **N. Kucerka:** None. **G.W. Feigenson:** None. **J. Katsaras:** None.