

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

pH-dependent Differential Scanning Calorimetry and Dynamic Light Scattering Studies of 21:0 PC and 18:0 PS Lipid Binary System¹

REJWAN ALI, Fordham University — Large unilamellar vesicle has been a model system to study many membrane functions. High Tg lipid systems offer many potential biomedical applications in lipid-based delivery applications. While the optimized vesicle functionalities are achieved by Polyethylene Glycol (PEG) polymer, modified PEG and other functional molecule incorporation, however, the host binary lipid system plays the pivotal role in pH-dependent phase transition based lipid vehicular methods. We have investigated a lipid binary system composed of 21:0 PC (1,2-dihexarachidoyl-sn-glycero-3-phosphocholine) and 18:0 PS(1,2-distearoyl-sn-glycero-3-phospho-L-serine). Preliminary studies implementing differential scanning calorimetry shows pH plays key role in temperature shift and thermotropic phase behavior of the binary system. While dynamic light scattering study shows lipid vesicle size is almost independent of pH changes. We will also present pH-dependent thermodynamic parameters to correlate underlying molecular mechanism in relevant pH-range.

¹Author acknowledges post-doctoral research and lab facilities support from Professor Stavroula Sofou, Polytechnic Institute of New York University.

Rejwan Ali
Fordham University

Date submitted: 19 Nov 2009

Electronic form version 1.4