

Abstract Submitted  
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**Fabrication and characterization of single-supported bilayer membranes of anionic lipids.**<sup>1</sup> ANDREW MISKOWIEC, MENGJUN BAI, HASKELL TAUB, University of Missouri - Columbia, FLEMMING HANSEN, Technical University of Denmark — We report the fabrication of bilayer membranes of the anionic lipid DMPG (1,2-dimyristoyl-*sn*-glycero3-phosphoglycerol) deposited on a silicon substrate. Due to electrostatic effects associated with the DMPG molecule, traditional vesicle fusion methods for producing supported bilayers must be modified to encourage rupture. In particular, high divalent salt concentrations in the buffer solution are necessary to “prime” the substrate for vesicle adsorption; furthermore, lower DMPG concentrations are required than for the neutral analogue DMPC (1,2-dimyristoyl-*sn*-glycero3-phosphocholine). We speculate that lower DMPG concentrations allow neutralization of the bilayer with hydrogen ions, increasing the membrane fluidity. We also investigated the temperature dependence of the bilayer thickness in order to monitor the gel-to-fluid phase transition of the DMPG and DMPC membranes. Both show a higher transition temperature than found for spherical vesicles. However, the effect is greater for the DMPG bilayer for which the phase transition is shifted to 70 °C, 45 °C above the free-vesicle value.

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