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The Comparison of Lipid Compositional Uniformity of Giant Unilamellar Vesicles Synthesized From the Rapid Solvent Exchange liposomes with That From Dry Lipid Film EDA BAYKAL-CAGLAR, JUYANG HUANG, Texas Tech University — Lipid bilayer, which is an important constituent of cell membranes, has been extensively studied. Cell membranes perform many vital cell functions such as signal transduction and transportation of materials needed for the functioning of the cell organelles. Understanding the dynamics of lipid bilayers is important for understanding the processes taking place in cell membranes. Giant Unilamellar Vesicles (GUVs) are cell-sized model systems that allow direct visualization of membrane-related phenomena using fluorescence microscopy. In this study, we synthesized DOPC/DSPC/cholesterol GUVs and diPhyPC/DPPC/cholesterol GUVs by the standard electroformation method using dry lipid film as well as by a modified method using liposomes made from Rapid Solvent Exchange (RSE) method. Second method has a potential of incorporating more varieties of membrane proteins to GUVs. We compare the uniformity of lipid composition of GUVs synthesized by the two methods by measuring the variation of phase transition temperature of individual GUVs through fluorescence microscopy; since a narrower distribution of transition temperature should correspond to a more uniform distribution in GUV lipid composition. We will present the results at several bulk lipid compositions and buffer ionic strengths.

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