

Properties of spin-coated phosphatidylcholine/sphingomyelin/cholesterol lipid films and its effect on giant unilamellar vesicle electroformation

Content

Lipid film deposition is an important step in production of artificial vesicles using the electroformation method. Traditional protocols obtain lipid films by simply dropping the chloroform dissolved lipids onto the surface. However, films obtained in such a manner are very inhomogeneous and regions of different thicknesses appear. To address this problem, alternative deposition techniques such as spin-coating have been attempted. We used atomic force microscopy and X-ray reflectometry to analyze the spin-coated phosphatidylcholine/sphingomyelin/cholesterol lipid films. After utilizing these films for giant unilamellar vesicle electroformation an analysis of obtained fluorescence microscopy images was performed. The optimal thickness for two phosphatidylcholine/ sphingomyelin/cholesterol molar mixtures, 1/1/1 and 1/1/4, was found to be around 30 nm.

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