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Current Research:	Difference in membrane fluidity between artificial cells and living cells	

Membrane viscosity: from artificial cells to living cells

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The membrane fluidity plays important roles in cellular functions. In the cell membrane, various phospholipids and cholesterols are heterogeneously distributed, and the membrane surface is modified by polysaccharide chains. Recently, we developed a membrane viscosity measurement method using micro injection technique, where the membrane viscosity is estimated from a pattern of fluid velocity field generated by applying a point force on a spherical model membrane (vesicle). In this study, we estimated the viscosity of phase-separated ternary lipid vesicles for various compositions and polymer-grafted vesicles as a function of the degree of polymerization using the method. Furthermore, we are trying to estimate the viscosity of living cell membrane subjected to the mechanical oscillation from the cytoskeleton, i.e., in the non-equilibrium state.