



Fig. 1 Phase diagram of C16PC-cholesterol bilayer.

## Content:

In 1990's, it was reported that domains composed of sphingolipids and cholesterol are formed within cell membranes, and they were termed *lipid rafts*. Such domains are thought to be relevant to lateral phase separation induced by cholesterol within membranes. Although tremendous efforts have so far been made to explain the phase behavior of cholesterol-containing binary bilayers, it has not been completely elucidated yet.

Recently, we have succeeded in constructing the compositional phase diagrams of diacylphosphatidylcholine-cholesterol binary bilayers using differential scanning calorimetry and Prodan fluorescence spectroscopy. On the basis of the diagrams, we could elucidate the membrane properties related to the aggregate structure of those binary bilayers, such as the distribution of cholesterol within the binary bilayer and the miscibility between phospholipid and cholesterol, from a thermodynamic standpoint.

Keywords: cholesterol, phase separation, raft domain

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