

Chiral-selective transport using a model lipid membrane

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Many biomolecules exist as a single chiral form, such as L-amino acids, L-phospholipid, D-carbohydrates, etc. Homochirality of these biomolecules results in the membrane transport of various biomolecules in a chiral-selective manner. Thus, chiral separation of racemic compounds and investigation of crucial factors for the chiral-selective membrane transport would be important in both academic and industrial viewpoints. In this research, we developed a model lipid bilayer platform, composed of L-phospholipid, where an effective separation of single chiral molecules could be achieved. By providing racemic compounds and identifying the enantiomeric excess after membrane transport via circular dichroism (CD) spectroscopy, remarkable chiral-selective transport was confirmed. Further modification of our lipid bilayer composition is expected to give information of key factors for the chiral-selective membrane transport.