

论文

季铵盐型Gemini表面活性剂诱导囊泡结构改变机理研究

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摘要:

用动态光散射技术以及荧光探针方法, 研究了不同连接基长度的季铵盐型Gemini表面活性剂对卵磷脂囊泡结构改变的影响, 并借助理论模型和临界堆积参数理论探索了Gemini表面活性剂诱导囊泡结构改变的机理. 实验结果表明, 表面活性剂诱导囊泡结构改变的主要原因是表面活性剂嵌入到囊泡的双分子层中, 从而改变了囊泡的表面电荷强度以及嵌入后的表面活性剂在囊泡双分子层中分布的不均匀性. 此外, 表面活性剂分子的结构也会对其产生影响, 不同连接基长度的季铵盐型Gemini表面活性剂对囊泡结构改变的影响不完全相同, 但会呈现出一定的规律性.

关键词: 季铵盐型Gemini表面活性剂 卵磷脂囊泡 膜模拟

Studies on Mechanism of Vesicle Structure Transform Induced with Quaternary Ammonium Gemini Surfactants

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Abstract:

A combination of dynamic light-scattering and fluorescence probe techniques was used to study the structure transform of lecithin vesicle with surfactants with different spacer chain lengths. The mechanism of structure transform of vesicle is explored by model and effective packing parameter theory. The results show that the main reason which leads to the structure transform is the change of superficial electric charge and the asymmetric distribution of the surfactant molecular. Furthermore, the structure of surfactant is also one of the reasons. Surfactants with different spacer chain lengths have different effects on the changes of the structure of the vesicle, which turn out to have some rules.

Keywords: Quaternary ammonium Gemini surfactant Lecithin vesicle Membrane mimetics

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