化工学报 2009 60 (6): 1600-1604 ISSN: 0438-1157 CN: 11-1946/TQ

材料化学工程与纳米技术

锚定的磷脂双层膜的制备及其形貌结构

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收稿日期 2008-11-3 修回日期 2008-12-31 网络版发布日期 2009-6-17 接受日期

摘要 利用表面硅烷化方法对化学氧化的单晶硅表面进行修饰，成功地将抗生物素蛋白固定在表面上，并且用囊泡融合法成功得到了大面积、连续的磷脂双层膜。由于成功地在基底与磷脂膜间引入了5nm左右的水层，原子力显微镜观察表明这种锚定的磷脂双层膜(tethered bilayer lipid membrane, tBLM)表现出与磷脂支持膜不同的相形为。两种膜相形为的不同可以用磷脂分子与基底间相互作用的不同来解释。

关键词

锚定的磷脂双层膜 原子力显微镜 形貌结构

分类号

Preparation and structure morphology of tethered bilayer lipid membrane

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Abstract

Avidin was immobilized on chemically oxidized silicon substrate by means of the surface self-assembling method, and consecutive tethered lipid bilayer membrane was formed after vesicle fusion on such modified substrate.The structures of this tethered membrane were investigated by atomic force microscopy（AFM）.Due to the introduction of a 5 nm water cushion layer between the lipid bilayer and the substrate, a ripple phase was observed in this tethered membrane.The structure of such tethered membrane was different from the simple supported bilayer.These experimental observations demonstrated that the thickness increase of water-layer could effectively reduce the interaction between lipid bilayer and substrate.

Key words

tethered bilayer lipid membrane atomic force microscopy structure morphology

DOI:

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