



提高固体支撑双层类脂膜稳定性的研究

Research on the Improvement of the Stability of Solid Supported Bilayer Lipid Membranes

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中文摘要

以卵磷脂的正癸烷溶液作为成膜液,在不锈钢丝新生金属端面上获得了固体支撑双层类脂膜(S-BLMs)。采用循环伏安法研究了S-BLMs的成膜过程,以及提高S-BLMs稳定性的方法,结果表明:在成膜液中引入适量的胆固醇,可使卵磷脂分子在不锈钢丝新生端面上的排列更加紧密有序,从而提高S-BLMs的稳定性;对不锈钢丝新生端面进行表面处理,可有效扩大能够形成S-BLMs的支撑面的直径。此外,同时采用添加胆固醇和不锈钢丝表面处理的方法,可进一步提高S-BLMs的稳定性。

英文摘要

Solid supported bilayer lipid membranes (S-BLMs) was fabricated on the regenerated metal surface of stainless steel by using lecithin-decane solution as S-BLMs forming solution. The forming process of S-BLMs was researched by cyclic voltammetry, and the means to improve the stability of the S-BLMs were also investigated. The results indicate that the stability of the S-BLMs could be improved effectively by the introduction of some cholesterol into the lecithin-decane solution since it could make the arrangement of lecithin molecules more compact and order on the regenerated metal surface. On the other hand, the treatment of the regenerated surface of stainless steel could enlarge the diameter of the support which has the ability to form S-BLMs. In addition, the stability of S-BLMs could be further improved by the addition of cholesterol as well as the surface treatment of stainless steel.

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