

研究论文

## 牛血清白蛋白在气-液界面上的吸附行为及其与含芘手性探针分子的相互作用研究

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**摘要** 利用表面压力-时间曲线对牛血清白蛋白(BSA)在气液界面上的吸附行为和对手性探针分子*D/L*-[4-(1-芘基)]丁酰基-苯丙氨酸(PPs)的界面手性识别, 以及由此引起的气液界面上BSA的构象变化进行了研究. 结果表明, 界面上形成的稳定单层膜经历了漫长的构象调整过程; BSA的表面压力的变化说明其对亚相中的探针分子很强的浓度依赖性和对手性分子的区分能力. 在较高的PLP和PDP探针分子浓度下, BSA的成膜性均受到了很大抑制, 但较低的PLP和PDP探针分子浓度却转而对BSA成膜有利; 与PLP相比, PDP能更有效地与BSA在界面结合, 其复合膜的稳定性更好.

**关键词** [压力-时间曲线](#) [牛血清白蛋白](#) [L-N-\[4-\(1-芘基\)\]丁酰基-苯丙氨酸](#) [D-N-\[4-\(1-芘基\)\]丁酰基-苯丙氨酸](#) [界面相互作用](#)

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## Study on Interfacial Adsorption Behavior of Bovine Serum Albumin on Air-water Interface and Its Interaction with Chiral Probes *D/L-N*-[4-(1-Pyrene)butyroyl]-phenylalanine

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**Abstract** Surface pressure vs. time( $\pi$ - $t$ ) curve was applied to studying the interfacial adsorption behavior of bovine serum albumin(BSA) and the chiral discrimination of it to *D/L-N*-[4-(1-pyrene)butyroyl] phenylalanine(PPs) on the air/water interface. The conformational changes of BSA induced by the interactions with PPs were also investigated. The results suggest that stable monolayer of BS underwent a slow progress of conformational rearrangement. It is apparent that the specific interactions between PPs and BSA depend both on the concentration and the isomeric specificity of the probes. At a high concentration, PLP and PDP inhibit the surface activity of BSA strongly. However, at a certain low concentration, they work oppositely. And compared with PLP, PDP can bind more effectively with BSA on the air/water interface.

**Key words**  [\$\pi\$ - \$t\$  curves](#) [Bovine serum albumin\(BSA\)](#) [L-N-\[4-\(1-pyrene\)butyroyl\] phenylalanine\(PLP\)](#) [D-N-\[4-\(1-pyrene\)butyroyl\] phenylalanine\(PDP\)](#) [Surface interaction](#)

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