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论文

成骨细胞在表面酰胺化聚乳酸膜上的黏附和增殖行为

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摘要:

利用紫外光接枝聚合丙烯酰胺(Acrylic amide, AAm)获得表面酰胺化的聚乳酸(PLA)膜, 并考察了成骨细胞在酰胺化表面的黏附和增殖行为. 结果表明, 酰胺基的引入改善了PLA膜的表面亲水性, 其表面水接触角由78°减少到56°, 自由能由42.7 mJ/m²增大到51.4 mJ/m²; 与对照组相比, 成骨细胞在改性表面培养3 d后有大量的丝状伪足伸出, 并且较快地进入了细胞分裂期, 表明PLA膜表面的酰胺化能够促进细胞的黏附和增殖.

关键词: 聚乳酸; 酰胺化表面; 接枝聚合; 黏附和增殖

Adhesion and Proliferation of Osteoblast on the Amidation Surface of Polylactide Film

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Abstract:

Acrylic amide(AAm) was polymerized onto polylactide(PLA) film *via* UV irradiation to achieve amidation surface, furthermore the adhesion and proliferation of osteoblast on this surface was investigated. The results show that the hydrophilicity of PLA film is improved by introduction amido: the contact angle decreases from 78° to 56° and the free energy increases from 42.7 mJ/m² to 51.4 mJ/m². Compared with the control, osteoblast spread out more filopodia after 3 d incubation on amidation surface, and it entered cell division phase more quickly, which indicated that the surface amidation could promote the cell's adhesion and proliferation on the PLA film.

Keywords: Polylactide; Amidation surface; Graft polymerization; Adhesion and proliferation

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