

研究论文

AZ31B镁合金表面氟涂层的生物相容性和抗菌性能

李绮¹, 刘新杰¹, 王泽庆¹, 颜廷亭², 谭丽丽², 张炳春², 杨柯²

1. 辽宁大学化学学院 沈阳 110036
2. 中国科学院金属研究所 沈阳 110016

摘要: 采用化学转化方法在AZ31B镁合金表面制备氟涂层, 系统研究了氟涂层的表面形貌、体外生物相容性和抗菌性能。结果表明: AZ31B镁合金表面的氟涂层均匀致密; 氟涂层镁合金的溶血率明显降低, 且无细胞毒性, 可满足生物医用材料的要求。同时, 氟涂层镁合金的抗凝血性能与316L不锈钢相当, 并具有显著的抗菌功能。

关键词: 材料表面与界面 镁合金 氟涂层 生物相容性 抗菌性能

Biocompatibility and Antibacterial Property of a Fluoride Coating on AZ31B Magnesium Alloy

LI Qi¹, LIU Xinjie¹, WANG Zeqing¹, YAN Tingting², TAN Lili², ZHANG Bingchun², YANG Ke²

1. School of Chemistry, Liaoning University, Shenyang 110036
2. Institute of Metal Research, Chinese Academy of Science, Shenyang 110016

Abstract: A fluoride coating was prepared on AZ31B magnesium alloy by chemical conversion treatment in order to control the biodegradation rate and further increase the biocompatibility of AZ31B alloy. The surface morphology, in vitro biocompatibility and antibacterial property of the coated alloy were investigated in the study. The result showed that the fluoride coating was compact and presented obvious decrease of the hemolytic rate and non-cytotoxicity, meeting the requirement on biomaterials. The result also showed a better behavior against blood coagulation of the coated AZ31B alloy than that of 316L stainless steel, as well as an excellent antibacterial ability.

Keywords: surface and interface in the materials magnesium alloy fluoride coating biocompatibility antibacterial property

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作者简介:

通讯作者E-mail: lltan@imr.ac.cn

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