

论文

模拟体液法制备仿生纳米级羟基磷灰石

张爱娟

山东理工大学材料科学与工程学院, 山东 淄博 255049

摘要:

以模拟体液为溶剂,磷酸钠和硝酸钙为溶质反应合成了纳米羟基磷灰石(HAP)粉体.利用X射线衍射、红外吸收光谱、扫描电子显微镜、X光电子能谱、原子吸收分光光度计对合成的HAP粉体的物相组成、化学组成、微观形貌、及体外生物活性进行了研究.用化学方法分析了羟基磷灰石晶体的Ca / P摩尔比.结果表明:合成的HAP晶体呈针状,长约60~70nm,宽约10~20nm,具有弱结晶结构,含有Na⁺、CO₂⁻³基团,更接近于自然骨磷灰石的结构特点.HAP具有一定诱导钙、磷沉积的能力.

关键词: 模拟体液 纳米羟基磷灰石 仿生合成 Ca / P摩尔比

Preparation of biomimetic nanograde hydroxyapatite in simulated body fluid

ZHANG Ai-juan

School of Material Science and Engineering, Shandong University of Technology, Zibo 255049, China

Abstract:

Nanograde hydroxyapatite(HAP)powders were synthesized through the reaction between Ca(NO₃)₂ and Na₃PO₄ in simulated body fluid(SBF). The mass phase composition, chemical composition, micromorphology and the bioactivity of the obtained HAP were studied by X-ray diffraction, Fourier transform infrared spectroscopy, scanning electron microscope, X-ray photoelectron spectroscopy, and atomic absorption spectrometry. The Ca / P molar ratio of HAP was obtained by a chemical method. The results indicate that the synthesized HAP is a pin like shape close to natural bone with 60~70nm length, 10~20nm width, poor crystal structure and contains Na⁺ and CO₂⁻³. The synthesized HAP powders have a good ability for inducing Ca and P deposition.

Keywords: simulated body fluid nano-hydroxyapatite biomimetic method Ca / P molar ratio

收稿日期 2008-01-17 修回日期 1900-01-01 网络版发布日期 2008-10-16

DOI:

基金项目:

通讯作者: 张爱娟

作者简介:

本刊中的类似文章

Copyright 2008 by 山东大学学报(工学版)

扩展功能

本文信息

Supporting info

PDF(875KB)

[HTML全文](0KB)

参考文献[PDF]

参考文献

服务与反馈

把本文推荐给朋友

加入我的书架

加入引用管理器

引用本文

Email Alert

文章反馈

浏览反馈信息

本文关键词相关文章

▶ 模拟体液

▶ 纳米羟基磷灰石

▶ 仿生合成

▶ Ca / P摩尔比

本文作者相关文章

▶ 张爱娟