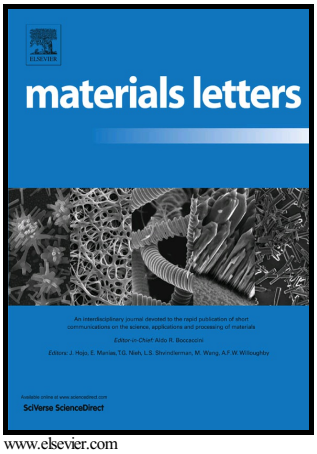
Author's Accepted Manuscript



www.elsevier.com

Engineering a novel bilayer membrane for bone defects regeneration

Arjun Prasad Tiwari, Mahesh Kumar Joshi, Bikendra Maharjan, Sung Won Ko, Jeong In Kim, Chan Hee Park, Cheol Sang Kim

PII: S0167-577X(16)30924-7
DOI: http://dx.doi.org/10.1016/j.matlet.2016.05.141
Reference: MLBLUE20952

To appear in: *Materials Letters*

Received date: 3 March 2016
Revised date: 28 April 2016
Accepted date: 28 May 2016

Cite this article as: Arjun Prasad Tiwari, Mahesh Kumar Joshi, Bikendra Maharjan, Sung Won Ko, Jeong In Kim, Chan Hee Park and Cheol Sang Kim Engineering a novel bilayer membrane for bone defects regeneration, *Material Letters,* http://dx.doi.org/10.1016/j.matlet.2016.05.141

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, an review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered whic could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

Engineering a novel bilayer membrane for bone defects regeneration

Arjun Prasad Tiwari[1], Mahesh Kumar Joshi[1, 2], Bikendra Maharjan[1], Sung Won Ko[1], Jeong In Kim[1], Chan Hee Park[1*], Cheol Sang Kim[1,3,4*]

[1]Department of Bionanosystem Engineering, Graduate School, Chonbuk National University, Jeonju 561-756, Republic of Korea

[2]Department of Chemistry, Tri-Chandra Multiple Campus, Tribhuvan University, Kathmandu, Nepal

[3]Division of Mechanical Design Engineering, Chonbuk National University, Jeonju 561-756, Republic of Korea

[4]Eco-friendly machine parts design research center, Chonbuk National University, Jeonju 561-756, Republic of Korea

chskim@jbnu.ac.kr (C. S. Kim)

biochan@jbnu.ac.kr (C. H. Park),

[*]Corresponding authors: Tel.: +82-63-270-4284; fax: +82-63-270-2460.

Accepted manuscript

Abstract

We report the fabrication of a novel bilayer scaffold as a barrier membrane via modified-solvent casting and evaporation technique for the regeneration of bone defects. The blended solution of polycaprolactone (PCL) and calcium carbonate ($CaCO_3$) was treated with hydrochloric acid (HCL), which resulted in the in situ formation of carbon dioxide (CO_2) and water. This led to the phase separation between the PCL and calcium-based compounds and subsequently to the formation of a bilayer membrane. Surface morphology, surface wettability,

Download English Version:

https://daneshyari.com/en/article/8016673

Download Persian Version:

https://daneshyari.com/article/8016673

Daneshyari.com