

Accepted Manuscript

Doxorubicin hydrochloride - Loaded electrospun chitosan/cobalt ferrite/titanium oxide nanofibers for hyperthermic tumor cell treatment and controlled drug release

Maryam Radmansouri, Ehsan Bahmani, Einollah Sarikhani, Keivan Rahmani, Fariborz Sharifianjazi, Mohammad Irani



PII: S0141-8130(18)30231-9
DOI: doi:[10.1016/j.ijbiomac.2018.04.161](https://doi.org/10.1016/j.ijbiomac.2018.04.161)
Reference: BIOMAC 9569

To appear in:

Received date: 14 January 2018
Revised date: 22 April 2018
Accepted date: 29 April 2018

Please cite this article as: Maryam Radmansouri, Ehsan Bahmani, Einollah Sarikhani, Keivan Rahmani, Fariborz Sharifianjazi, Mohammad Irani , Doxorubicin hydrochloride - Loaded electrospun chitosan/cobalt ferrite/titanium oxide nanofibers for hyperthermic tumor cell treatment and controlled drug release. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Biomac(2017), doi:[10.1016/j.ijbiomac.2018.04.161](https://doi.org/10.1016/j.ijbiomac.2018.04.161)

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

Doxorubicin hydrochloride - loaded electrospun chitosan/cobalt ferrite/titanium oxide nanofibers for hyperthermic tumor cell treatment and controlled drug release

Maryam Radmansouri¹, Ehsan Bahmani², Einollah Sarikhani³, Keivan Rahmani³,

Fariborz Sharifianjazi⁴, Mohammad Irani^{5,*}

¹Department of Clinical Biochemistry, School of Pharmacy and Pharmaceutical Sciences, Isfahan

Pharmaceutical Sciences Research Centre, Isfahan University of Medical Sciences, Isfahan, Iran

² Faculty of Chemical Engineering, Tarbiat Modares University, Tehran, Iran

³ Department of Chemical and Petroleum Engineering, Sharif University of Technology, Tehran, Iran

⁴Department of Metallurgy & Material Engineering, Golpayegan University of Technology, Golpayegan, Iran

⁵ Young Researchers & Elite Club, Tehran North Branch, Islamic Azad University, Tehran, Iran

Abstract

In the present study, the potential of doxorubicin hydrochloride (DOX)- loaded electrospun chitosan/cobalt ferrite/titanium oxide nanofibers was studied to investigate the simultaneous effect of hyperthermia and chemotherapy against melanoma cancer B16F10 cell lines. The cobalt ferrite nanoparticles were synthesized via microwave heating method. The titanium oxide nanoparticles were mixed with cobalt ferrite to control the temperature rise. The synthesized nanoparticles and nanofibers were characterized using X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), and vibrating sample magnetometer (VSM) analysis. The DOX loading efficiency and in vitro drug release of DOX from nanofibers were investigated at both physiological and acidic conditions by an alternating of magnetic field and without magnetic field effect. The fastest release of DOX from prepared magnetic nanofibers was

* Corresponding author Email address (Irani_mo@ut.ac.ir)

Download English Version:

<https://daneshyari.com/en/article/8327110>

Download Persian Version:

<https://daneshyari.com/article/8327110>

[Daneshyari.com](https://daneshyari.com)