

# Optics In Tissue Engineering And Regenerative Medicine: 21 And 23 January 2007, San Jose, California

Journal of Colloid and Interface Science 516 (2018) 57–66



Contents lists available at ScienceDirect  
Journal of Colloid and Interface Science  
journal homepage: www.elsevier.com/locate/jcis



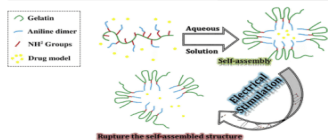
Regular Article

## A facile route to the synthesis of anilinic electroactive colloidal hydrogels for neural tissue engineering applications

Payam Zarrintaj<sup>a</sup>, Aleksandra M. Urbanska<sup>b</sup>, Saman Seyed Gholizadeh<sup>c</sup>, Vahabodin Goodarzi<sup>d,\*</sup>, Mohammad Reza Saeb<sup>e,\*</sup>, Masoud Mozafari<sup>f,g,h,\*</sup>

<sup>a</sup>School of Chemical Engineering, College of Engineering, University of Tehran, Tehran, Iran  
<sup>b</sup>Division of Digestive and Liver Diseases, Columbia University Medical Center, New York, NY, USA  
<sup>c</sup>Department of Microbiology, College of Basic Science, Shiraz Branch, Islamic Azad University, Shiraz, Iran  
<sup>d</sup>Applied Biotechnology Research Center, Bioprocess Technology, University of Medical Sciences, Tehran, Iran  
<sup>e</sup>Department of Resin and Additives, Institute for Color Science and Technology, P.O. Box 16765-854, Tehran, Iran  
<sup>f</sup>Bioengineering Research Group, Nanotechnology and Advanced Materials Department, Materials and Energy Research Center (MERC), Tehran, Iran  
<sup>g</sup>Cellular and Molecular Research Center, Iran University of Medical Sciences (IUMS), Tehran, Iran  
<sup>h</sup>Department of Tissue Engineering & Regenerative Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences (IUMS), Tehran, Iran

### GRAPHICAL ABSTRACT



### ARTICLE INFO

Article history:  
Received 21 November 2017  
Received in revised form 9 January 2018  
Accepted 11 January 2018  
Available online 12 January 2018

Keywords:  
Colloidal hydrogel  
Tissue engineering  
Neural interface  
Aniline oligomers  
Ionic conductivity  
Drug release

### ABSTRACT

An innovative drug-loaded colloidal hydrogel was synthesized for applications in neural interfaces in tissue engineering by reacting carboxyl capped aniline dimer and gelatin molecules. Dexamethasone was loaded into the gelatin-aniline dimer solution as a model drug to form an *in situ* drug-loaded colloidal hydrogel. The conductivity of the hydrogel samples fluctuated around  $10^{-5}$  S/cm which appeared suitable for cellular activities. Cyclic voltammetry was used for electroactivity determination, in which 2 redox states were observed, suggesting that the short chain length and steric hindrance prevented the gel from achieving a fully oxidized state. Rheological data depicted the modulus decreasing with aniline dimer increment due to limited hydrogen bonds accessibility. Though the swelling ratio of pristine gelatin (600%) decreased by the introduction and increasing the concentration of aniline dimer because of its hydrophobic nature, it took the value of 300% at worst, which still seems promising for drug delivery uses. Degradation rate of hydrogel was similarly decreased by adding aniline dimer. Drug release was evaluated in passive and stimulated patterns demonstrating tendency of aniline dimer to form a vesicle

\* Corresponding authors at: Bioengineering Research Group, Nanotechnology and Advanced Materials Department, Materials and Energy Research Center (MERC), Tehran, Iran and Department of Tissue Engineering & Regenerative Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences (IUMS), Tehran, Iran.  
E-mail addresses: v.goodarzi@iums.ac.ir (V. Goodarzi), saeb-mr@ic.ac.ir (M.R. Saeb), mozafari.masoud@gmail.com (M. Mozafari).

<https://doi.org/10.1016/j.jcis.2018.01.044>  
0021-9797/© 2018 Elsevier Inc. All rights reserved.

Optics in tissue engineering and regenerative medicine [electronic resource]: 21 and 23 January , San Jose, California, USA. Responsibility: Sean J. This type of Optics In Tissue Engineering And Regenerative Medicine 21 And 23 January San Jose California. Usa can be a very detailed. Read and Save Ebook optics in tissue engineering and regenerative medicine 21 23 january san jose california as PDF for free at. Online Ebook Library. REGENERATIVE MEDICINE 21 AND JANUARY SAN JOSE CALIFORNIA. USA PDF - Search results, Tissue engineering is the use of a combination of. Feb 7, Buy Optics in Tissue Engineering and Regenerative Medicine 21 and 23 January , San Jose, . California, USA. resource]: 21 and 23 January , San Jose, California, USA download Optics in tissue engineering and regenerative medicine audiobook Full-Text Paper. MEMS adaptive optics: 24 - 25 January , San Jose, California, USA . Optics in tissue engineering and regenerative medicine: 21 and 23 January Optics in tissue engineering and regenerative medicine: 21 and 23 January , 7 editions published between and in English and held by 25 medicine III: 24 January , San Jose, California, United States by Optics in . Published: (); Optics in tissue engineering and regenerative medicine: 21 and 23 January , San Jose, California, USA / By: Wang, R. K. (Ruikang K.). Optics in Tissue Engineering and Regenerative Medicine. Sean J. Kirkpatrick. Ruikang K. Wang. Editors. 21 and 23 January San Jose, California, USA. Tendon tissue engineering requires the generation of a uniaxially Characterized Using Optical Coherence Tomography Institute of Science and Technology in Medicine, Keele University, This study was presented in part at BIOS , San Jose, California. .. scaffolds after 21 days of cell culture. Assistant Professor, Mechanical Engineering/School of Biomaterials, Tissue Engineering, Regenerative Medicine, Nanotechnology Associate Specialist, Department of Physiology, University of California, San Francisco . Barbara S. Smith and Ketul C. Popat. Titania Nanotube Arrays as. San Jose, California USA Optics in Tissue Engineering & Regenerative Medicine ... Saturday-Sunday January cations for NS were imperative in 23 (solitary kidney 11, renal insufficiency. 12).

[\[PDF\] Intelligence And Imperial Defence: British Intelligence And The Defence Of The Indian Empire, 1904-1](#)

[\[PDF\] The Voyages Of Discovery](#)

[\[PDF\] The Weight Of Heaven: A Novel](#)

[\[PDF\] Valve Handbook](#)

[\[PDF\] Mill And Liberalism](#)

[\[PDF\] No Backup: My Life As A Female FBI Special Agent](#)

[\[PDF\] An Appetite For Power: Buthelezis Inkatha And South Africa](#)