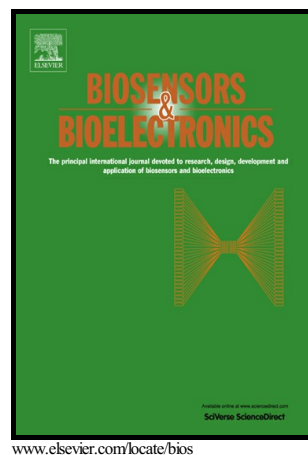


Molecularly Imprinted Electrochemical Sensor based on Bioinspired Au Microflowers for ultra-trace Cholesterol assay

Hua Yang, Li Li, Yaping Ding, Daixin Ye, Yingzi Wang, Shiqiang Cui, Lanfeng Liao



PII: S0956-5663(16)30966-6
DOI: <http://dx.doi.org/10.1016/j.bios.2016.09.081>
Reference: BIOS9193

To appear in: *Biosensors and Bioelectronic*

Received date: 14 June 2016
Revised date: 22 September 2016
Accepted date: 24 September 2016

Cite this article as: Hua Yang, Li Li, Yaping Ding, Daixin Ye, Yingzi Wang, Shiqiang Cui and Lanfeng Liao, Molecularly Imprinted Electrochemical Sensor based on Bioinspired Au Microflowers for ultra-trace Cholesterol assay *Biosensors and Bioelectronic*, <http://dx.doi.org/10.1016/j.bios.2016.09.081>

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 galley proof before it is published in its final citable 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

Molecularly Imprinted Electrochemical Sensor based on Bioinspired Au Microflowers for ultra-trace Cholesterol assay

Hua Yang^a, Li Li^a, Yaping Ding^{a,c*}, Daixin Ye^b, Yingzi Wang^a, Shiqiang Cui^a, Lanfeng Liao^a

^aDepartment of Chemistry, Shanghai University, Shanghai 200444, PR China

^bDepartment of Chemistry and Molecular Biology, University of Gothenburg, Gothenburg S-41296, Sweden

^cShanghai Key Laboratory of High Temperature Superconductors, Shanghai University, Shanghai 200444, PR China

*Corresponding author. Tel.: +86 21 66134734; fax: +86 21 66132797. E-mail address:

wdingyp@sina.com

Abstract

A novel imprinted sensor for ultra-trace cholesterol (CHO) detection based on electropolymerized aminothiophenol (ATP) molecularly imprinted polymer (MIP) on a glassy carbon electrode (GCE) modified with dopamine@graphene (DGr) and bioinspired Au microflowers has been developed in this work. As the specific recognition element, the bioinspired Au microflowers were formed by Au nanoparticles (AuNPs) and wrapped by bionic polydopamine film (PDA) through electropolymerization method. These excellent biocompatible materials could capture the target CHO effectively. The morphology of the MIP modified electrode was characterized by scanning electron microscopy (SEM) and atomic force microscope (AFM). The hydrogen-bonding interaction between templates and monomers was characterized by ultraviolet spectroscopy. Under the optimal experimental conditions, the sensor's linear response range was between 10^{-18} and 10^{-13} M, with a detection limit of 3.3×10^{-19} M, which was much more sensitive than most available CHO detection methods in previously reports. Moreover, the MIP sensor exhibited high sensitivity for CHO, low

Download English Version:

<https://daneshyari.com/en/article/5031663>

Download Persian Version:

<https://daneshyari.com/article/5031663>

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