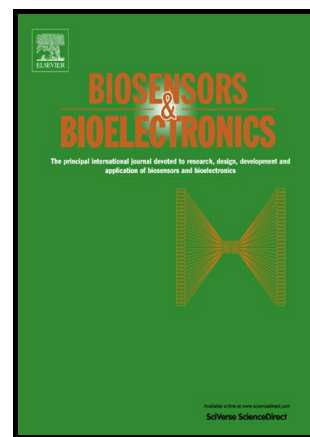


Author's Accepted Manuscript

Disposable electrochemical detection of breast cancer tumour marker CA 15-3 using poly(Toluidine Blue) as imprinted polymer receptor

J.A. Ribeiro, C.M. Pereira, A.F. Silva, M.Goreti F. Sales



www.elsevier.com/locate/bios

PII: S0956-5663(18)30174-X
DOI: <https://doi.org/10.1016/j.bios.2018.03.011>
Reference: BIOS10337

To appear in: *Biosensors and Bioelectronic*

Received date: 8 November 2017
Revised date: 28 February 2018
Accepted date: 6 March 2018

Cite this article as: J.A. Ribeiro, C.M. Pereira, A.F. Silva and M.Goreti F. Sales, Disposable electrochemical detection of breast cancer tumour marker CA 15-3 using poly(Toluidine Blue) as imprinted polymer receptor, *Biosensors and Bioelectronic*, <https://doi.org/10.1016/j.bios.2018.03.011>

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.

Disposable electrochemical detection of breast cancer tumour marker CA 15-3 using poly(Toluidine Blue) as imprinted polymer receptor

J.A. Ribeiro^{a,b*}, C.M. Pereira^{a*}, A. F. Silva^a, M. Goreti F. Sales^b

^a CIQUP/Department of Chemistry and Biochemistry, Faculty of Sciences, University of Porto, Portugal

^b BioMark/CINTESIS-ISEP, School of Engineering, Polytechnic Institute of Porto, Portugal

*Corresponding Author: E-mail addresses: cmpereir@fc.up.pt (C.M. Pereira), jadribeiro@gmail.com (J.A. Ribeiro).

Abstract

In this work, electrically-conducting poly(Toluidine Blue) was employed for the first time as synthetic receptor film, prepared by Molecular Imprinting strategies and using electrochemical methods, for the specific screening of breast cancer biomarker Carbohydrate Antigen 15-3 (CA 15-3).

The protein imprinted poly(Toluidine Blue) film was grown in a pre-formed Toluidine Blue (TB) tailed SAM at the AuSPE surface, which greatly enhanced the stability against degradation of the Molecular Imprinted Polymer (MIP) film at the electrode surface.

The MIP receptor film recognition ability towards the protein was investigated by fitting data to Freundlich isotherm. The binding affinity (K_F) obtained for the MIP system was significantly higher

Download English Version:

<https://daneshyari.com/en/article/7229530>

Download Persian Version:

<https://daneshyari.com/article/7229530>

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