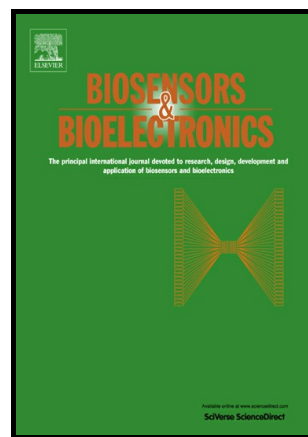


A PCR-free electrochemical method for messenger RNA detection in cancer tissue samples

Md. Nazmul Islam, Vinod Gopalan, Md. Hakimul Haque, Mostafa Kamal Masud, Md. Shahriar Al Hossain, Yusuke Yamauchi, Nam-Trung Nguyen, Alfred King-yin Lam, Muhammad J.A. Shiddiky



www.elsevier.com/locate/bios

PII: S0956-5663(17)30435-9
DOI: <http://dx.doi.org/10.1016/j.bios.2017.06.051>
Reference: BIOS9821

To appear in: *Biosensors and Bioelectronics*

Received date: 10 May 2017
Revised date: 19 June 2017
Accepted date: 25 June 2017

Cite this article as: Md. Nazmul Islam, Vinod Gopalan, Md. Hakimul Haque Mostafa Kamal Masud, Md. Shahriar Al Hossain, Yusuke Yamauchi, Nam-Trung Nguyen, Alfred King-yin Lam and Muhammad J.A. Shiddiky, A PCR-free electrochemical method for messenger RNA detection in cancer tissue samples, *Biosensors and Bioelectronics*, <http://dx.doi.org/10.1016/j.bios.2017.06.051>

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.

A PCR-free electrochemical method for messenger RNA detection in cancer tissue samples

Md. Nazmul Islam^{a,b}, Vinod Gopalan^c, Md. Hakimul Haque^c, Mostafa Kamal Masud^{b,d}, Md. Shahriar Al Hossain^d, Yusuke Yamauchi^d, Nam-Trung Nguyen^b, Alfred King-yin Lam^c,
Muhammad J. A. Shiddiky^{a,b*}

^aSchool of Natural Sciences, Griffith University, Nathan Campus, QLD 4111, Australia

^bQueensland Micro- and Nanotechnology Centre, Griffith University, Nathan Campus, QLD 4111, Australia

^cCancer Molecular Pathology Laboratory in School of Medicine, Menzies Health Institute Queensland, Griffith University, Gold Coast Campus, QLD 4222, Australia

^dAustralian Institute for Innovative, Materials (AIIM), University of Wollongong, Squires Way, Innovation Campus, North Wollongong, NSW 2519, Australia

*Corresponding Author E-mail address: m.shiddiky@griffith.edu.au (M.J.A.S)

Abstract

Despite having reliable and excellent diagnostic performances, the currently available messenger RNA (mRNA) detection methods mostly use enzymatic amplification steps of the target mRNA which is generally affected by the sample manipulations, amplification bias and longer assay time. This paper reports an amplification-free electrochemical approach for the sensitive and selective detection of mRNA using a screen-printed gold electrode (SPE-Au). The target mRNA is selectively isolated by magnetic separation and adsorbed directly onto

Download English Version:

<https://daneshyari.com/en/article/5030920>

Download Persian Version:

<https://daneshyari.com/article/5030920>

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