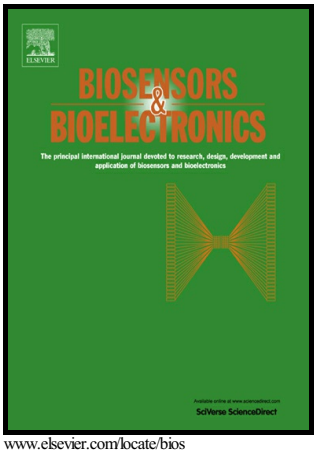
A new fluorescent probe with a large turn-on signal for imaging nitroreductase in tumor cells and tissues by two-photon microscopy

Zhan-Rong Liu, Yonghe Tang, An Xu, Weiying Lin



www.elsevier.com/locate/bios

PII: S0956-5663(16)30992-7
DOI: http://dx.doi.org/10.1016/j.bios.2016.09.107
Reference: BIOS9219

To appear in: *Biosensors and Bioelectronic*

Received date: 28 July 2016
Revised date: 26 September 2016
Accepted date: 29 September 2016

Cite this article as: Zhan-Rong Liu, Yonghe Tang, An Xu and Weiying Lin, A new fluorescent probe with a large turn-on signal for imaging nitroreductase i tumor cells and tissues by two-photon microscopy, *Biosensors an Bioelectronic,* http://dx.doi.org/10.1016/j.bios.2016.09.107

A new fluorescent probe with a large turn-on signal for imaging nitroreductase in tumor cells and tissues by two-photon microscopy

Zhan-Rong Liu, Yonghe Tang, An Xu, and Weiying Lin*

Institute of Fluorescent Probes for Biological Imaging, School of Chemistry and Chemical Engineering, School of Biological Science, University of Jinan, Jinan, Shandong 250022, P.R. China.

*Corresponding Author.

Tel.: +86 53182769108; Fax: +86–531–82769031

E-mail address: weiyinglin2013@163.com.

ABSTRACT

Hypoxia is the important characteristic of solid tumors, and it may cause the bioactivity of nitroreductase (NTR) to display an elevated level. Hence, the development of effective monitoring methods of NTR in living systems is of great importance for detecting the occurrence and progress of tumors. Toward this goal, a novel two-photon fluorescence turn-on NTR probe **GCTPOC-HY**, based on the two-photon platform **GCTPOC** and the NTR recognition site *p*-nitrobenzyl ether, is designed and synthesized. The probe **GCTPOC-HY** exhibits eminent properties such as high sensitivity and selectivity, highly stable photo-stability, and low cytotoxicity. Besides, the probe responds to 1.5 μg/mL NTR with a 130-fold fluorescence