

Author's Accepted Manuscript

A pyrene-based colorimetric and fluorescent pH probe with large stokes shift and its application in bioimaging

Jianbin Chao, Kailun Song, Yongbin Zhang, Caixia Yin, Fangjun Huo, Juanjuan Wang, Ting Zhang



PII: S0039-9140(18)30679-9
DOI: <https://doi.org/10.1016/j.talanta.2018.06.073>
Reference: TAL18815

To appear in: *Talanta*

Received date: 6 February 2018
Revised date: 18 June 2018
Accepted date: 24 June 2018

Cite this article as: Jianbin Chao, Kailun Song, Yongbin Zhang, Caixia Yin, Fangjun Huo, Juanjuan Wang and Ting Zhang, A pyrene-based colorimetric and fluorescent pH probe with large stokes shift and its application in bioimaging, *Talanta*, <https://doi.org/10.1016/j.talanta.2018.06.073>

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 pyrene-based colorimetric and fluorescent pH probe with large Stokes shift and its application in bioimaging

Jianbin Chao^{a*}, Kailun Song^{a,b}, Yongbin Zhang^c, Caixia Yin^d, Fangjun Huo^c, Juanjuan Wang^a, Ting Zhang^a

^aScientific Instrument Center, Shanxi University, Taiyuan 030006, China

^bSchool of Chemistry and Chemical Engineering, Shanxi University, Taiyuan 030006, China

^cResearch Institute of Applied Chemistry, Shanxi University, Taiyuan 030006, China

^dInstitute of Molecular Science, Shanxi University, Taiyuan 030006, China

*Corresponding author. Jianbin Chao, Scientific Instrument Center, Shanxi University, Taiyuan 030006, P. R. China, Tel.: + 86-351-721 2621; Fax: + 86-351-721 2621. E-mail address: chao@sxu.edu.cn (Jianbin-Chao)

Abstract:

A pyrene-based colorimetric and fluorescent pH probe with large Stokes shift (145 nm) was developed. **PNY** afforded a pK_a of 2.98 and responded linearly to minor pH changes within the range of 2.43 and 3.71. In addition, **PNY** could be used for detecting H^+ with high sensitivity and selectivity, showing colorimetric and fluorometric dual-modal responses with short response time. Furthermore, **PNY** had good photostability, excellent reversibility and cell membrane permeability. Significantly, **PNY** could image acidic pH in A549 cells and visualized extreme acidity in *E. coli* cells.

Download English Version:

<https://daneshyari.com/en/article/7675295>

Download Persian Version:

<https://daneshyari.com/article/7675295>

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