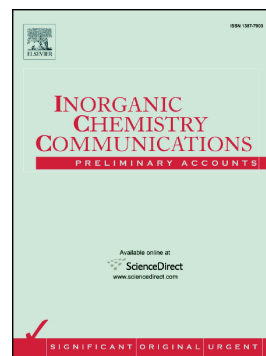


Accepted Manuscript

A naphthol-based highly selective fluorescence turn-on and reversible sensor for Al(III) ion

Nao Xiao, Linlin Xie, Xiaomin Zhi, Chen-Jie Fang



PII: S1387-7003(17)30860-2

DOI: <https://doi.org/10.1016/j.inoche.2018.01.007>

Reference: INOCHE 6861

To appear in: *Inorganic Chemistry Communications*

Received date: 13 November 2017

Revised date: 12 January 2018

Accepted date: 13 January 2018

Please cite this article as: Nao Xiao, Linlin Xie, Xiaomin Zhi, Chen-Jie Fang , A naphthol-based highly selective fluorescence turn-on and reversible sensor for Al(III) ion. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Inoche(2017), <https://doi.org/10.1016/j.inoche.2018.01.007>

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 proof before it is published in its final 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 naphthol-based highly selective fluorescence turn-on and reversible sensor for Al(III) ion

Nao Xiao*, Linlin Xie, Xiaomin Zhi, Chen-Jie Fang

School of Pharmaceutical Sciences, Capital Medical University, Beijing 100069,
China.

* Correspondence: xiaonao@ccmu.edu.cn; Tel.: +86-10-8391-1524

Abstract:

A naphthol derivative
(*E*)-1-((2-(benzo[d]thiazol-2-yl)hydrazono)methyl)naphthalen-2-ol (NABT)
exhibits an “off-on-type” fluorescent chemosensing for the detection of Al³⁺ ions, due to chelation-enhanced fluorescence (CHEF). The fluorescence intensity at 515 nm (excitation at 420 nm) of NABT increases about 42-fold upon addition of 20 equivalent Al³⁺. Moreover, the binding details of NABT with Al³⁺ were determined by ¹H NMR and ESI-MS studies. The NABT interacts with Al³⁺ in a tridentate mode to form [Al(NABT)(DMSO)], [Al(NABT)Cl(DMSO)], [Al(NABT)(DMSO)₂] and [Al(NABT)₂] complexes. The addition of EDTA to NABT–Al³⁺ complex quenches the fluorescent intensity, indicating that NABT could serve as a reversible chemosensor.

Keywords: Turn-on; Fluorescent chemosensor; Aluminum ion; Selectivity; Reversibility

Download English Version:

<https://daneshyari.com/en/article/7748594>

Download Persian Version:

<https://daneshyari.com/article/7748594>

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