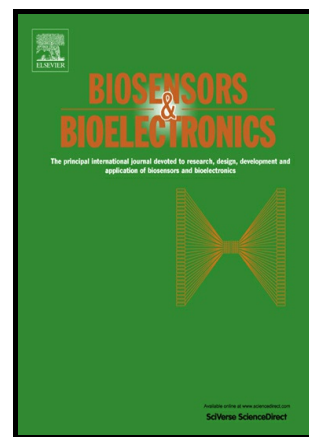


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A Highly Selective Turn-on Fluorescent Sensor for Glucosamine from Amidoquinoline-Naphthalimide Dyads

Kunnigar Vongnam^a, Chawanphat Muangnoi^b, Pornchai Rojsitthisak^c, Mongkol Sukwattanasinitt^{d,e}, Paitoon Rashatasakhon^{d,e*}

^aProgram of Petrochemistry and Polymer Science, Faculty of Science, Chulalongkorn University, Phayathai Road, Pathumwan, Bangkok 10330, Thailand

^bProgram of Pharmaceutical Chemistry and Natural Products, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Phayathai Road, Pathumwan, Bangkok 10330, Thailand

^cDepartment of Food and Pharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Phayathai Road, Pathumwan, Bangkok 10330, Thailand

^dOrganic Synthesis Research Unit, Department of Chemistry, Faculty of Science, Chulalongkorn University, Phayathai Road, Pathumwan, Bangkok 10330, Thailand

^eNanotec-CU Center of Excellence on Food and Agriculture, Department of Chemistry, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand

*Tel.: +66 (2) 2187633; fax.: +66 (2) 2187598. E-mail: paitoon.r@chula.ac.th

Abstract

Three amidoquinoline-naphthalimide dyads are designed and synthesized in 67-73% overall yields in 3 steps from commercially available starting materials. Compounds with unsubstituted and nitro naphthalimide (**1** and **2**) show excellent selective fluorescent responses towards glucosamine with the enhancement of fluorescence quantum yields by 14 folds. The determination of HOMO-LUMO levels by linear sweep voltammetry suggests that the sensing mechanism likely involves the inhibition of photo-induced electron transfer (PET) between the aminoquinoline and naphthalimide moieties by glucosamine. The association constants of 1.55×10^4 and $1.45 \times 10^4 \text{ M}^{-1}$, along with the glucosamine detection limits of 1.06 and 0.29 μM are determined for **1** and **2**,

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