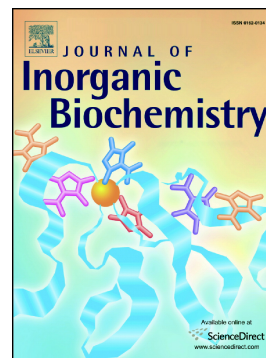


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Phosphorogenic Sensors for Biothiols Derived from Cyclometalated Iridium(III) Polypyridine Complexes Containing a Dinitrophenyl Ether Moiety

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Abstract

We report the synthesis and characterization of three cyclometalated iridium(III) polypyridine complexes containing a 2,4-dinitrophenyl ether moiety $[\text{Ir}(\text{pq})_2(\text{N}^{\wedge}\text{N})](\text{PF}_6)$ (Hpq = 2-phenylquinoline; $\text{N}^{\wedge}\text{N}$ = 4-(N-(4-(2,4-dinitrophenoxy)benzyloxy)carbonyl)aminomethyl-4'-methyl-2,2'-bipyridine (**bpy-dinitro-1**) (**1a**), 4-(2,4-dinitrophenoxy)methyl-4'-methyl-2,2'-bipyridine (**bpy-dinitro-2**) (**2a**), 4-(4-(2,4-dinitrophenoxy)phenyl)-2,2'-bipyridine (**bpy-dinitro-3**) (**3a**)) as intracellular sensors for biothiols. Due to the quenching effect of the dinitroaromatic moiety, these complexes were extremely weakly emissive. Upon the reaction with biothiols, however, the emission was turned on as a consequence of the departure of the quenching unit. The results from a range of experiments demonstrated that complex **1a** was noncytotoxic under the conditions used for confocal imaging, showed facile cellular uptake, and can serve

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