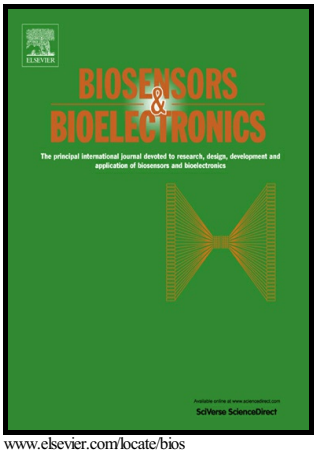

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Highly selective optical and reversible dual-path chemosensor for cyanide detection and its application in live cells imaging

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Abstract

A new biocompatible fluorescent receptor **1** was synthesized by conjugating diaminomaleonitrile (DMN) with benzthiazole unit, and characterized by single X-ray. In DMF/water (1:1, *v/v*), the receptor **1** showed a selectivity turn-on fluorescence at 517 nm in the presence of CN^-. Receptor **1** showed a detection limit down to 0.16 µM without any interference from other tested anions. The reversibility and reusability of **1** for the detection of CN^- ion was also tested for five cycles indicating the probe **1** could be used in reversible manner. Importantly, the receptor **1** showed excellent cells viability and was successfully applied for the detection of CN^- in live mouse fibroblast cells L929 cells.

Keywords: Fluorescent turn-on sensor, Cyanide, Biocompatibility, Cellular imaging, DFT.

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