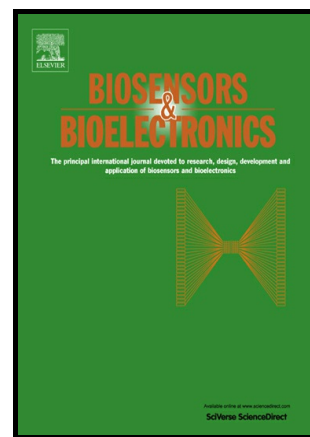


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**Highly selective optical and reversible dual-path chemosensor for cyanide detection and its application in live cells imaging**

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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<sup>-</sup>. 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<sup>-</sup> 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<sup>-</sup> in live mouse fibroblast cells L929 cells.

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

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