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Ratiometric fluorescence detection of Cu(II) with a keto-dipicolylamine ligand: A mechanistic implication

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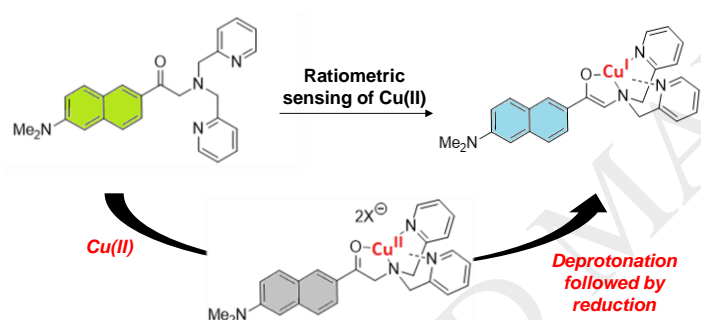
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Graphical abstract



Highlights

- Ratiometric fluorescence sensing of Cu(II) with an acedan-derived dipicolylamine
- Sensitive and selective response to Cu(II) with emission shift from green to blue
- Cu(II)-binding promoted enolization and subsequent reduction of Cu(II) to Cu(I)
- Two-photon ratiometric imaging of Cu(II) in HeLa cells
- Detection of trace amounts of Cu(II) present in nearby river and sea water samples

Abstract

Cu(II) affects our environment and living systems to various aspects, demanding its detection and quantification methods. Fluorescent detection has its own advantages, and many fluorescent sensing systems are known. As Cu(II) quenches fluorescence, a key challenge in developing fluorescent sensors is to induce fluorescence signal enhancement rather than quenching. A further challenge is to develop probes that provide ratiometric fluorescence changes at two different wavelengths. We have

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