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**Quinoline containing acetyl hydrazone: An easily accessible switch-on optical  
chemosensor for Zn<sup>2+</sup>**

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**Abstract:**

A simple chemosensor, namely, N-((quinolin-8-yl)methylene)acetohydrazide (**1**) was synthesized and used as an off-on fluorescence sensor, which exhibits high selectivity toward Zn<sup>2+</sup> in aqueous media. The probe has large Stokes shift of more than 200 nm, and its detection limit for Zn<sup>2+</sup> is 89.3 nM. The binding process was confirmed through UV-vis absorption analysis, fluorescence measurements, mass spectroscopy study, <sup>1</sup>H NMR spectra and density functional theory calculation. The crystal structures of Zn<sup>2+</sup>, Ni<sup>2+</sup>, and Cu<sup>2+</sup> complexes based on **1** were determined through X-ray crystallographic analysis. The fluorescent probe was then applied to monitor intracellular Zn<sup>2+</sup> in HeLa cells.

**Key words:** Fluorescent sensor; Zn<sup>2+</sup>; hydrazone; quinoline.

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