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A Probe with Double Acetoxy Moieties for Hydrazine and its Application in Living Cells

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Abstract:

As a common chemical reductant, hydrazine has been widely used in various fields. However, its high toxicity to human and environment have also attracted people's attention. In this work, a new fluorescence "turn-on" probe based on coumarin for hydrazine was successfully synthesized. The probe with double acetoxy moieties as the reaction sites can obtain the detection limit as low as 2.98 nM for the detection of hydrazine in distilled water, which was lower than the U.S. Environmental Protection Agency standard (10 ppb). In addition, it also responded obvious fluorescence enhancement and high selectivity to hydrazine over other molecules. Furthermore, this probe could visualize the hydrazine in living cells.

Keywords: Coumarin; Fluorescent probe; Hydrazine; Detection; Bioimaging

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