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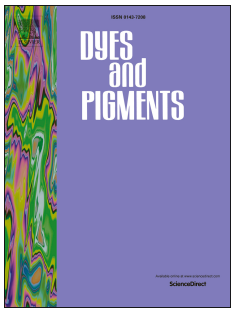

A versatile fluorescent probe for imaging viscosity and hypochlorite in living cells

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A versatile fluorescent probe for imaging viscosity and hypochlorite in living cells

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Abstract

A novel fluorescent chemosensor was designed and synthesized based on a borondipyrromethene-hemicyanine dyad structure. This probe can be employed for the measurement of both viscosity and hypochlorite under different wavelengths. In non-viscous media, the dye had a very low fluorescence quantum yield. With the increase of viscosity, the fluorescence at 600 nm was enhanced significantly, which could be utilized for quantitative determination of viscosity. In addition, the probe exhibited a fast (within 1 min) 'turn-on' fluorescence response to hypochlorite with high selectivity. The fluorescence at 510 nm was directly proportional to hypochlorite concentration. Confocal fluorescence imaging experiments demonstrated the probe could permeate cell membranes and visualize viscosity and hypochlorite in living cells, where the action of hypochlorite caused the increase of intracellular viscosity.

Keywords: Chemosensor; Fluorescence; Cells; Viscosity; Hypochlorite; Bioimaging