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A water-soluble "turn-on" fluorescent probe for specifically imaging mitochondria viscosity in living cells

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Abstract

Rational design of water-soluble probes for mitochondrial viscosity in practical biological applications remains a challenge. Herein, we described a novel hydro soluble benzothiazole salt derivative **MitoSN**, which exhibits specifically response and singular sensitivity to the mitochondria viscosity in living Hela cells. **MitoSN** displays an excellent fluorescence enhancement (ca. 35-fold) with the increase of the viscosity in the water-glycerol system. Moreover, confocal microscopy indicates that **MitoSN** is sensitive to the local viscosity and selectively stains mitochondria, the body of zebrafish as well. Importantly, **MitoSN** is capable to identify the viscosity difference of mitochondria in normal and nystatin treated Hela cells. The work