Electronic Supplementary Material (ESI) for Analyst.

Supporting Information

Discriminating normal and inflammatory models by viscosity changes with a mitochondria-targetable fluorescent probe

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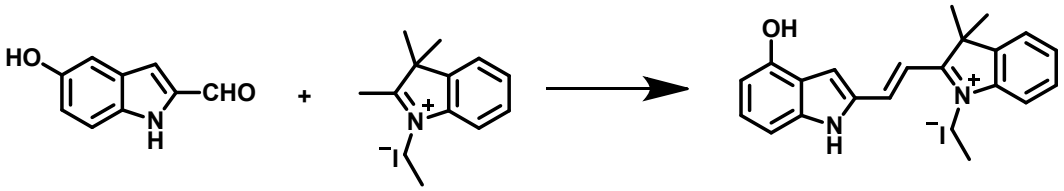
Cytotoxicity test

Firstly, living cells were cultivated with 96-well plate in a 5% CO_2 incubator at 37 °C. Secondly, after 12 h, living cells fresh were cultivated using fresh medium containing different concentrations **EIMV** (1, 5, 10, 20, 30 μM). Thirdly, after 24 h, the excess medium and probes were cleared up, and then 10 μL (4,5-dimethyl-2-thiazolyl)-2, 5-diphenyltetrazolium bromide (MTT) (5 mg/mL in phosphate buffer solution (PBS)) was dropped into the above plate. Subsequently, the culture medium was cleared up, and 100 μL DMSO was dropped into the dishes to dissolve the formazan crystal product. Fourthly, 96-well plate was shaken up for a moment. Absorbance data was obtained using multiscan spectrum. Finally, cell viability was obtained with the equation: The cell viability (%) = $(OD_{490\ sample} - OD_{490\ blank})/(OD_{490\ control} - OD_{490\ blank}) \times 100\%$. $OD_{490\ sample}$ stand for the cells incubated with probes of different concentrations, $OD_{490\ control}$ was cells untreated with probe, $OD_{490\ blank}$ was cell containing culture medium.

Synthesis



1 **EIMV**

Scheme. S1. The synthetic route to the probe **EIMV.**

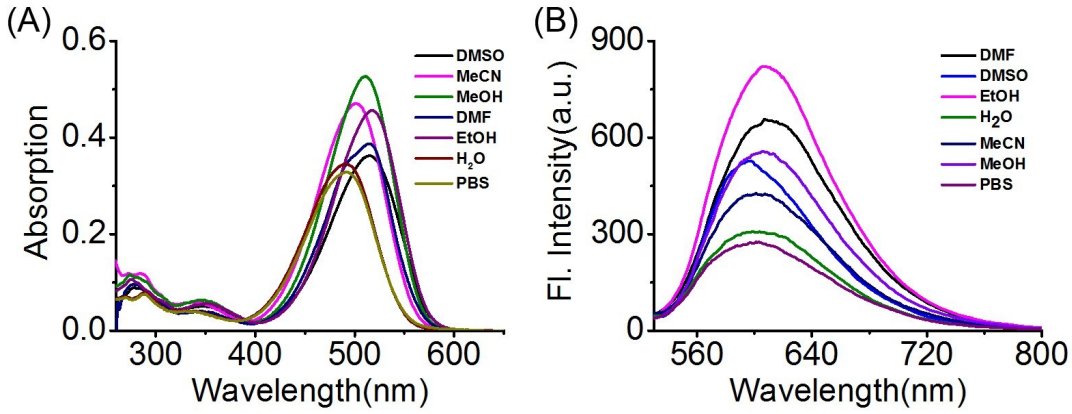


Fig. S1 (A) Absorption spectra and (B) fluorescence responses of **EIMV (**10 μM.**)** in various solvents.

Table S1 The photophysical properties of **MVPI** in various solvents.

Solvents	λ^a /λ^b (nm)	Stokes shifts	Φ^c
DMSO	511/597	86	0.41
DMF	510/590	80	0.32
EtOH	520/610	90	0.20
H_2O	485/602	117	0.25
MeCN	500/605	105	0.32
MeOH	520/610	90	0.18
PBS	490/601	111	0.31
Glycerol	510/602	92	19.4

[a]Maximum absorption wavelength (nm). [b]Maximum emission wavelength (nm). [c]Φ is fluorescence quantum yield (error limit: 8%) determined by using Rhodamine 6G (Φ=0.95) in Water as the standard.

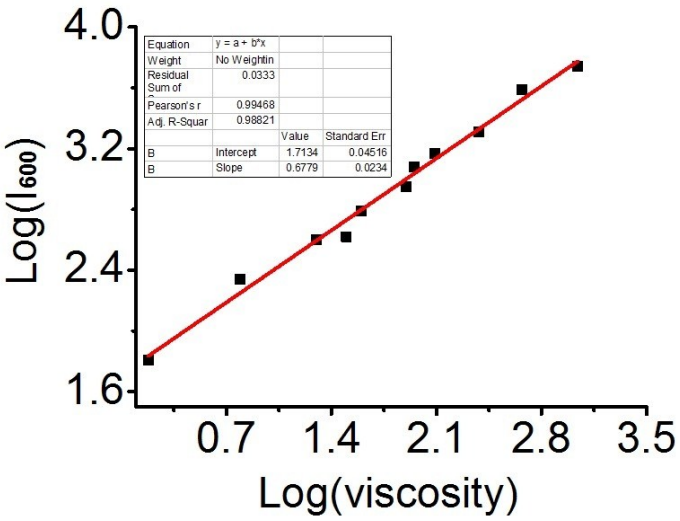


Fig. S2 The linear relationship between log (I_{600}) and log (viscosity) in the PBS-glycerol solvent.

Table S2 Cytotoxicity Data of **EIMV** in HeLa cells [a].

Incubate concentration(μM)	0	1	5	10	20	30
(% cell survival)	100±4	97±4	92±4	90±4	85±4	82±4

[a] Cell viability was quantified by the MTT assays (mean ± SD).

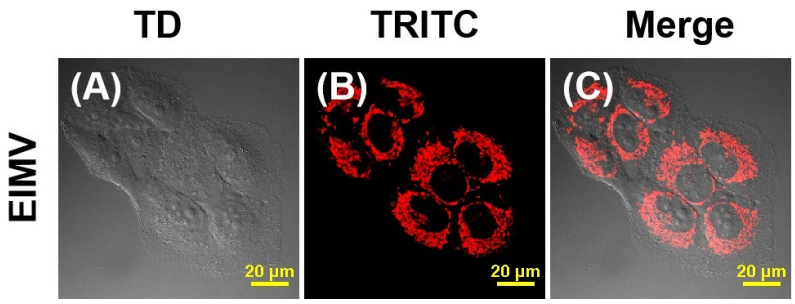


Fig. S3 Confocal fluorescence images of the Hela cells incubated with 10 μM **EIMV** for 30 min; (A): Bright-field images; (B): Merged pictures; (C): Red channel: λ_{ex} = 561 nm, λ_{em} = 570-620 nm.

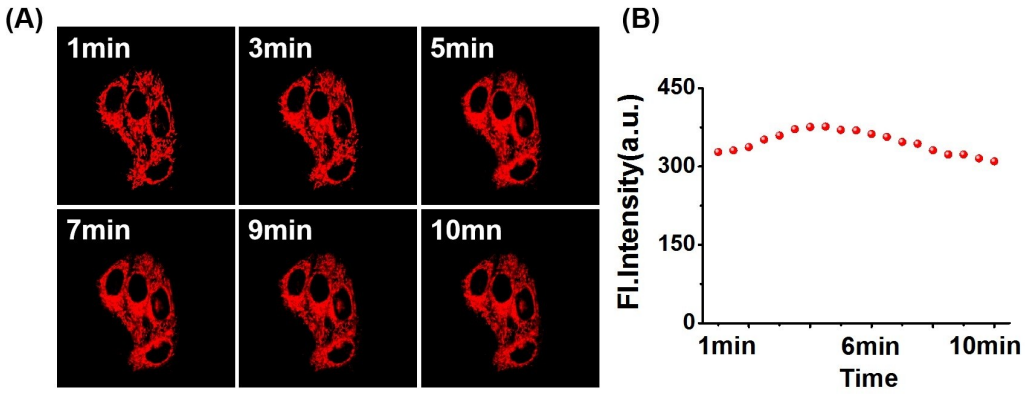


Fig. S4 (A) Fluorescence images of Hela cells incubated with **EIMV** (10 μM) acquired at different times under successive excitation.(λ_{ex} = 561 nm, λ_{em}= 570-620 nm); (C) Fluorescence intensities of Hela cells incubated with **EIMV** (10 μM) under successiv excitation at different times.

Characterization.

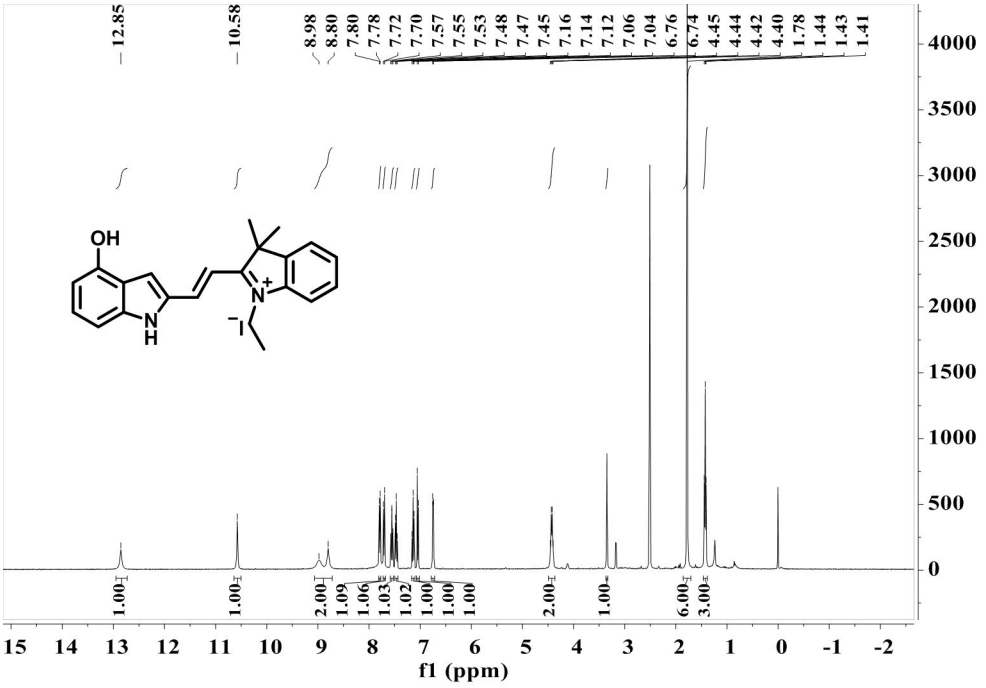


Fig. S5 ^{1}H NMR spectrum of **EIMV**

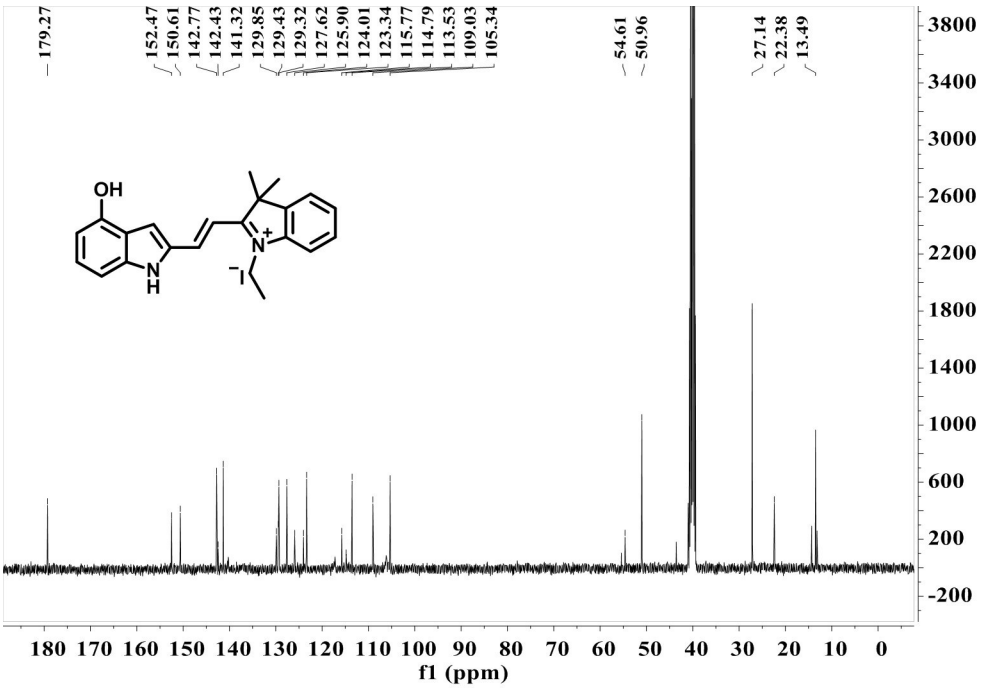


Fig. S6 ^{13}C NMR spectrum of **EIMV**

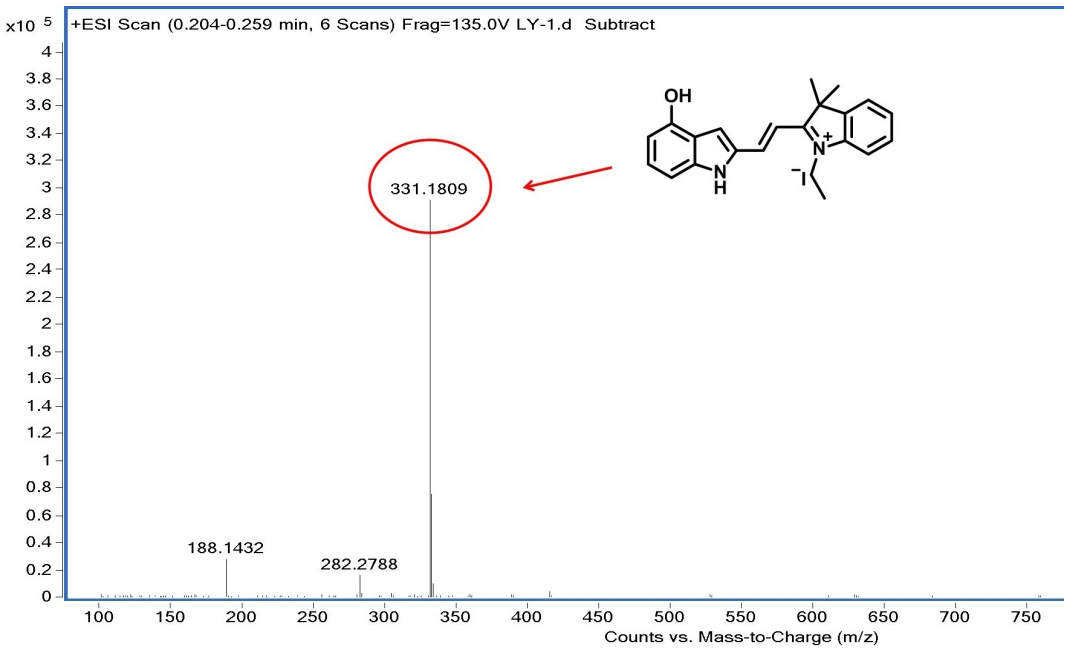


Figure S7 HRMS spectrum of **EIMV**