Electronic Supplementary Material (ESI) for RSC Advances.

A novel carbazole-based mitochondria-targeted ratiometric fluorescent probe for bisulfite in living cells

Gang Wang,[a*] Hao Chen[b] Xiuli Chen[b], and Yongmei Xie[b]*

[a] Zunyi Medical College, Zunyi, Guizhou Province, China. E-mail: Wg8855350@163.com

[b] State Key Laboratory of Biotherapy and Cancer Center, West China Hospital, Sichuan University, and Collaborative Innovation Center for Biotherapy, Chengdu, Sichuan Province, R. China. E-mail: xieym@scu.edu.cn

Contents

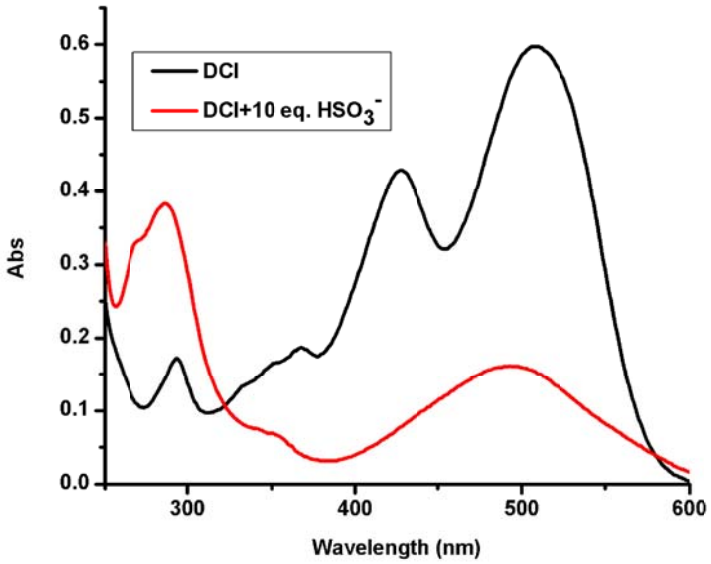


Fig.S1 The absorption spectra of **DCI** before and after reaction with bisulfite (10 equiv.) in PBS buffer (pH 7.4, 10 mM). [**DCI**] =10 μM. λex = 350 nm. Slit: 5nm/5 nm.

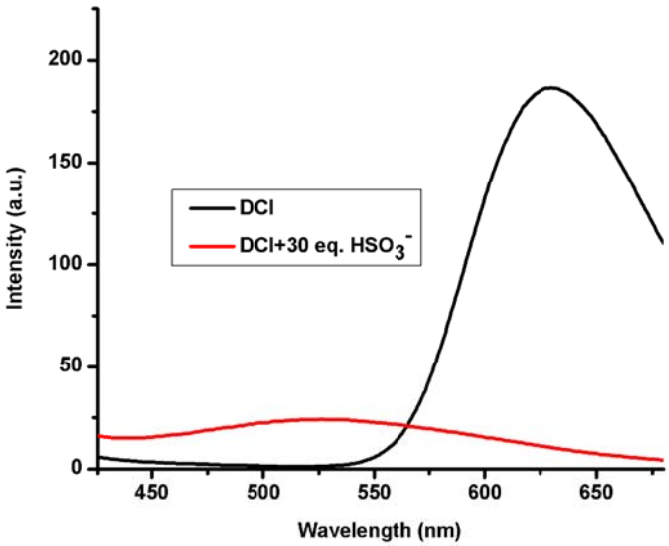


Fig.S2 Fluorescence spectra of **DCI** before and after reaction with bisulfite (30 equiv.) in PBS buffer (pH 7.4, 10 mM). [**DCI**] =10 μM. λex = 350 nm. Slit: 5nm/5 nm.

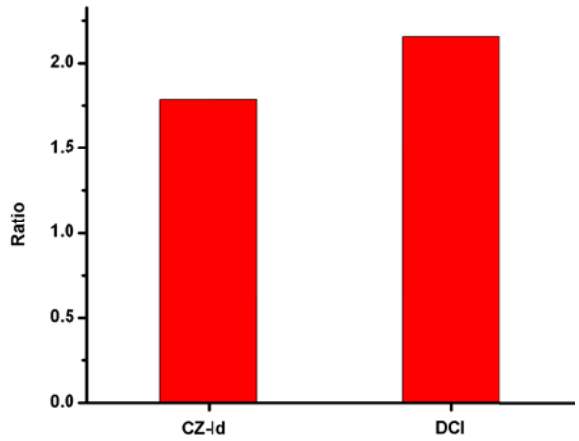


Fig. S3 The response of **CZ-Id** and **DCI** to bisulfute in PBS buffer (pH 7.4, 10 mM). For **DCI**: [**DCI**] =10 μM, [HSO_3^-] = 100 μM, λex = 350 nm, the ratio (I_{507}/I_{628}) was achieved 10 min after addition of bisulfite; For **CZ-Id**: [**CZ-Id] =** 10 μM, [HSO_3^-] = 100 μM, λex = 350 nm, the ratio (I_{490}/I_{590}) was achieved 10 min after addition of bisulfite.

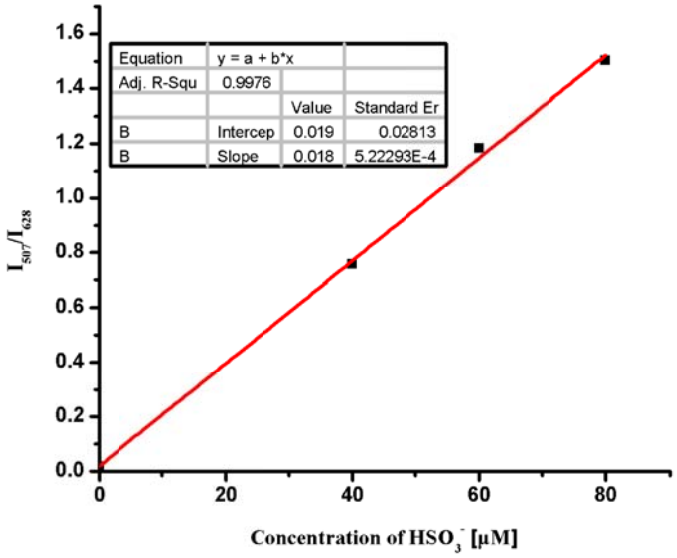


Fig. S4 The line relationship between the fluorescent intensity ratios of **DCI** and the concentration of the bisulfite in PBS buffer (pH 7.4, 10 mM). [**DCI**] =10 μM. λex = 350 nm. Slit: 5nm/5 nm.

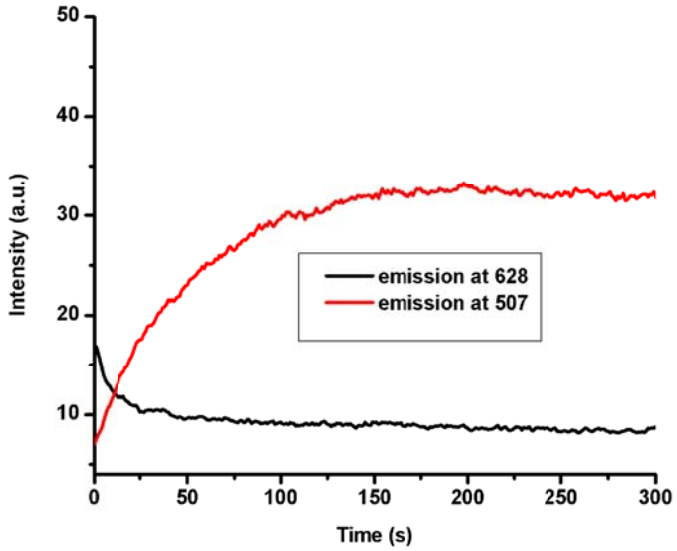


Fig.S5 The kinetic response of the bisulfite (30 equiv.) to **DCI** in PBS buffer (pH 7.4, 10 mM). [**DCI**] =10 μM. λex = 350 nm. Slit: 5nm/5 nm.

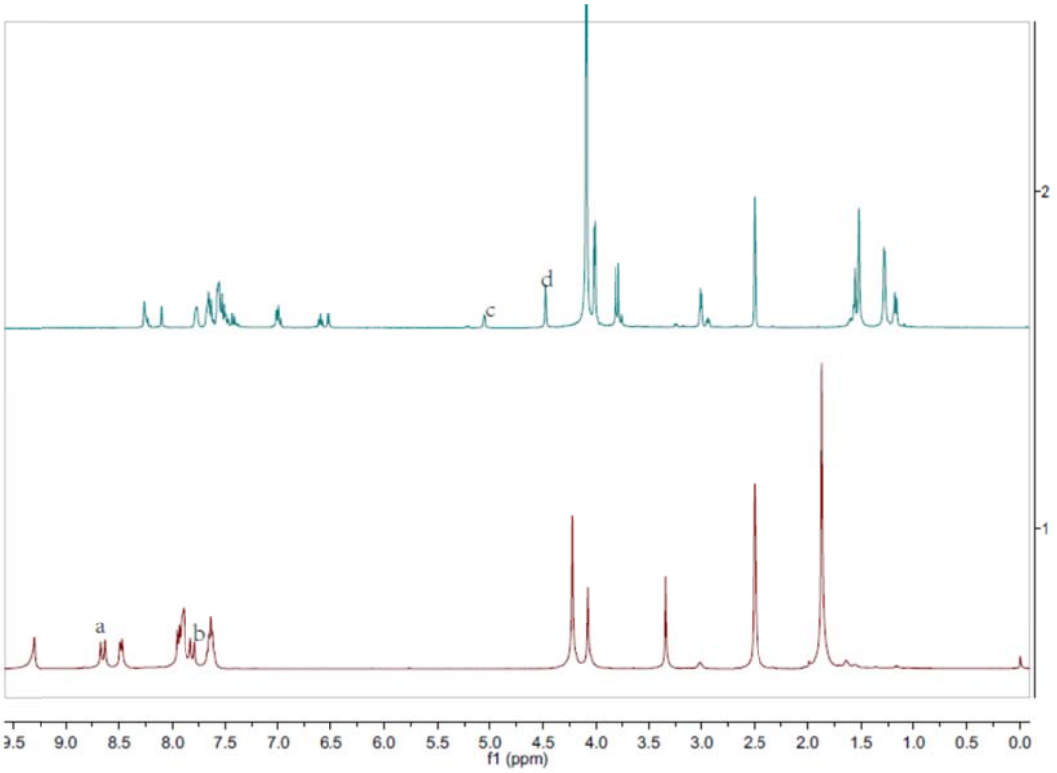


Fig.S6 ^{1}H NMR of **DCI** in the abstrance and presence of bisulfite.

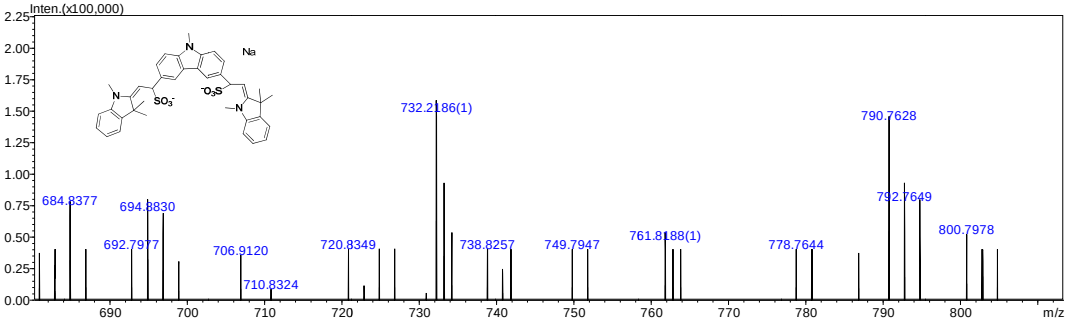


Fig S7. HRMS spectral change of **DCI** in **t**he presence of 15 equiv of $NaHSO_3$ i**n** CH_3OH /H_2O = 9:1.

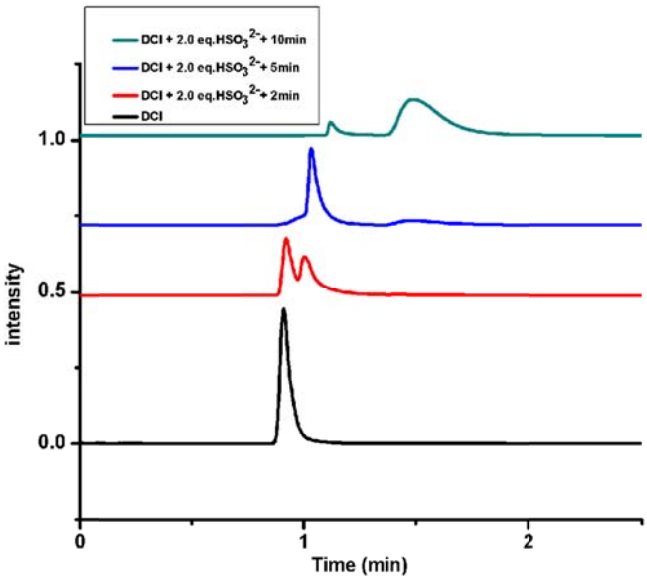


Fig. S8 HPLC result of **DCI** in the presence of bisulfite at different time. Waters e2695 Separations Module using Waters 2998 PDA detector equipped with a Symmetry C18 column(4.6×150mm, 5μm). Water 20% and methanol 80% were used as eluents with a flow rate of 1ml/min. 295nm was used as wavelength.

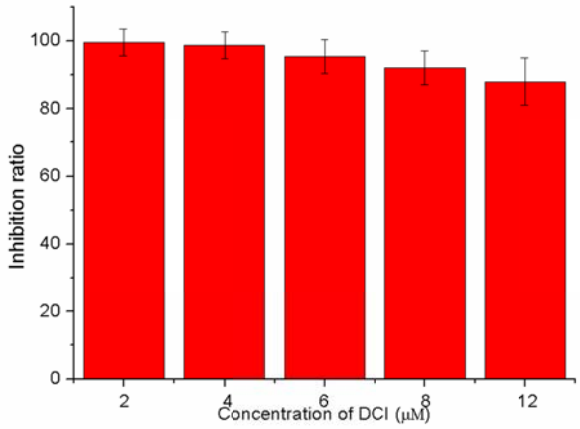
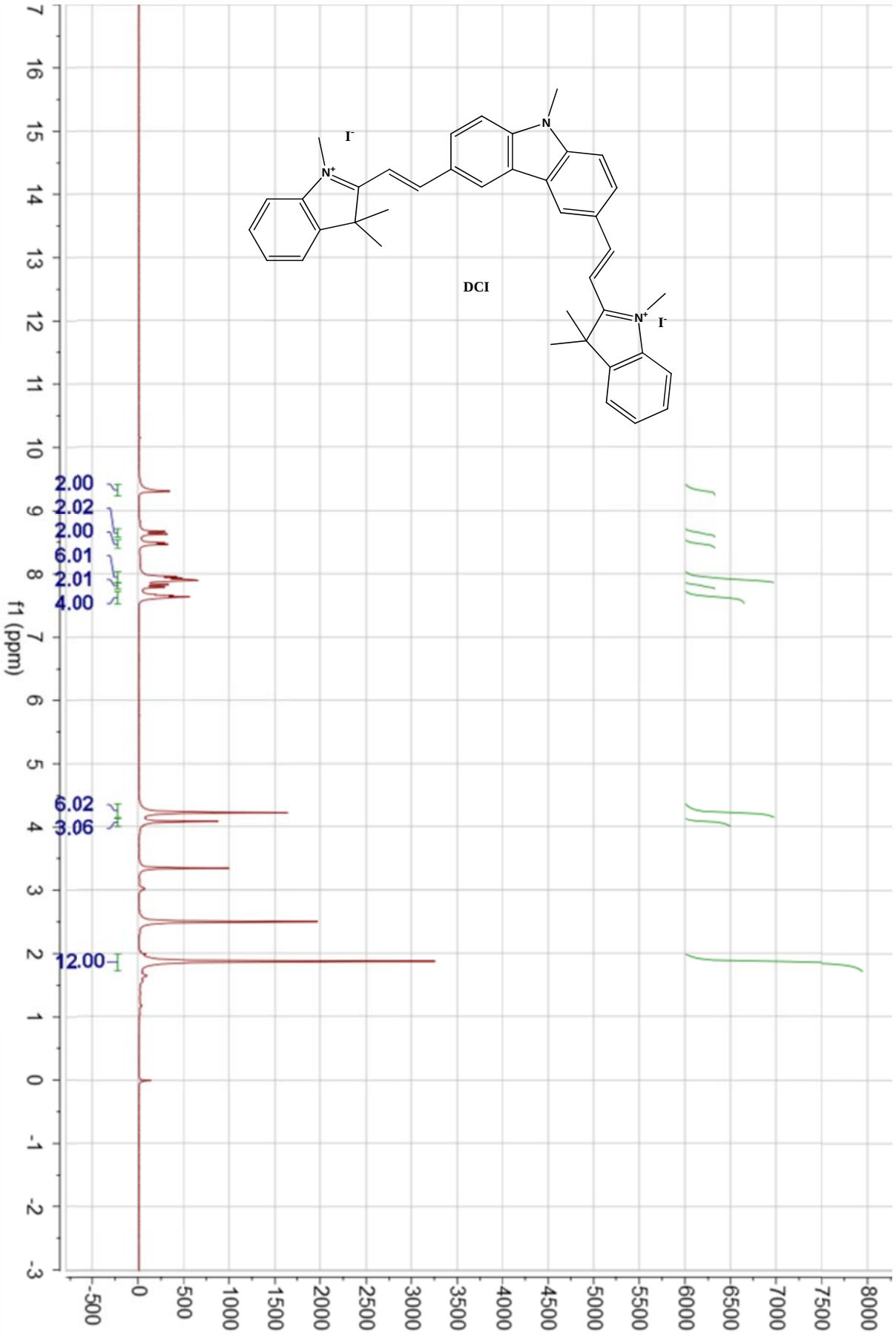


Figure S9 Effects of **DCI** on the viability of A549 Cells. The results are the mean standard deviation of three separate measurements.


I-
N+
N
N+
I-
DCI
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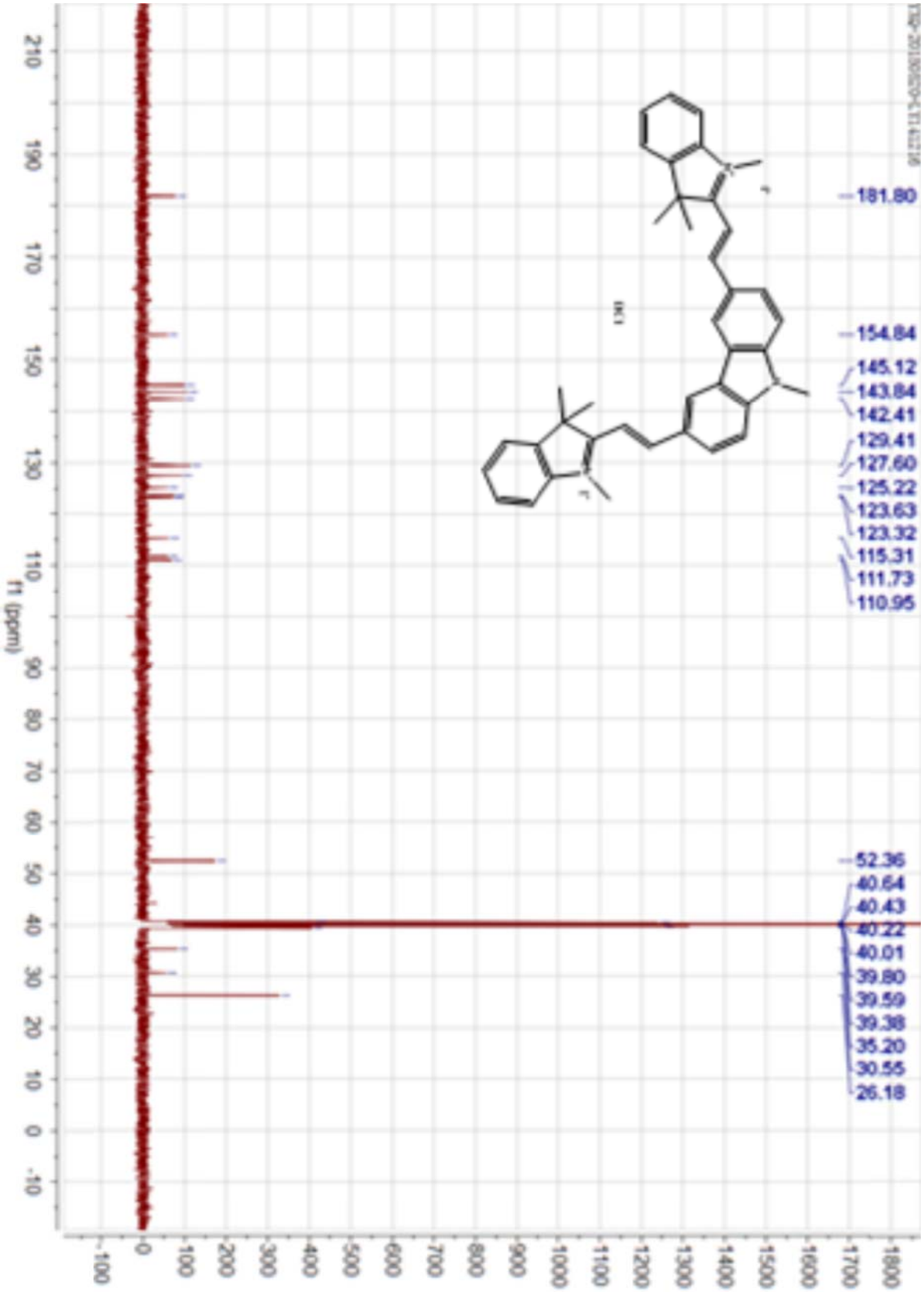
2.00
6.01
2.01
4.00
6.02
3.06
12.00
f1 (ppm)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142.41
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123.63
123.32
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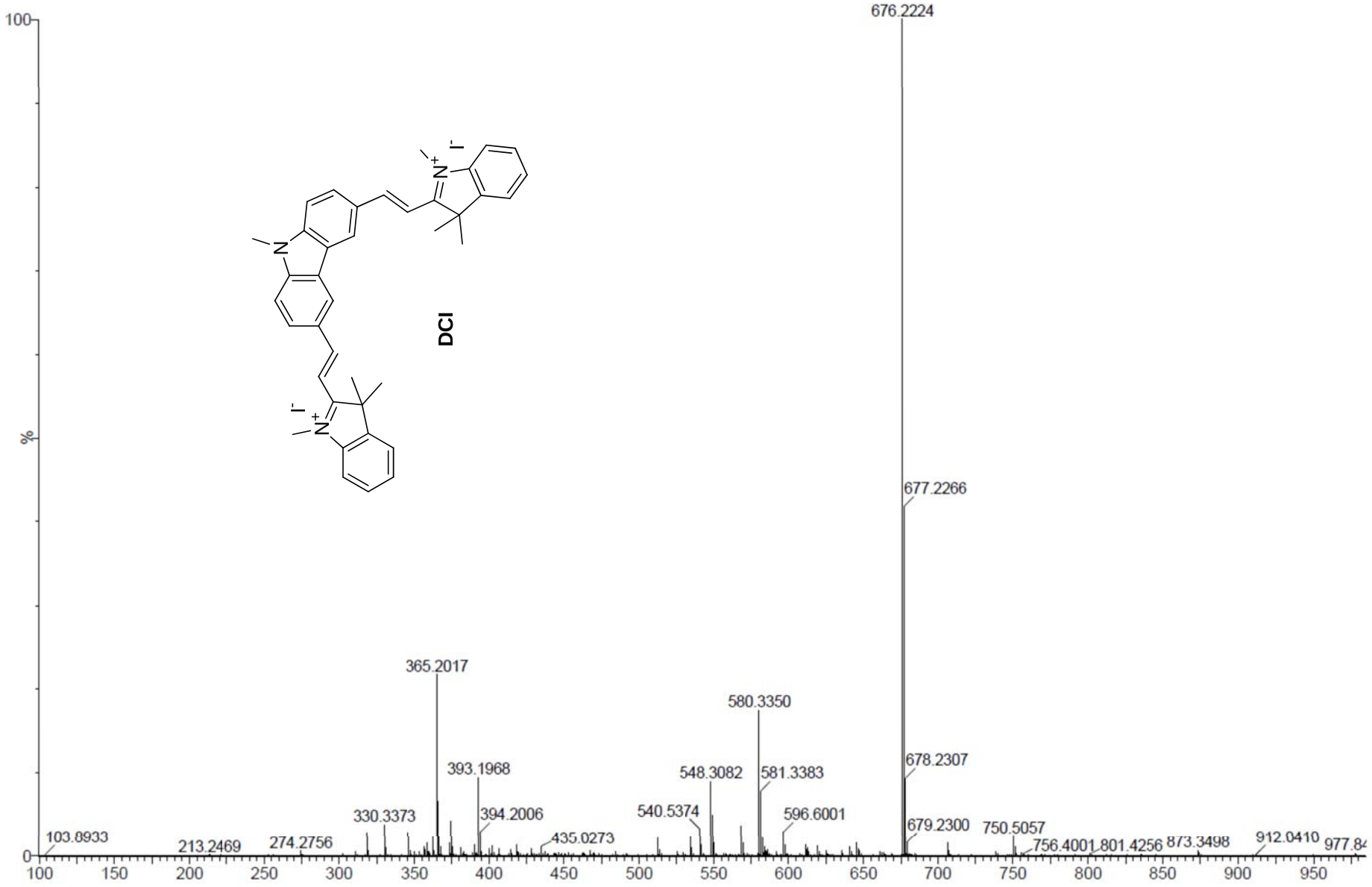
39.38
35.20
30.55
26.18
f1 (ppm)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580.3350
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548.3082
581.3383
330.3373
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540.5374
596.6001
679.2300
750.5057
103.8933
213.2469
274.2756
435.0273
756.4001
801.4256
873.3498
912.0410
977.8
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950

DCI