Supporting Information

Nitrogen-doped orange emitting carbon dots for β-carotene detection and lysosomal imaging

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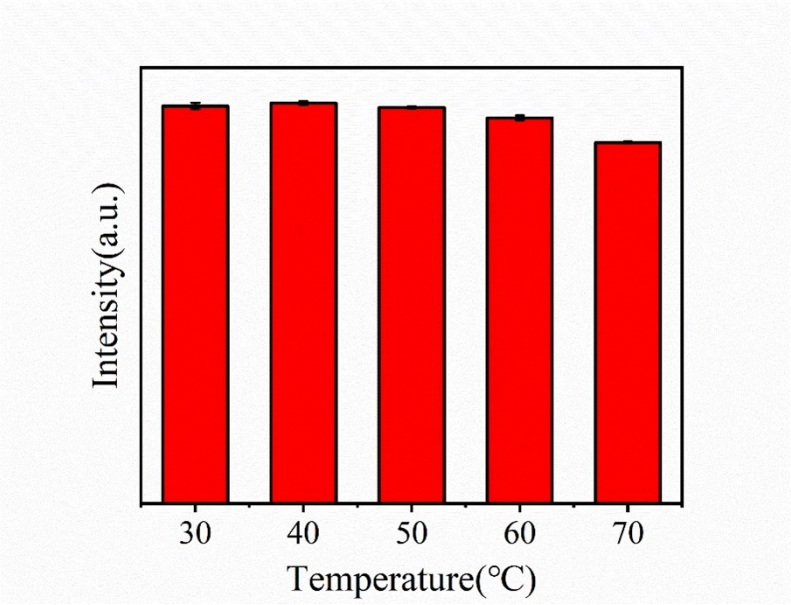

Fig. S1 Fluorescence intensity of O-CDs at different temperatures

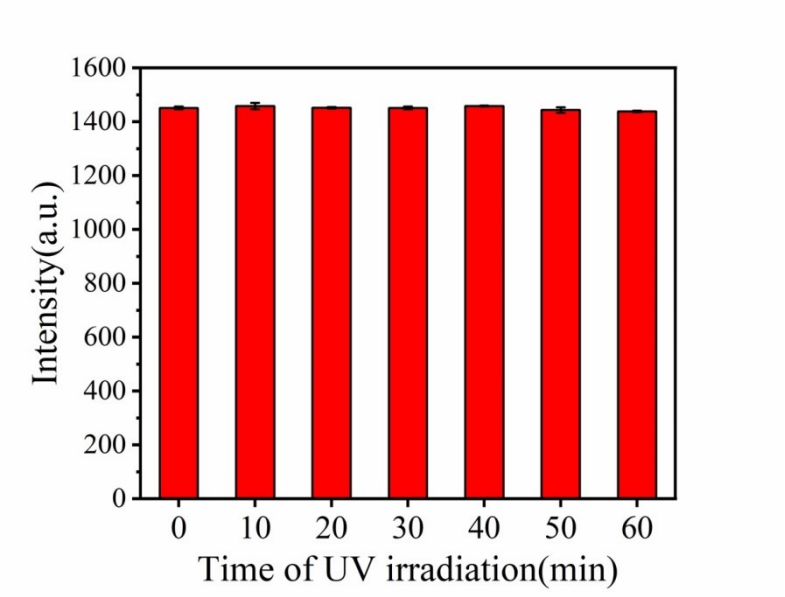

Fig. S2 Fluorescence intensity of O-CDs after a period of UV irradiation

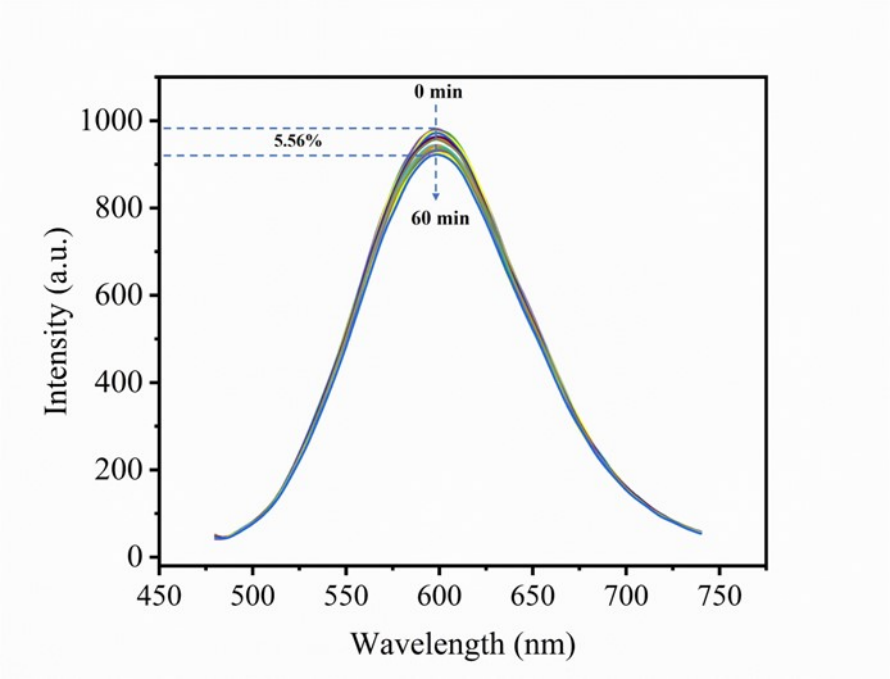

Fig. S3 Variation of the FL intensity of the O-CDs between 0-60 min under the irradiation of 470 nm.

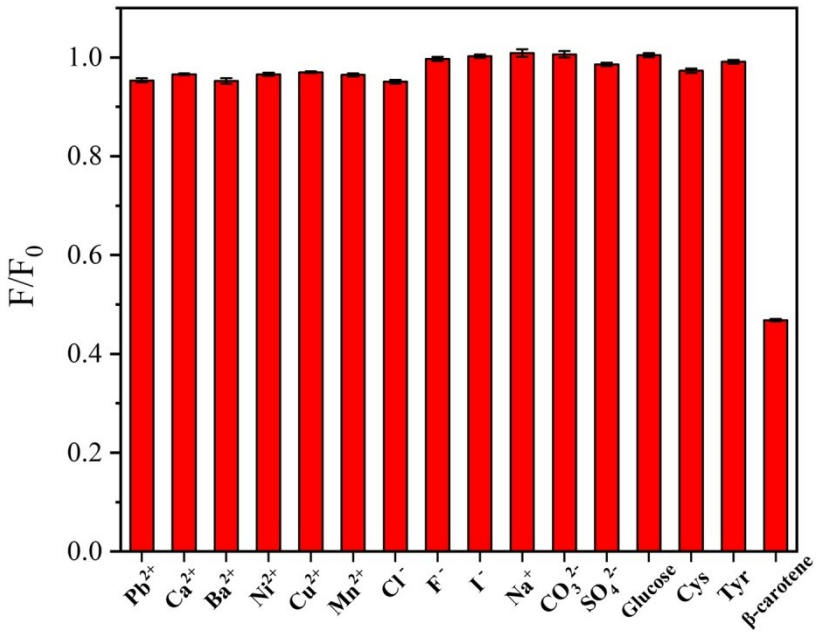

Fig. S4 The ratio of fluorescence intensity of O-CDs solution before and after adding every substances.

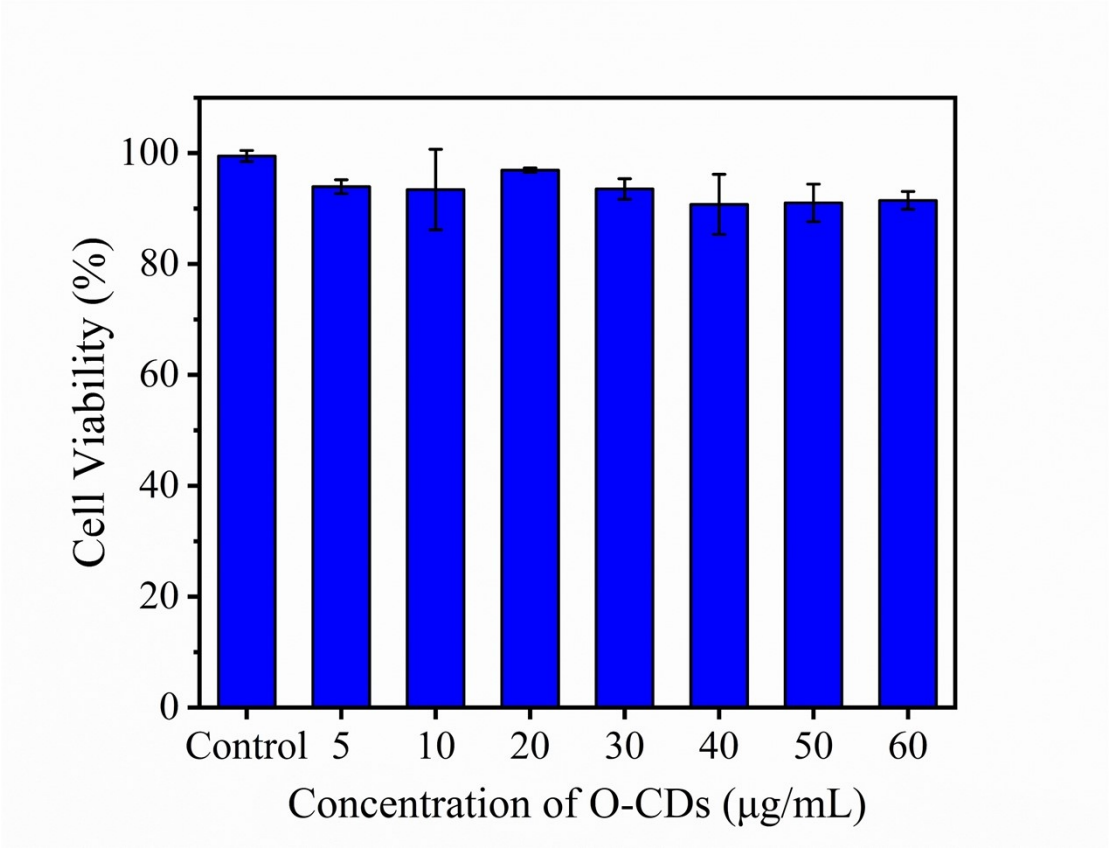

Fig. S5 Cell viability of HeLa cells incubated with 0 to 60 μg/mL O-CDs for 24 h.

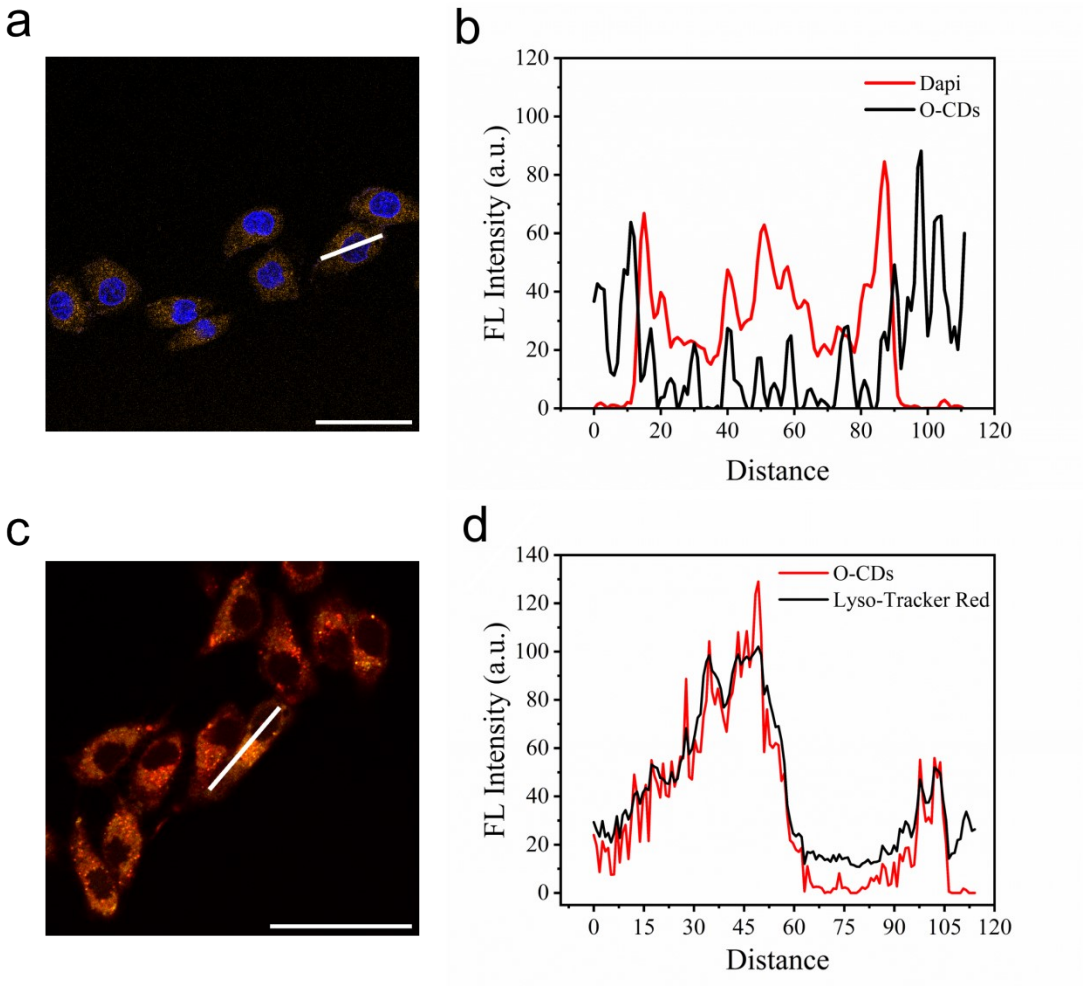

Fig. S6 (a-b) The fluorescence intensity of the region of interest (ROIs) in the HeLa cells in the O-CDs and DAPI dihydrochloride channels. (c-d) The fluorescence intensity of the region of interest (ROIs) in the HeLa cells in the O-CDs and Lyso-Tracker Red channels.

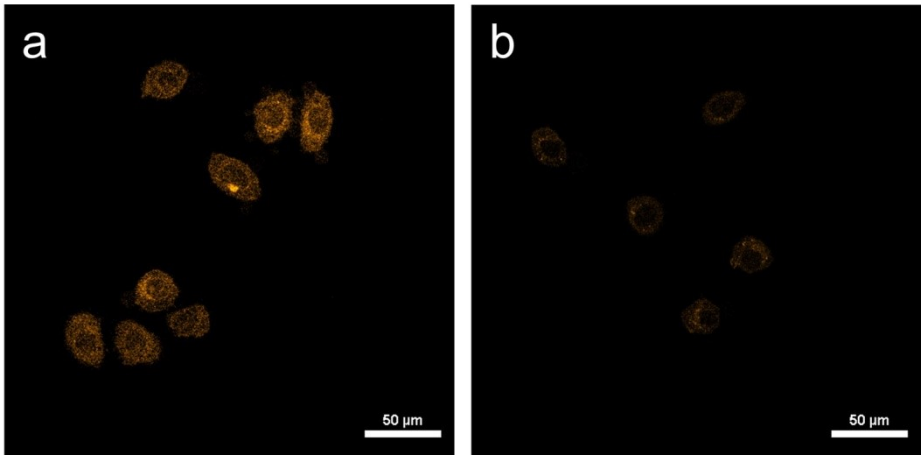

Fig. S7 (a) Confocal laser scanning microscope (CLSM) images of HeLa cells incubated at 37℃. (b) Images of HeLa cells incubated at 4℃.

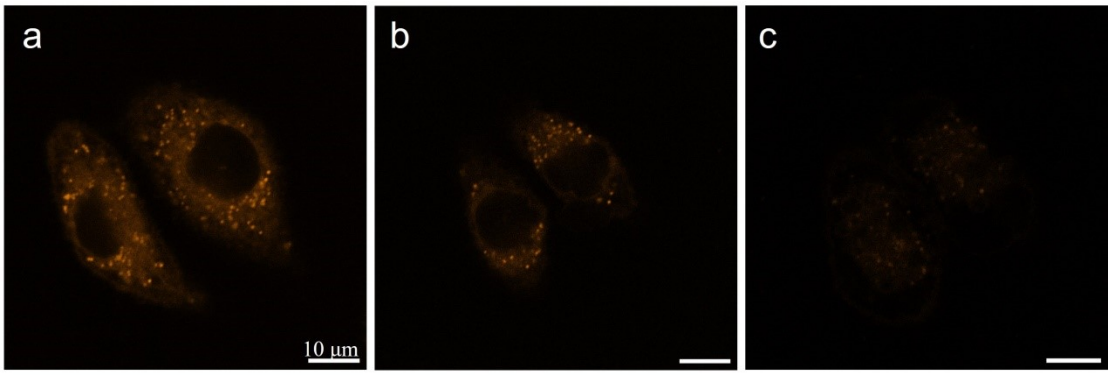

Fig. S8 Necrosis evolution tracking of Hela cells induced by NaOH solution.

Table 1. Comparison of the different approach with other reported methods for determining β-carotene

Method	Linear range	Detection limit	Ref.
Oxidation Voltammetric	9.9-91.4 μM	1.9 μM	[1]
Electrochemistry	1-150 μM	1 nA/μM	[2]
MnTTPCl/n-Au	9.8-115.4 μM	—	[3]
POSS@ANT	0.2-4.3 mg/L	0.081 mg/L	[4]
O-CDs	20-2000 μM	2.75 μM	This work

Table 2. Results for the determination of β-carotene in real samples. (n = 3)

Sample	Added (μmol/L)	Found (μmol/L)	Recovery (%)	RSD (%)
capsule	—	270.55	—	1.36
	200	199.23	99.61	1.50
	250	236.58	94.63	0.79
	300	283.48	94.49	0.62
soft gel capsule	—	335.39	—	0.72
	200	216.42	108.21	0.62
	250	260.04	104.01	0.64
	300	296.69	98.90	1.63

References

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