

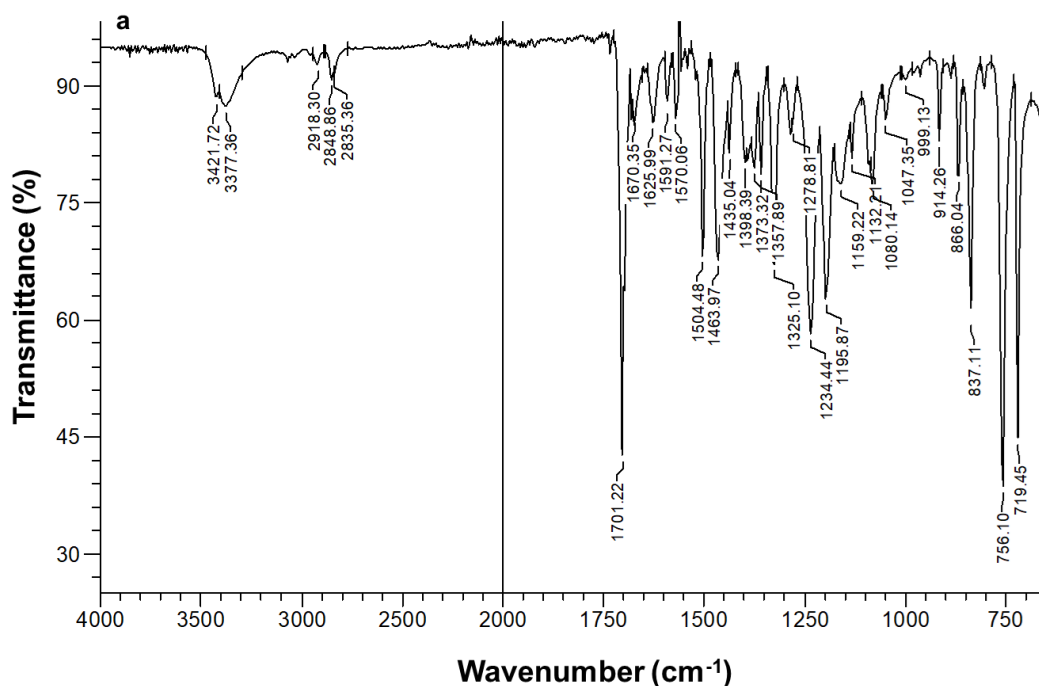
## Supplementary Materials

### Preparation of the $\text{Cu}^{2+}(\text{Fe}^{3+})$ Complexes of Ch-8Q, of 8QCHO and of Jeff-8Q

The  $\text{Cu}^{2+}$  complex of Ch-8Q was prepared by adding ethanol solution of  $\text{CuCl}_2$  (0.054 g, 0.4 mmol; 5 mL) to a suspension of Ch-8Q (0.112 g, 0.4 mmol) in ethanol (5 mL). The reaction mixture was heated at 40 °C for 48 h. The resulting dark green complex was filtered out, washed with ethanol, diethyl ether and dried under reduced pressure. Yield: 73%.

A similar procedure to that for the synthesis of the  $\text{Cu}^{2+}$  complex was used for the obtaining of  $\text{Fe}^{3+}$  complex of Ch-8Q. The complex that formed was collected by filtration, washed with ethanol, diethyl ether and dried under vacuum. Yield: 71%.

The  $\text{Fe}^{3+}$  complex of 8QCHO (molar ratio of 8Q and  $\text{Fe}^{3+}$  (1:1)) was synthesized by mixing an ethanol solution of 8QCHO (0.013 g, 0.075 mmol; 10 mL) with 5 mL solution of  $\text{FeCl}_3$  (0.0122 g, 0.075 mmol) in ethanol and then the mixture was shaken for 4 h at 25 °C. For the preparation of  $\text{Fe}^{3+}$  complex of Jeff-8Q, a 5 mL ethanol solution of Jeff-8Q (0.06 g) was added to a solution of  $\text{FeCl}_3$  (0.0061 g) in ethanol (5 mL) and the reaction mixture was stirred at room temperature for 4 h. The molar ratio of 8Q end groups of Jeff-8Q and  $\text{Fe}^{3+}$  was 1:1. The prepared ethanol solutions were cast on Petri dishes and dried under reduced pressure.



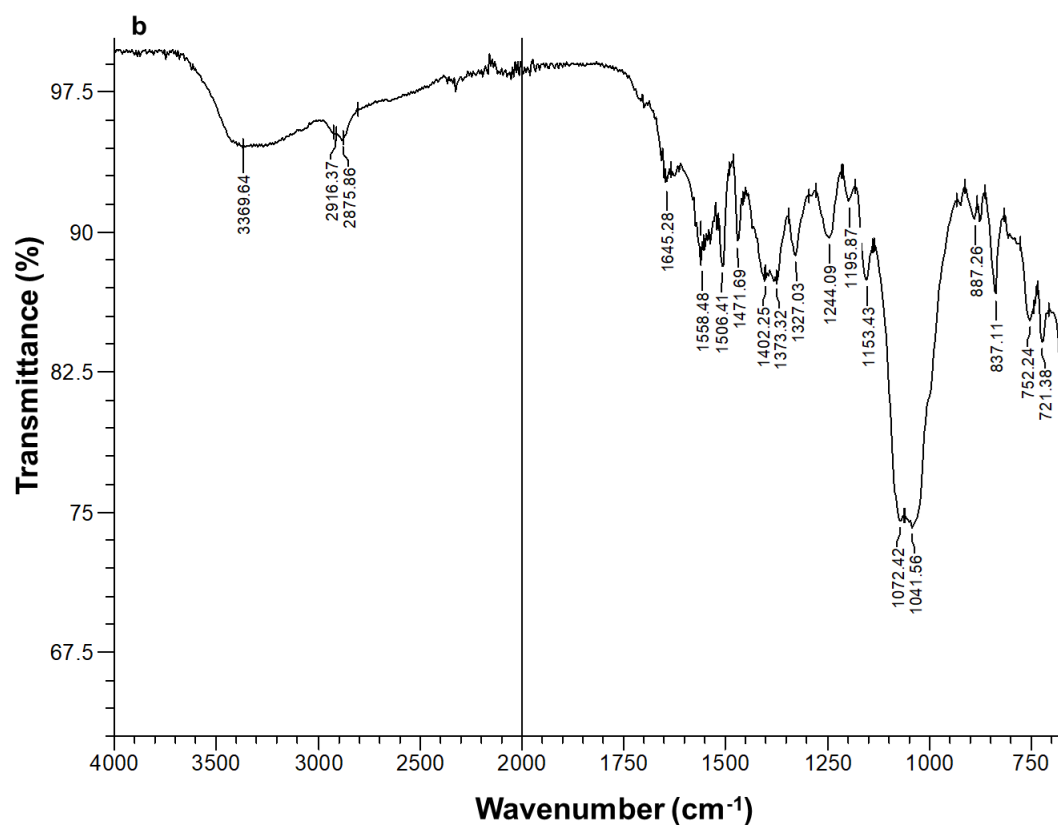
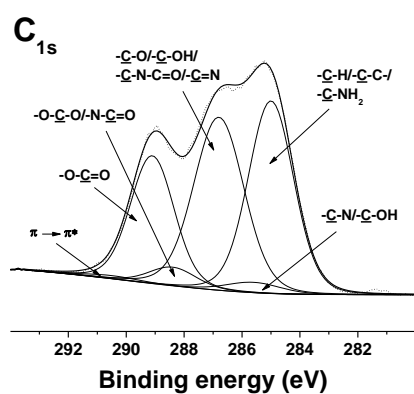
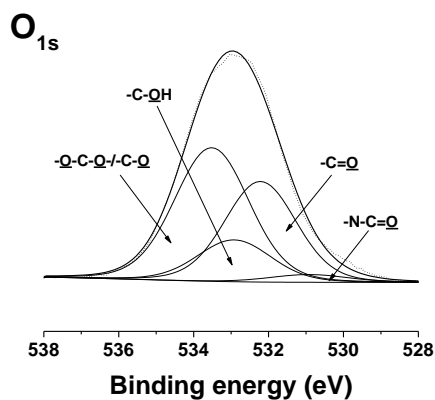


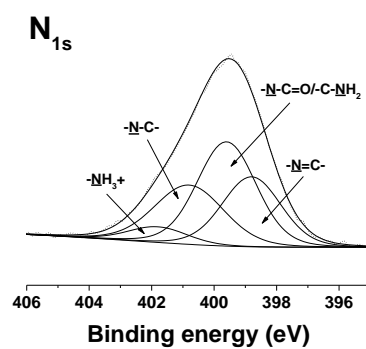
Figure S1. ATR-FTIR spectra of: (a) 8QCHO and (b) Ch-8Q.



(a)

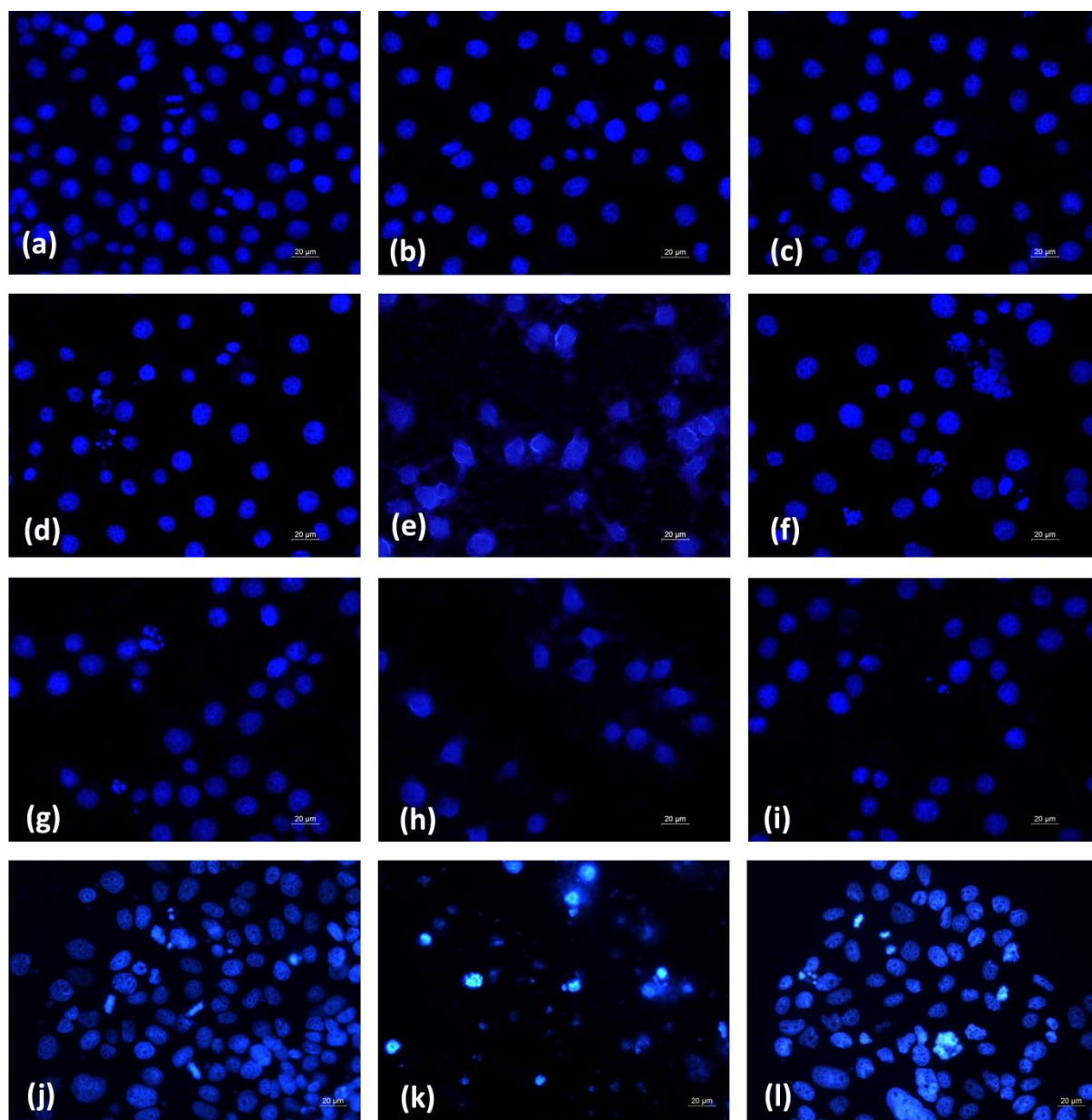


(b)

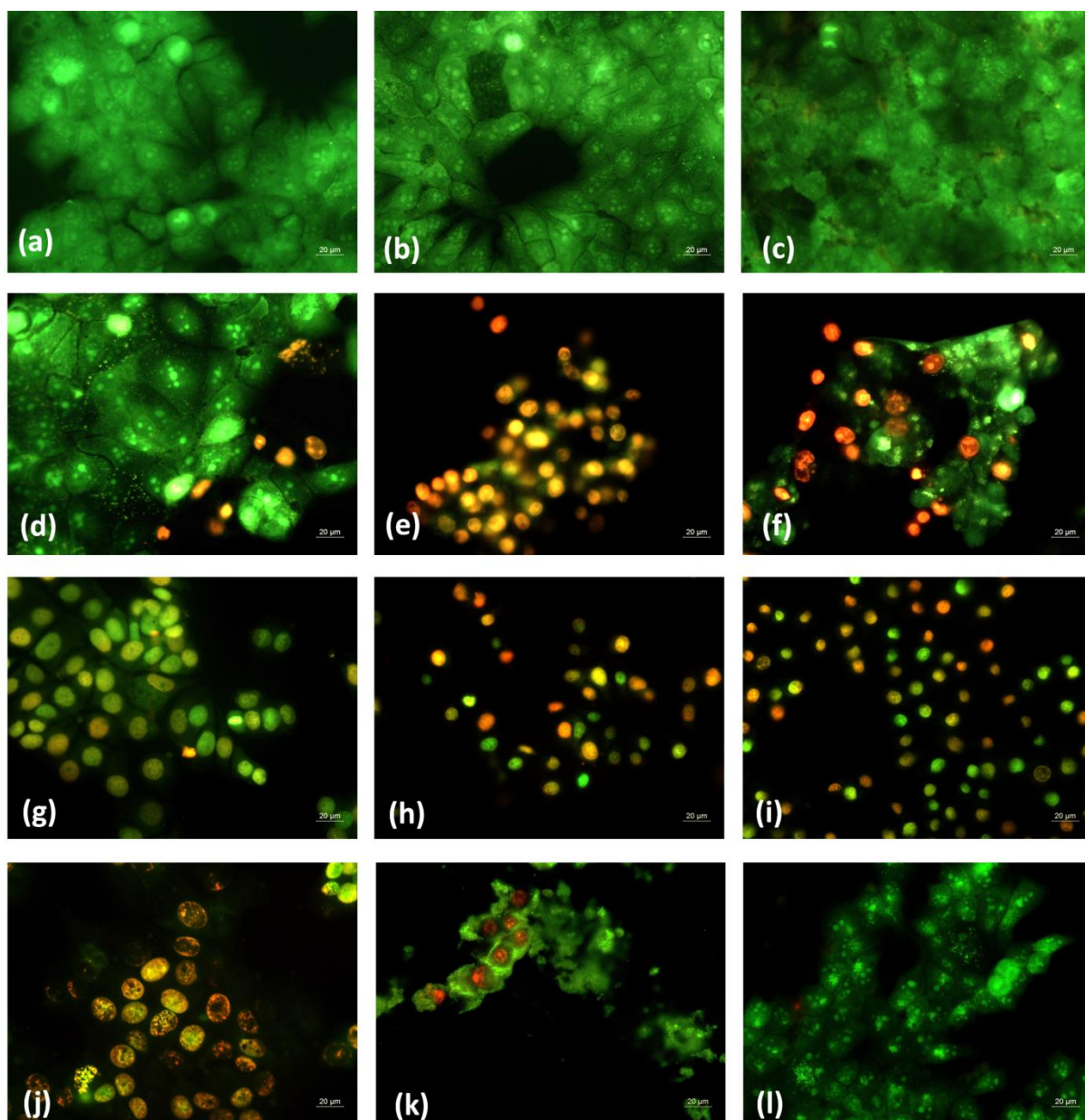


(c)

**Figure S2.** XPS peak fittings for Ch-8Q/PLA mat [C<sub>1s</sub> (a), O<sub>1s</sub> (b) and N<sub>1s</sub> (c)].

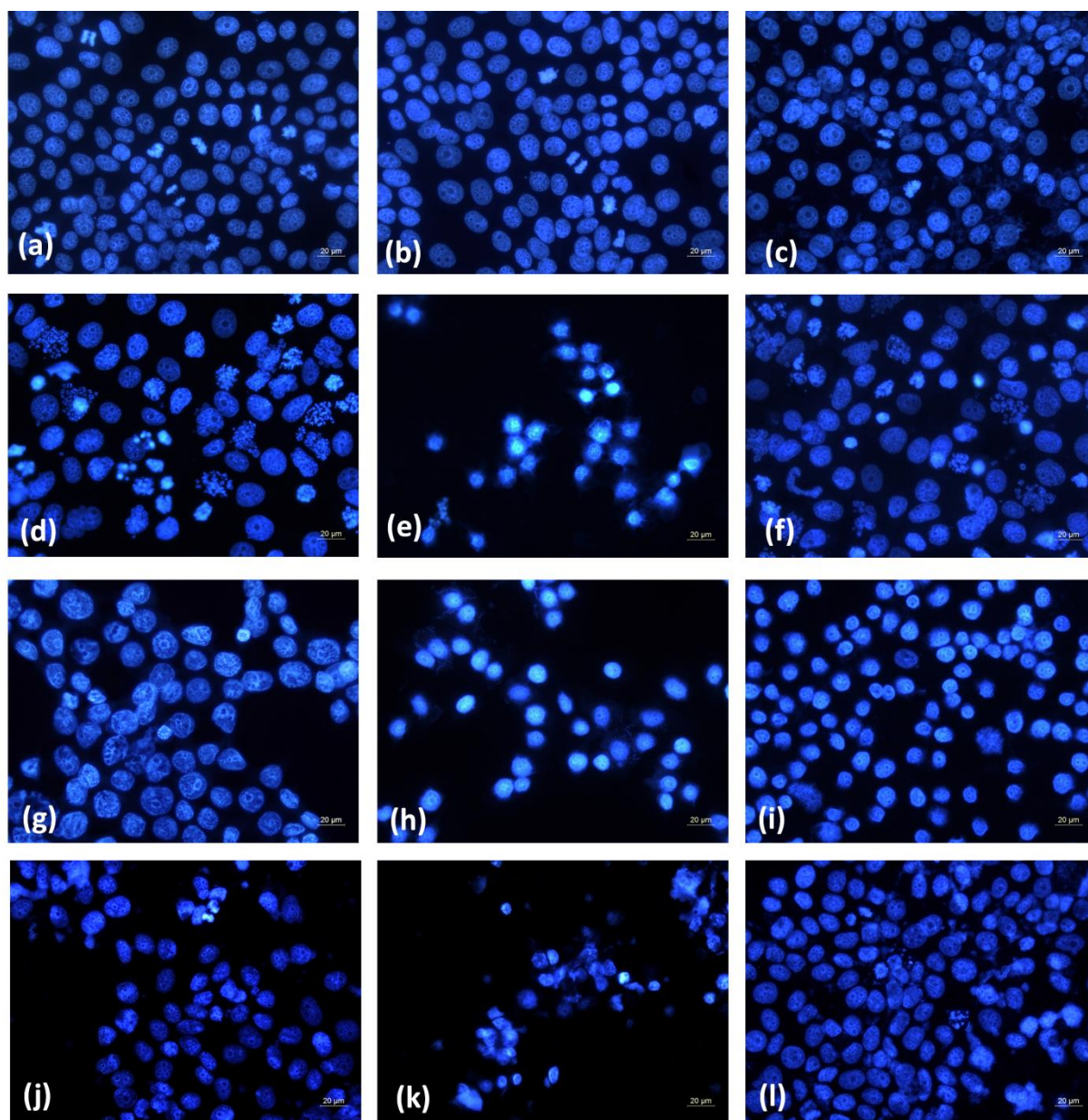


**Figure S3.** Fluorescence microscopic images of HeLa cancer cells stained with DAPI: (a) untreated HeLa cells (a control), (b) PLA mat, (c) Ch/PLA mat, (d) Ch-8Q/PLA mat, (e)  $\text{Cu}^{2+}$  complex of Ch-8Q/PLA mat, (f)  $\text{Fe}^{3+}$  complex of Ch-8Q/PLA mat, (g) aqueous solution of Jeff-8Q, (h) aqueous solution of  $\text{Cu}^{2+}$  complex of Jeff-8Q, (i) aqueous solution of  $\text{Fe}^{3+}$  complex of Jeff-8Q, (j), solution of 8QCHO, (k) solution of  $\text{Cu}^{2+}$  complex of 8QCHO, and (l) solution of  $\text{Fe}^{3+}$  complex of 8QCHO, scale bar = 20  $\mu\text{m}$ . All 8Q-containing formulations were studied at concentration of 8Q residues 60  $\mu\text{g}/\text{ml}$  of culture medium.

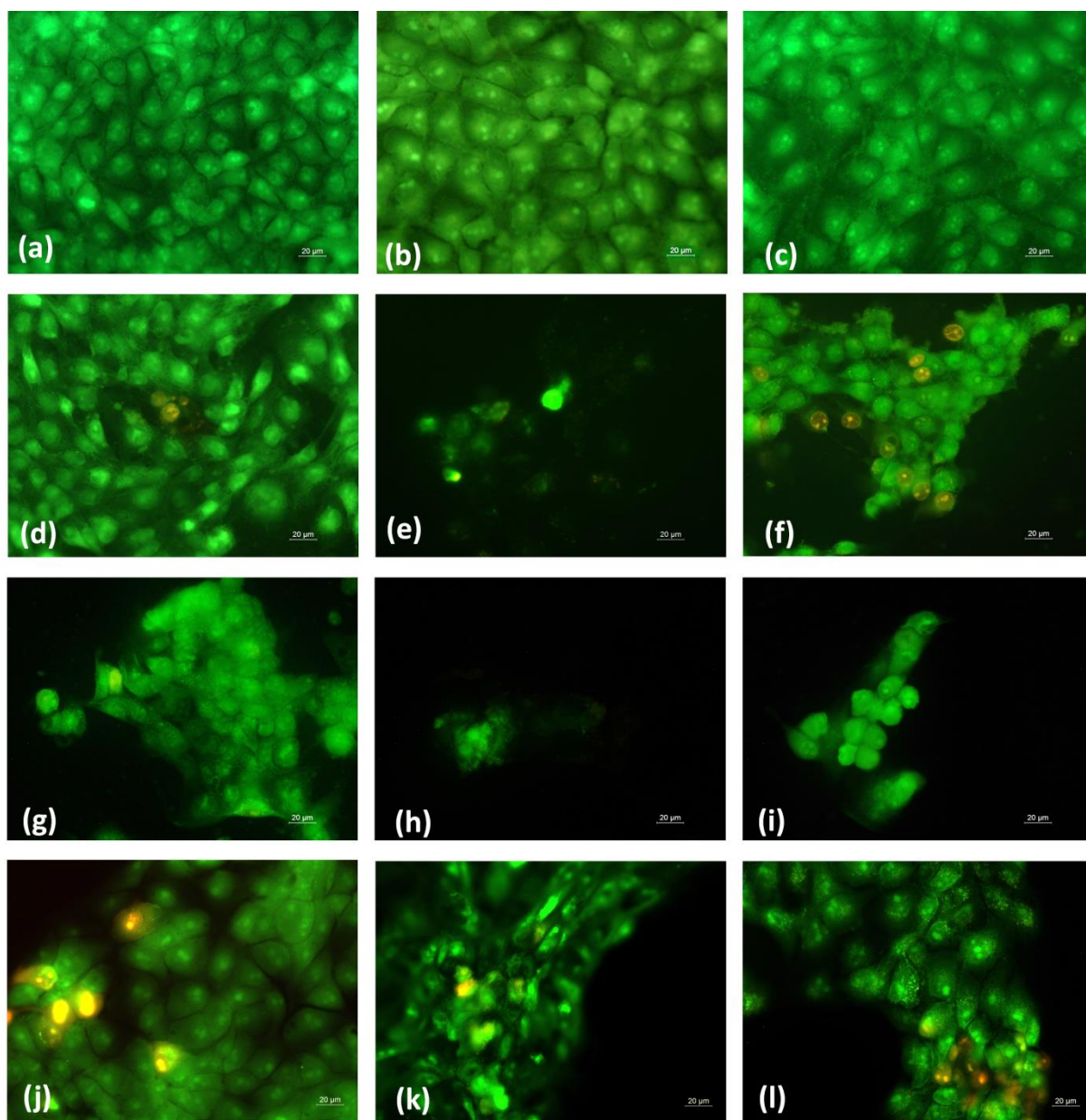


**Figure S4.** Fluorescence micrographs of AO and EtBr double-stained MCF-7 cancer cells incubated with different formulations for 24 h. Cells after incubation with: (a) untreated MCF-7 cells, (b) PLA mat, (c) Ch/PLA mat, (d) Ch-8Q/PLA mat, (e)  $\text{Cu}^{2+}$  complex of Ch-8Q/PLA mat, (f)  $\text{Fe}^{3+}$  complex of Ch-8Q/PLA mat, (g) aqueous solution of Jeff-8Q, (h) aqueous solution of  $\text{Cu}^{2+}$  complex of Jeff-8Q, (i) aqueous solution of  $\text{Fe}^{3+}$  complex of Jeff-8Q, (j), solution of 8QCHO, (k) solution of  $\text{Cu}^{2+}$  complex of 8QCHO, and (l) solution of  $\text{Fe}^{3+}$  complex of 8QCHO, scale bar = 20  $\mu\text{m}$ . All 8Q-containing formulations were studied at concentration of 8Q residues 60  $\mu\text{g/ml}$  of culture medium.



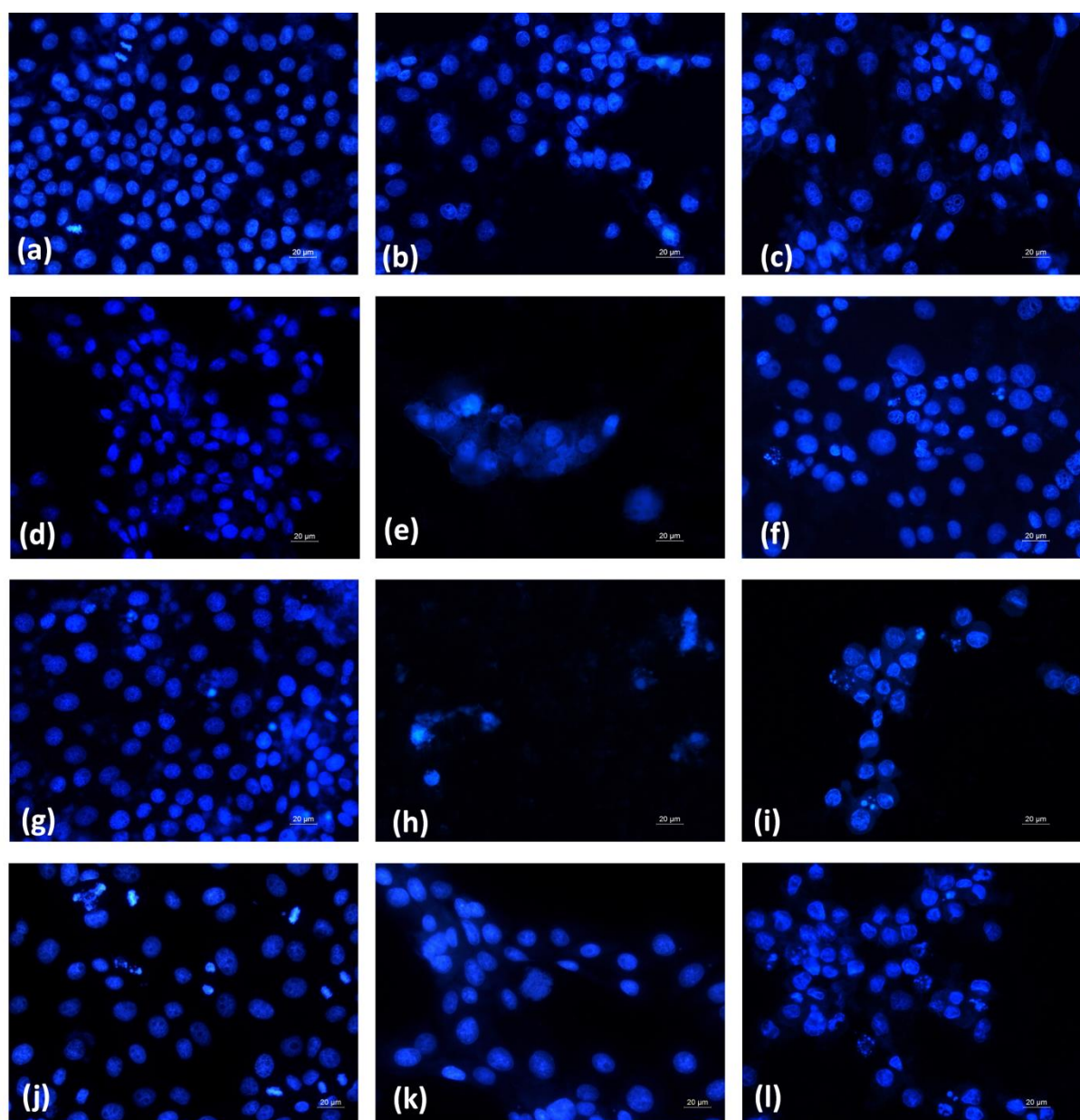


**Figure S5.** Fluorescence microscopic images of MCF-7 cancer cells stained with DAPI: (a) untreated MCF-7 cells (a control), (b) PLA mat, (c) Ch/PLA mat, (d) Ch-8Q/PLA mat, (e)  $\text{Cu}^{2+}$  complex of Ch-8Q/PLA mat, (f)  $\text{Fe}^{3+}$  complex of Ch-8Q/PLA mat, (g) aqueous solution of Jeff-8Q, (h) aqueous solution of  $\text{Cu}^{2+}$  complex of Jeff-8Q, (i) aqueous solution of  $\text{Fe}^{3+}$  complex of Jeff-8Q, (j), solution of 8QCHO, (k) solution of  $\text{Cu}^{2+}$  complex of 8QCHO, and (l) solution of  $\text{Fe}^{3+}$  complex of 8QCHO, scale bar = 20  $\mu\text{m}$ . All 8Q-containing formulations were studied at concentration of 8Q residues 60  $\mu\text{g}/\text{ml}$  of culture medium.



**Figure S6.** Fluorescence micrographs of AO and EtBr double-stained BALB/c 3T3 cells incubated with different formulations for 24 h. Cells after incubation with: (a) untreated BALB/c 3T3 cells, (b) PLA mat, (c) Ch/PLA mat, (d) Ch-8Q/PLA mat, (e)  $\text{Cu}^{2+}$  complex of Ch-8Q/PLA mat, (f)  $\text{Fe}^{3+}$  complex of Ch-8Q/PLA mat, (g) aqueous solution of Jeff-8Q, (h) aqueous solution of  $\text{Cu}^{2+}$  complex of Jeff-8Q, (i) aqueous solution of  $\text{Fe}^{3+}$  complex of Jeff-8Q, (j), solution of 8QCHO, (k) solution of  $\text{Cu}^{2+}$  complex of 8QCHO, and (l) solution of  $\text{Fe}^{3+}$  complex of 8QCHO, scale bar = 20  $\mu\text{m}$ . All 8Q-containing formulations were studied at concentration of 8Q residues 60  $\mu\text{g/ml}$  of culture medium.





**Figure S7.** Fluorescence microscopic images of BALB/c 3T3 cells stained with DAPI: (a) untreated BALB/c 3T3 cells (a control), (b) PLA mat, (c) Ch/PLA mat, (d) Ch-8Q/PLA mat, (e)  $\text{Cu}^{2+}$  complex of Ch-8Q/PLA mat, (f)  $\text{Fe}^{3+}$  complex of Ch-8Q/PLA mat, (g) aqueous solution of Jeff-8Q, (h) aqueous solution of  $\text{Cu}^{2+}$  complex of Jeff-8Q, (i) aqueous solution of  $\text{Fe}^{3+}$  complex of Jeff-8Q, (j), solution of 8QCHO, (k) solution of  $\text{Cu}^{2+}$  complex of 8QCHO, and (l) solution of  $\text{Fe}^{3+}$  complex of 8QCHO, scale bar = 20  $\mu\text{m}$ . All 8Q-containing formulations were studied at concentration of 8Q residues 60  $\mu\text{g}/\text{ml}$  of culture medium.