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Supporting information

Figures



Fig. S1 (a) EDS analysis (b) crystal size distribution of MQF flakes.



Fig. S2 (a) Dark-field and (b) Bright-field TEM images of MQF.



Fig. S3 Energy-filtered transmission electron microscopy (EFTEM) of MQF: (a) elastic electron images, and (b) thickness maps.



Fig. S4 (a) BET sorption and desorption isotherms, and (b) BJH pore size distribution



Fig. S5 Zeta potential of MQF at concentration 20 μ g/mL repeated in three measurement (20 runs of each).



Fig. S6 Confocal imaging (bright field, green, red channel and overlay) of MDA-MB 231 cells treated with 10 μ g mL⁻¹ of MQF

		3	4	5
50 μm	- 50 μm	50 µm	50 µm	50 µm
6	7	8	9	10
50 µm	50 µm	50 µm	50 µm	50 µm
11	12	13	14	15
50 µm	50 µm	50 µm	50 µm	50 µm

Fig. S7 Bright field confocal Z-section images at 2 µm interval at 60X magnification of cells treated with MQF. Clearly, the middle images showed the well-focused cells and MQF inside cytoplasm, whereas away from the cell centre images become out of focus

Tables

Table S1 Magnetic properties of MQF (Saturation magnetization- M_s , remanence- H_r , coercivity- H_c , magnetic susceptibility- χ_{max}).

	50 K	100 k	300 K
Saturation Magnetization, M_s (emu g ⁻¹)	38.5	30	23
Remanence, <i>H</i> _r (emu g ⁻¹)	0	0.21	0.6
Coercivity, H_c (Oe)	0	3.2	6.1
Magnetic Susceptibility, χ _{max} (emu g ⁻¹ Oe ⁻¹)	0.032	0.042	0.024

Table S2 Surface area, pore volume (micro+meso), and average pore width by (a) BET method, (b) t-plot method and (c) BJH method.

BET surface area (S _{BET} , m ² g ⁻¹)	Micropore surface area (S _{micro} , m ² g ⁻¹)	S _{micro} /S _{BET} (%)	Total pore volume (V _t , cm ² g ⁻¹)	Micropore volume (V _{micro} , cm ² g ⁻¹)	Vmicro/Vt (%)	Vmeso/Vt (%)	BJH average pore width (nm) adsorption
152.96	140.53	91.8	0.765	0.078	10.2	88.2	5.93

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Table S3 Average fluorescence intensity and standard deviation (SD) of control (only cells), MQF treated and H₂O₂ (positive control) of HaCaT, A375 and MDA-MB 231 cell line respectively. The average values were calculated from three experiment (each performed in triplicate) and subtracting the bank from the experimental values.

	Control (cells only)		MQF treated		H ₂ O ₂ (positive control)	
НаСаТ	Intensity	SD	Intensity	SD	Intensity	SD
	600.3	21.9	325.64	32.8	1207.55	29.54
A375	870.24	17.8	1403.26	42.81	1915.73	20.93
MDA-MB 231	800.11	24.4	1522.21	52.8	1841.37	30.13