Specific FRET probes sensitive to chitosan-based polymeric micelles formation, drug-loading and fine structural features

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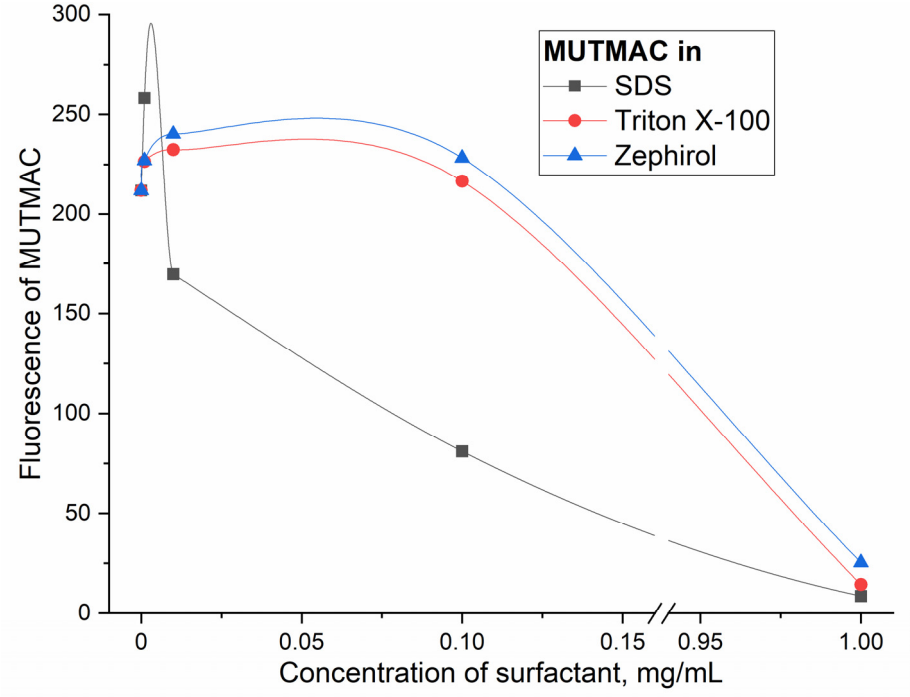
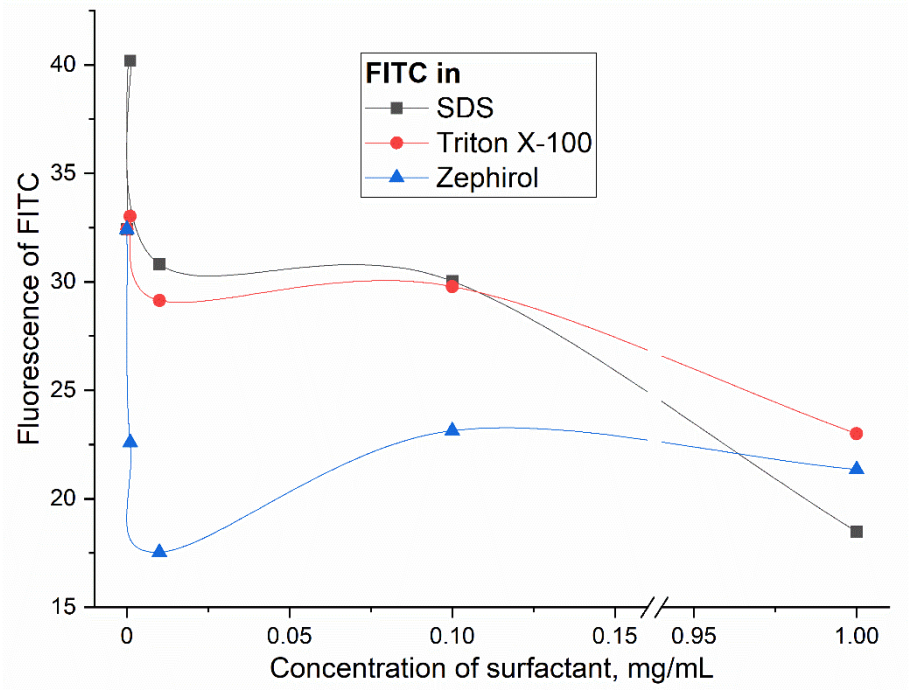
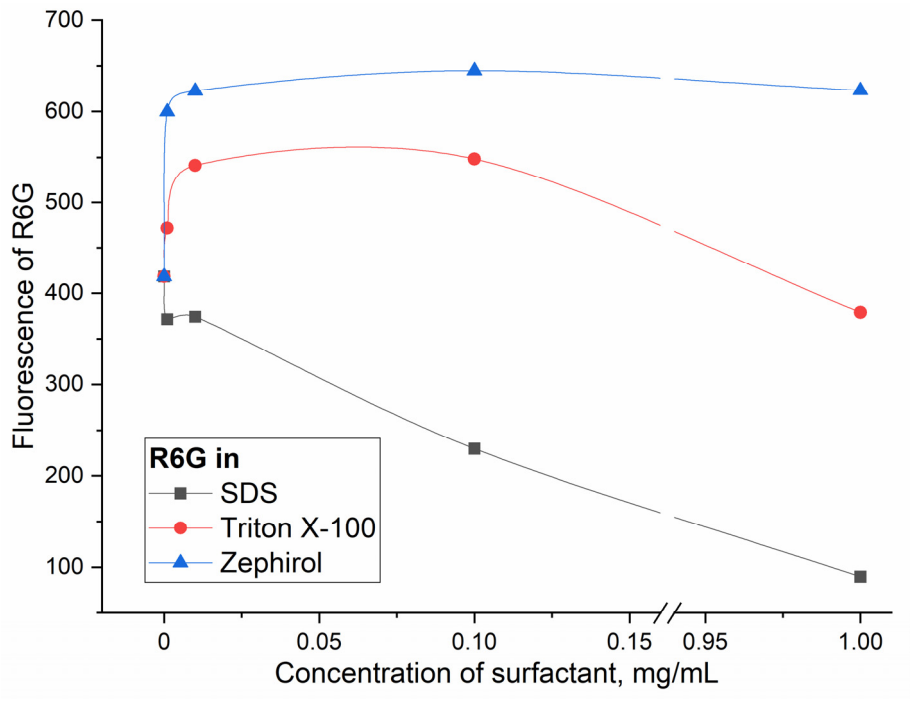
Figure S1. The dependence of the fluorescence emission maximum intensity on surfactant concentration: **(a)** MUTMAC, **(b)** FITC, **(c)** R6G. Fluorescence emission spectra of **(d)** FITC, **(e)** R6G in free form and in micellar form. Graphs were used to determine the degree of incorporation of fluorophore into micelles.



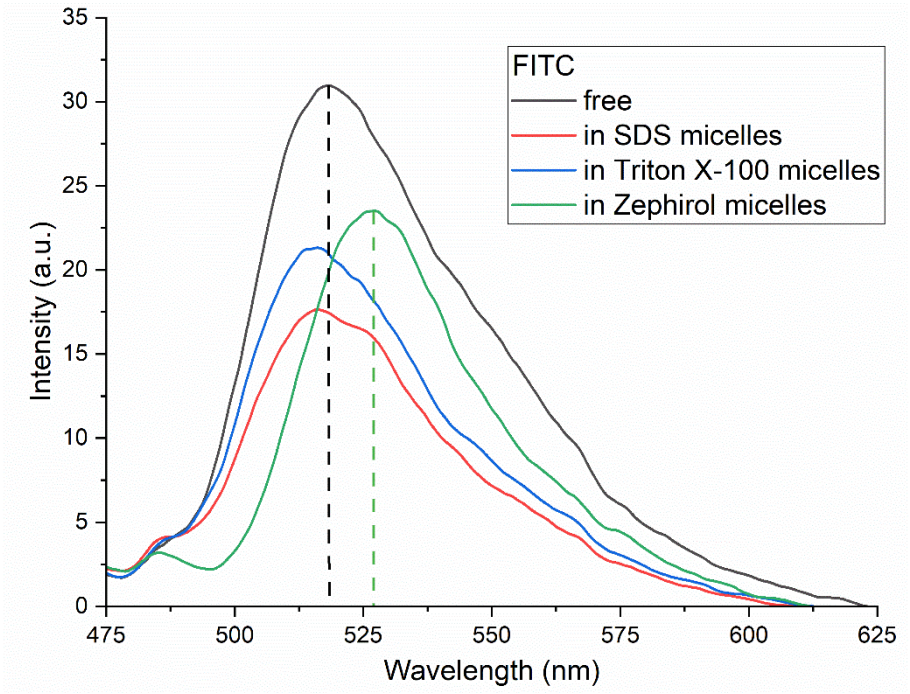
(a)



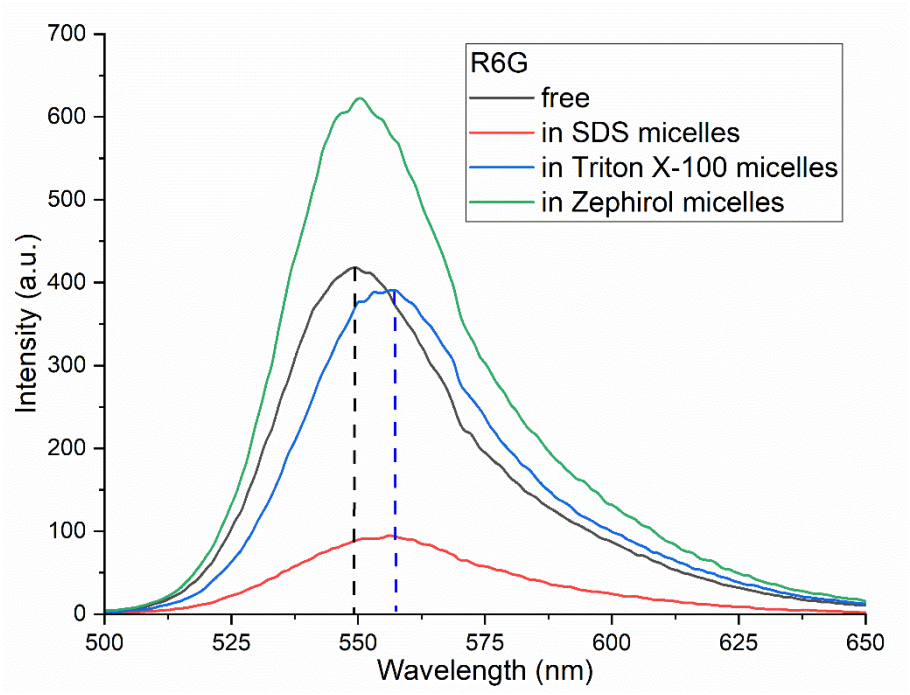
(b)


Fluorescence of R6G
Concentration of surfactant, mg/mL
R6G in
SDS
Triton X-100
Zephirol
700
600
500
400
300
200
100
0
0.05
0.10
0.15
0.95
1.00

(c)


Intensity (a.u.)
Wavelength (nm)
FITC
free
in SDS micelles
in Triton X-100 micelles
in Zephirol micelles
35
30
25
20
15
10
5
0
475
500
525
550
575
600
625

(d)


R6G
free
in SDS micelles
in Triton X-100 micelles
in Zephirol micelles
Intensity (a.u.)
Wavelength (nm)
0
100
200
300
400
500
600
700
500
525
550
575
600
625
650

(e)

Figure S2. ^{1}H NMR of polymeric micellar systems with S-H or S-S bonds with R6G. Chit5-LA was studied as self-assembled polymer. As a control without S-H bonds Chit5-OA was used. D_2O. T = 25 °C.

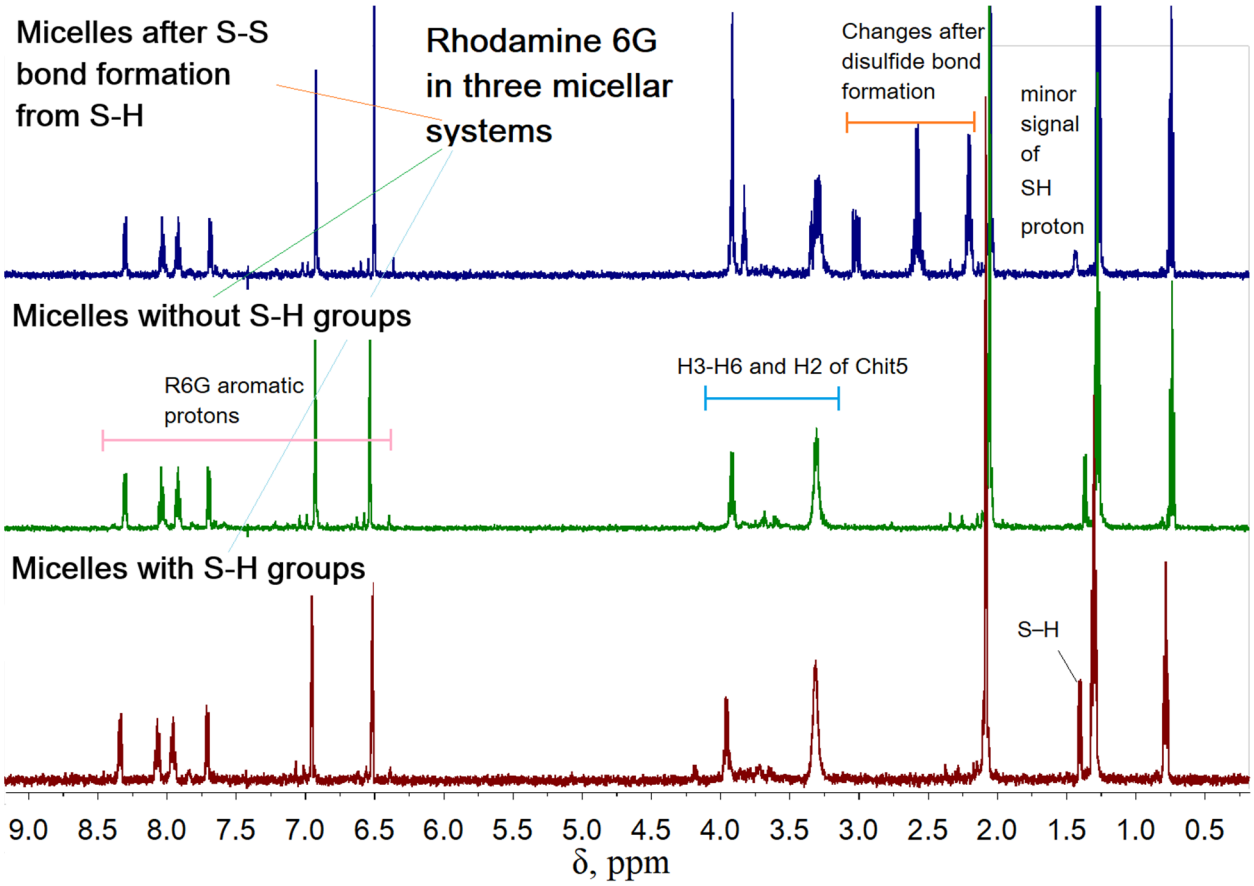
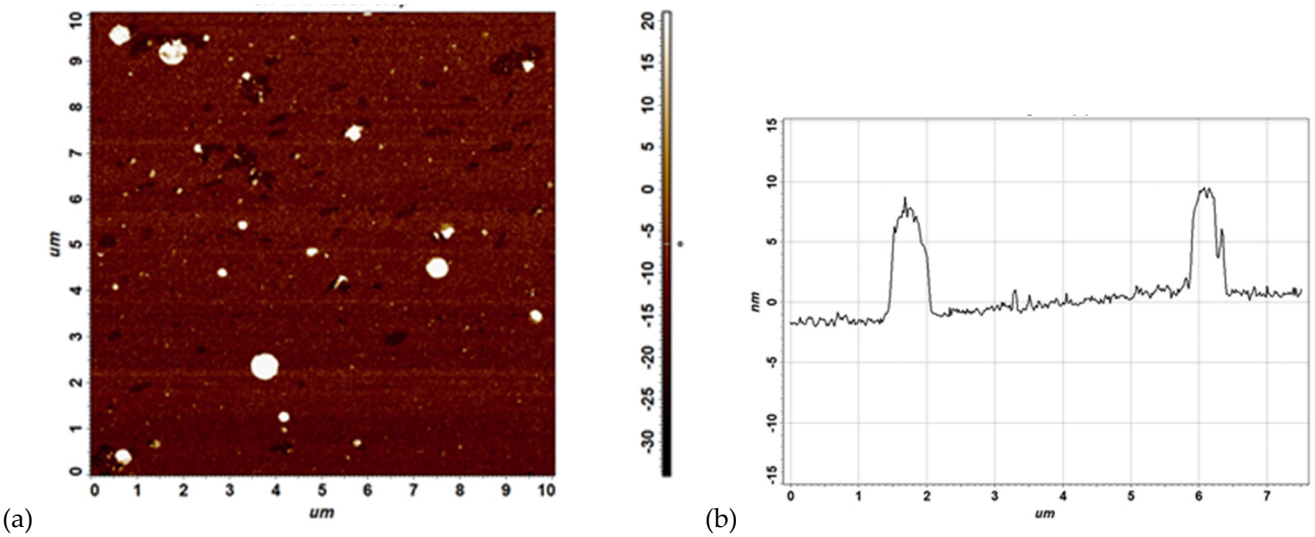


Figure S3. (a) AFM image of Chit5-LA particles and (b) the corresponding section along the blue line in height, respectively.



(a) (b)

Figure S4. Fluorescence images of A549 after 60 min incubation with Rhodamine 6G 1 μg/mL free or Rhodamine 6G in micelles (S–S stitched). R6G red, DAPI blue, and FITC-labelled micelles channels and merge are shown. R6G/micelle 1:1 w/w. The scale segment is 100 μm.

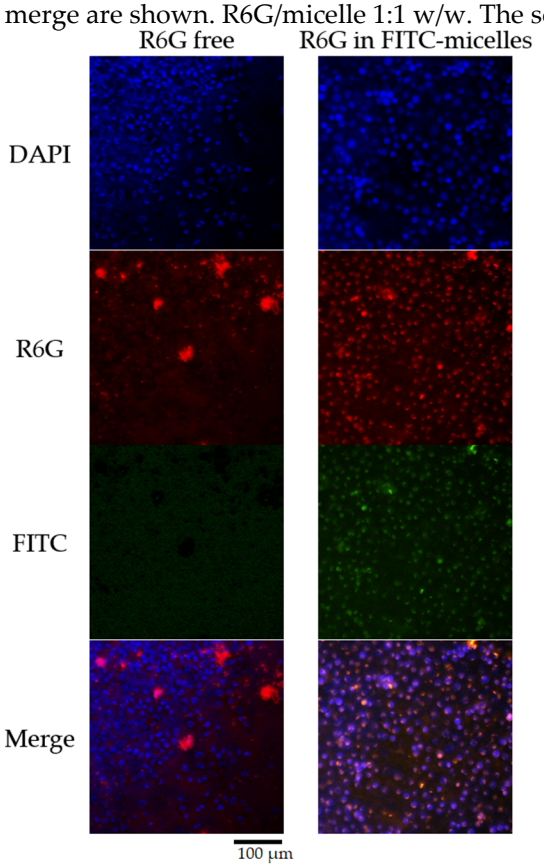


Figure S5. Flow cytometry assay of R6G-loaded micelles.