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Fluorescein-based ionic liquid sensor for label-free detection of serum albumins

Supporting Information

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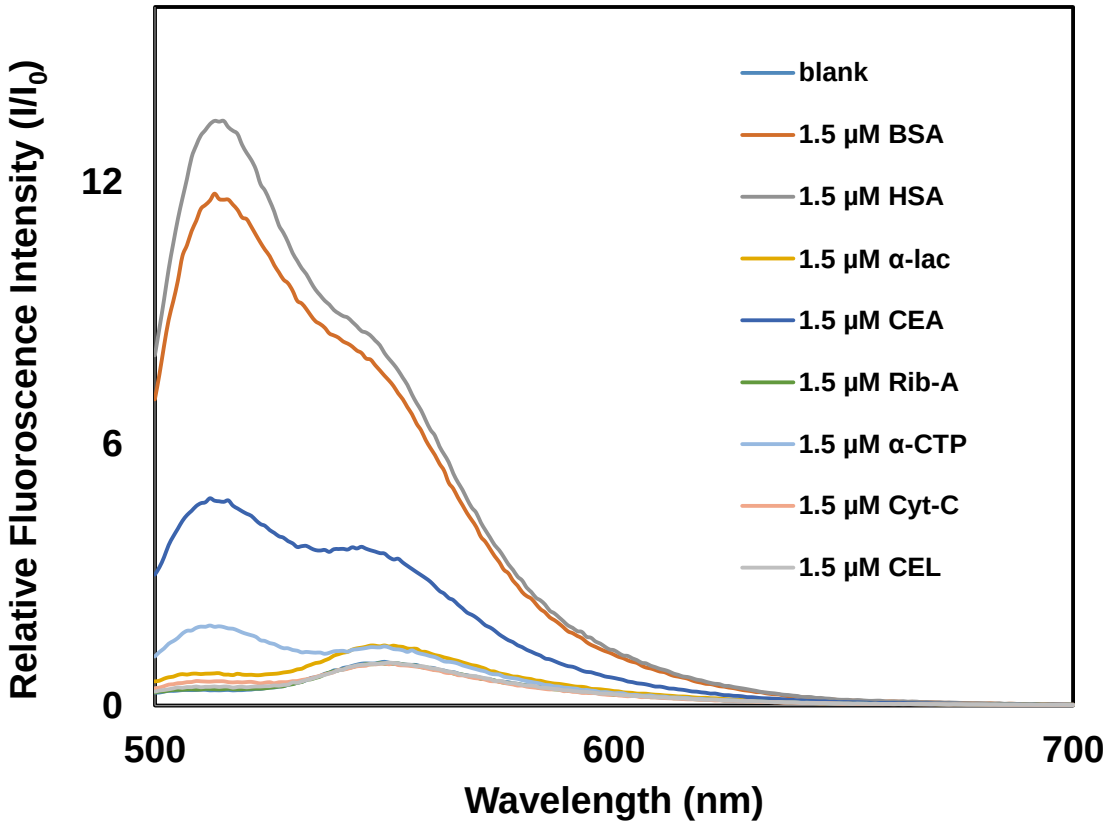
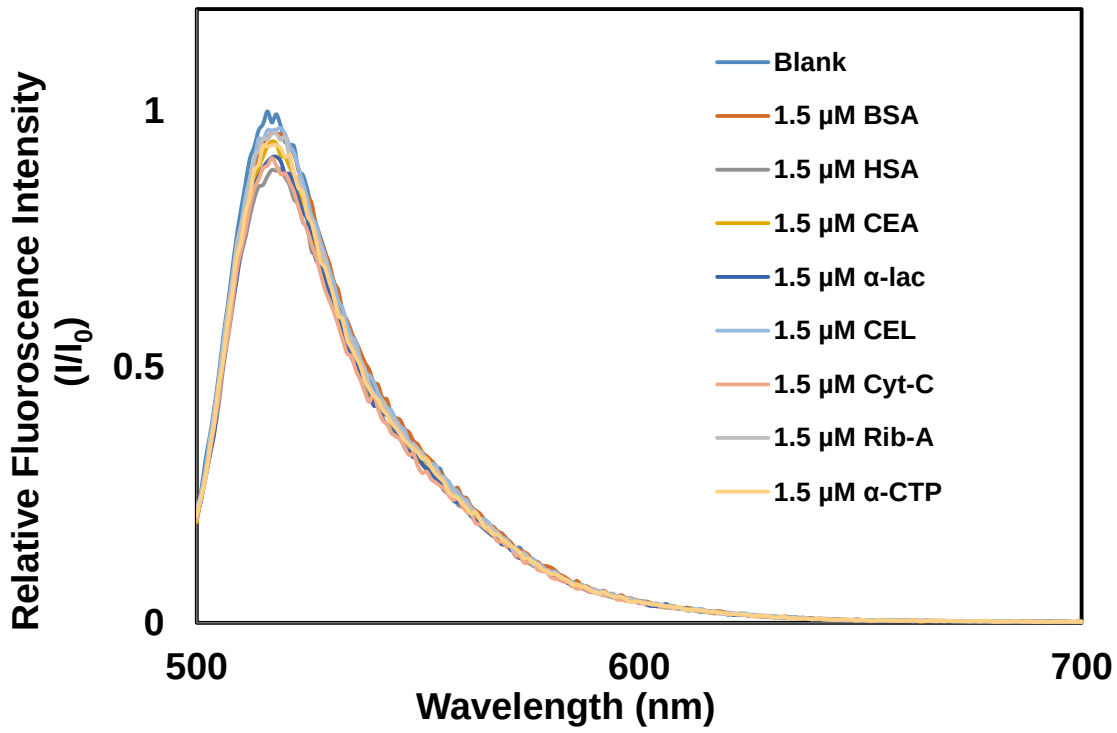
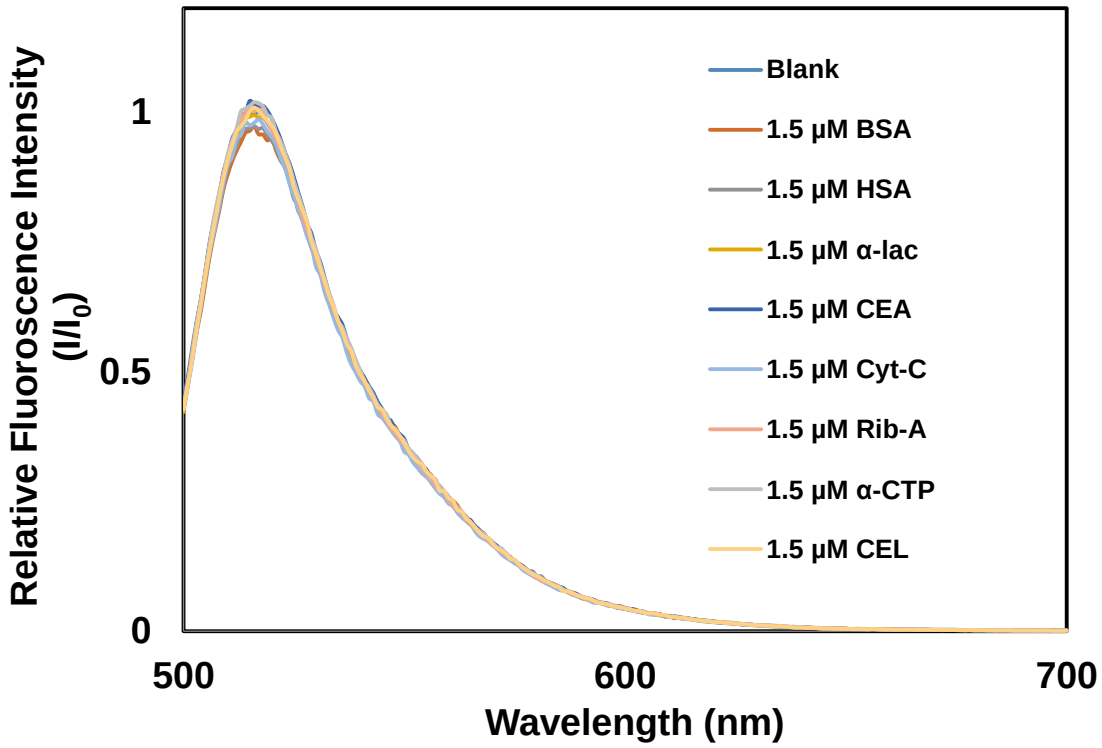


Fig. S1. Fluorescence emission spectra (λ_{ex} = 490 nm) of 40 μM $[P_{66614}]_2[FL]$ nanodroplets in the presence of same concentration (1.5 μM) of different albumins and non-albumins

a


Relative Fluorescence Intensity (I/I0)
1
0.5
0
500
600
700
Wavelength (nm)
Blank
1.5 μM BSA
1.5 μM HSA
1.5 μM CEA
1.5 μM α-lac
1.5 μM CEL
1.5 μM Cyt-C
1.5 μM Rib-A
1.5 μM α-CTP

b


Relative Fluorescence Intensity (I/I0)
1
0.5
0
500
600
700
Wavelength (nm)
Blank
1.5 μM BSA
1.5 μM HSA
1.5 μM α-lac
1.5 μM CEA
1.5 μM Cyt-C
1.5 μM Rib-A
1.5 μM α-CTP
1.5 μM CEL

c

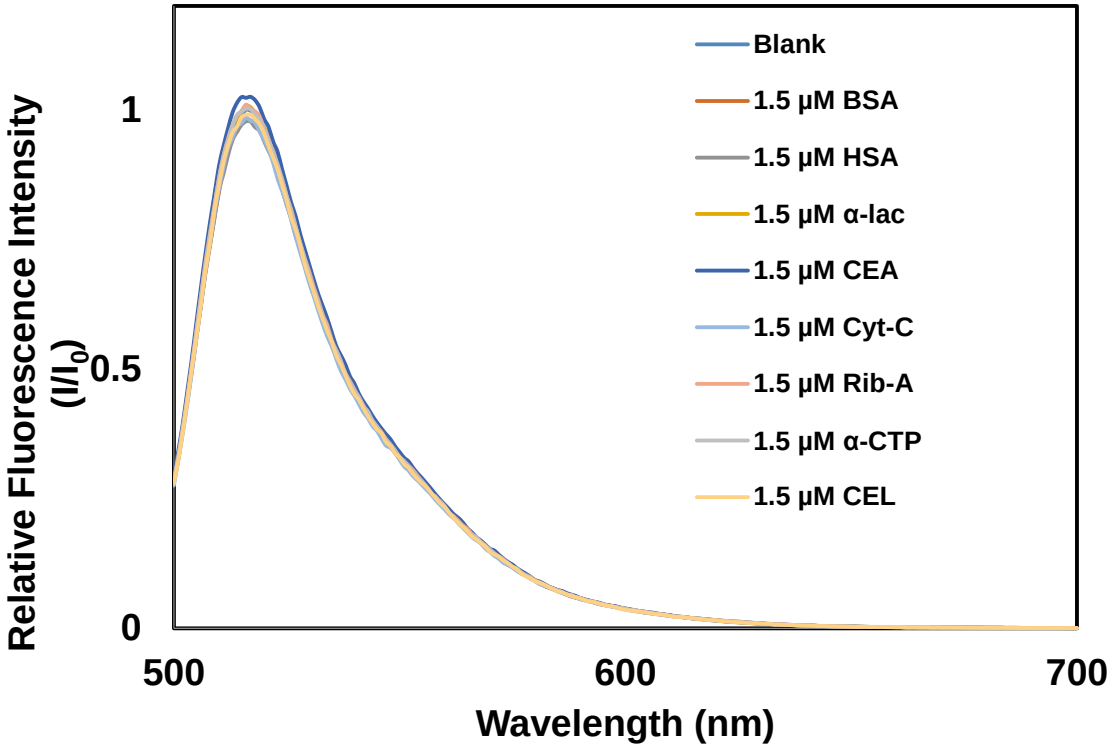
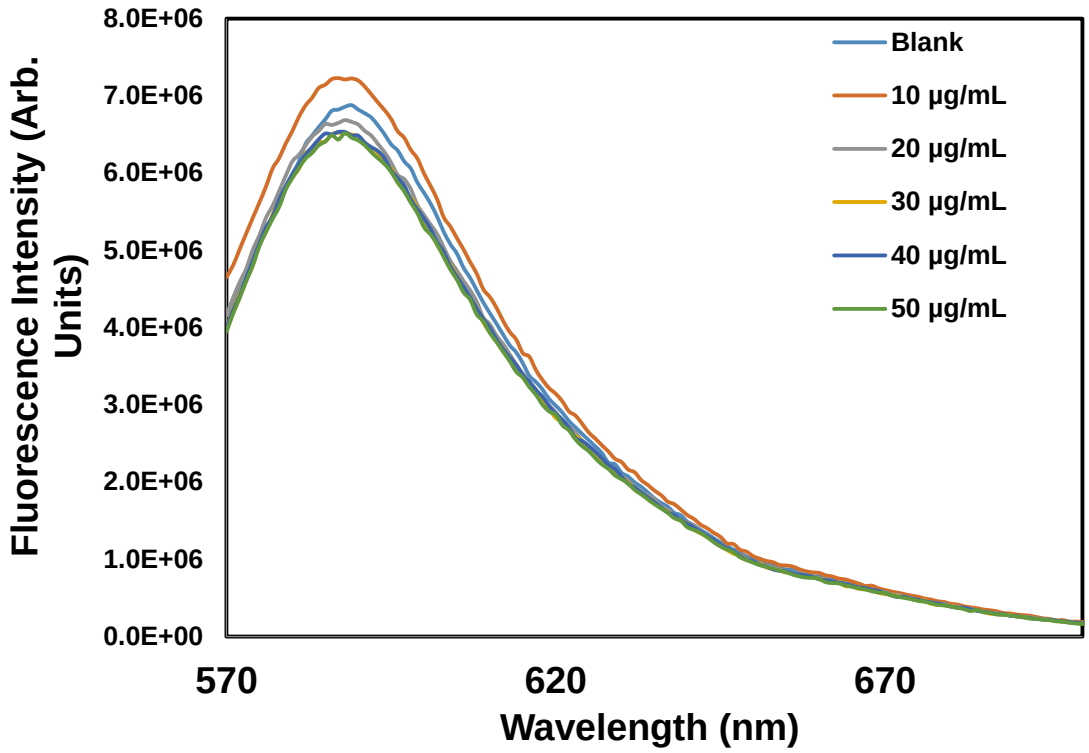
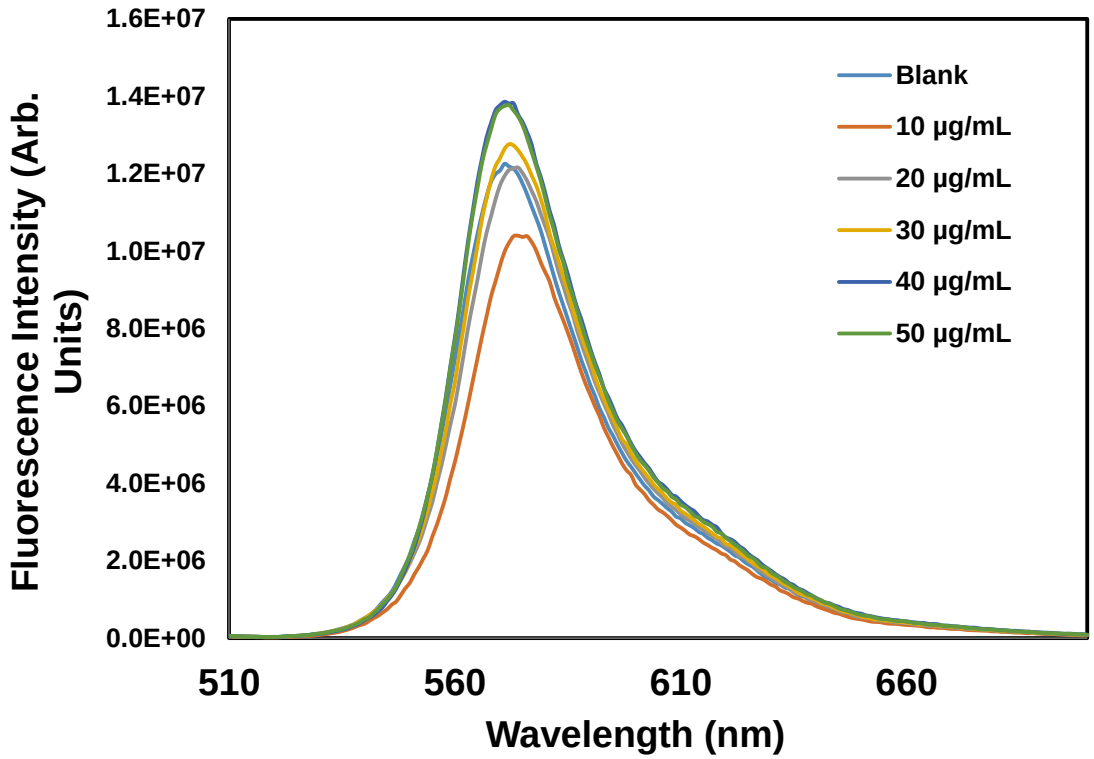


Fig. S2. Fluorescence emission spectra (λ_{ex} = 490 nm) of 40 μM (A) Na_2FL, (B) $[TPP]_2[FL]$ and (C) $[4NB]_2[FL]$ with eight different proteins at the concentration of 1.5 μM

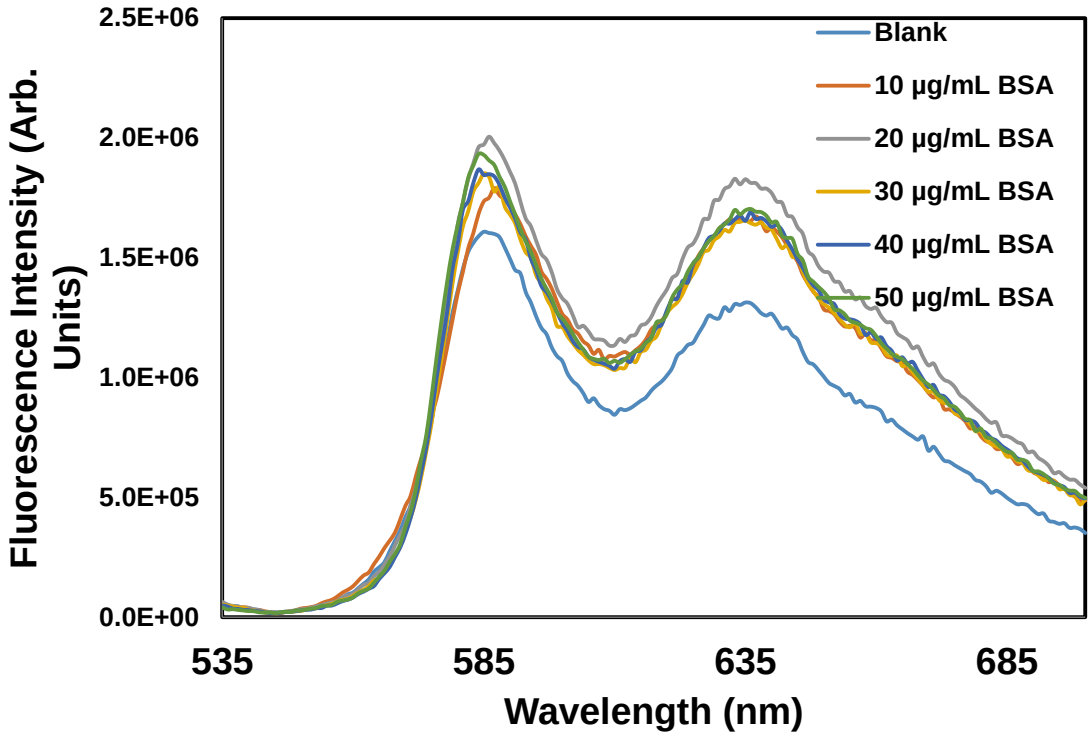
a


8.0E+06
7.0E+06
6.0E+06
5.0E+06
4.0E+06
3.0E+06
2.0E+06
1.0E+06
0.0E+00
Fluorescence Intensity (Arb. Units)
570
620
670
Wavelength (nm)
Blank
10 µg/mL
20 µg/mL
30 µg/mL
40 µg/mL
50 µg/mL

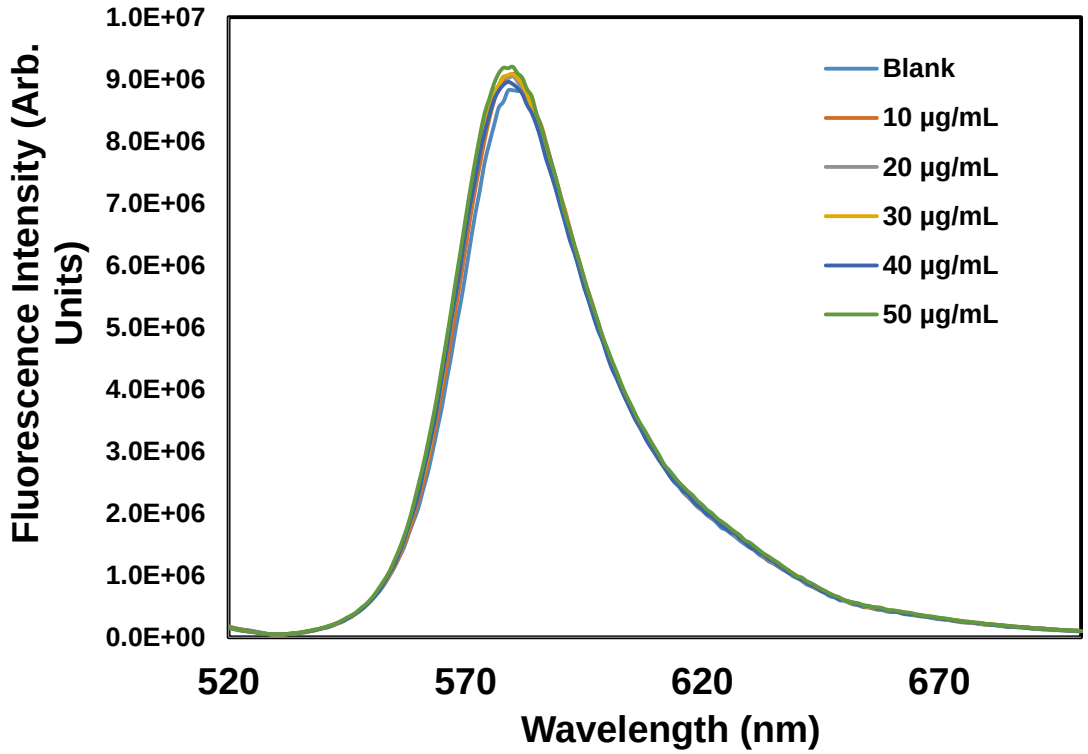
b


1.6E+07
1.4E+07
1.2E+07
1.0E+07
8.0E+06
6.0E+06
4.0E+06
2.0E+06
0.0E+00
Fluorescence Intensity (Arb. Units)
510
560
610
660
Wavelength (nm)
Blank
10 µg/mL
20 µg/mL
30 µg/mL
40 µg/mL
50 µg/mL

c


2.5E+06
2.0E+06
1.5E+06
1.0E+06
5.0E+05
0.0E+00
Fluorescence Intensity (Arb. Units)
535
585
635
685
Wavelength (nm)
Blank
10 µg/mL BSA
20 µg/mL BSA
30 µg/mL BSA
40 µg/mL BSA
50 µg/mL BSA

d


1.0E+07
9.0E+06
8.0E+06
7.0E+06
6.0E+06
5.0E+06
4.0E+06
3.0E+06
2.0E+06
1.0E+06
0.0E+00
Fluorescence Intensity (Arb. Units)
520
570
620
670
Wavelength (nm)
Blank
10 µg/mL
20 µg/mL
30 µg/mL
40 µg/mL
50 µg/mL

e

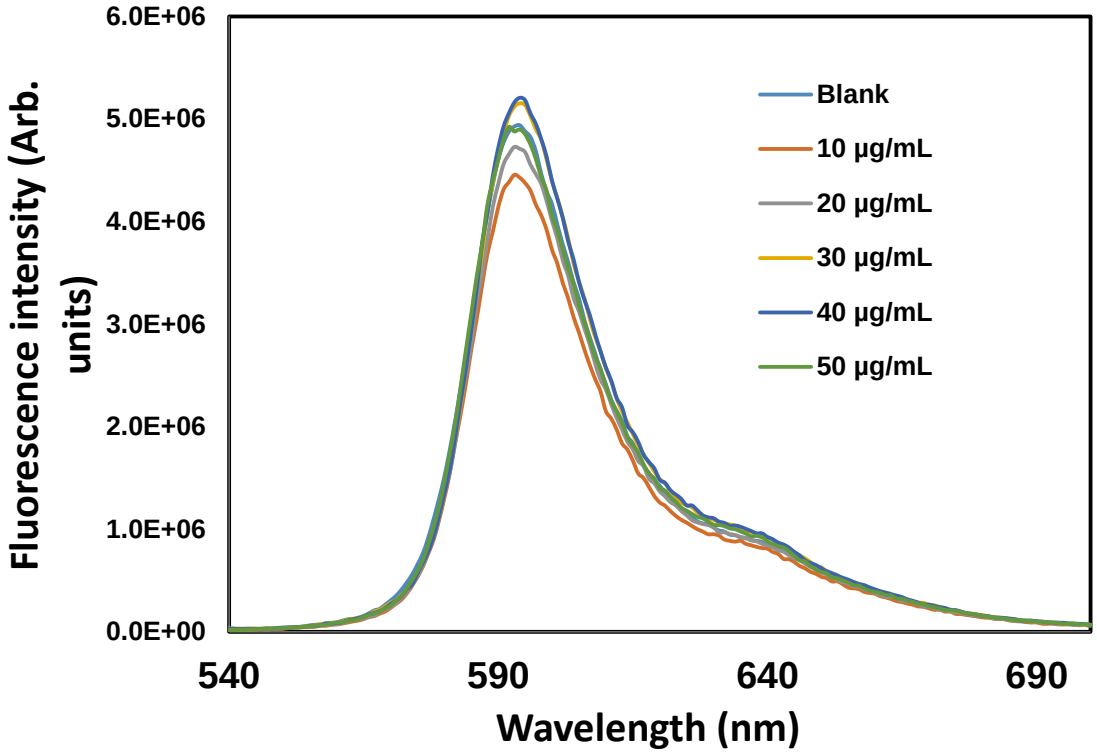


Fig. S3. Fluorescence emission spectra (λ_{ex} = 490 nm) of (a) Eosin B, (b) Eosin Y, (c) Phloxine B (d) Erythrosin B and, (e) Rose Bengal nanoparticles dispersed in different concentrations of BSA

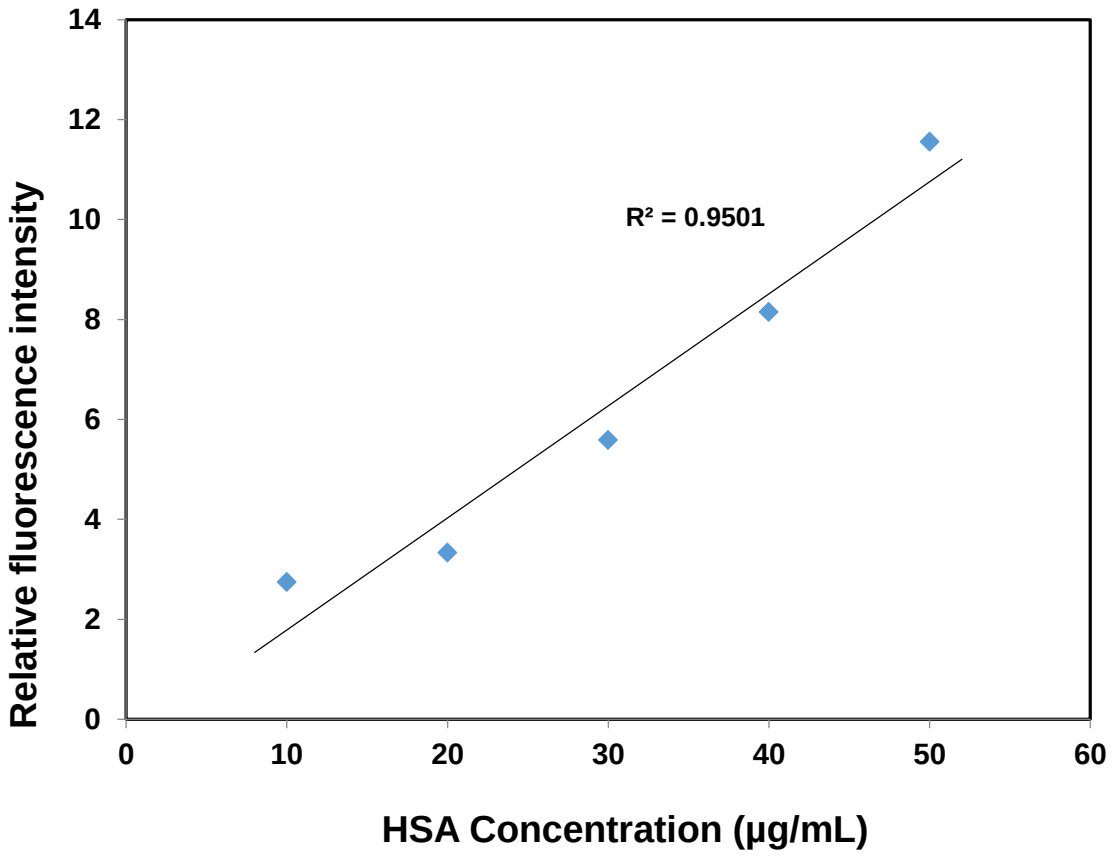


Fig S4. Relationship between relative fluorescence intensity at 512 nm and HSA concentration in human serum. Human serum samples were diluted for 1000 times before analysis. (concentration of $[P_{66614}]_2$[FL]- 24 µM)

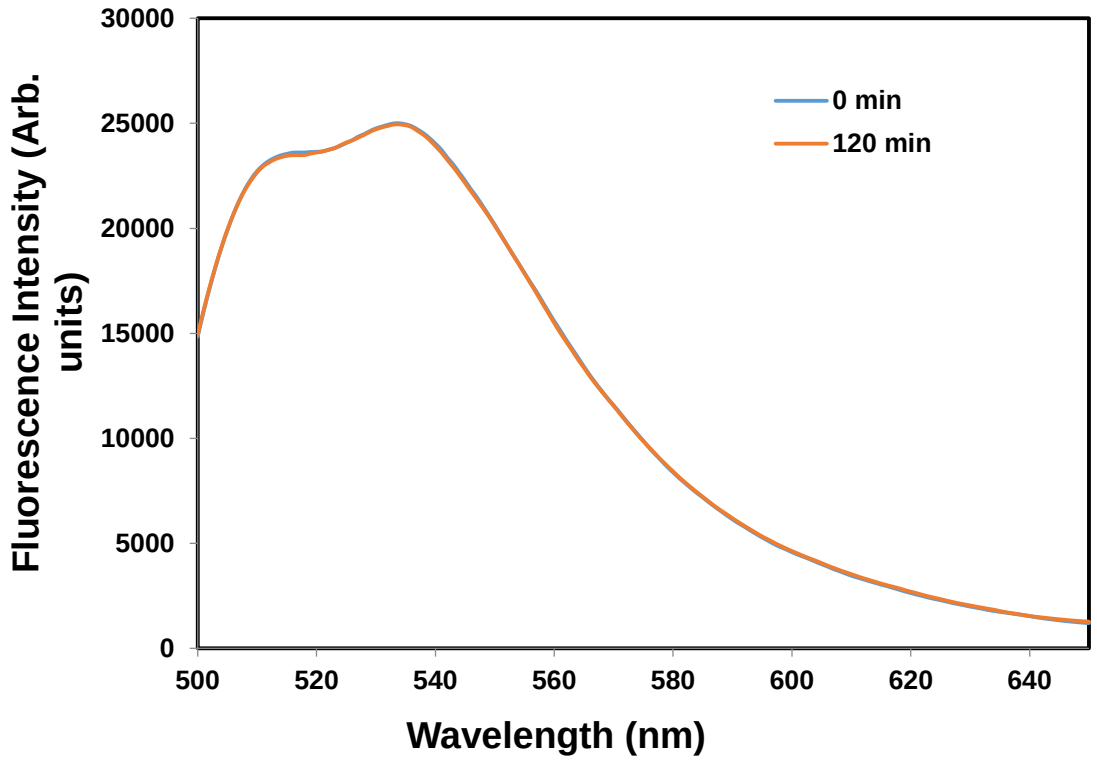


Fig. S5. The fluorescence emission spectra (λ_{ex} = 490 nm) of 24 µM dispersions of $[P_{66614}]_2[FL]$ at 0 and 120 minutes

Table S1. Aggregate to monomer peak ratio $A_{ag(530)}/A_{m(490)}$ derived from absorbance spectra

$[P_{66614}]_2$[FL] Concentration(μM)	$A_{ag(530)}/A_{m(490)}$ ratio
40	1.9
32	1.9
24	1.9
16	1.6
08	1.1

A_{ag} – Absorbance of the aggregate peak, A_m – Absorbance of the monomer peak