

Supplementary data for the article:

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## Supplementary material

### Human serum albumin binding of certain antimalarials

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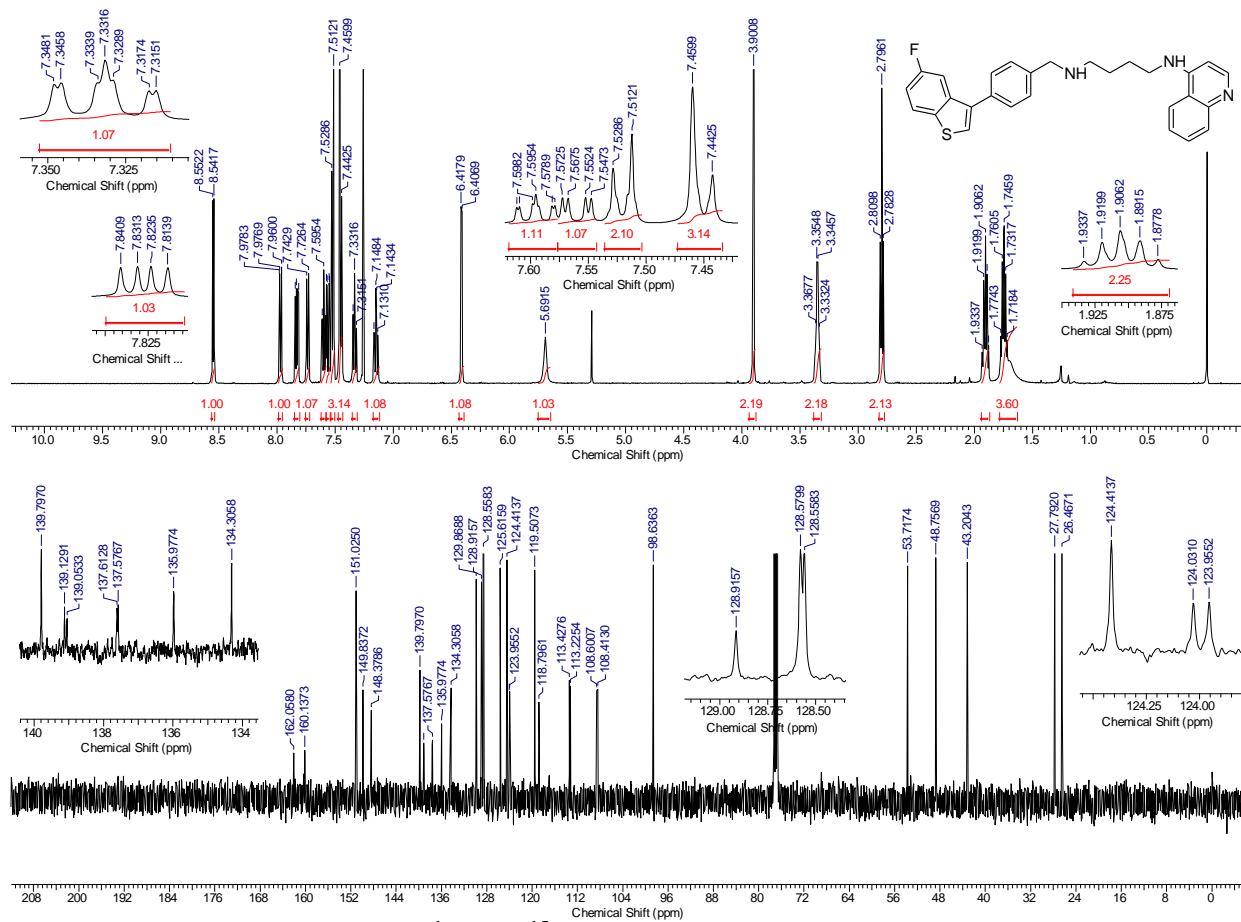
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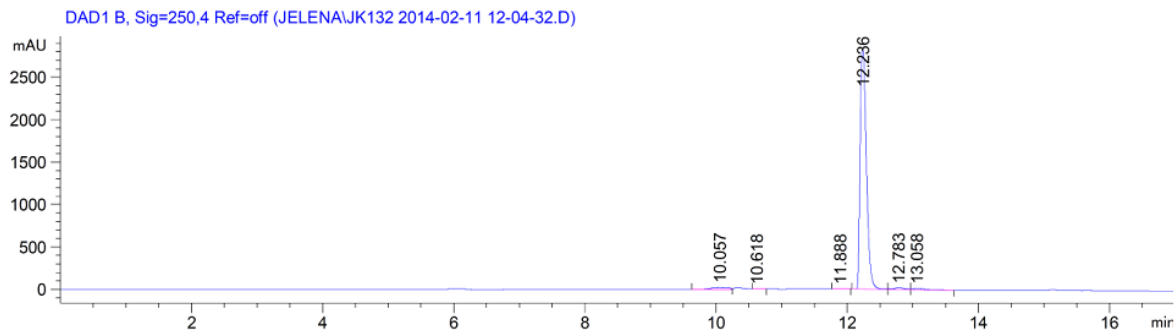
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**N-[4-(5-fluoro-1-benzothien-3-yl)benzyl]-N-quinolin-4-ylbutane-1,4-diamine (3)**



**Figure S1.  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of compound 3.**

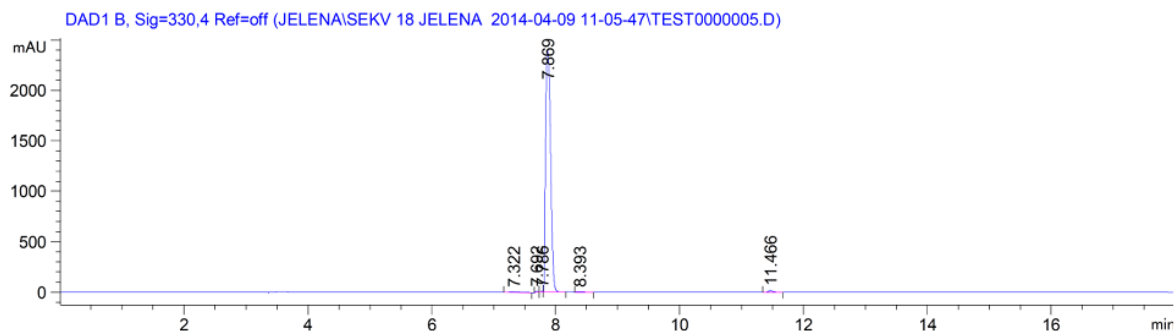
**Sample Name: 3**



Signal 2: DAD1 B, Sig=250,4 Ref=off

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	10.057	BV	0.2302	392.78897	20.16806	1.9868
2	10.618	VB	0.0982	30.05881	4.02346	0.1520
3	11.888	BB	0.0860	13.27464	1.84327	0.0671
4	12.236	BV	0.1048	1.88177e4	2839.89502	95.1830
5	12.783	VV	0.1714	281.05591	22.46970	1.4216
6	13.058	VB	0.1661	235.13452	17.97277	1.1894

Totals : 1.97700e4 2906.37228

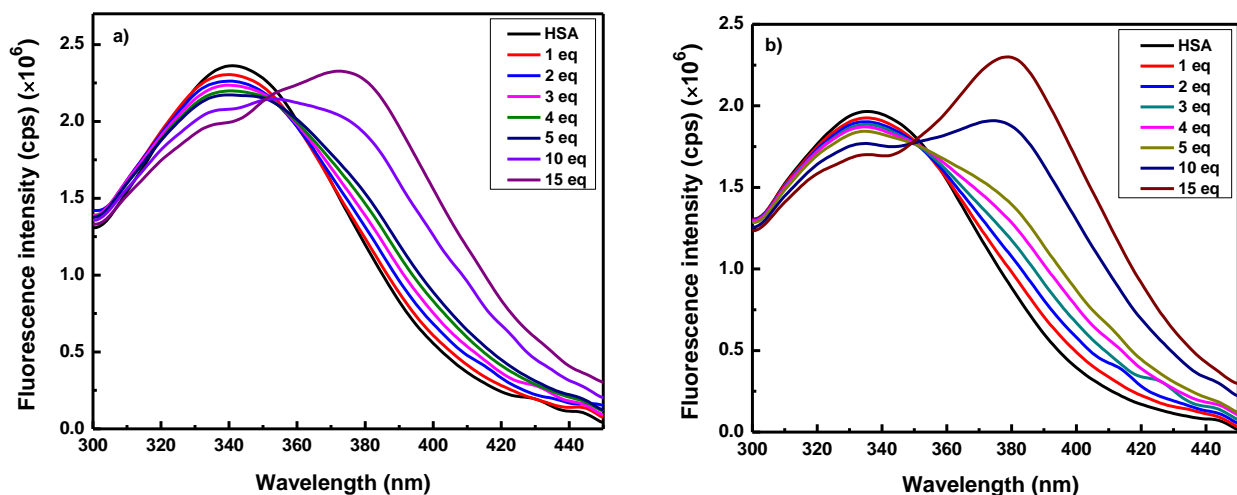


Signal 2: DAD1 B, Sig=330,4 Ref=off

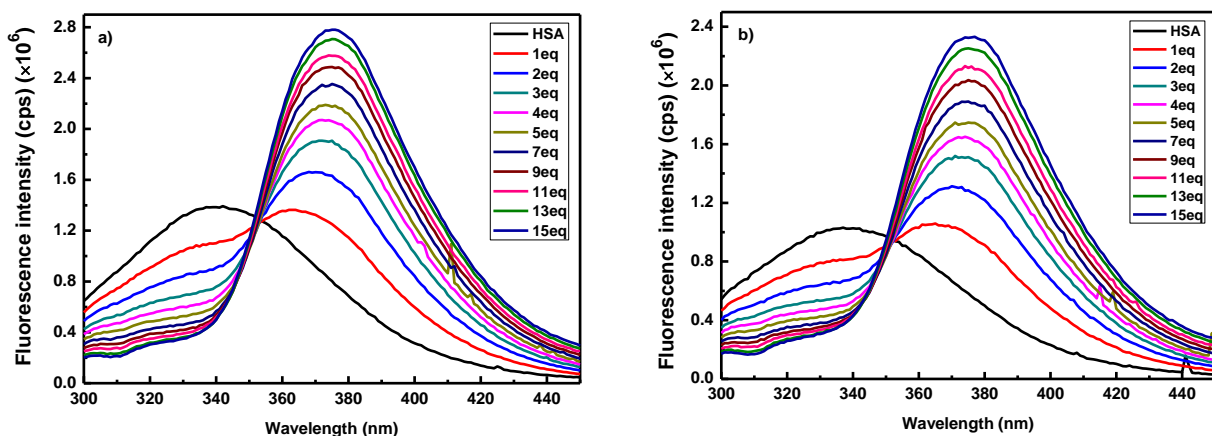
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.322	BB	0.1356	82.06499	7.35661	0.5995
2	7.692	BB	0.0393	27.63019	11.58632	0.2018
3	7.786	BV	0.0373	18.74325	8.01326	0.1369
4	7.869	VB	0.0936	1.34719e4	2395.53394	98.4153
5	8.393	BB	0.0723	14.91241	2.52912	0.1089
6	11.466	BB	0.0645	73.57809	17.00194	0.5375

Totals : 1.36888e4 2442.02119

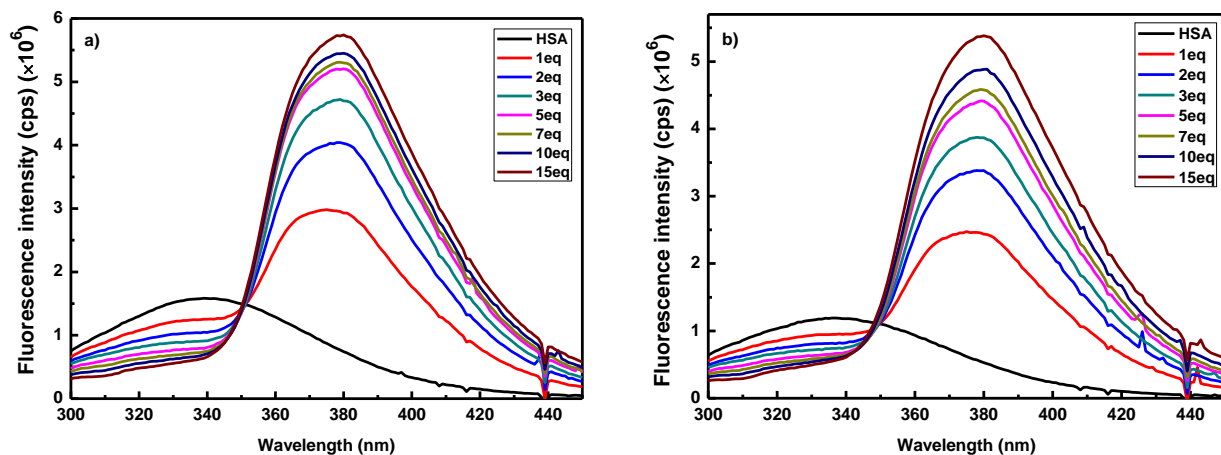
**Figure S2.** Chromatogram for the assessment of compound **3** purity, with tables showing the detector response.



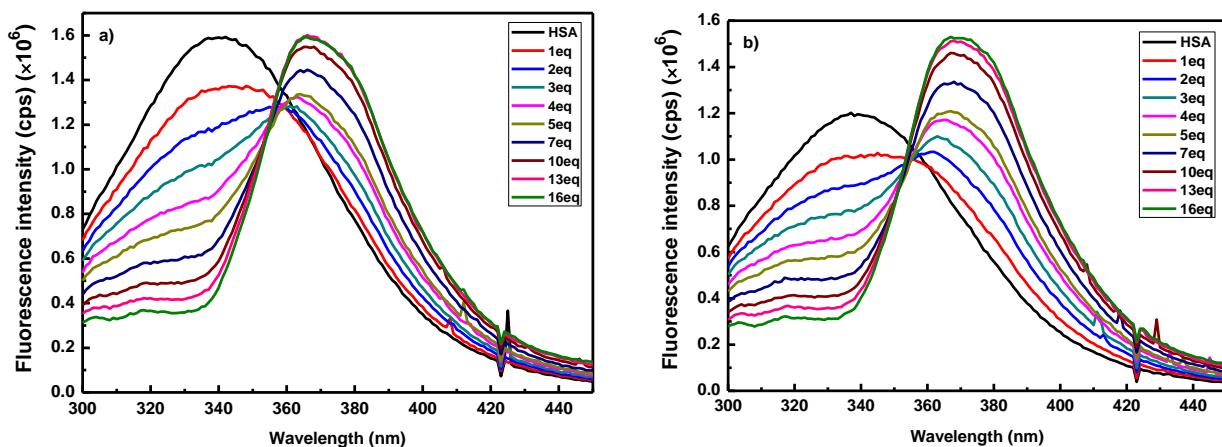
**Figure S3.** Changes in HSA ( $c_{\text{HSA}}=1\times 10^{-6}$  M) fluorescence emission spectra upon addition of  $\text{CQ}\cdot 2\text{H}_3\text{PO}_4$  (1-15 mol equivalents) at a) 293 K and b) 310 K; 30 mM PBS, pH = 7.40.



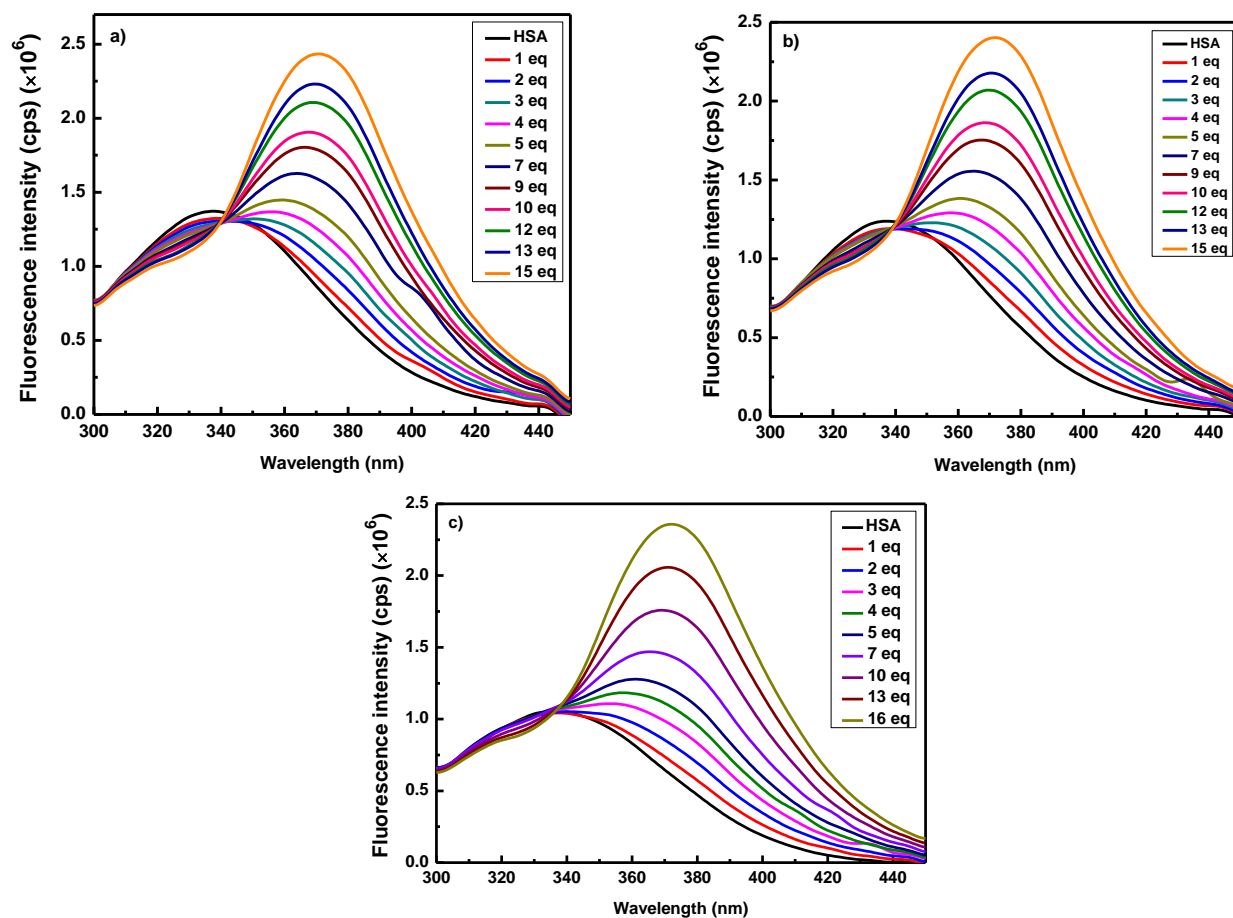
**Figure S4.** Changes in HSA ( $c_{\text{HSA}}=5\times 10^{-7}$  M) fluorescence emission spectra upon addition of compound **1** (1-15 molar equivalents) at a) 293 K and b) 310 K; 30 mM PBS, pH = 7.40.



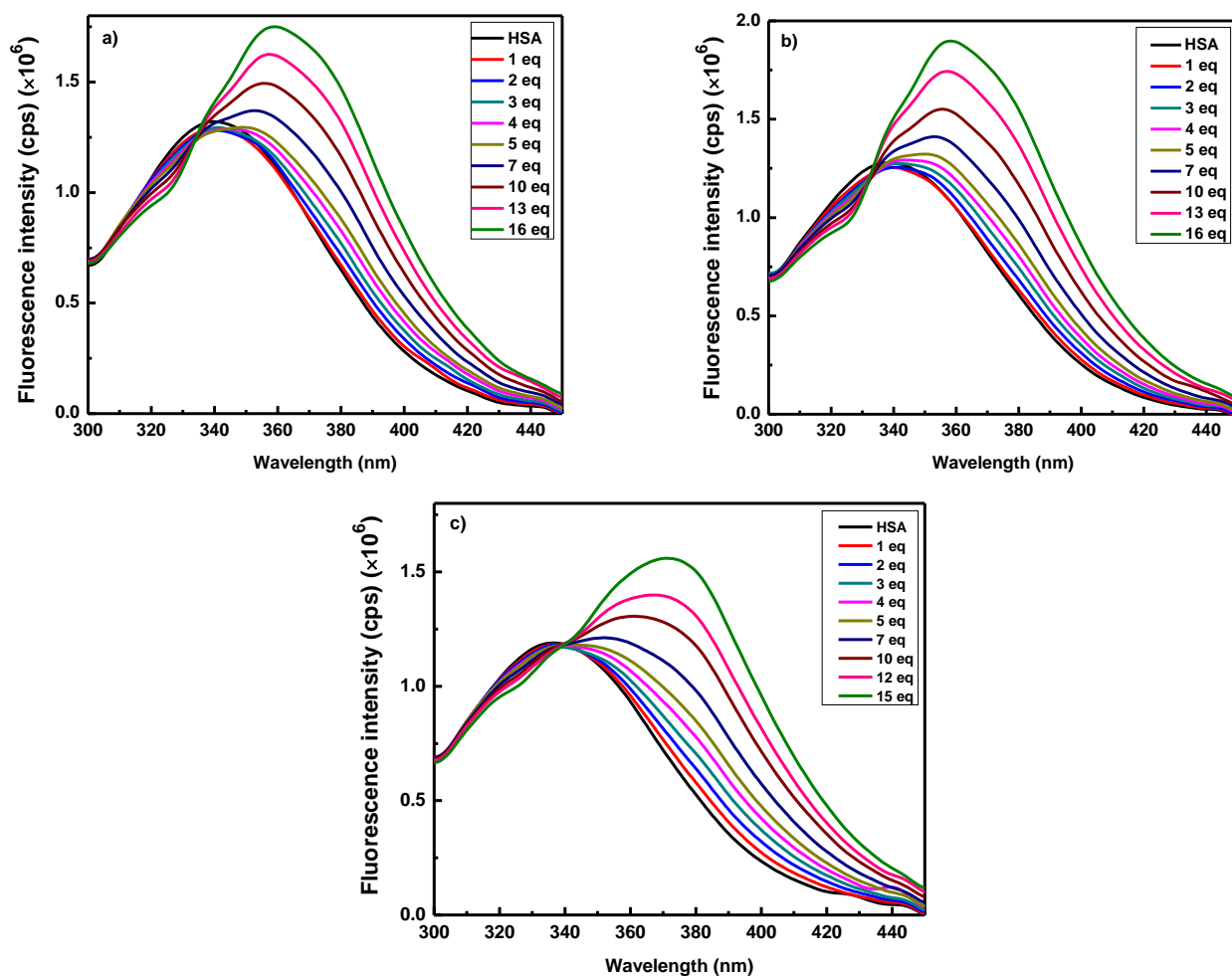
**Figure S5.** Changes in HSA ( $c_{\text{HSA}}=5\times 10^{-7}$  M) fluorescence emission spectra upon addition of compound **2** (1-15 molar equivalents) at a) 293 K and b) 310 K; 30 mM PBS, pH = 7.40.



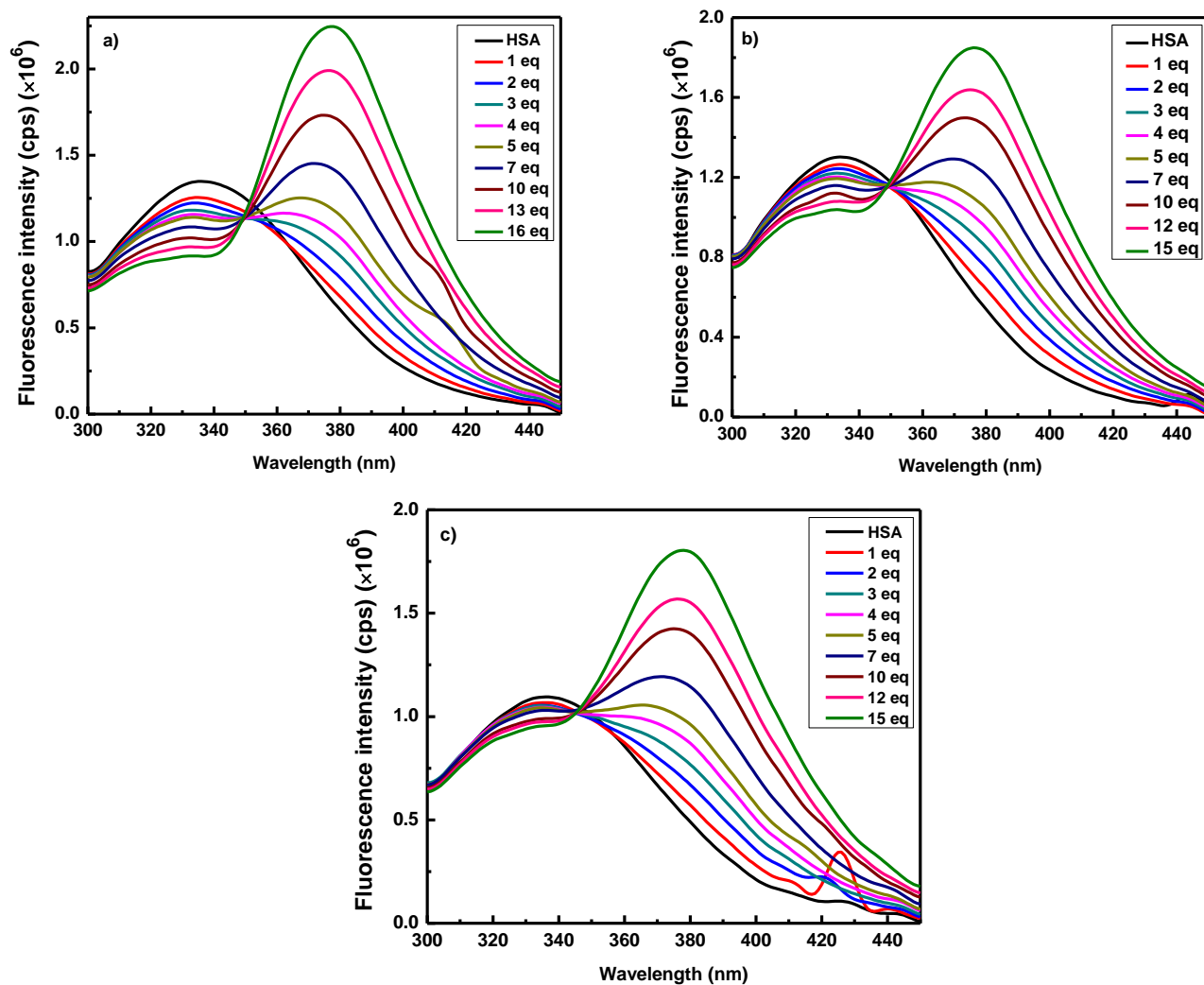
**Figure S6.** Changes in HSA ( $c_{\text{HSA}} = 5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound 3 (1-16 molar equivalents) at a) 293 K and b) 310 K; 30 mM PBS, pH = 7.40.



**Figure S7.** Changes in HSA ( $c_{\text{HSA}} = 5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound 4 (1-16 molar equivalents) at a) 293 K, b) 298 K and c) 310 K; 30 mM PBS, pH = 7.40.

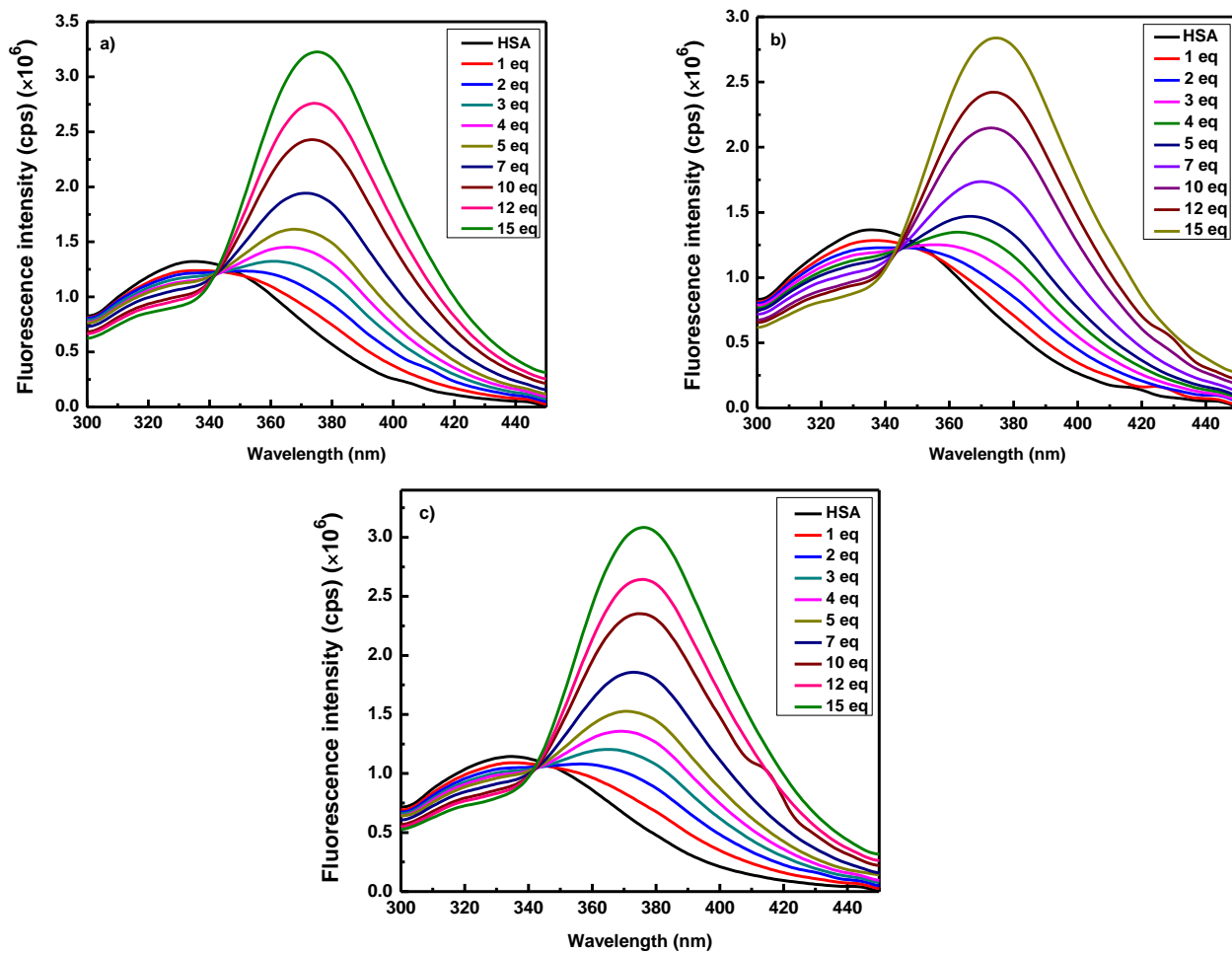


**Figure S8.** Changes in HSA ( $C_{\text{HSA}}=5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound 5 (1-16 molar equivalents) at a) 293 K, b) 298 K and c) 310 K; 30 mM PBS, pH = 7.40.

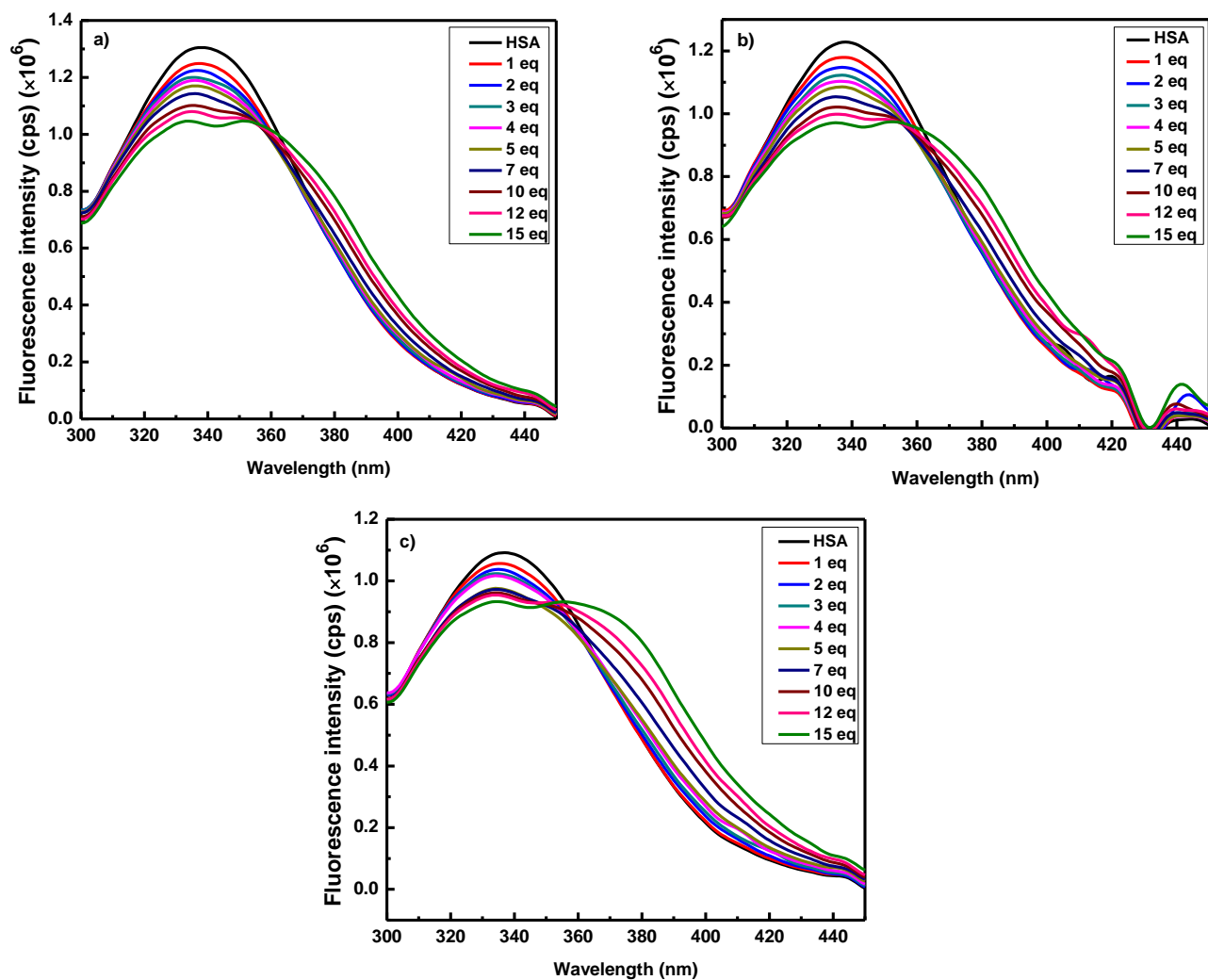


**Figure S9.** Changes in HSA ( $c_{\text{HSA}}=5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound **6** (1-15 molar equivalents) at a) 293 K, b) 298 K and c) 310 K; 30 mM PBS, pH = 7.40.

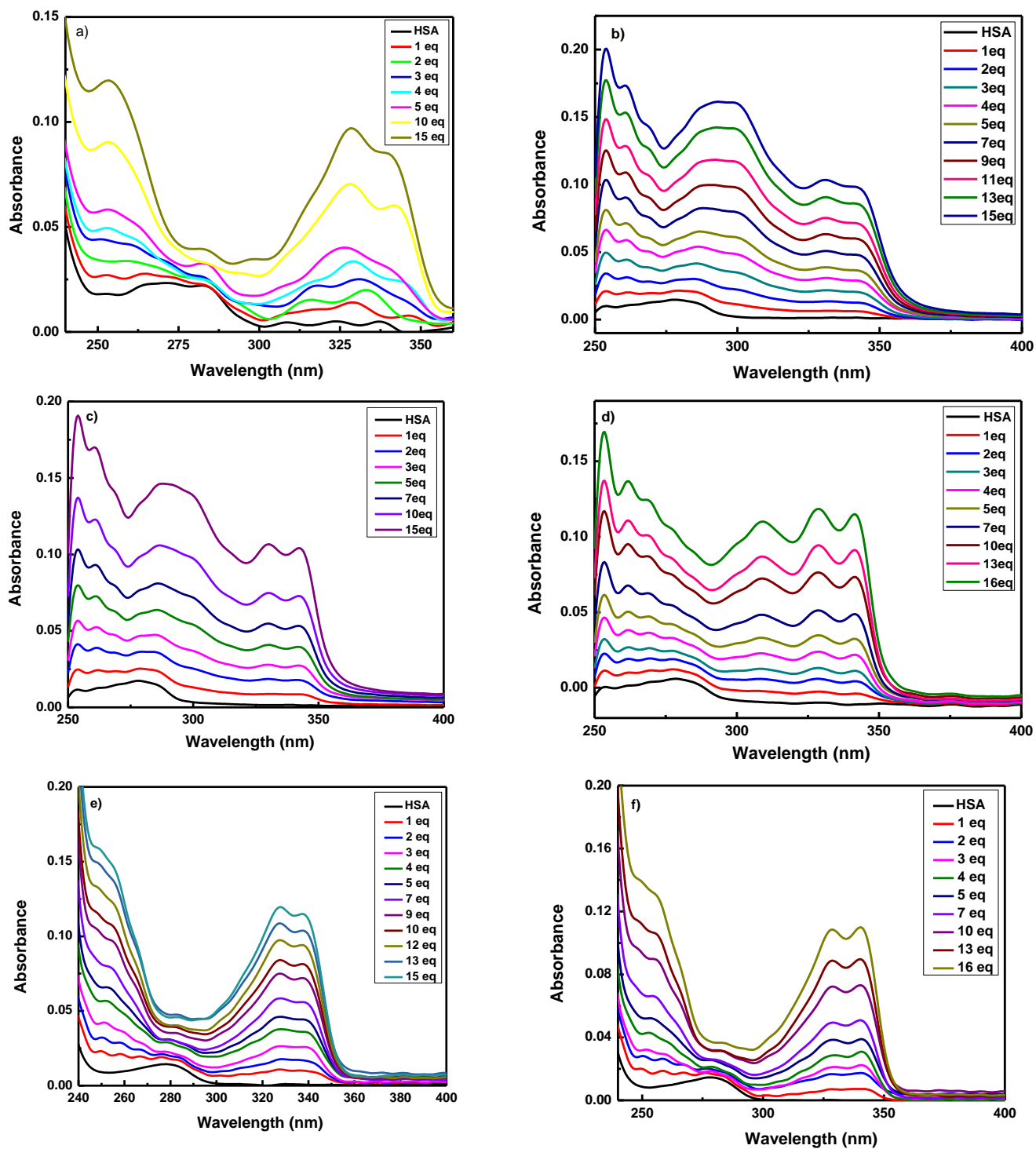




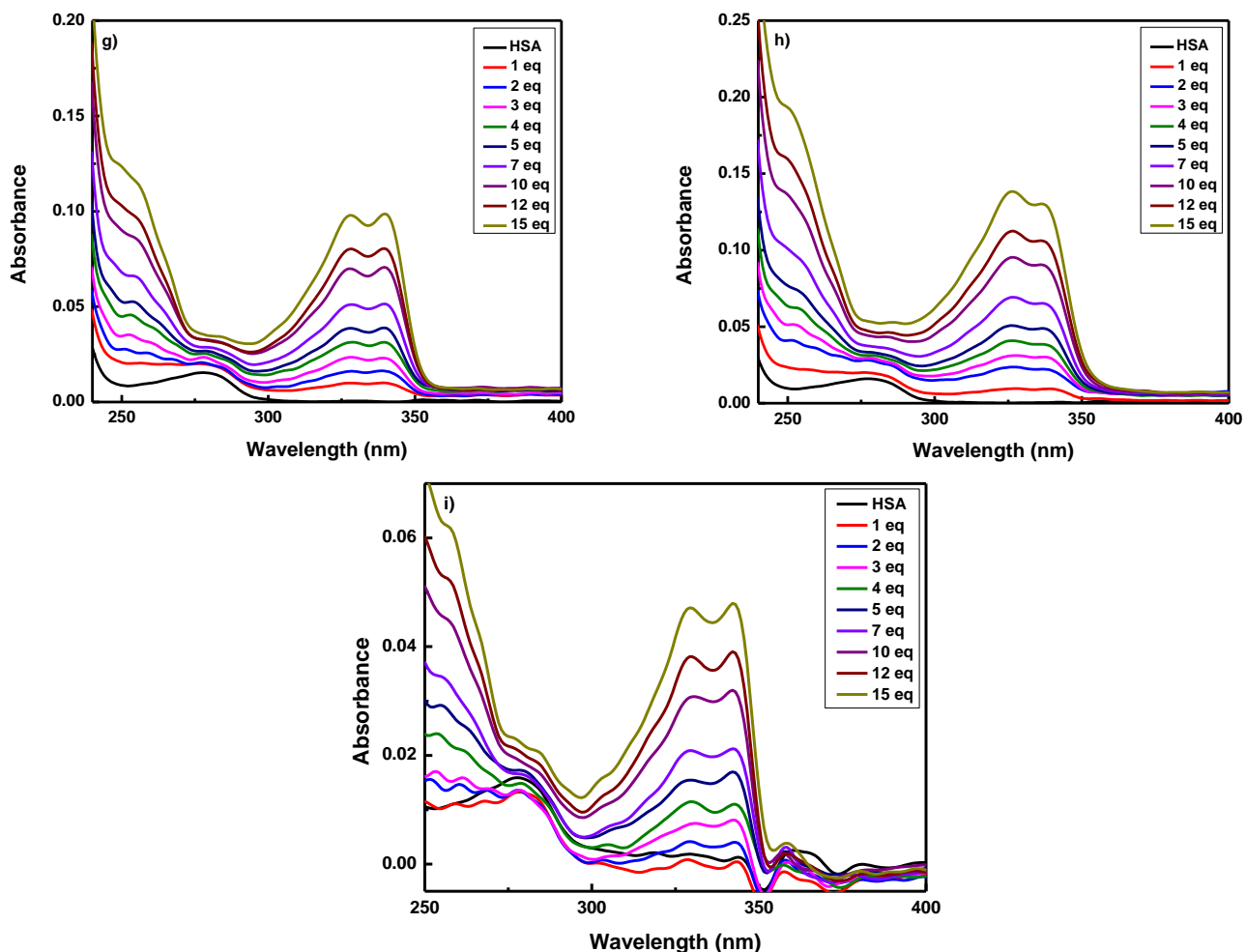
**Figure S10.** Changes in HSA ( $C_{\text{HSA}} = 5 \times 10^{-7} \text{ M}$ ) fluorescence emission spectra upon addition of compound 7 (1-15 molar equivalents) at a) 293 K, b) 298 K and c) 310 K; 30 mM PBS, pH = 7.40.



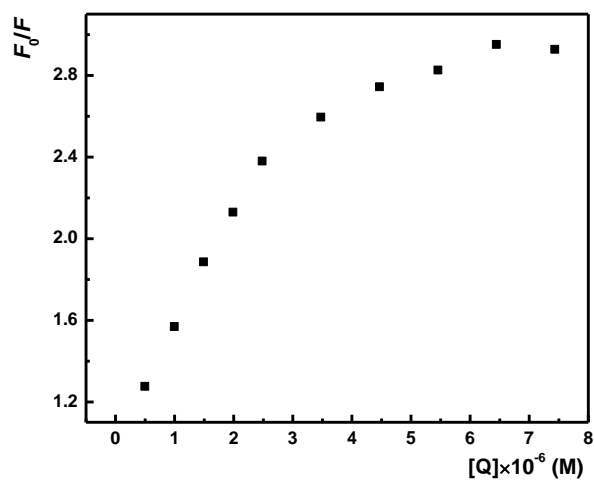
**Figure S11.** Changes in HSA ( $c_{\text{HSA}} = 5 \times 10^{-7} \text{ M}$ ) fluorescence emission spectra upon addition of compound **8** (1-15 molar equivalents) at a) 293 K, b) 298 K and c) 310 K; 30 mM PBS, pH = 7.40.



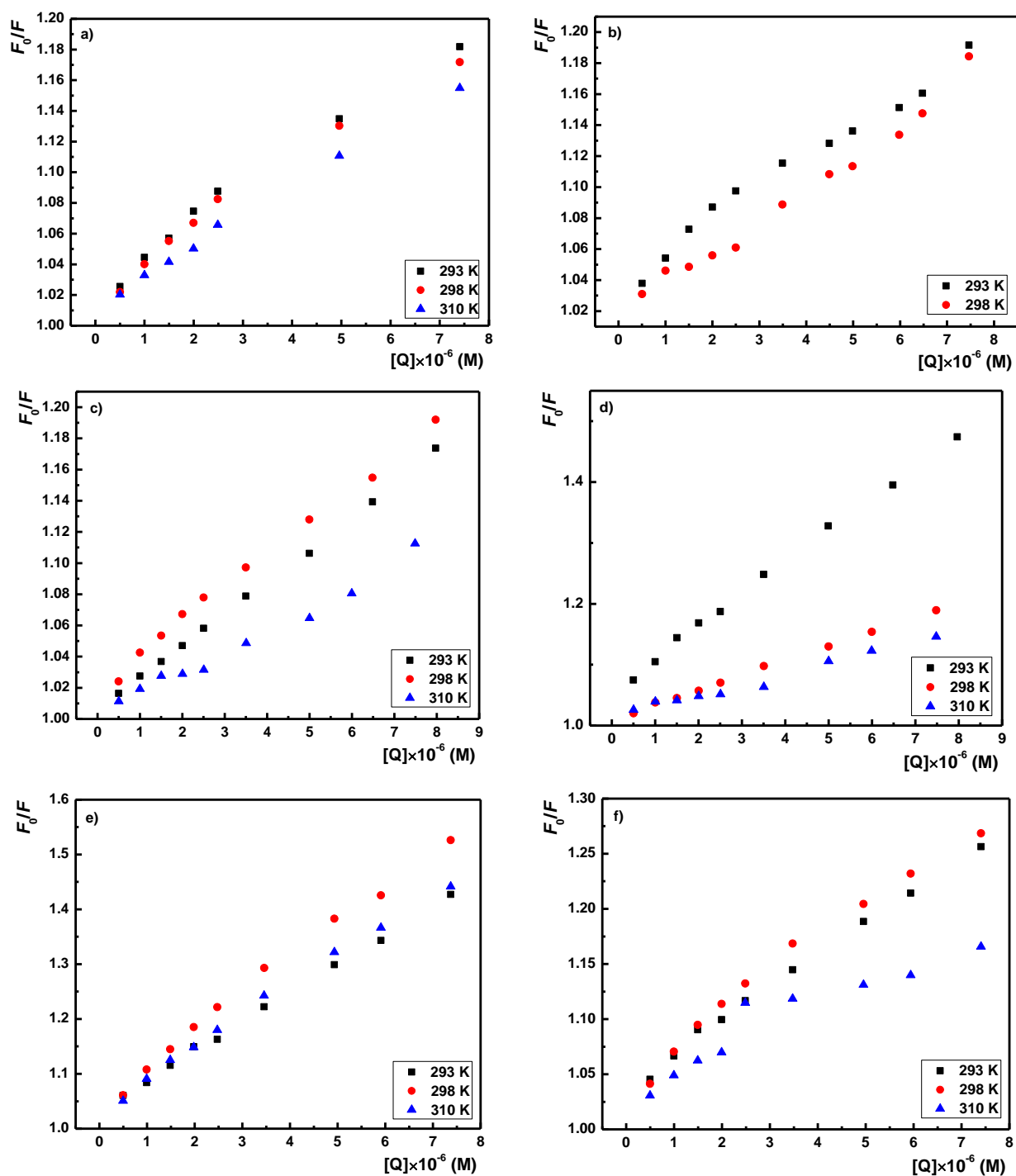
**Figure S12.** Changes in HSA ( $c_{\text{HSA}}=5\times 10^{-7}$  M) UV-Vis spectra upon addition of compound a) **CQ**; b) **1**; c) **2**; d) **3**; e) **4**; f) **5**; (1-15/16 molar equivalents) at 298 K; 30 mM PBS, pH = 7.40, scan speed 500 nm/min



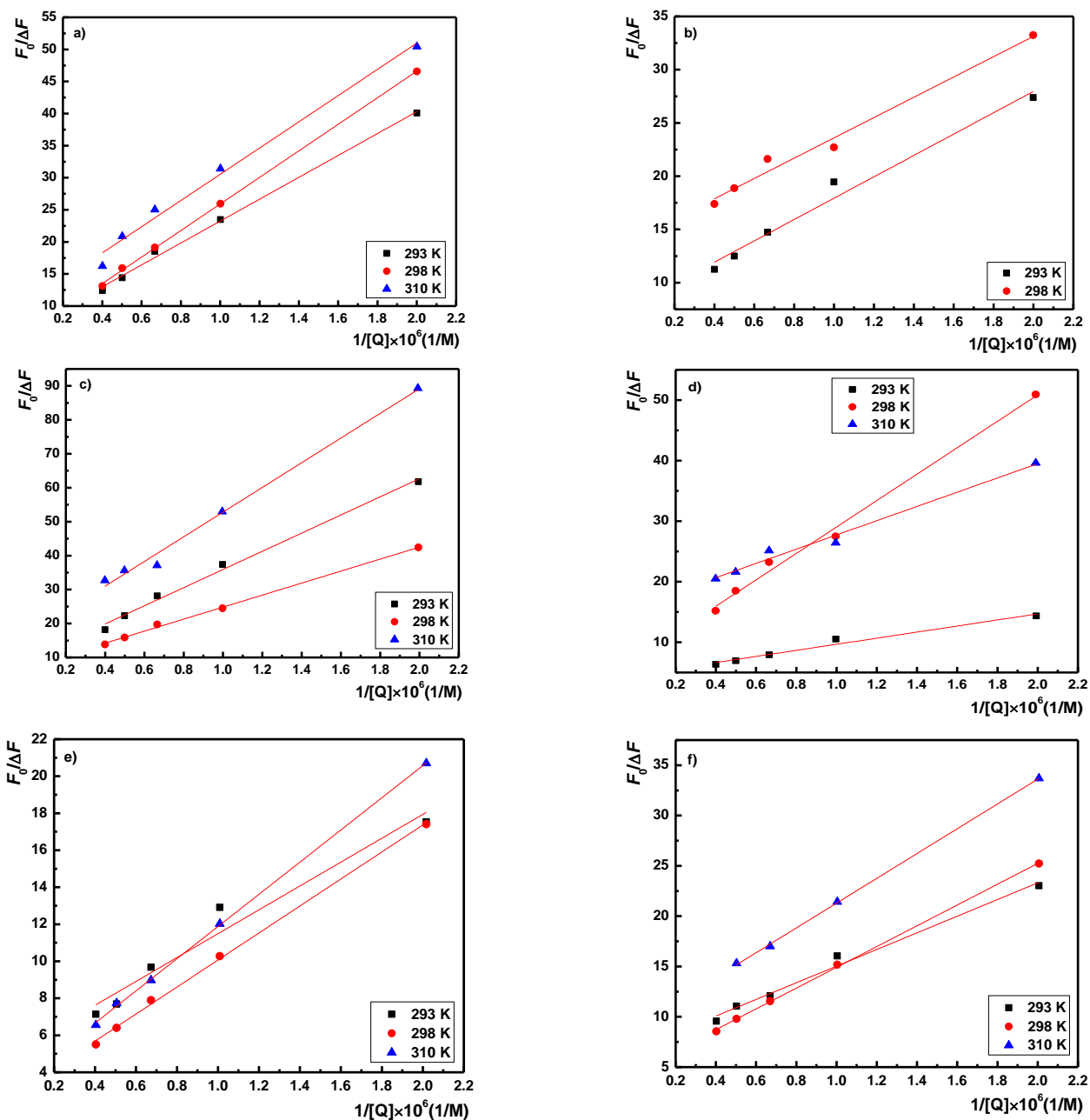
**Figure S12.** (continued) Changes in HSA ( $c_{\text{HSA}}=5 \times 10^{-7}$  M) UV-Vis spectra upon addition of compound g) **6**; h) **7**; i) **8** (1-15 molar equivalents) at 298 K; 30 mM PBS, pH = 7.40, scan speed 500 nm/min



**Figure S13.** The Stern-Volmer plot for binding of **1** (1-15 mol. eq) to HSA ( $c_{\text{HSA}}=5 \times 10^{-7}$  M) at 298 K; 30 mM PBS, pH = 7.40.



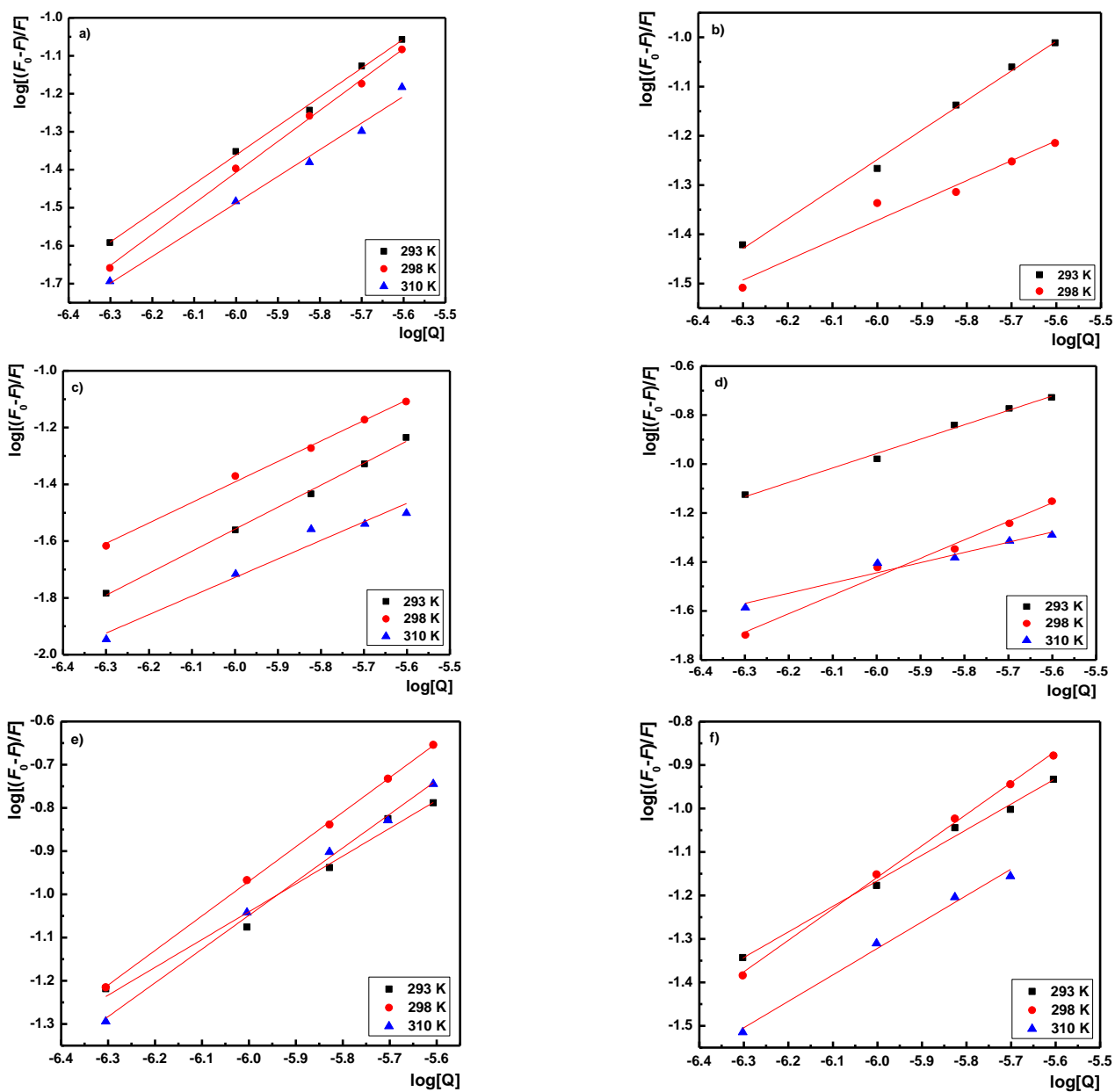
**Figure S14.** The Stern-Volmer plot for binding of a) CQ, b) 4, c) 5, d) 6, e) 7 and f) 8 to HSA ( $C_{HSA}=5 \times 10^{-7}$  M) in 1-15/16 mol equivalents at 293, 298 and 310 K; 30 mM PBS; pH = 7.40.



**Figure S15.** Modified Stern-Volmer plot for binding of a) CQ, b) 4, c) 5, d) 6, e) 7 and f) 8 to HSA ( $c_{\text{HSA}}=5 \times 10^{-7}$  M) in 1-5 mol. equivalents at 293, 298, and 310 K; 30 mM PBS; pH = 7.40.

**Table S1.** Linear equations for modified Stern-Volmer plot

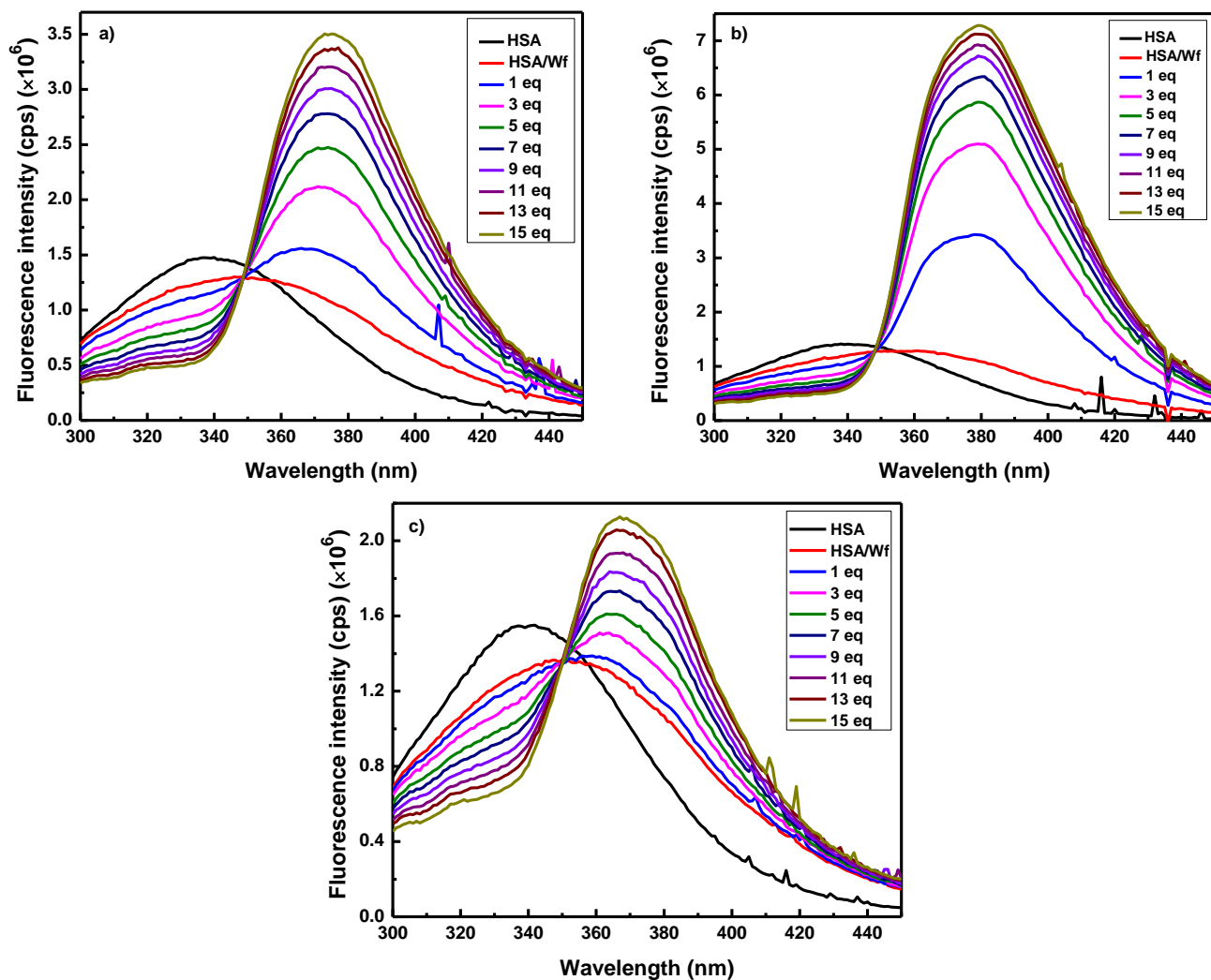
compound	293 K	298 K	310 K
CQ	$y=6.173+1.706 \times 10^{-5}x$	$y=5.204+2.070 \times 10^{-5}x$	$y=10.100+2.044 \times 10^{-5}x$
4	$y=7.907+1.003 \times 10^{-5}x$	$y=14.064+9.533 \times 10^{-6}x$	/
5	$y=9.168+2.676 \times 10^{-5}x$	$y=7.144+1.769 \times 10^{-5}x$	$y=16.468+3.636 \times 10^{-5}x$
6	$y=4.640+5.023 \times 10^{-6}x$	$y=7.210+2.183 \times 10^{-5}x$	$y=15.956+1.177 \times 10^{-5}x$
7	$y=5.045+6.446 \times 10^{-6}x$	$y=2.770+7.299 \times 10^{-6}x$	$y=3.184+8.696 \times 10^{-6}x$
8	$y=6.769+8.268 \times 10^{-6}x$	$y=4.592+1.032 \times 10^{-5}x$	$y=8.974+1.232 \times 10^{-5}x$



**Figure S16.** Log-log plot for the determination of binding constants  $K_b$ , and the number of binding sites  $n$  for binding of a) CQ, b) **4**, c) **5**, d) **6**, e) **7** and f) **8** to HSA ( $c_{\text{HSA}}=5 \times 10^{-7}$  M) at 293, 298, and 310 K, 30 mM PBS; pH = 7.40.

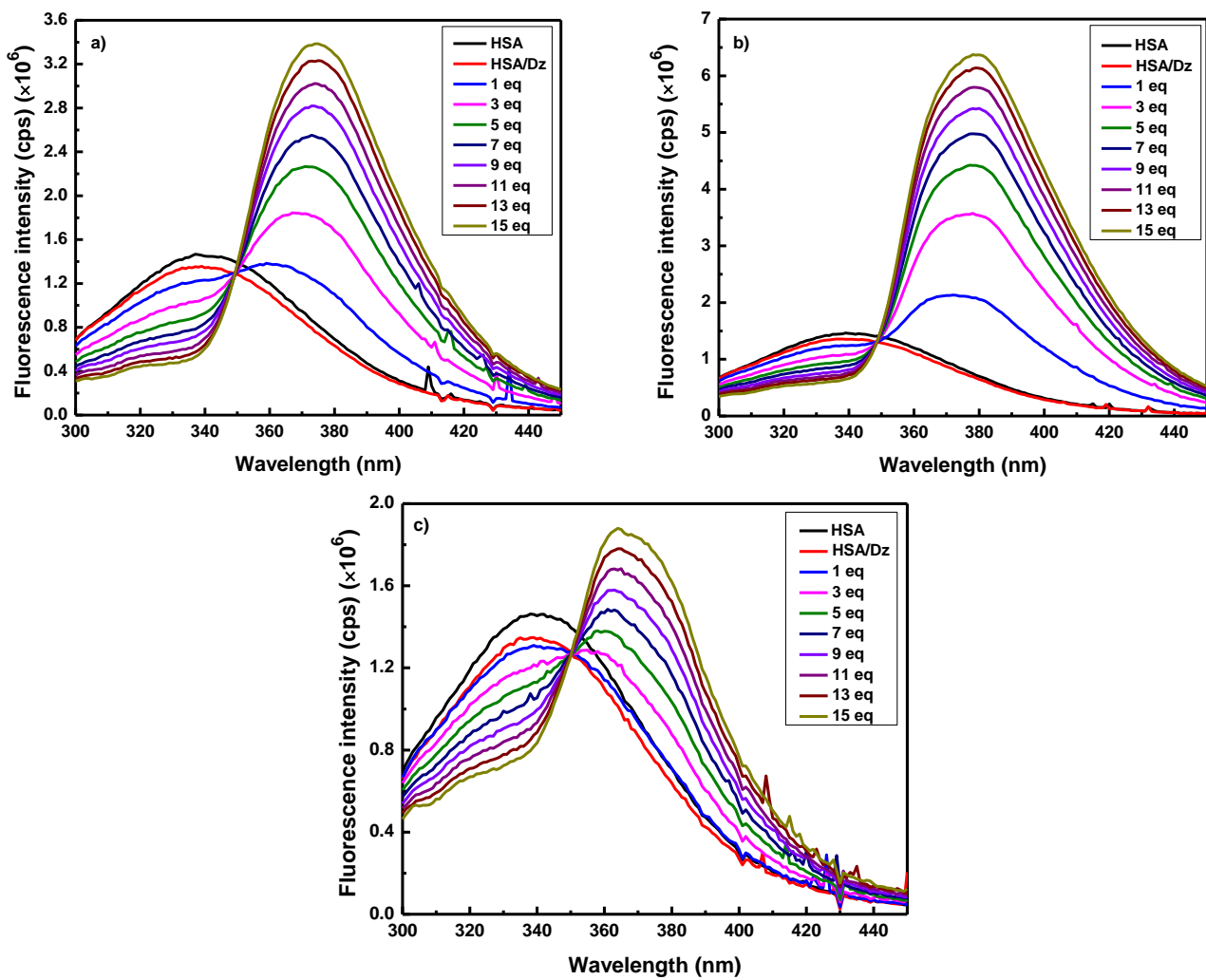
**Table S2.** Linearequations for log-log plot

compound	293 K	298 K	310 K
CQ	$y=3.21+0.762x$	$y=3.48+0.815x$	$y=2.72+0.702x$
<b>4</b>	$y=2.36+0.601x$	$y=1.05+0.404x$	/
<b>5</b>	$y=3.10+0.776x$	$y=2.94+0.722x$	$y=2.19+0.654x$
<b>6</b>	$y=2.57+0.588x$	$y=3.06+0.754x$	$y=1.05+0.416x$
<b>7</b>	$y=2.82+0.644x$	$y=3.83+0.800x$	$y=3.64+0.781x$
<b>8</b>	$y=2.36+0.588x$	$y=3.19+0.725x$	$y=2.33+0.608x$

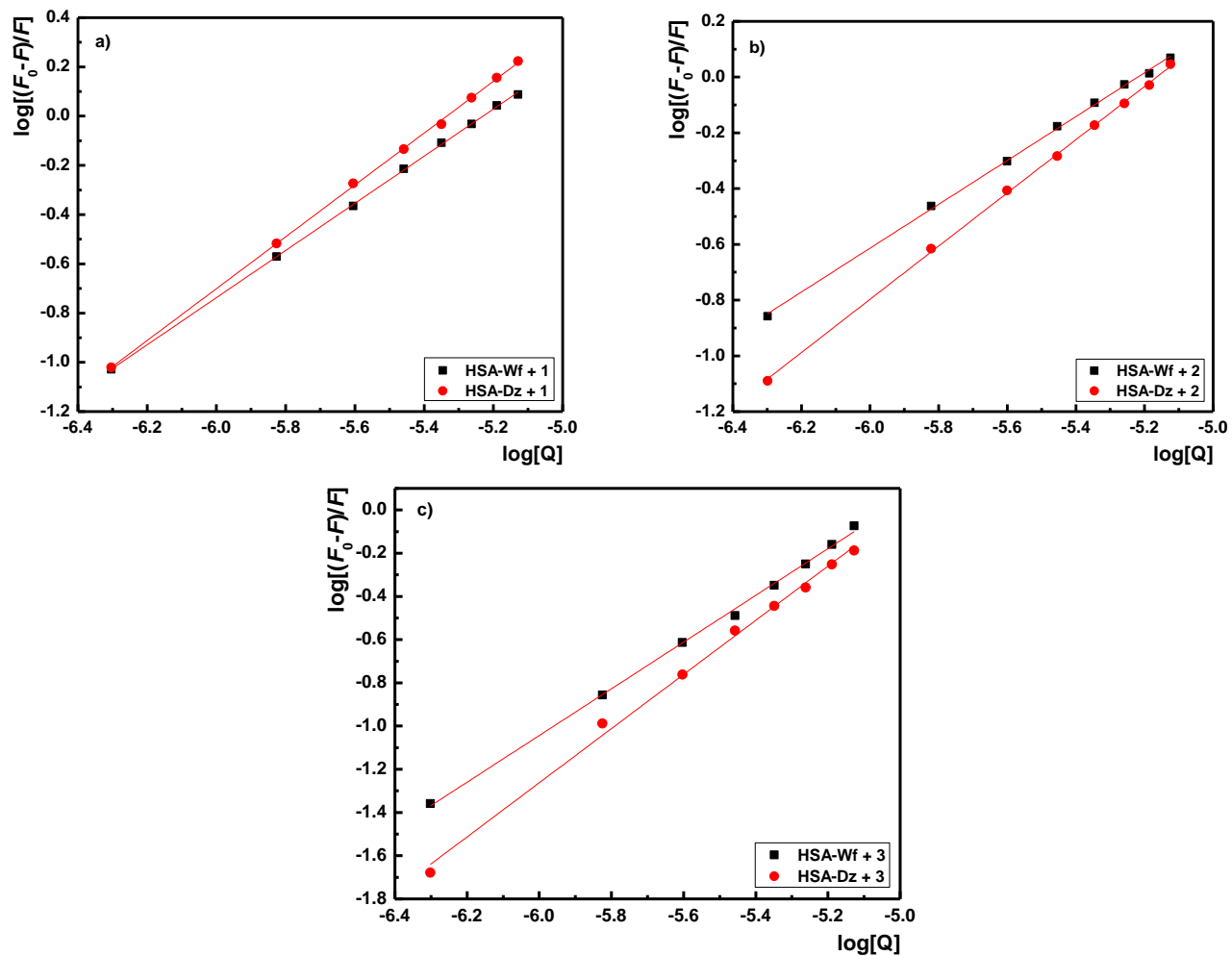


**Figure S17.** Changes in HSA-Wf complex ( $c_{\text{HSA}} = c_{\text{Wf}} = 5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound a) **1**, b) **2** and c) **3** (1-15 molar equivalents) at 298 K (30 mM PBS, pH = 7.40)





**Figure S18.** Changes in HSA-Dz complex ( $c_{\text{HSA}} = c_{\text{Dz}} = 5 \times 10^{-7}$  M) fluorescence emission spectra upon addition of compound a) **1**, b) **2** and c) **3** (1-15 molar equivalents) at 298 K (30 mM PBS, pH = 7.40)



**Figure S19.** Log-log plot for the determination of binding constants  $K_b$ , and the number of binding sites  $n$  determination in HSA/1-3 interaction ( $c_{\text{HSA}} = c_{\text{Wf}} = c_{\text{Dz}} = 5 \times 10^{-7}$  M) at 298 K, 30 mM PBS; pH = 7.40.