

**Interaction of Human Serum Albumin with Liposomes of Saturated and Unsaturated Lipids with
Different Phase Transition Temperatures: A Spectroscopic Investigation by Membrane Probe
PRODAN**

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Table S₁. Lifetime components, normalized amplitudes of lifetime components and average lifetime of PRODAN in HSA at 520 nm and 457 nm.[#]

($\lambda_{em} = 520$ nm)									
Conc. Of HSA	a₁ (%)	a₂ (%)	a₃ (%)	τ_1 (ns)	τ_2 (ns)	τ_3 (ns)	<τ> (ns)	χ^2	
($\times 10^{-6}$M)									
0	0.74	0.26		0.62	1.80		0.93	1.21	
1	0.79	0.21		0.68	2.24		1.00	1.11	
3	0.79	0.21		0.70	2.70		1.12	1.25	
6	0.78	0.22		0.75	3.24		1.30	1.06	
10	0.74	0.26		0.76	3.52		1.48	1.20	
16	0.68	0.32		0.75	3.71		1.69	1.11	
20	0.66	0.34		0.76	3.83		1.80	1.03	
25	0.63	0.37		0.75	3.89		1.91	1.20	
30	0.61	0.39		0.78	3.97		2.00	1.11	
40	0.57	0.43		0.74	3.96		2.12	1.05	
50	0.55	0.45		0.73	4.03		2.20	1.12	
($\lambda_{em} = 457$ nm)									
1	0.55	0.45		0.73	3.60		2.00	1.19	
2	0.46	0.54		0.80	3.65		2.34	1.21	
3	0.43	0.57		0.79	3.68		2.44	1.05	
4	0.40	0.60		0.74	3.66		2.49	1.11	
6	0.36	0.64		0.81	3.70		2.66	1.21	
10	0.34	0.66		0.85	3.75		2.76	1.27	
16	0.34	0.66		0.87	3.78		2.79	1.08	
20	0.33	0.67		0.82	3.80		2.81	1.11	
25	0.33	0.67		0.79	3.80		2.80	1.20	
30	0.33	0.67		0.80	3.85		2.84	1.15	
40	0.33	0.67		0.80	3.95		2.91	1.07	
50	0.33	0.67		0.90	4.00		3.00	1.11	

[#]Estimated error in the measurement is around $\pm 5\%$

Table S₂A. Lifetime components, normalized amplitudes and average lifetime of PRODAN at different concentration of liposomes at 520 nm.[#]

Conc. Of DPPC ($\times 10^{-3}$M) ($\lambda_{em} = 520$ nm)								
	a₁ (%)	a₂ (%)	a₃ (%)	τ_1 (ns)	τ_2 (ns)	τ_3 (ns)	$\langle \tau \rangle$ (ns)	χ^2
0	0.74	0.26		0.60	1.8		0.95	1.1
0.05	0.82	0.18		0.69	2.60		1.00	1.43
0.10	0.63	0.28	0.09	0.57	1.48	4.47	1.16	1.09
0.20	0.55	0.31	0.14	0.52	1.36	4.73	1.37	1.04
0.30	0.59	0.22	0.18	0.58	1.61	4.97	1.62	1.07
0.40	0.59	0.19	0.22	0.61	1.90	5.16	1.84	1.02
0.50	0.58	0.17	0.25	0.63	2.11	5.23	2.00	1.04
0.60	0.53	0.16	0.31	0.64	2.17	5.19	2.28	1.06
Conc. Of DMPC ($\times 10^{-3}$M) ($\lambda_{em} = 520$ nm)								
0.025	0.41	0.46	0.14	0.412	1.00	4.09	1.18	1.06
0.05	0.51	0.28	0.22	0.524	1.13	4.75	1.60	1.08
0.10	0.59	0.41		0.605	4.92		2.36	1.12
0.20	0.29	0.71		0.583	4.55		3.40	1.02
0.30	0.20	0.80		0.577	4.65		3.83	1.05
0.40	1	-		-	4.50		4.50	1.20
0.50	-0.20	0.80		1.20	4.50		5.16	1.16
0.60	-0.31	0.69		1.65	4.50		5.40	1.12
Conc. Of DOPC ($\times 10^{-3}$M) ($\lambda_{em} = 520$ nm)								
0.025	0.76	0.24		0.668	2.69		1.15	1.33
0.05	0.71	0.29		0.685	3.12		1.40	1.27
0.10	0.57	0.43		0.670	3.42		1.87	1.07
0.20	0.33	0.67		0.568	3.59		2.58	1.02
0.30	0.21	0.79		0.631	3.6		2.98	1.00
0.40	0.16	0.84		0.879	3.6		3.16	1.02
0.50	-	1.00		-	3.6		3.60	1.10
0.60	-	1.00		-	3.52		3.52	1.20
Conc. Of POPC ($\times 10^{-3}$M) ($\lambda_{em} = 520$ nm)								
0.025	0.78	0.22		0.674	2.64		1.11	1.2
0.05	0.75	0.25		0.698	3.14		1.31	1.21
0.10	0.66	0.34		0.676	3.56		1.66	1.06
0.20	0.46	0.54		0.603	3.81		2.32	1.06
0.30	0.33	0.67		0.641	3.78		2.74	1.12
0.40	0.31	0.69		0.746	3.83		2.87	1.00
0.50	0.28	0.72		0.834	3.83		2.99	1.05
0.60	-	1.00		-	3.38		3.38	1.25

[#]Estimated error in the measurement is around $\pm 5\%$

Table S₂B. Lifetime components, normalized amplitudes of lifetime components and average lifetime of PRODAN at different concentration of liposomes at 435 nm.[#]

Conc. Of DPPC ($\times 10^{-3}$M) ($\lambda_{em} = 435$ nm)								
	a₁ (%)	a₂ (%)	a₃ (%)	τ_1 (ns)	τ_2 (ns)	τ_3 (ns)	$\langle \tau \rangle$ (ns)	χ^2
0								
0.05	0.40	0.60		1.19	6.08			1.31
0.10	0.18	0.30	0.52	0.45	2.26	6.47	4.11	1.25
0.20	0.16	0.30	0.53	0.45	2.26	6.47	4.19	1.30
0.30	0.17	0.31	0.53	0.47	2.45	6.53	4.27	1.17
0.40	0.15	0.31	0.54	0.48	2.42	6.48	4.34	1.21
0.50	0.16	0.31	0.52	0.62	2.73	6.61	4.41	1.10
0.60	0.17	0.31	0.52	0.62	2.73	6.57	4.39	1.20
Conc. Of DMPC ($\times 10^{-3}$M) ($\lambda_{em} = 435$ nm)								
0.025	0.18	0.34	0.48	0.59	1.89	4.51	2.91	1.28
0.05	0.19	0.31	0.49	0.72	2.03	4.47	2.98	1.22
0.10	0.15	0.30	0.55	0.75	1.78	4.33	3.00	1.30
0.20	0.25	0.25	0.50	1.03	2.36	4.43	3.00	1.09
0.30	0.16	0.27	0.57	0.85	1.80	4.26	3.00	1.17
0.40	0.19	0.29	0.52	0.85	2.04	4.35	3.00	1.25
0.50	0.18	0.28	0.54	0.90	1.99	4.31	3.00	1.11
0.60	0.14	0.31	0.55	0.74	1.77	4.25	3.00	1.09
Conc. Of DOPC ($\times 10^{-3}$M) ($\lambda_{em} = 435$ nm)								
0.025	0.70	0.30		0.84	2.62		1.37	1.25
0.05	0.69	0.31		0.83	2.57		1.37	1.29
0.10	0.69	0.31		0.87	2.63		1.42	1.21
0.20	0.68	0.32		0.87	2.61		1.43	1.10
0.30	0.68	0.32		0.87	2.62		1.43	1.20
0.40	0.68	0.32		0.88	2.63		1.44	1.05
0.50	0.69	0.31		0.88	2.65		1.43	1.13
0.60	0.69	0.31		0.86	2.69		1.43	1.23
Conc. Of POPC ($\times 10^{-3}$M) ($\lambda_{em} = 435$ nm)								
0.025	0.61	0.39		0.84	2.59		1.52	1.31
0.05	0.60	.40		0.84	2.59		1.54	1.28
0.10	0.61	0.39		0.87	2.64		1.56	1.21
0.20	0.59	0.41		0.86	2.63		1.58	1.24
0.30	0.60	0.40		0.87	2.64		1.58	1.19
0.40	0.61	0.39		0.87	2.65		1.56	1.07
0.50	0.60	0.40		0.86	2.63		1.57	1.11
0.60	0.60	0.40		0.86	2.62		1.56	1.10

[#]Estimated error in the measurement is around $\pm 5\%$

Table S₃A. Lifetime components, normalized amplitudes of lifetime components and average lifetime of PRODAN in DPPC and DMPC liposomes as a function of concentration of HSA. The decays were measured at the emission maxima following Figure 7.[#]

[HSA] (μM)	a_1 (%)	a_2 (%)	a_3 (%)	τ_1 (ns)	τ_2 (ns)	τ_3 (ns)	$\langle\tau\rangle$ (ns)	χ^2
DPPC liposomes								
0	0.15	0.31	0.54	0.62	2.73	6.57	4.49	1.10
0.5	0.15	0.30	0.55	0.42	2.518	6.66	4.43	1.16
1	0.18	0.32	0.50	0.50	2.485	6.44	4.37	1.10
2		0.42	0.58		2.00	6.30	4.49	1.08
4		0.43	0.57		1.900	6.00	4.24	1.10
6		0.44	0.56		1.800	5.86	4.08	1.17
8		0.41	0.59		1.840	5.89	4.23	1.11
10		0.47	0.53		1.860	5.80	3.95	1.04
12		0.48	0.52		1.802	5.61	3.78	1.14
16		0.47	0.53		1.714	5.34	3.63	1.15
20		0.44	0.56		1.780	5.11	3.64	1.15
25		0.46	0.54		1.750	5.05	3.53	1.12
30		0.45	0.55		1.650	5.01	3.50	1.19
35		0.41	0.59		1.600	4.81	3.49	1.10
40		0.42	0.58		1.560	4.73	3.40	1.17
50		0.40	0.60		1.480	4.60	3.35	1.2
DMPC liposomes								
0	0.34	0.66		2.20	4.54		3.75	1.20
0.5	0.32	0.68		2.00	4.45		3.63	1.21
1	0.30	0.70		1.62	4.35		3.53	1.24
2	0.29	0.71		1.55	4.31		3.51	1.20
4	0.29	0.71		1.49	4.30		3.48	1.29
6	0.29	0.71		1.43	4.27		3.45	1.30
8	0.30	0.70		1.47	4.28		3.44	1.22
10	0.29	0.71		1.41	4.24		3.42	1.22
12	0.30	0.70		1.40	4.23		3.38	1.25
16	0.29	0.71		1.22	4.16		3.31	1.30
20	0.30	0.70		1.16	4.17		3.27	1.25
25	0.29	0.71		1.08	4.13		3.24	1.25
30	0.30	0.70		1.10	4.14		3.23	1.21
40	0.29	0.71		1.12	4.10		3.23	1.26
50	0.29	0.71		1.12	4.10		3.23	1.30

[#]Estimated error in the measurement is around $\pm 5\%$

Table S₃B. Lifetime components, normalized amplitudes of lifetime components and average lifetime of PRODAN in POPC and DOPC liposomes as a function of concentration of HSA. The decays were measured at the emission maxima following Figure 7.[#]

[HSA] (μM)	a_1 (%)	a_2 (%)	a_3 (%)	τ_1 (ns)	τ_2 (ns)	τ_3 (ns)	$\langle\tau\rangle$ (ns)	χ^2
POPC liposomes								
0	1			3.77			3.70	1.1
0.5	1			3.77			3.70	1.12
1	1			3.77			3.70	1.12
2	1			3.750			3.75	1.16
4	1			3.80			3.80	1.2
6	0.06	0.94		0.86	3.81		3.63	1.22
8	0.081	0.92		0.93	3.84		3.61	1.20
10	0.14	0.86		1.00	3.82		3.43	1.19
12	0.18	0.82		0.86	3.85		3.31	1.21
16	0.25	0.75		0.79	3.85		3.10	1.25
20	0.29	0.71		0.80	3.90		3.00	1.24
25	0.33	0.67		0.79	3.95		2.90	1.20
30	0.34	0.66		0.85	3.90		2.92	1.25
40	0.32	0.68		0.75	3.90		2.90	1.27
50	0.35	0.65		0.95	3.90		2.93	1.26
DOPC liposomes								
0	1.00			3.49			3.49	1.16
0.5	1.00			3.49			3.49	1.20
1	1.00			3.45			3.49	1.22
2	1.00			3.49			3.50	1.21
4	0.11	0.89		1.92	3.63		3.44	1.20
6	0.16	0.84		1.72	3.68		3.37	1.25
8	0.20	0.80		1.68	3.70		3.30	1.24
10	0.22	0.78		1.68	3.75		3.29	1.29
12	0.19	0.81		1.00	3.64		3.15	1.30
16	0.22	0.76		0.89	3.64		2.96	1.35
20	0.27	0.73		0.82	3.66		2.89	1.30
25	0.30	0.70		0.75	3.65		2.78	1.27
30	0.31	0.69		0.75	3.73		2.80	1.29
40	0.35	0.65		0.75	3.78		2.72	1.29
50	0.35	0.65		0.75	3.77		2.71	1.31

[#]Estimated error in the measurement is around $\pm 5\%$