Electronic Supplementary Material (ESI) for Soft Matter

SUPPLEMENTAL MATERIAL FOR THE ARTICLE:

Cholesterol modulates the fusogenic activity of a membranotropic domain of the FIV glycoprotein gp36.

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Table SM1. Parameters derived from model fitting the reflectivity profiles for pure the lipid bilayers and after C8-d_{5all} addition. Please note that the high roughness value corresponding to the water layer for the POPC/CHOL 66 is due to the high roughness of the oxide layer on the used silicon block.

POPC/CHOL 90:10	**interfacial layer**	**thickness (Å)**	**% solvent content**	**roughness (Å)**
	water	3±1	100	3±1
	inner headgroups	6±1	30±10	3±1
	chains region	30±2	-	6±2
	outer headgroup	7±1	22±10	4±1
with C8	water	3±1	100	3±1
	inner headgroups	6±1	30±10	3±1
	chains region	30±2	-	6±2
	outer headgroup	5±1	36±10	4±1
	interacting peptide	5±1	60±10	5±1
POPC/CHOL 80:20	**interfacial layer**	**thickness (Å)**	**% solvent**	**roughness (Å)**
	water	3±1	100	3±1
	inner headgroups	7±1	40±10	3±1
	chains region	31±2	-	5±2
	outer headgroup	7±1	30±10	3±1
with C8	water	3±1	100	3±1
	inner headgroups	7±1	30±10	3±1
	chains region	31±2	-	7±2
	outer headgroup	5±1	35±10	5±1
	interacting peptide	5±1	75±10	3±1
POPC/CHOL 66:33	**interfacial layer**	**thickness (Å)**	**% solvent**	**roughness (Å)**
	water	3±1	100	8±1
	inner headgroups	9±1	35±10	5±1
	chains region	33±2	-	5±2
	outer headgroup	8±1	44±10	7±1
with C8	water	3±1	100	8±1
	inner headgroups	9±1	30±10	6±1
	chains region	33±2	-	5±2
	outer headgroup	8±1	35±10	7±1
POPC/SM/CHOL	**interfacial layer**	**thickness (Å)**	**% solvent**	**roughness (Å)**
	water	5±1	100	5±1
	inner headgroups	8±1	40±10	3±1
	chains region	32±2	-	7±2
	outer headgroup	9±1	44±10	4±1
with C8	water	5±1	100	5±1
	inner headgroups	8±1	33±10	6±1
	chains region	31±2	-	7±2
	outer headgroup	7±1	42±10	5±1
	interacting peptide	5±1	80±10	4±1

Table SM2. Order parameter, *S*, and hyperfine constant, a'_N, values of *n*-PCSL in POPC, POPC/CHOL and POPC/SM/CHOL bilayers in absence and presence of C8 peptide.

n-PCSL	***S***				
	POPC	**POPC/CHOL 90:10**	**POPC/CHOL 80:20**	**POPC/CHOL 66:33**	**POPC/SM/CHOL**
5-PCSL	0.62 ± 0.01	0.64 ± 0.01	0.68 ± 0.01	0.72 ± 0.01	0.69 ± 0.01
7-PCSL	0.57 ± 0.01	0.60 ± 0.01	0.66 ± 0.01	0.71 ± 0.01	0.67 ± 0.01
10-PCSL	0.48 ± 0.02	0.49 ± 0.02	0.58 ± 0.02	0.63 ± 0.02	0.60 ± 0.02
14-PCSL	0.15 ± 0.03	0.17 ± 0.03	0.35 ± 0.02	0.40 ± 0.02	0.38 ± 0.02
5-SMSL					0.75 ± 0.01
after the C8 addition					
5-PCSL	0.65 ± 0.01	0.70 ± 0.01	0.74 ± 0.01	0.72 ± 0.01	0.77 ± 0.01
7-PCSL	0.60 ± 0.01	0.66 ± 0.01	0.69 ± 0.01	0.70 ± 0.01	0.76 ± 0.01
10-PCSL	0.50 ± 0.02	0.53 ± 0.02	0.59 ± 0.02	0.64 ± 0.02	0.66 ± 0.02
14-PCSL	0.20 ± 0.03	0.21 ± 0.02	0.36 ± 0.02	0.39 ± 0.02	0.43 ± 0.02
5-SMSL					0.71 ± 0.01

n-PCSL	a'_N / G				
	POPC	**POPC/CHOL 90:10**	**POPC/CHOL 80:20**	**POPC/CHOL 66:33**	**POPC/SM/CHOL**
5-PCSL	15.3 ± 0.1	15.1 ± 0.1	15.2 ± 0.1	15.3 ± 0.1	15.3 ± 0.1
7-PCSL	15.1 ± 0.1	15.1 ± 0.1	15.2 ± 0.1	15.3 ± 0.1	15.2 ± 0.1
10-PCSL	14.8 ± 0.2	14.8 ± 0.2	14.9 ± 0.2	15.0 ± 0.2	15.0 ± 0.2
14-PCSL	13.5 ± 0.2	13.5 ± 0.1	13.9 ± 0.2	14.1 ± 0.2	14.0 ± 0.1
5-SMSL					15.2 ± 0.1
after the C8 addition					
5-PCSL	15.2 ± 0.1	15.3 ± 0.1	15.4 ± 0.1	15.1 ± 0.1	15.6 ± 0.1
7-PCSL	15.1 ± 0.2	15.2 ± 0.2	15.3 ± 0.1	15.2 ± 0.1	15.6 ± 0.1
10-PCSL	14.8 ± 0.1	14.9 ± 0.1	14.8 ± 0.1	15.0 ± 0.1	15.0 ± 0.1
14-PCSL	13.5 ± 0.2	13.3 ± 0.2	14.3 ± 0.2	14.2 ± 0.2	14.1 ± 0.2
5-SMSL					15.6 ± 0.1