Electronic Supplementary Information

Annexin V-Containing Cubosomes for Targeted Early Detection of Apoptosis in Degenerative Retinal Tissue

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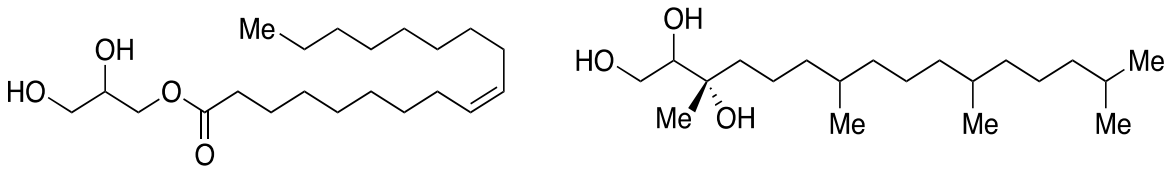

Monoolcin, **A** Phytantriol, **B**

Figure 1: Chemical structures of (A) monoolein (MO) and (B) phytantriol (Phy).

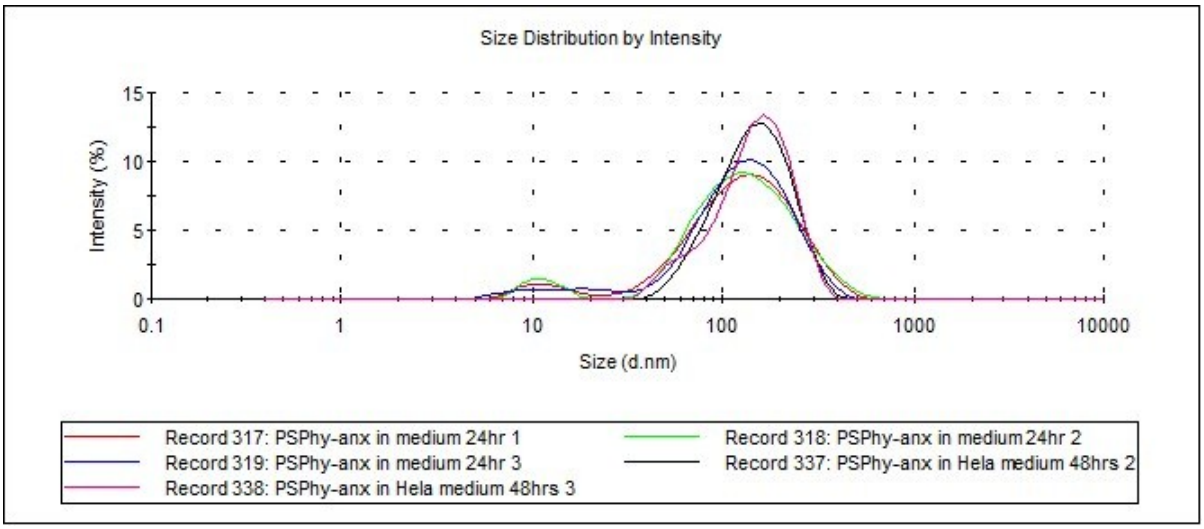

Figure 2: DLS analysis of cubosomes in buffer, giving the average particle sizes around 200 nm.

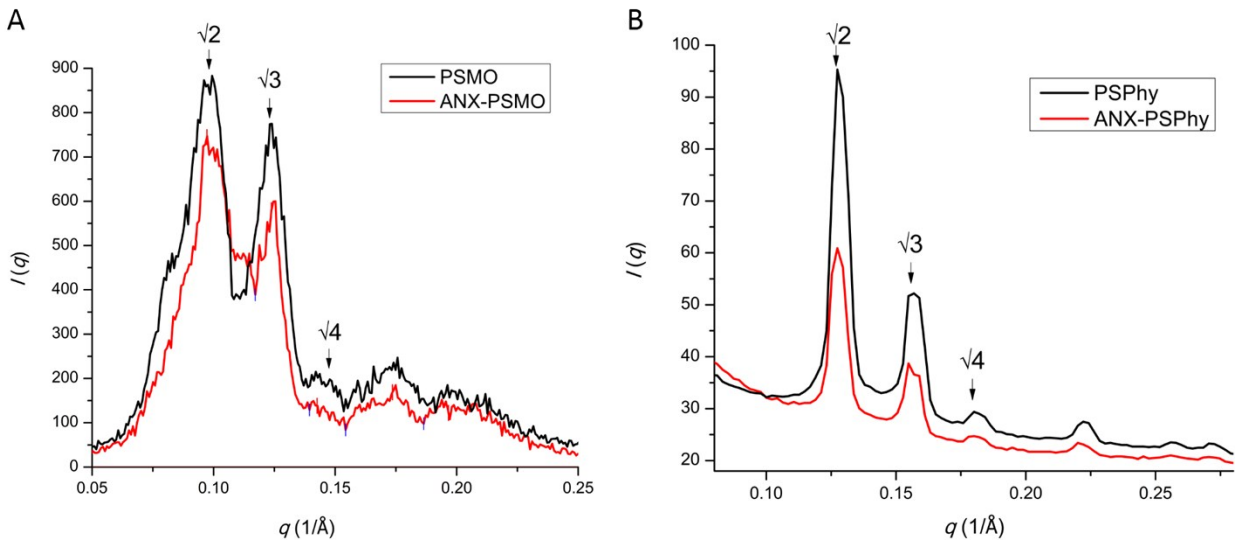

Figure 3: (A) Synchrotron SAXS profiles showing the scattering profiles of the PSMO cubosomes (black line) and ANX-PSMO cubosomes (red line) (B) PSPhy cubosomes (black line) and ANX-PSPhy cubosomes (red line) in HEPES-2.5 mM $CaCl_2$ buffer at 37 ℃.

Table 1: Cytotoxicity of Phy-based and MO-based cubosomes in different cell line

Cell Line	Concentration (µg/mL)		Assay		Reference	
	Phy	**MO**	**Phy**	**MO**	**Phy**	**MO**
A549	≥ 25 highly toxic	≤ 100 non-cytotoxic	Alamar Blue		1,2*	2*
CHO	≥ 25 highly toxic	≤ 50 non-cytotoxic			1,2*,3	2*,4
HEK	At 20 toxic, ≥ 40 highly toxic	≤ 50 non-cytotoxic			3	5
HeLa	At 40 50% cell viability	≤ 1000 non-cytotoxic, at 166[a] 70% cell viability	MTT		6	7*,8[a]*,9[a]*
L929	≤ 50 non-cytotoxic	At 40 IC50	MTT	MTS	10*	11

*: Cell imaging in the reference, [a]: F108 was employed as stabilizer in the reported cubosomes. F127 was employed as stabilizer in unmarked reports. Phy: phytantriol-based cubosomes, MO: monoolein-based cubosomes.

Table 2: The theoretical scattering length density of materials used for data fitting

	D_2O			CmSi		
	ρ	ρ_{head}	ρ_{chain}	ρ	ρ_{head}	ρ_{chain}
SiO_2	3.41			3.41		
POPS	0.49	3.47	-0.28	0.49	3.47	-0.28
d_{31}-POPS	3.21	3.47	3.14	3.21	3.47	3.14
d_{31}- POPC	2.82	1.88	3.14	2.82	1.88	3.14
d_{31}-POPC/h-POPS	2.04	2.41	2.00	2.04	2.41	2.00
d_{31}-POPC/d_{31}-POPS	2.95	2.41	3.14	2.95	2.41	3.14
PSPhy	0.365	2.62	-0.336	-0.10	0.65	-0.34
dANX	3.23			2.38		

CmSi: scattering length density can be matched to silicon, ρ: scattering length density for the whole molecule, ρ_{head}: scattering length density for the head of molecule, ρ_{chain}: scattering length density for the chain of molecule.

Reference:

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