Supplementary material

Intravenous nanoemulsions loaded with phospholipid complex of a novel pyrazoloquinolinone ligand for enhanced brain delivery

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Table S1. Solubility of CW-02-79 in the selected solvents (mean ± SD, *n* = 3).

Solvent	Solubility (μg/ml)
MCT	49.93±0.07
Castor oil	27.96±0.03
MCT:castor oil, (1:1, *w*/*w*)	218.38±0.30
Soybean oil	65.68±0.43
MCT:soybean oil (1:1, *w*/*w*)	41.41±0.04
Fish oil	34.19±0.06
Methanol	939.09±3.53
Isopropanol	5,746.55±45.8
DMSO	>30000
0.1M HCl	12.33±0.61
Phosphate buffer, pH 7.4	11.80±0.70
Ultrapure water	11.75±0.20

Table S2. Interpretation the release kinetics of selected nanoemulsions by fitting in vitro drug release data to different models

Kinetic model	Parameter	Formulation	
		CW$_{PC}$NE1	**CW$_{PC}$NE4**
Zero-order model	K	0.049	0.041
	R^2	0.9665	0.9784
	R^2 adjusted	0.9665	0.9784
	AIC	30.06	25.23
First-order model	**K**	**0.001**	**0.001**
	R^2	**0.9970**	**0.9958**
	R^2 adjusted	**0.9970**	**0.9958**
	AIC	**15.54**	**15.39**
Higuchi model	K	1.525	1.256
	R^2	0.8845	0.8745
	R^2 adjusted	0.8845	0.8745
	AIC	37.49	35.80
Korsmeyer Peppas model	K	0.202	0.133
	n	0.801	0.833
	R^2	0.9902	0.9971
	R^2 adjusted	0.9877	0.9935
	AIC	24.69	20.08
Baker Lonsdale model	K	0.000	0.000
	R^2	0.8430	0.8409
	R^2 adjusted	0.8430	0.8409
	AIC	39.33	37.22

K – release rate constant, R^2 –coefficient of determination, R^2 adjusted - adjusted coefficient of determination, AIC – Akaike Information Criterion, n – diffusion release exponent

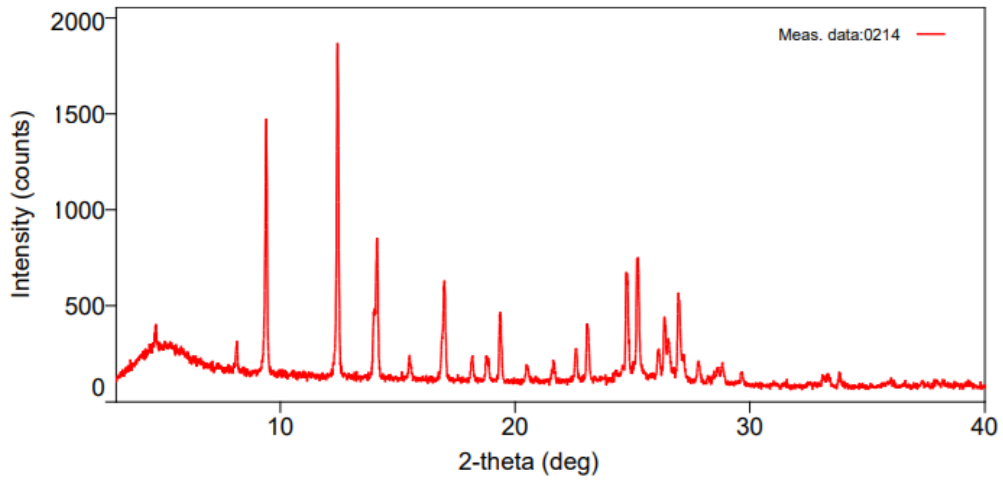


Figure S1. XRPD pattern of unprocessed CW-02-79

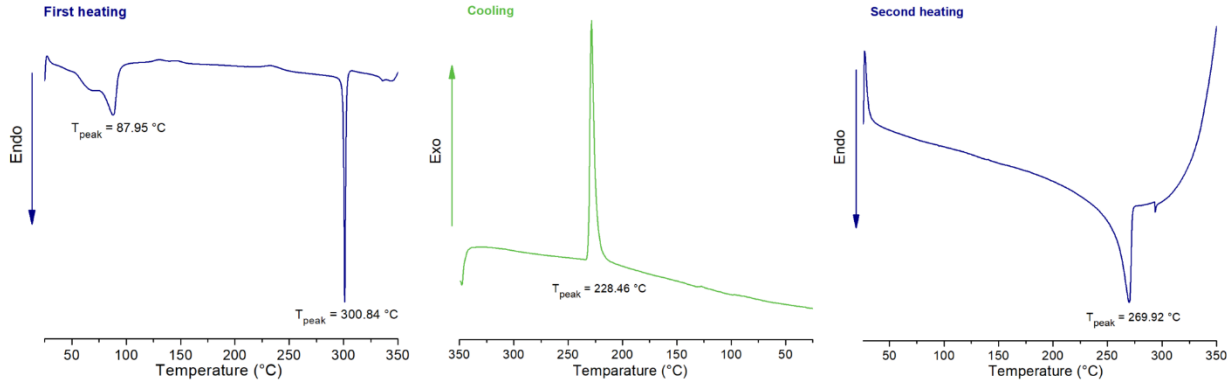


Figure S2. DSC thermograms showing the crystallization tendency of CW-02-79 after melt quenching

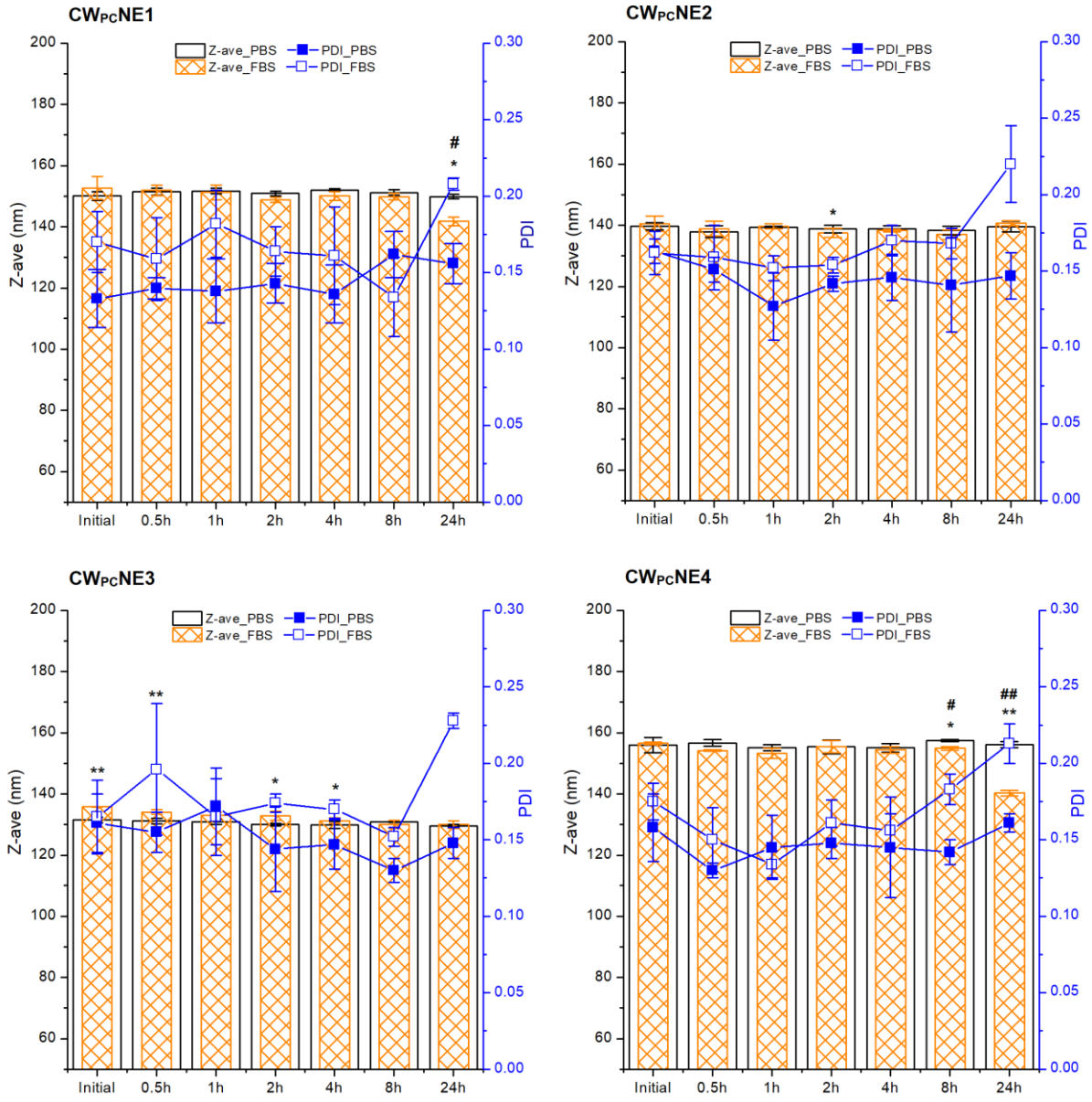


Figure S3. The changes of droplet size (Z-ave) and polydispersity index (PDI) of developed nanoemulsions during 24-hour incubation in phosphate buffer saline (PBS) and fetal bovine serum (FBS) enriched PBS, reflecting the interactions of the nanodroplets with the biological media. *$p < 0.05$, ** $p < 0.01$ compared to the Z-ave in PBS for each time point; # $p < 0.05$, ## $p < 0.01$ compared to the PDI values in PBS for each time point