International Journal of
Molecular Sciences

MDPI

Supplementary Materials

Lipid-Based Nanocarriers for Delivery of Neuroprotective Kynurenic Acid: Preparation, Characterization, and BBB Transport

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1. Optimization of the preparation of the liposomal particles

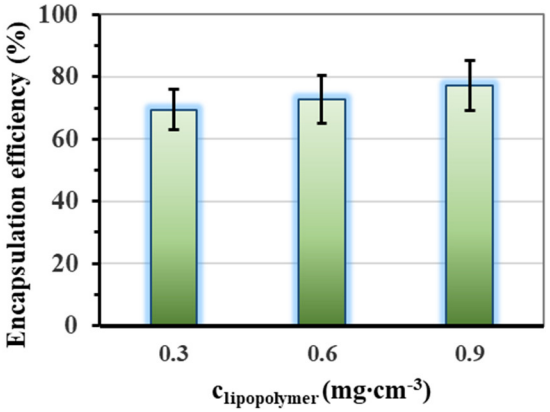

Figure S1.: Change of the encapsulation efficiency of the WSLP carriers as a function of the applied lipopolymer concentration (c_{KYNA} = 1.0 mM)

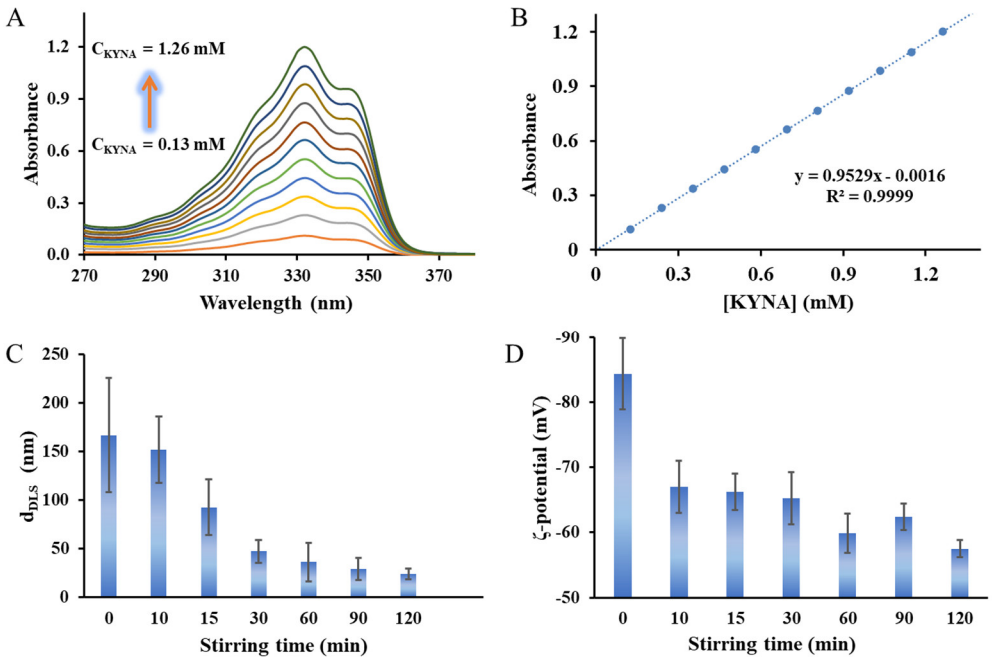

Figure S2.: A: Uv-VIS spectrum series of aqueous KYNA solutions for determination of the relationship between the measured absorbance (at 332 nm) and the applied drug concentration. **B:** Calibration curve for determination of the encapsulation efficiency (EE%) of liposomal carriers. **C:** Modifying of the hydrodynamic diameter (nm) of the lipid-based carriers as a function of the applied stirring time. **D:** Altering of the ζ-potential (mV) of the lipid-based carriers as a function of the applied stirring time.

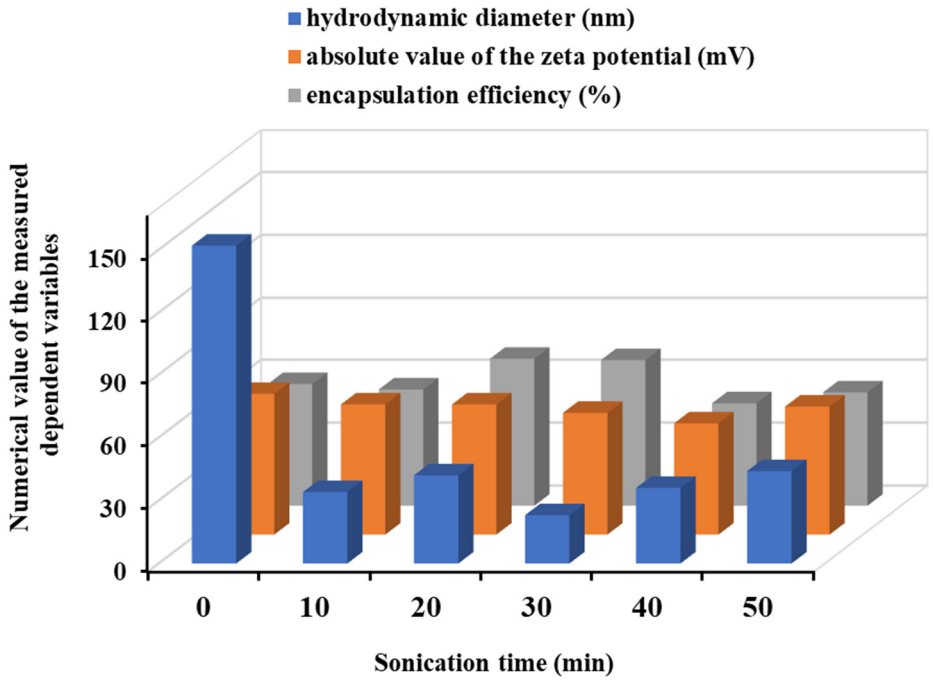

Figure S3.: Alternation of the measured dependent properties (hydrodynamic diameter / nm; absolute value of the zeta potential / mV and encapsulation efficiency / %) of the LIP carriers against the time of sonication.

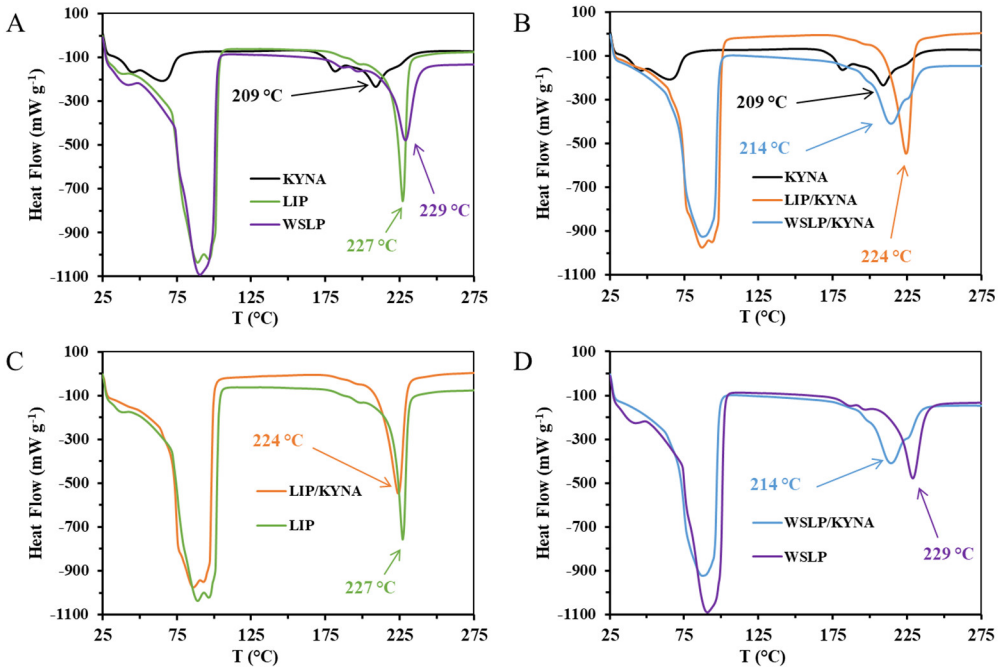

Figure S4.: Differential scanning calorimetry (DSC) curves of pure drug (KYNA as black line), asolectin based liposomes (LIP as green line), water soluble lipopolymer based liposomes (WSLP as lilac curve) and drug loaded liposomal carriers (LIP/KYNA carrier as orange line and WSLP/KYNA carrier as blue line) presented in different comparisons.

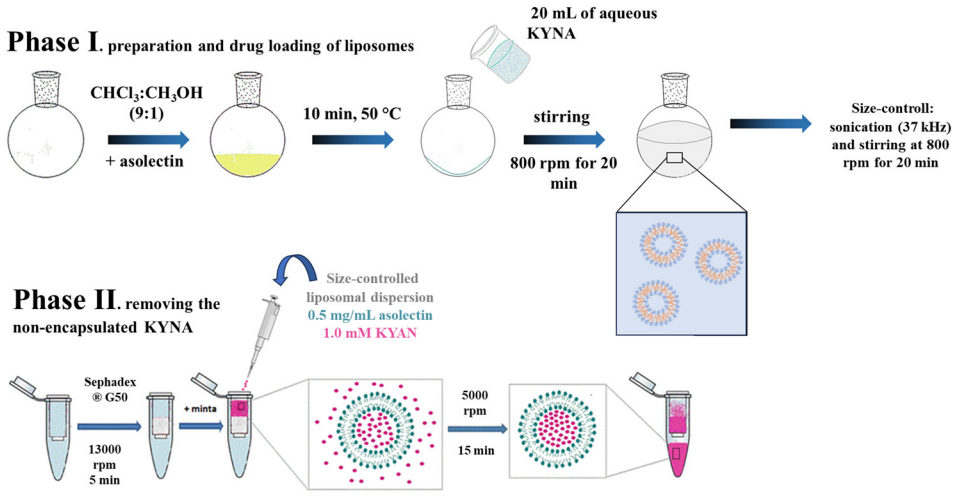

Figure S5.: Schematic representation of the preparation pathway of asolectin-based nanocarriers containing KYNA.

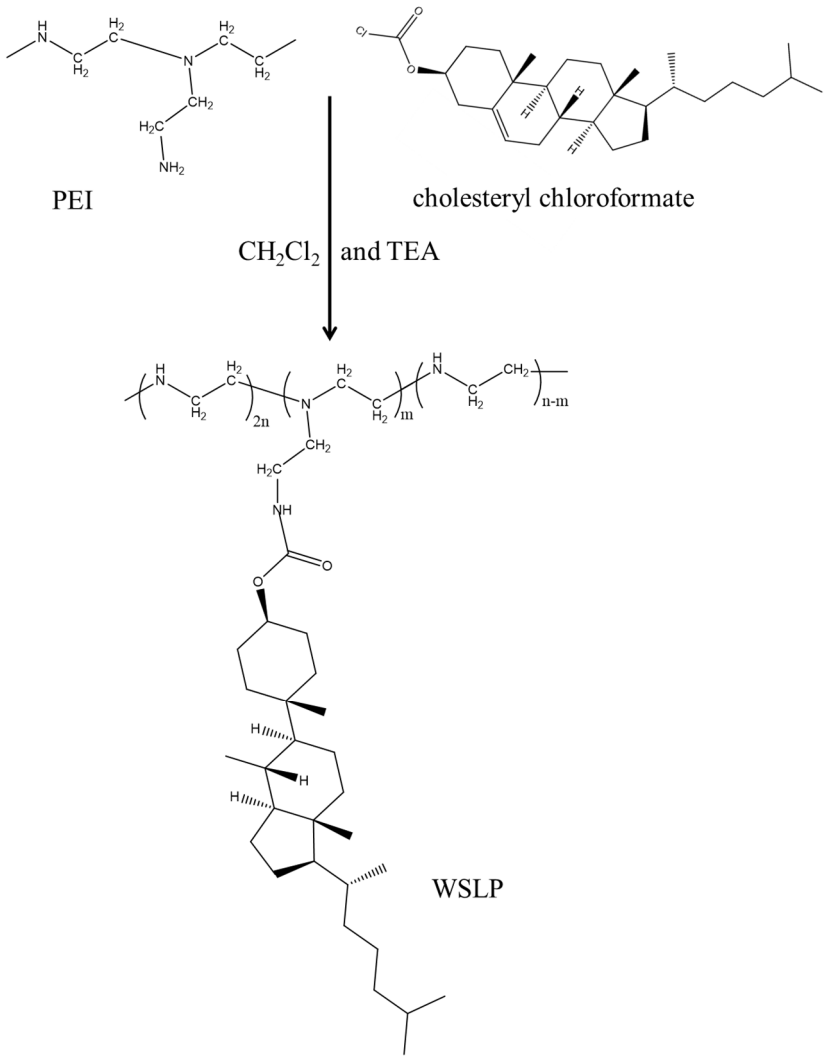

Figure S6.: Synthesis scheme of poly{(ethylenimine)-co-[N-2-(aminoethyl)ethylenimine]-co-[N-(N-cholesteryloxycarbonyl-(2-aminoethyl))ethylenimine]}.

Table S1. Transport of the free drug and liposomes (LIP and WSLP) containing KYNA through the in vitro human BBB model.

sample	Pe · 10^{-6} (min)	MR%	Flux · 10^{-6} ()
KYNA	4.0 ± 0.35	0.45 ± 0.36	1.55 ± 0.13
LIP/KYNA	21.3 ± 0.83	62.3 ± 0.5	5.29 ± 0.21
WSLP/KYNA	11.9 ± 0.45	23.7 ± 1.5	4.75 ± 0.18