

Supplementary information

Tailor-Made Spider-Eggcase-Silk Spheres for Efficient Lysosomal Drug Delivery

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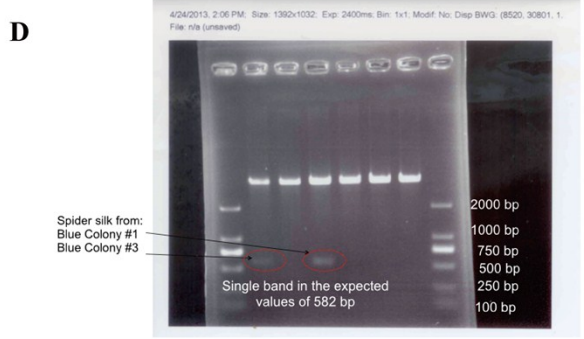
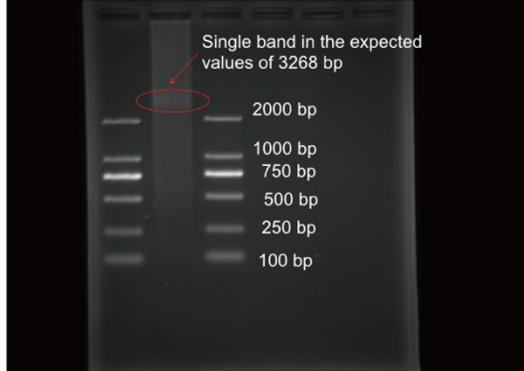
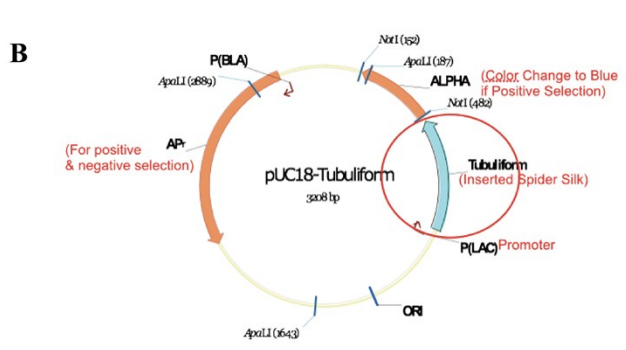
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His-tag Label for Future Protein Purification
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Tubuliform AFSQAAASRSASQAAAGSSSTSTTTTTQAASQDASQASSSSSA----- 166
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Figure S1. Gene recombinant of spider eggcase silk proteins. A, complete gene sequence; B, plasmid design; C, verification of targeted plasmid; D, verification of tubuliform spidroins; E, Similarity comparison between the wild type and engineered one.

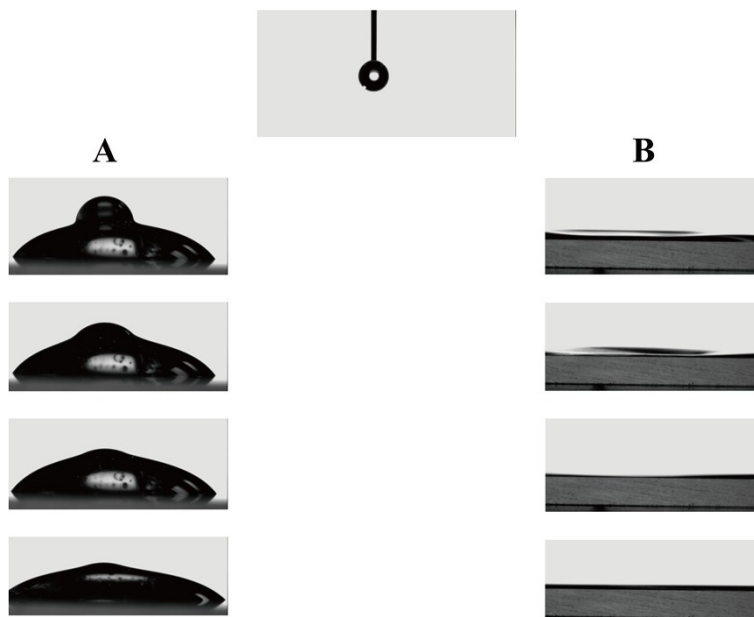


Figure S2. Preparation process in different lubricant substrates. A) High- molecule-weight silicon oil; B) Low-molecule-weight silicon oil.

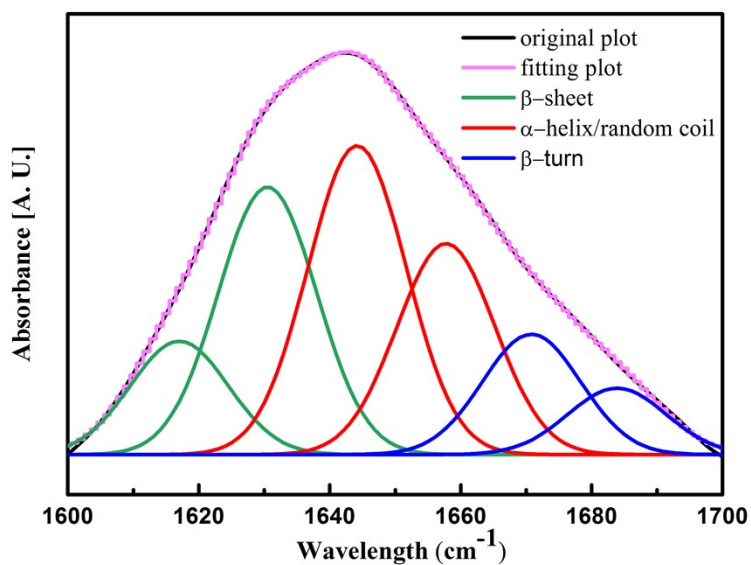


Figure S3. Selected ATR-FTIR spectra of original silk spheres deduced after Fourier self-deconvolution. Within amide I band, the contributions of β -sheets, random coil/ α -helix and β -turn are represented.

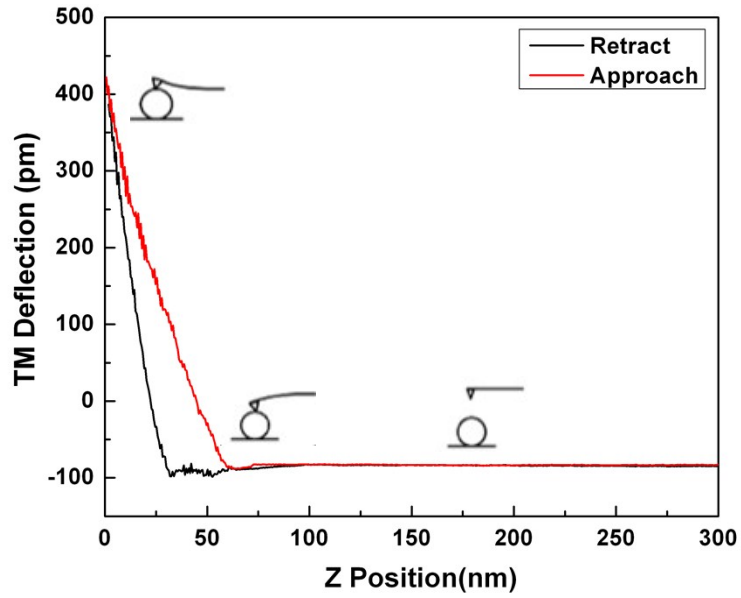


Figure S4. Nanoindentation curve of a single silk sphere.

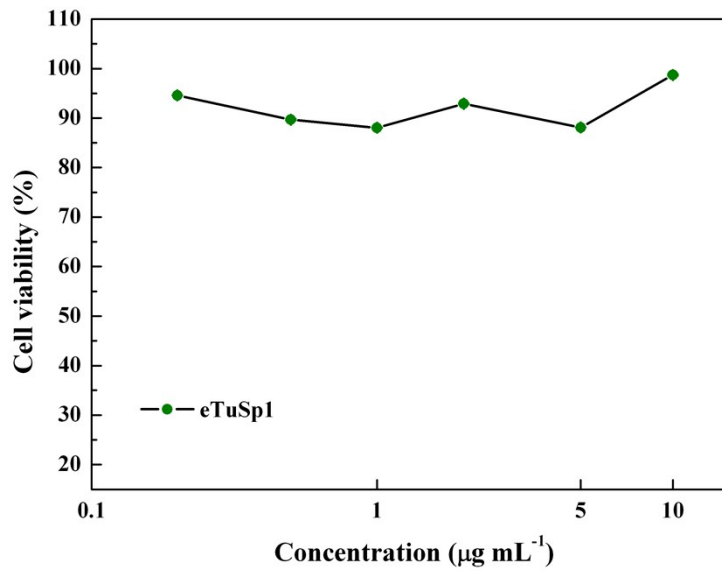


Figure S5. Cytotoxicity of pure eTuSp1 spheres.

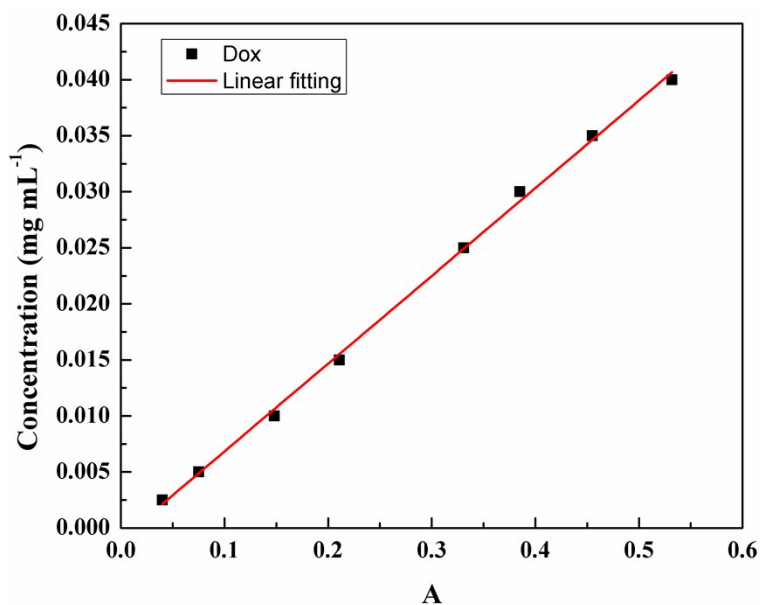


Figure S6. The standard concentration plot of the Dox. The absorbance of each sample is measured at the wavelength of 490 nm by UV-Vis spectrometry.

Table S1. Physicochemical properties of eTuSp1 spheres.

	Size (nm)	Polydispersity index	Zeta potential (mV)	Mobility (cm ² /Vs ± SD)
eTuSp1	183	0.214	-33.5 ± 4.2	-2.48×10 ⁴ ± 2.14×10 ⁵