

Silica nanoparticles induce hepatocytes ferroptosis and liver injury via ferritinophagy

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Supplementary Information

Characterization of SiNPs

As shown in Figure S1, SiNPs were characterized comprehensively. The transmission electron microscope (TEM) images illustrated that SiNPs were nearly spherical and had relatively favorable dispersion (Figure S1A). The analysis results of Image J software showed that the size distribution of SiNPs was approximately normal, with an average particle size of 51.74 nm (Figure S1B). Table S1 and Figure S1C listed the hydrodynamic sizes, zeta potentials, and polydispersity index (PDI) of SiNPs dispersed in the distilled water, physiological saline, and Dulbecco's Modified Eagle's Medium (DMEM) at different time points (0, 1, 3, 6, 12, 24 h), which revealed that the synthesized SiNPs exhibited the satisfied monodispersity and relatively stability.

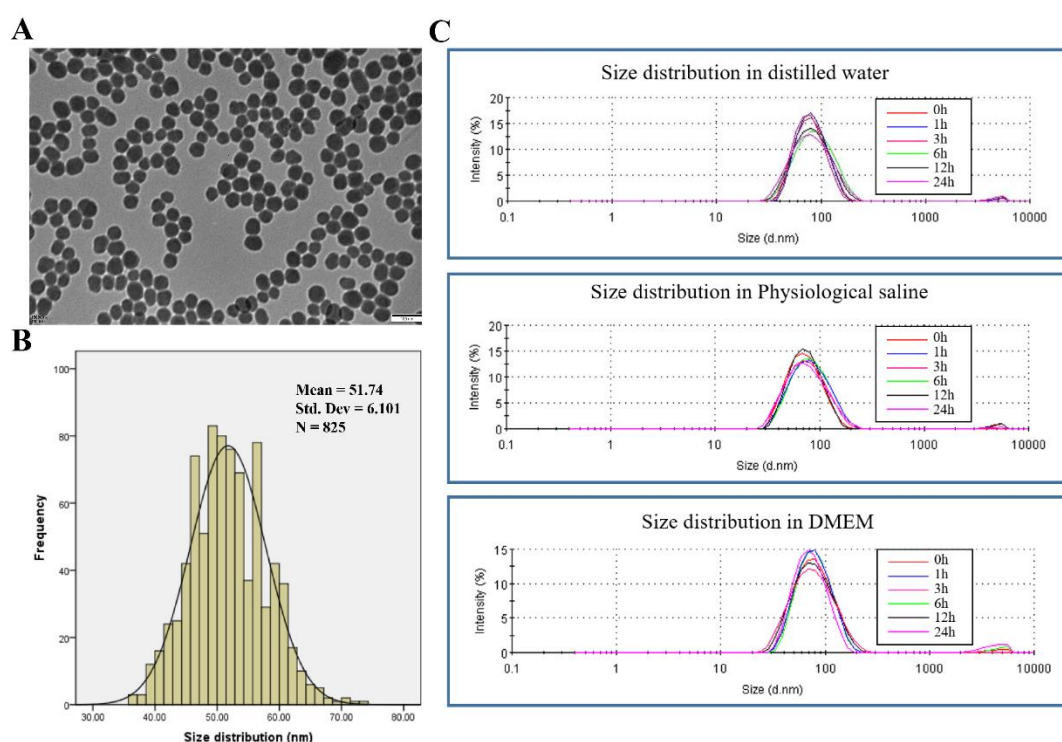


Figure S1. Characterization of SiNPs. (A) The TEM images showed that the SiNPs were nearly spherical and had relatively favorable dispersion. (B) The size distribution of SiNPs was approximately normal distribution, with an average particle size of 51.74 nm \pm 6.101. (C) The hydrodynamic sizes of SiNPs in the distilled water, physiological saline and serum-free DMEM at different time points (0, 1, 3, 6, 12, 24 h), which demonstrated that the synthesized SiNPs exhibited the good monodispersity and relatively stability.

Table S1. The hydrodynamic size and zeta potential of the SiNPs in distilled water, physiological saline and DMEM at different time points.

	Distilled water			Physiological saline			DMEM		
	Hydrodynamic sizes (nm)	Zeta potential (mV)	PDI	Hydrodynamic sizes (nm)	Zeta potential (mV)	PDI	Hydrodynamic sizes (nm)	Zeta potential (mV)	PDI
0h	77.70 ± 2.68	-36.50 ± 0.51	0.17 ± 0.01	73.36 ± 2.75	-21.90 ± 0.59	0.18 ± 0.004	74.65 ± 2.05	-25.4 ± 1.02	0.17 ± 0.02
1h	79.91 ± 0.32	-37.33 ± 0.61	0.15 ± 0.01	76.41 ± 0.26	-22.33 ± 0.27	0.16 ± 0.01	77.50 ± 0.38	-23.3 ± 0.99	0.18 ± 0.004
3h	78.79 ± 0.89	-40.03 ± 0.39	0.14 ± 0.01	74.47 ± 0.61	-21.80 ± 0.25	0.15 ± 0.004	73.77 ± 0.50	-24.70 ± 1.49	0.16 ± 0.01
6h	77.09 ± 0.04	-42.20 ± 0.29	0.15 ± 0.01	72.04 ± 0.43	-19.23 ± 0.09	0.19 ± 0.01	70.18 ± 0.39	-25.47 ± 0.42	0.18 ± 0.01
12h	75.84 ± 0.48	-38.30 ± 1.59	0.17 ± 0.002	69.07 ± 0.44	-17.47 ± 1.35	0.16 ± 0.004	68.02 ± 0.53	-24.00 ± 1.14	0.17 ± 0.002
24h	73.56 ± 0.22	-37.86 ± 0.97	0.13 ± 0.02	68.32 ± 0.40	-17.70 ± 0.57	0.16 ± 0.002	71.66 ± 1.87	-26.23 ± 0.42	0.22 ± 0.02

Data are expressed as means ± S.D. from three independent experiments.