Supporting Information

Fullerene nanoparticles: a promising candidate for the alleviation of silicosis-associated pulmonary inflammation

Shuai Liu, Daiqin Chen, Xue Li, Mirong Guan, Yue Zhou, Lei Li, Wang Jia, Chen Zhou, Chunying Shu, * Chunru Wang,* Chunli Bai

Beijing National Laboratory for Molecular Sciences, Key Laboratory of Molecular Nanostructure and Nanotechnology, CAS Research/Education Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China;

University of Chinese Academy of Sciences, Beijing 100049, China

* Corresponding Authors.

E-mail addresses: crwang@iccas.ac.cn (C Wang), shucy@iccas.ac.cn (C Shu).

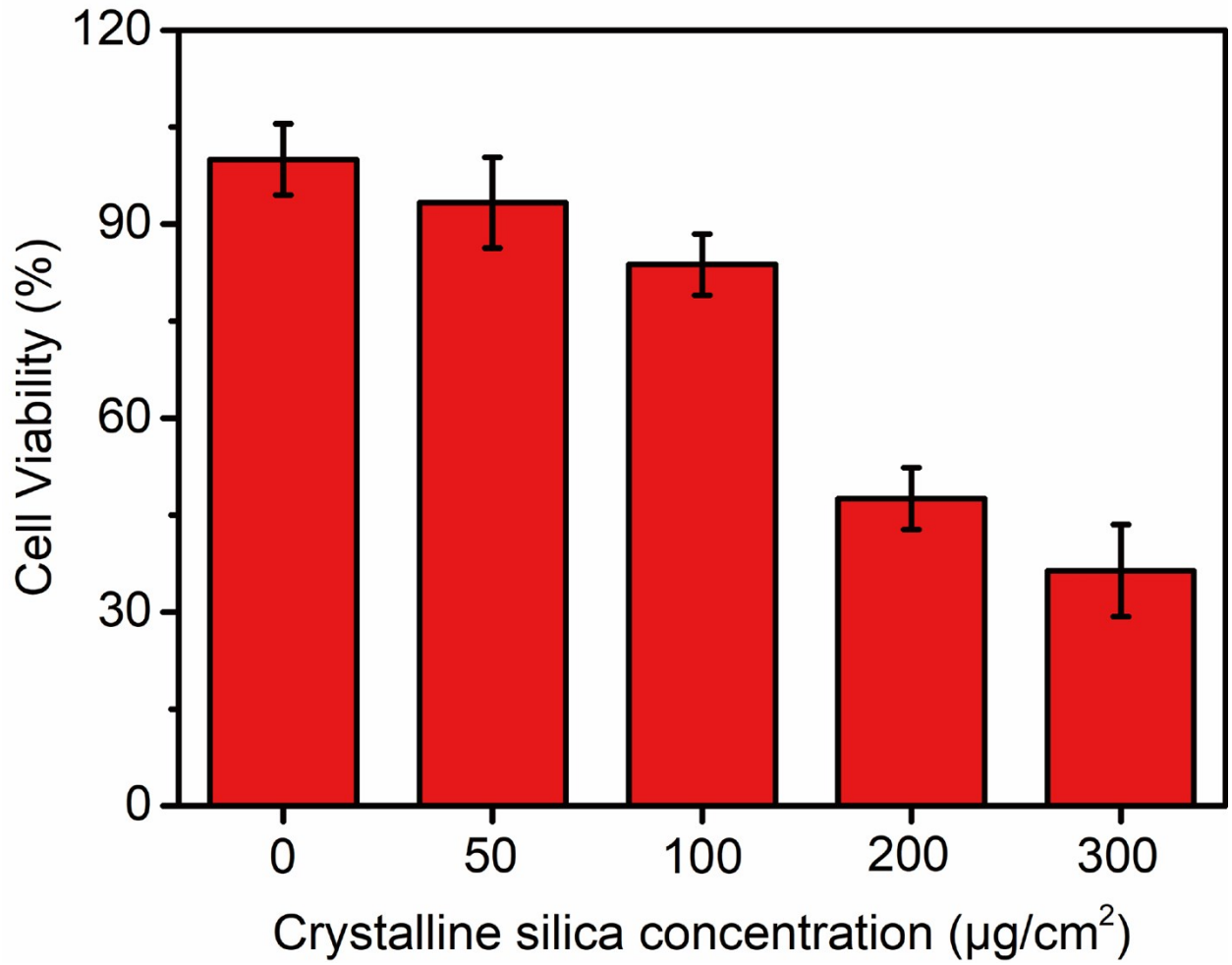

Figure S1. RAW 264.7 cells were seeded in a 96-well plate with a density of ca. 2×10^4 per well and pre-cultured for 24 h. Then, 50, 100, 200 and 300 μg/cm^2 of crystalline silica were separately added and incubated for another 24 h. Cells treated with saline were used as control. The cell viabilities were evaluated by CCK-8 (mean ± SD, n = 6).

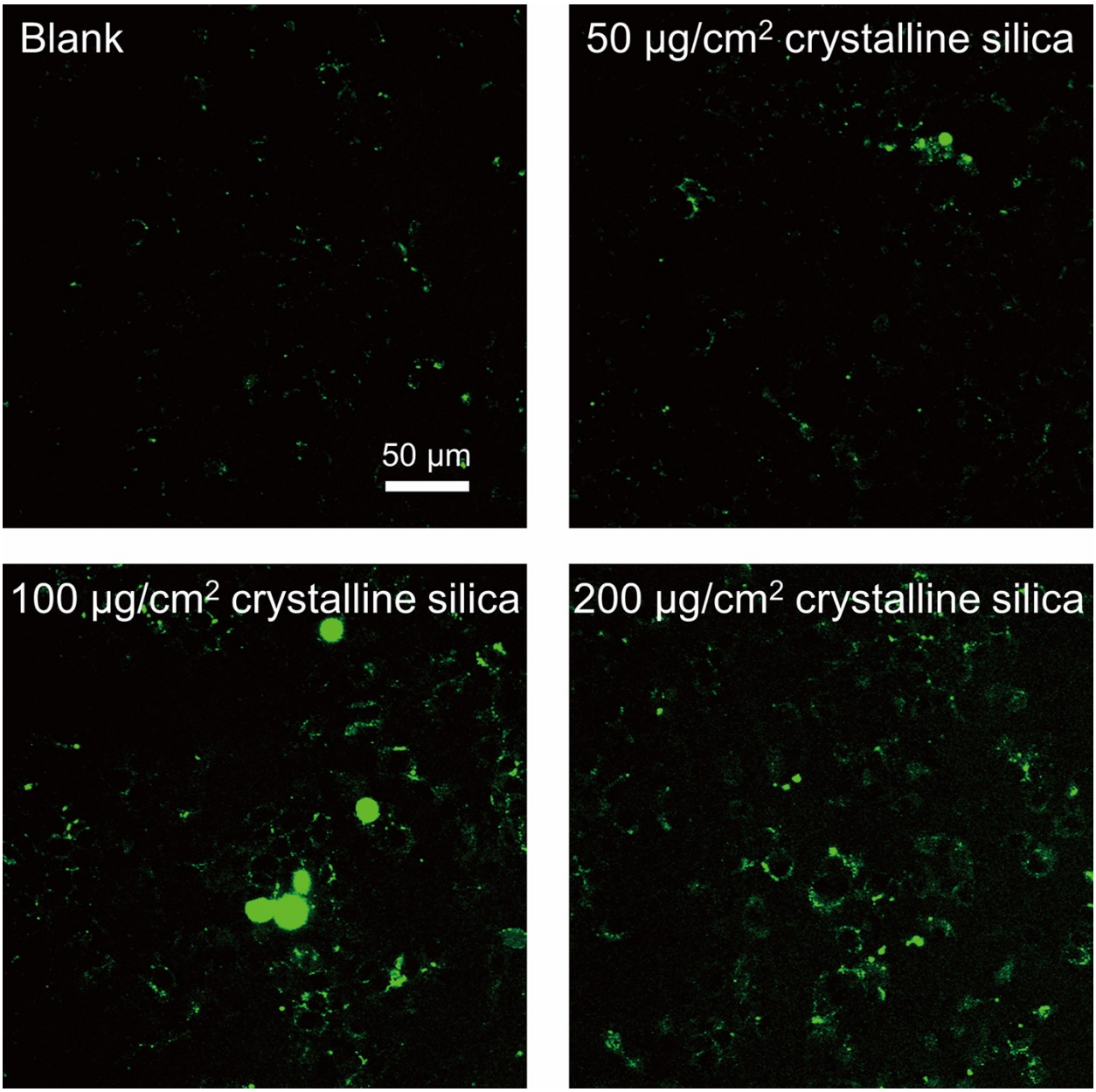

Figure S2. RAW 264.7 cells were seeded in the confocal dishes with a density of ca.3 x 10^5 per dish and pre-cultured for 24 h. Then, the medium containing either saline, or 50, 100 and 200 μg/cm^2 of crystalline silica were added and incubated for another 4 h. After that, the mediums were replaced by 500 μL colorless medium containing 2 μM of DCFH-DA and incubated at 37 °C for 15 min. After washes with PBS for three times, fluorescence imaging was performed with a confocal laser scanning microscope. A laser (488 nm) was used to excite DCFH, and the

fluorescence signals were recorded at 525 nm.

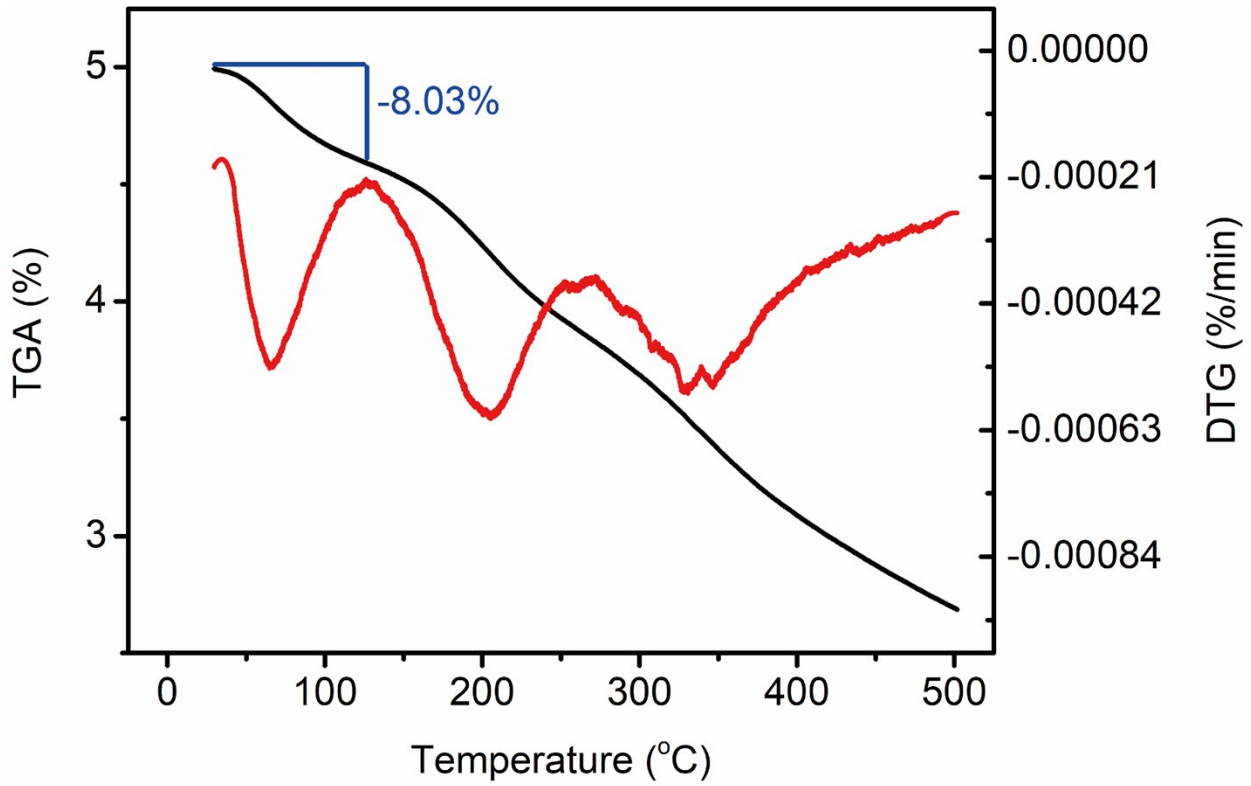

Figure S3. Thermogravimetric analysis (TGA) (black line) and derivative thermogravimetry (DTG) (red line) of FNs (under a 50 mL/min of nitrogen flow, 5 °C/min, 20-500 °C). The first weight loss peak before 150 °C was assigned to the degradation of bound water.

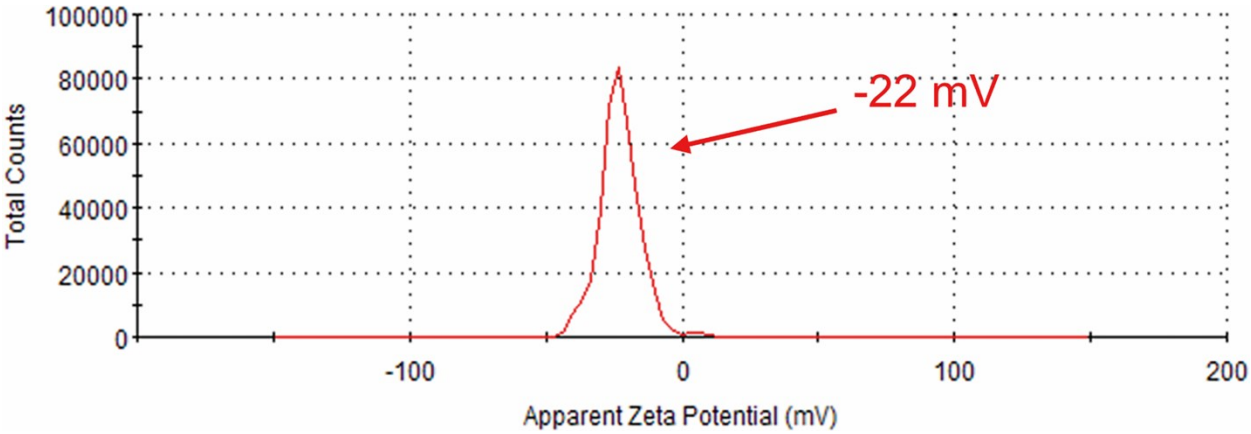

Figure S4. Zeta potential of FNs in water (0.4 mg/mL).

Table S1. Elemental analysis result of FNs.

FNs	Elements		
	C	H	N
Content (%)	47.3	3.25	4.62

Considering the relative contents of carbon, hydrogen and nitrogen in the Table S1, and the relative contents of bound water in the Figure S3, the average component of FNs was deduced as $C_{70}(Ala)_{\sim 8}(OH)_{\sim 8}\cdot 11H_2O$.