Preparation and characterization of enzyme-responsive zwitterionic nanoparticles for monoclonal antibody delivery

Changxin Hou[1,2], Huike Xing[1,2], and Xubo Yuan (✉)[1,2]

1 Tianjin Key Laboratory of Composite and Functional Materials, Tianjin University, Tianjin 300350, China
2 School of Materials Science and Engineering, Tianjin University, Tianjin 300350, China

E-mail: xbyuan@tju.edu.cn

Supplementary materials

A series of zwitterionic nanoparticles with different proportions were prepared by the method descripted in Section 2.2 in this paper. Their size and zeta potential measured by DLS also proved the successful preparation of the nanoparticles.

Table S1 The molar ratio of zwitterionic monomer to protein

Nanoparticles	Zwitterionic monomer	BSA
CBMA3-NP	3000	1
CBMA5-NP	5000	
CBMA7-NP	7000	
SBMA3-NP	3000	
SBMA5-NP	5000	
SBMA7-NP	7000	–

Table S2 Potential and particle size of zwitterionic nanoparticles

Zwitterionic nanoparticles	Size/nm	Zeta potential/mV
BSA	3.7±1.0	−9.4±2.5
CBMA3-NP	18.6±1.6	1.1±0.2
CBMA5-NP	18.2±2.1	1.3±1.1
CBMA7-NP	18.7±2.6	0.8±2.0
SBMA3-NP	18.3±1.9	0.6±1.1
SBMA5-NP	18.7±1.9	2.2±0.8
SBMA7-NP	18.8±2.3	1.7±1.1

In addition to zwitterionic nanoparticles characterization experiments, Nimo-loaded zwitterionic nanoparticles were prepared with Nimo as the core, and the particle size and potential of nanoparticles were measured using DLS and zetapotential analysis, as shown in Fig. S1.

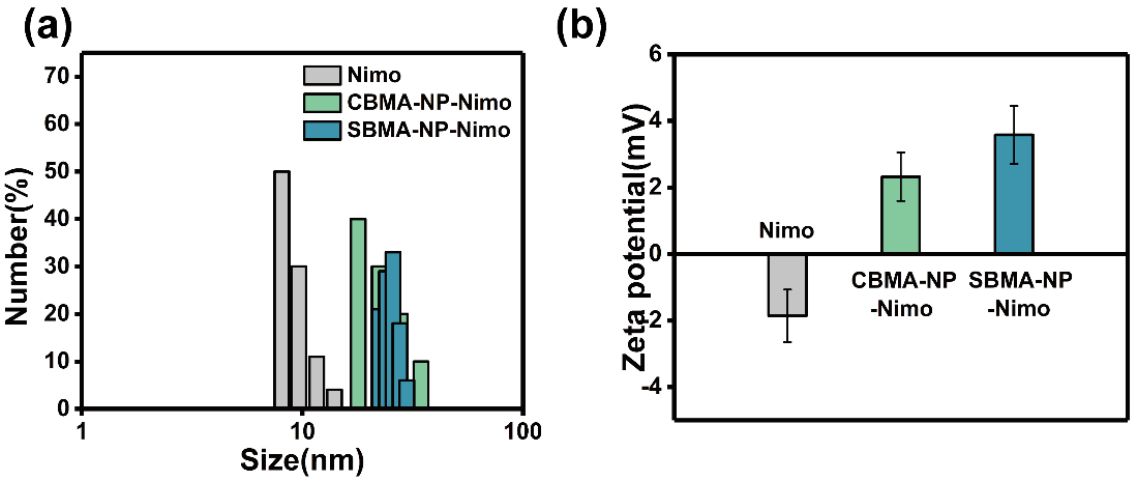

Fig. S1 Nimo-loaded zwitterionic nanoparticles: **(a)** particle size; **(b)** potential.