Supplementary Data

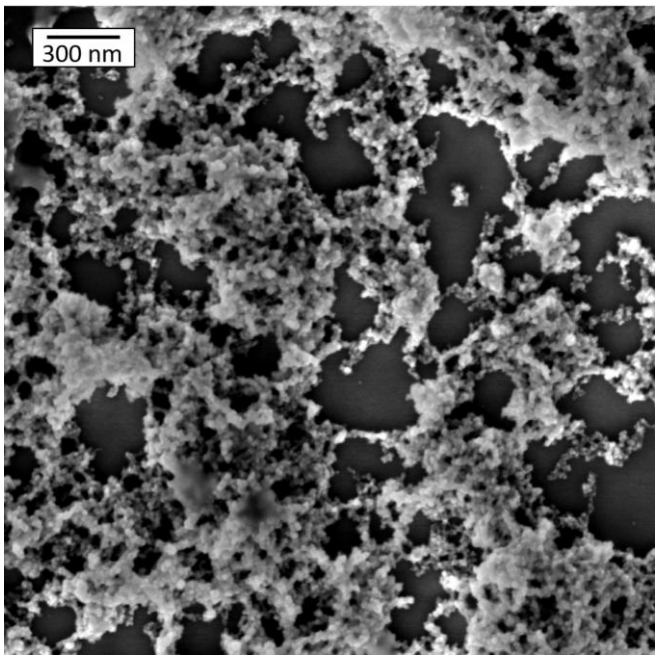

Figure S1. Scanning electron microscopy image of the nanofilm after the nanoprecipitation of 20 mg/mL BSA solution.

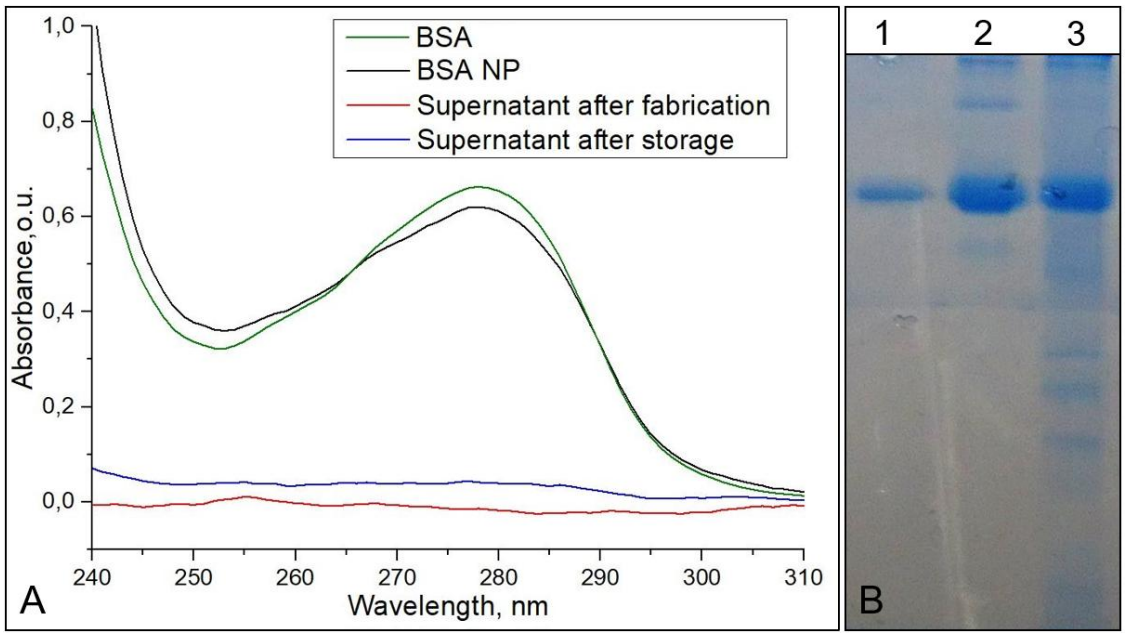

Figure S2. Stability of proteins in NP.

A. UV-visible spectroscopy data of BSA solution (1mg/mL) in water (green line), BSA NP diluted in 30 times (black line), the corresponding supernatant after BSA NP centrifugation after nanoprecipitation (red line) and the supernatant after the storage of the same BSA NP at +4 ° C for 3 months (blue line).

B. Results of SDS-PAGE of original BSA (lane 1), BSA NP immediately after nanoprecipitation (lane 2) and BSA NP after their storage at +4 ° C for 10 months (lane 3).

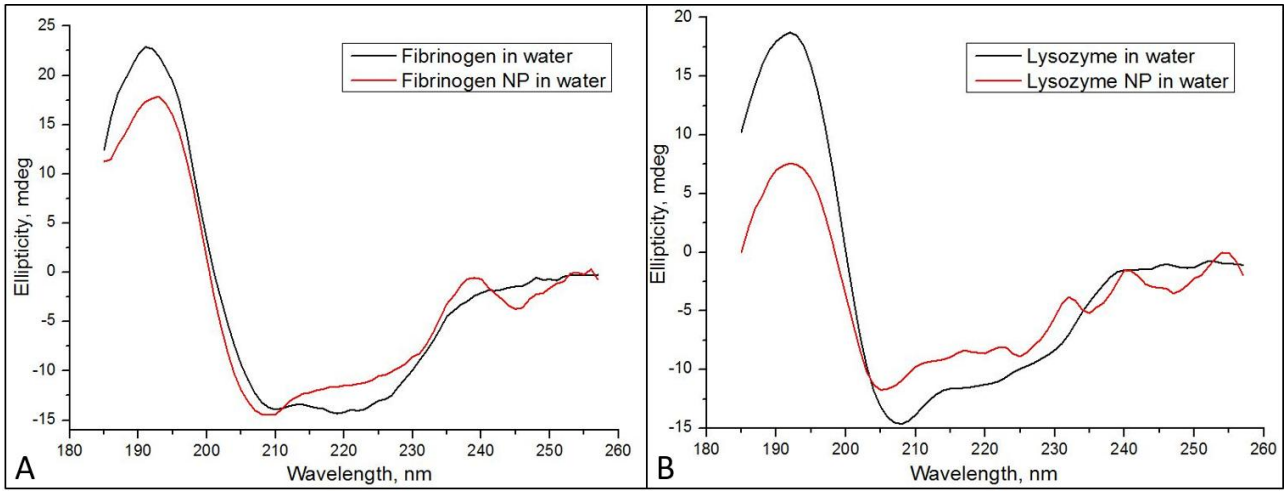

Figure S3. Circular dichroism spectra of fibrinogen and fibrinogen nanoparticles in water (part A, the spectra were normalized to protein concentration 0.4 mg/mL); lysozyme and lysozyme nanoparticles in water (part B, the spectra were normalized to protein concentration 0.25 mg/mL).

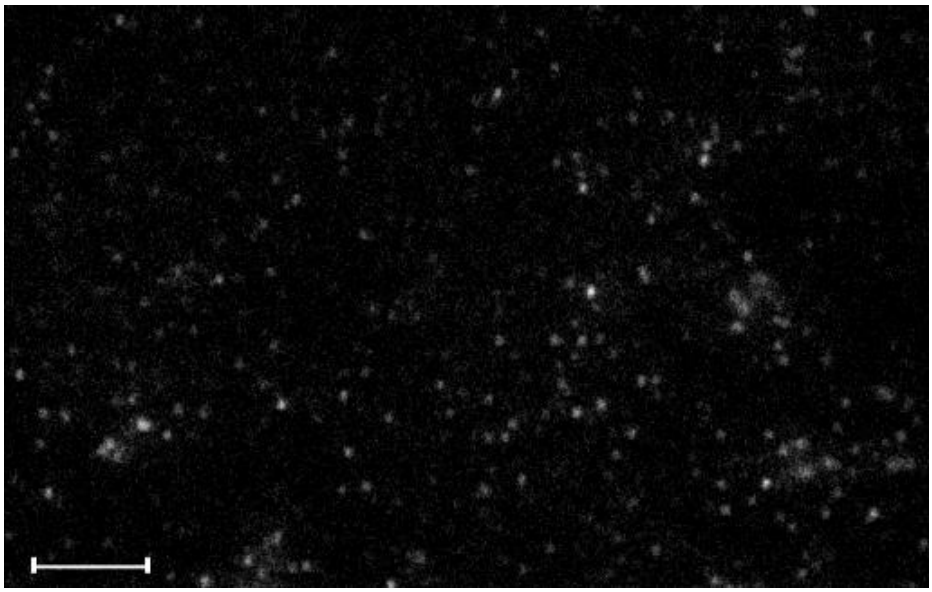

Figure S4. Fluorescent microscopy image of BSA-RhoB nanoparticles. Scale bar is 10 μm.

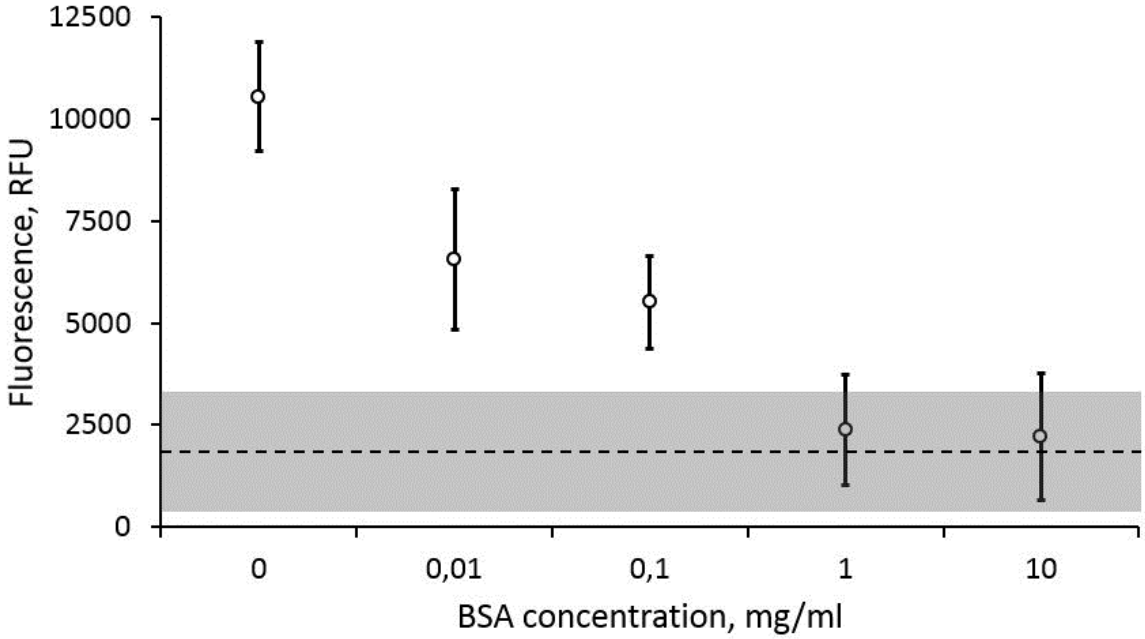

Figure S5. Competitive inhibition of binding of BSA-RhoB nanoparticles with immobilized polyclonal antibodies against BSA in the presence of unlabelled BSA proteins at different concentrations.

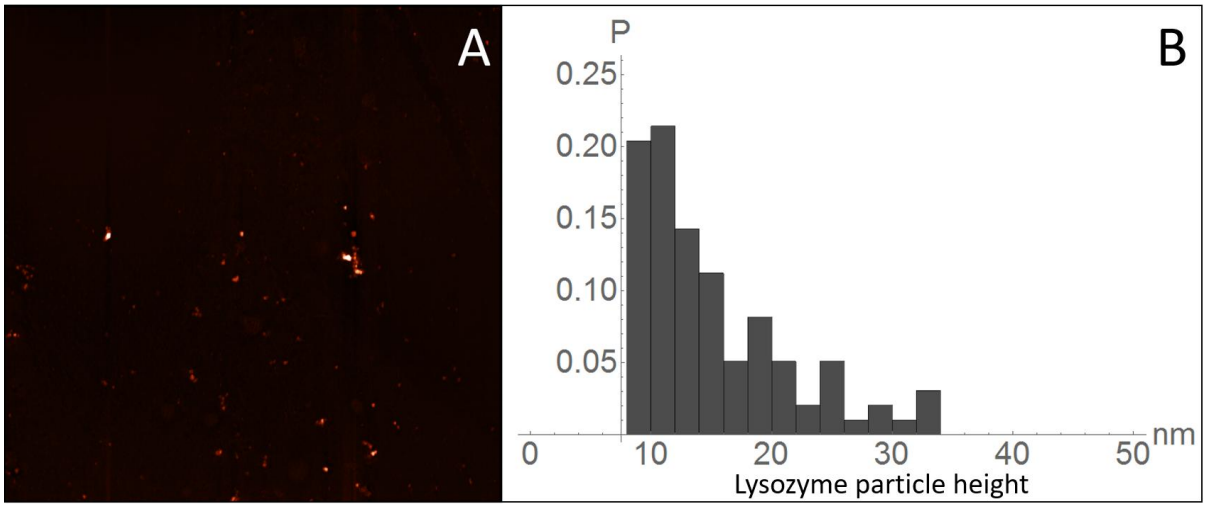

Figure S6. Atomic force microscopy image (part A) and normalized distribution of heights (part B, mean size = 16 nm, median size =13 nm, standard deviation = 9 nm) of the lysozyme NP.

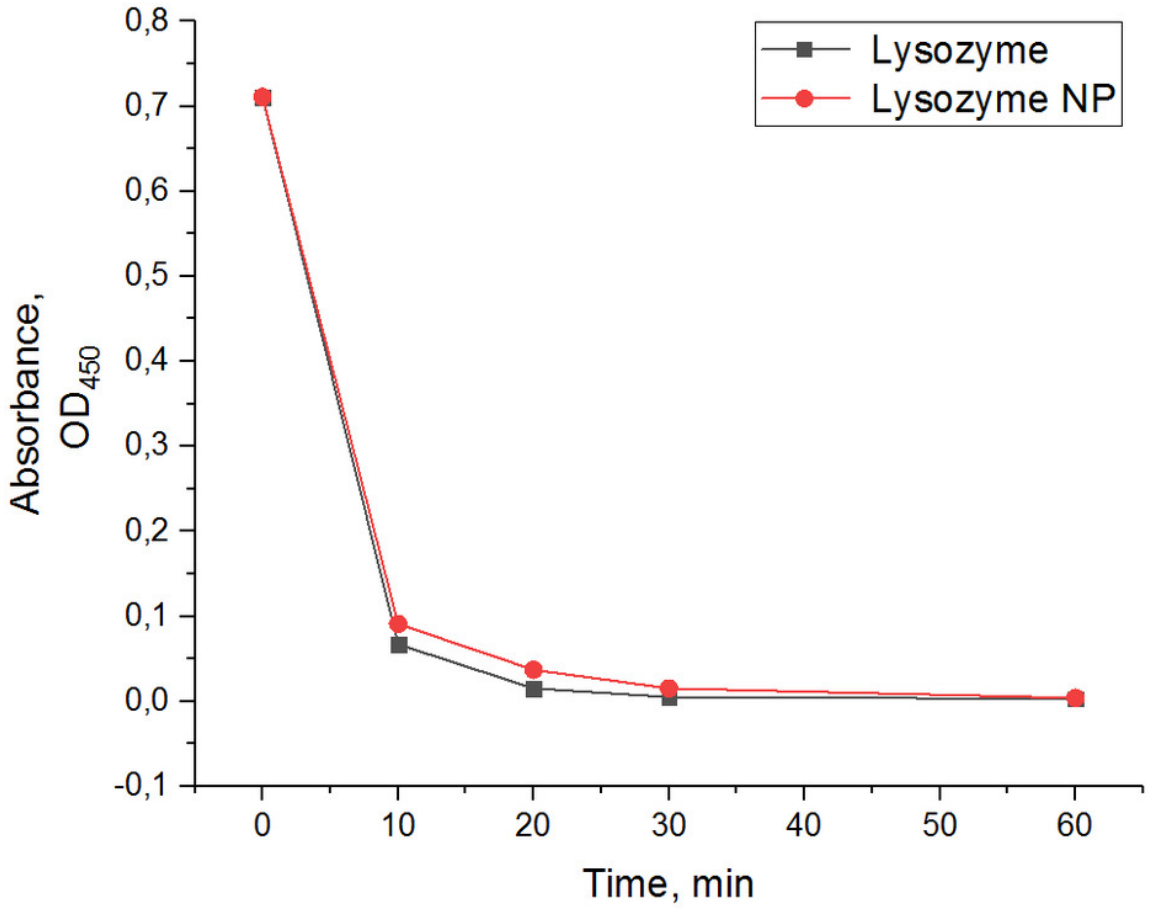

Figure S7. Enzymatic activity of lysozyme (black line) and lysozyme NP (red line) according to [21].

Table S1. Dynamic light scattering of nanoparticles fabricated from different proteins.

	BSA NP	Fibrinogen NP	Polylysine NP	Ig NP	Lysozyme NP
Mean size, nm	129	116	116	175	33
Median size, nm	114	94	108	158	31
Standard deviation, nm	38	40	29	36	6

Table S2. Deconvolution analysis of circular dichroism spectra of proteins in water solutions and in nanoparticles

	BSA in water	BSA NP	Fibrinogen in water	Fibrinogen NP	Lysozyme in water	Lysozyme NP
Helix,%	57,6	63,8	25,5	24,1	32,9	27,7
Antiparallel,%	3,9	3,2	11,2	12,1	8,3	9,3
Parallel,%	4,7	4,0	11,2	11,6	8,8	10,9
Beta-Turn,%	13,1	12,3	18,3	18,9	16,9	17,7
Random Coil,%	20,1	17,4	38,6	38,7	33,4	37,6

Table S3. Enzyme-linked immunosorbent assay data of three independent experiments of detection of antibodies against HBsAg and the corresponding nanoparticles from Mab HV301 against HBsAg

Antibodies	ELISA reverse titers			Average geometric titer (GEOMEAN)	SD	lg(GEOMEAN)	lg(SD)	Statistical significance
	Experiment 1	Experiment 2	Experiment 3					
Mab HV301 against HBsAg	160	160	320	200	90	2.3	0.2	P>0.05
NP from Mab HV301 HBsAg against	80	80	160	100	50	2.0	0.2	P>0.05