Protein corona potentiates recovery of nanoparticle-

induced disrupted tight junctions in endothelial cells

Muhammad Daniyal Ghouri^{a, b}, Ayesha Tariq^{b, c}, Jabran Saleem^{a, b}, Abdul Muhaymin^{a, b},

Rong Cai^{a, b, *} Chunying Chen^{a, b, *}

^aCAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety & CAS Center

for Excellence in Nanoscience, National Center for Nanoscience and Technology of China,

Chinese Academy of Sciences (CAS), Beijing 100190, China

^b University of Chinese Academy of Sciences, Beijing 100049, China

^c CAS Key Laboratory of Nanosystem and Hierarchical Fabrication National Center for Nanoscience and Technology Beijing 100190, China.

Prof. C.Y. Chen, Dr. R. Cai

Corresponding authors: chenchy@nanoctr.cn and cair@nanoctr.cn

Sample	Zeta Potential (mV) in Water	Zeta Potential (mV) in DMEM	Hydrodynamic Size (nm) in Water	Hydrodynamic Size (nm) in DMEM
NSp	$\textbf{-39.02}\pm0.28$	-12.17 ± 0.18	43.35 ± 1.07	50.18 ± 2.13
NSt	-35.57 ± 0.34	-9.08 ± 0.36	58.10 ± 3.27	59.37 ± 1.64
NSp@P C	-19.43 ± 0.48	-7.05 ± 0.14	108.34± 5.61	115.73 ± 4.03
NSt@P C	-17.62 ± 0.12	-6.11 ± 0.23	146.67±10.29	159.14 ± 8.52

 Table S1. Comparison of zeta potential and hydrodynamic sizes in water and DMEM (cell culture media without

FBS)



Figure S1. Behavior of the Np@protein complex within cellular environments. (A) Dynamic light scattering analysis of NSp, NSt, NSp@PC and NSt@PC in DMEM (cell culture media without FBS). The polydispersity index (PDI) is also included within the graph. (B) Zeta potential measurement of all nanoparticles. The data is presented as the mean \pm SD, (n = 3).



Figure S2. Western blot analysis of the ZO-1, occludin, and β -actin expression for NSp, NSt, NSp@PC and NSt@PC.