

## Electronic Supplementary Information (ESI)

# Controlling Nanoparticle-Induced Endothelial Leakiness with The Protein Corona

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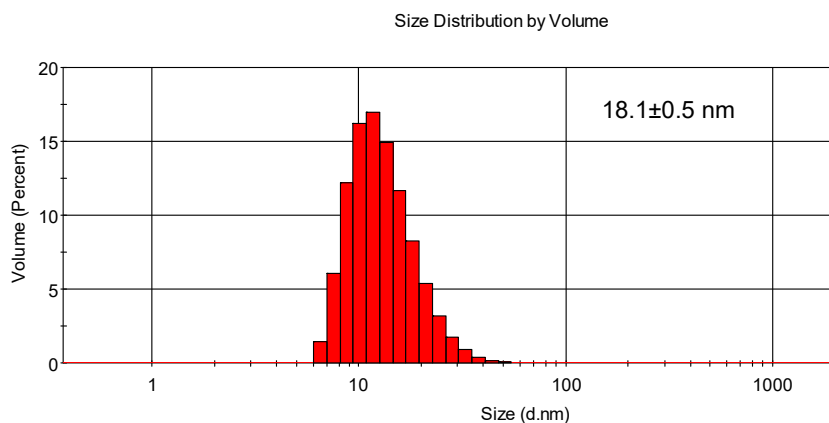
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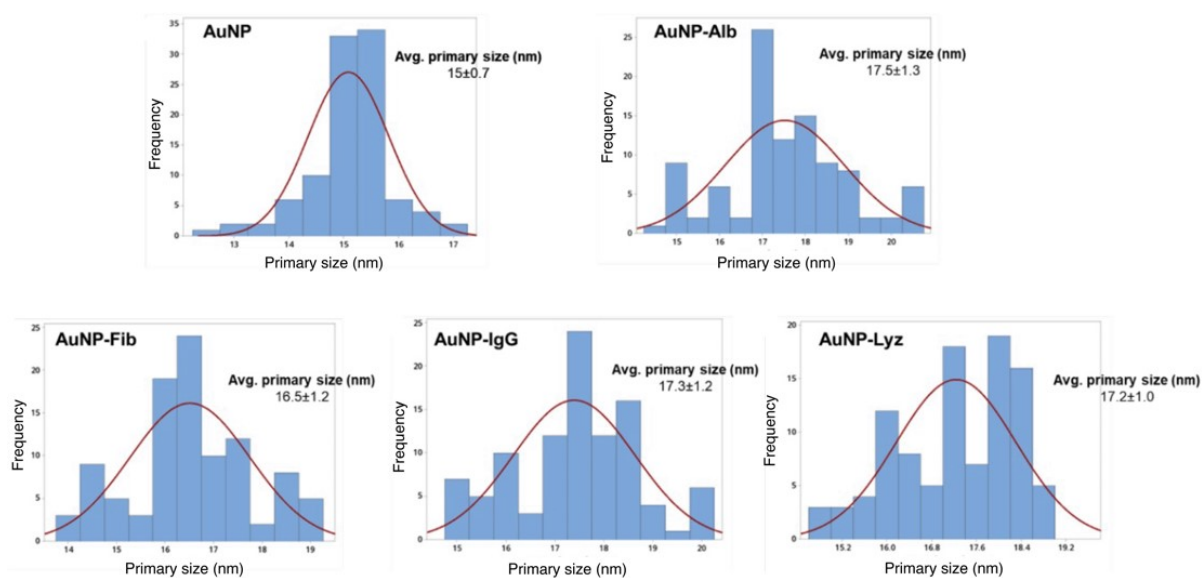
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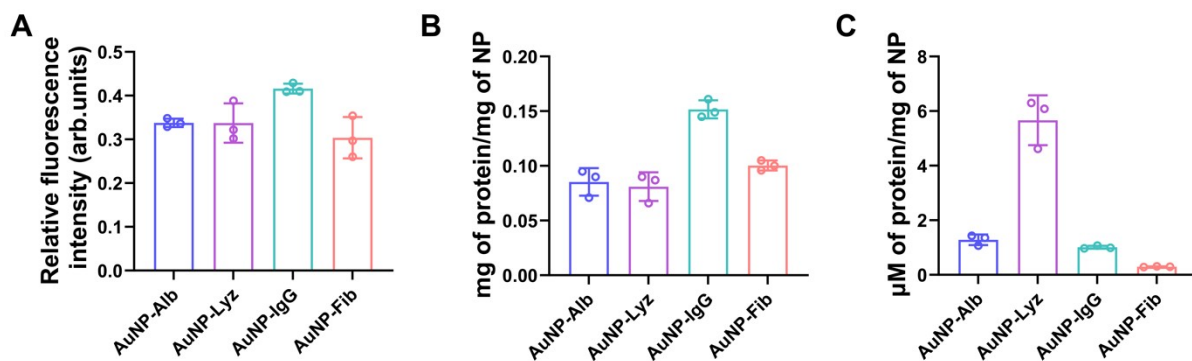
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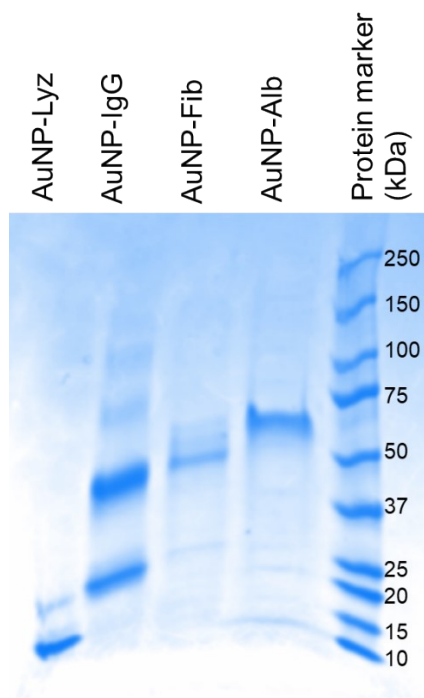
**Figure S1.** Hydrodynamic size of citrate-capped AuNPs.



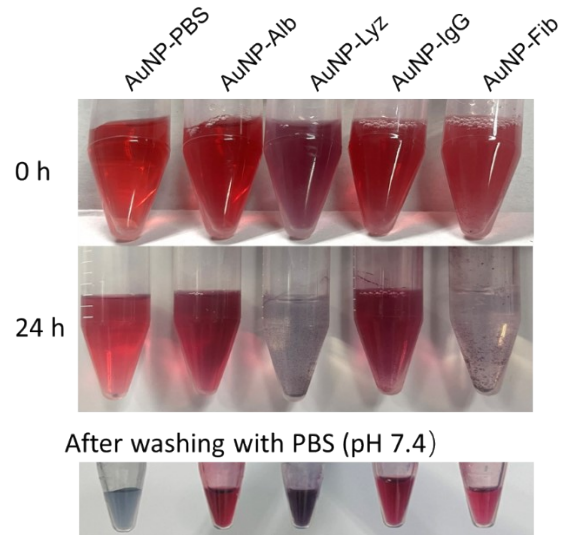
**Figure S2.** Primary size distributions of the AuNPs and their corresponding protein coronas. A total of 50 individual particles from TEM images were analyzed using ImageJ and the histogram was mapped in Minitab statistical package.



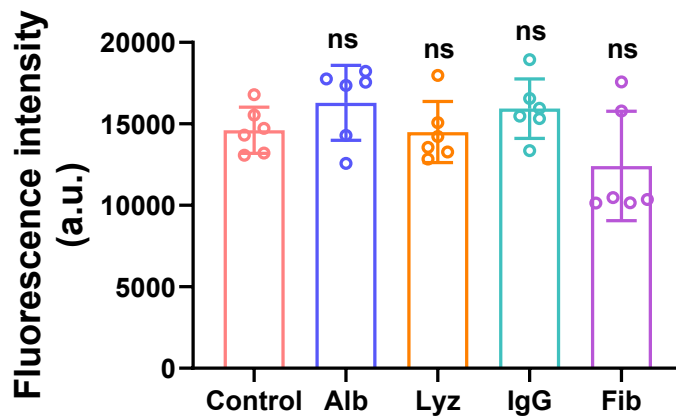
**Figure S3.** (A) Absorbance measurement at 562 nm for different AuNP/protein coronas. The mass (B) and molar amount (C) of the proteins bound to AuNPs (1 mg) were determined from the BCA protein assay interpolating the BSA standards.



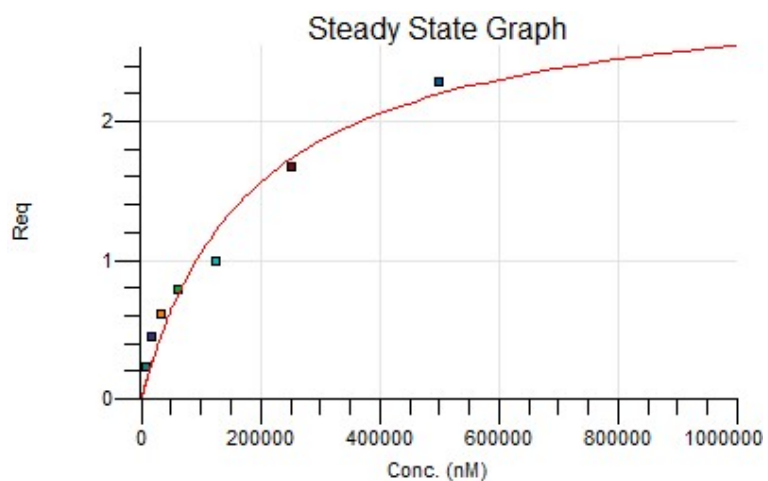
**Figure S4.** SDS-PAGE confirmed the presence of coronal proteins for the fixed mass ratio of 1:5 AuNP/protein used for the cell culture experiments.



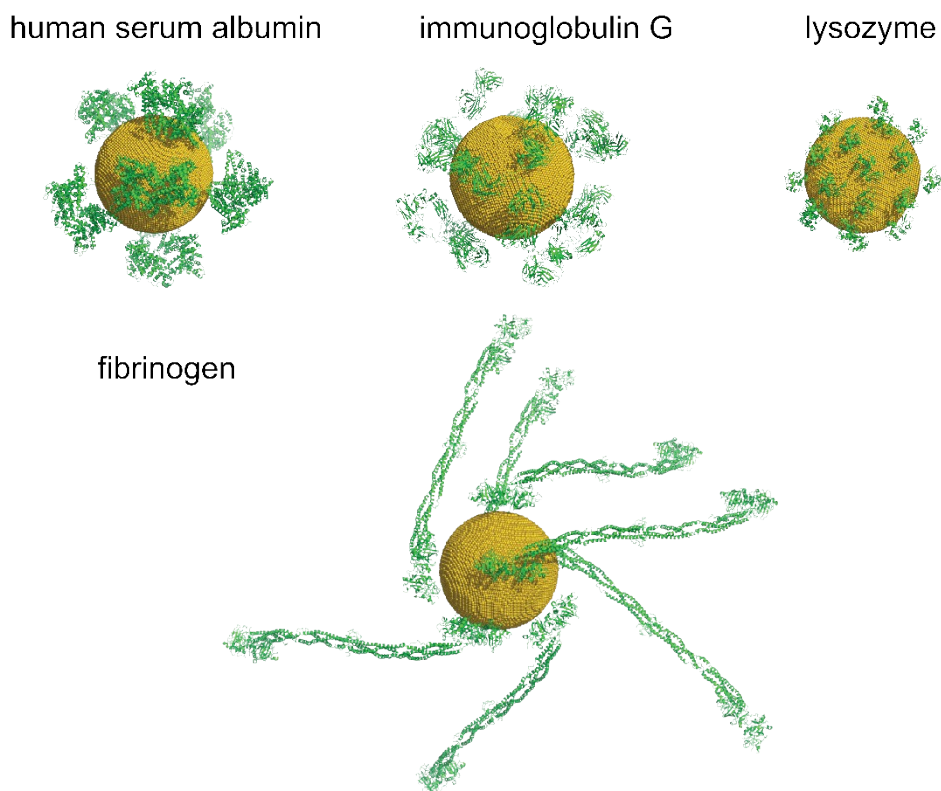
**Figure S5.** Mixtures of the AuNPs and the four types of plasma proteins at 0 h and 24 h incubation under constant shaking at 37 °C.



**Figure S6.** Transwell assay revealed no leakiness in the HUVEC monolayers due to the introduction of the plasma proteins alone.



**Figure S7.** Steady-state graph of different concentrations of Lyz interacting with VE-cadherin coated on NTA sensors examined with the BLI assay.



**Figure S8.** Schematic illustration of the binding of multiple proteins with AuNPs.

**Table S1. Amino acid sequence, PDB structure and net charge of the plasma proteins used in binding analysis.**

Protein	Molecular weight (kDa)	Sequence from UniProt	PDB for docking	Net charge
Alb	66.5	P02768	1AO6.pdb	-11
Fib	340	Alpha chain: P02671 Beta chain: P02675 Gamma chain: P02679	3GHG.pdb	-10
IgG	150	Immunoglobulin heavy constant gamma 2: P01859 Immunoglobulin heavy variable: P01814 Immunoglobulin light chain: P0DOX8	1HZH.pdb	0
Lyz	14.3	P61626	1REX.pdb	+9

**Table S2. Physicochemical characteristics of the AuNP-protein coronas.**

Sample	Peak absorbance (nm)		Primary size (nm)	$\zeta$ – potential (mV)	
	0 h	24 h		W/o wash	With wash
AuNP	519	524	15.0±0.7	-28.3±0.2	-27.3±1.6
AuNP-Alb	527	551	17.5±1.3	-0.6±0.3	-10.2±0.5
AuNP-Fib	541	542	16.5±1.2	-6.6±0.4	-8.6±0.9
AuNP-IgG	527	535	17.3±1.2	-4.0±0.5	-6.7±0.7
AuNP-Lyz	558	570	17.2±1.0	3.0±0.4	-6.7±0.7