Supplementary Information

Influence of Albumin Concentration on Surface Characteristics and Cellular Responses in the Pre-Incubation of Multi-Walled Carbon Nanotubes

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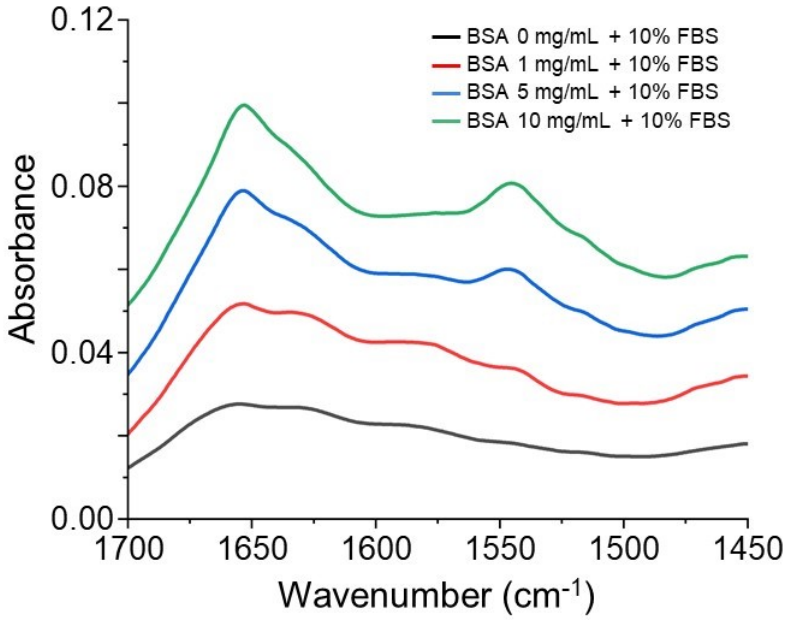
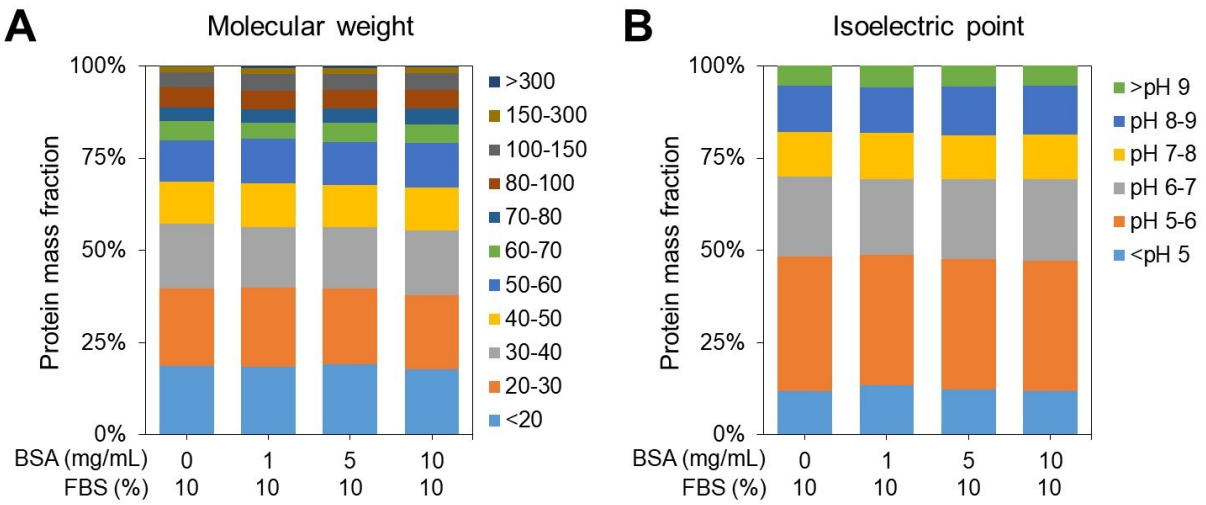
Figure S1–S4

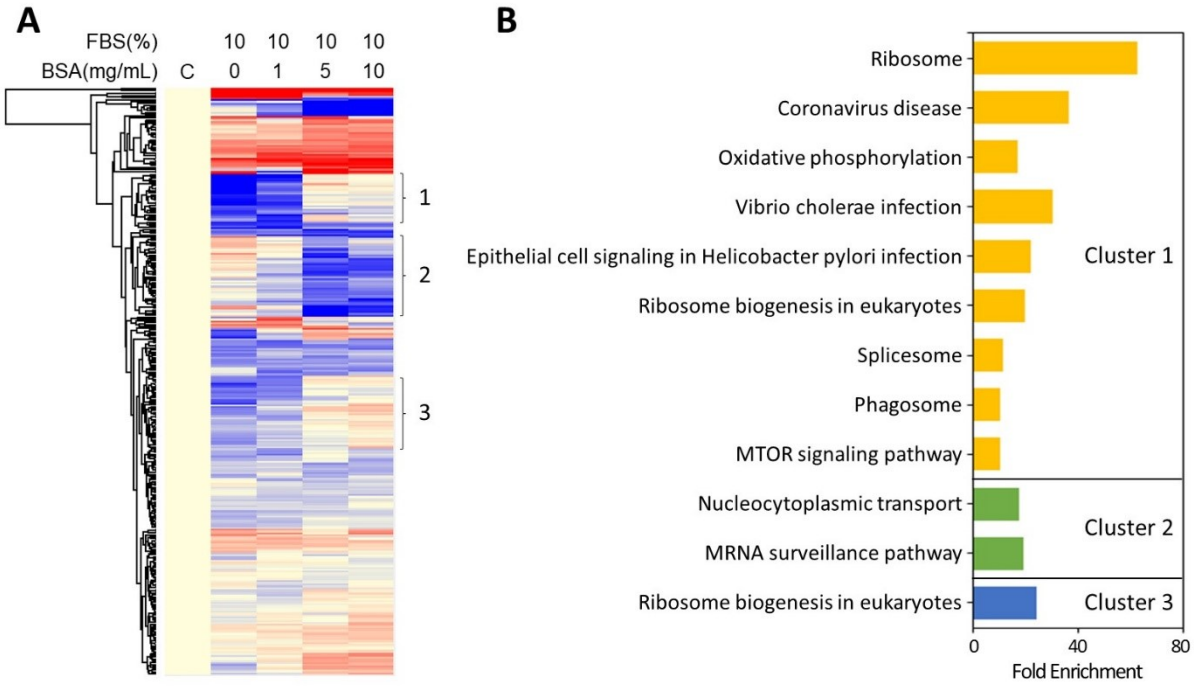
Table S1



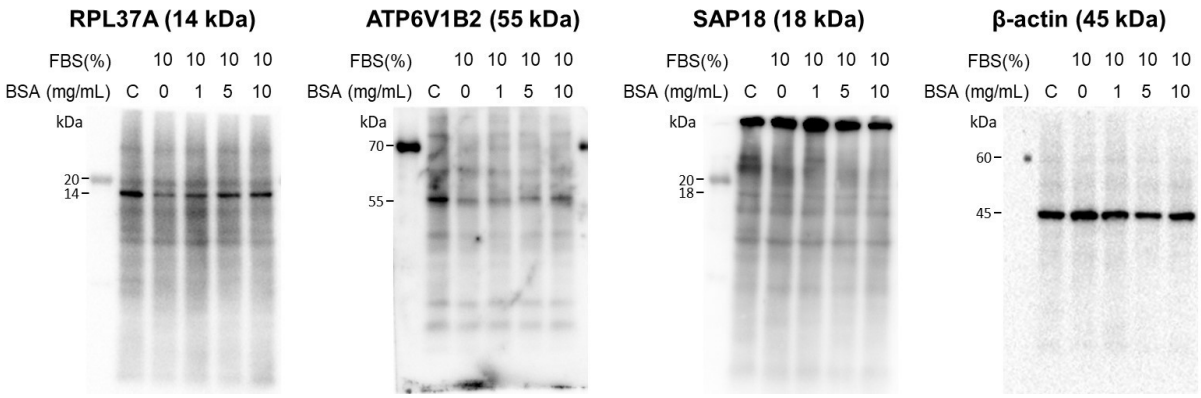
Supplementary Fig. S1. Fourier-transform infrared (FT-IR) absorption spectra of multi-walled carbon nanotubes (MWCNTs) pre-incubated with bovine serum albumin (BSA) at 0 mg/mL, 1 mg/mL, 5 mg/mL, and 10 mg/mL.



Supplementary Fig. S2. (A) Molecular weight and (B) isoelectric point distribution of total proteins identified in the protein coronas adsorbed on BSA-coated MWCNTs at four different BSA concentrations.



Supplementary Fig. S3. Clustering analysis. (A) Heatmap of differentially expressed proteins in A549 cells treated with BSA-coated MWCNTs at four BSA concentrations. The colors represent protein upregulation (red) or downregulation (blue) at each BSA concentration. (B) KEGG pathways of differentially expressed proteins included in cluster 1, 2, and 3 determined from the heatmap. The vertical axis shows the significantly enriched biological processes, and the horizontal axis represents the fold enrichment corresponding to the biological processes. Fold enrichment indicates the percentage of proteins divided by all proteins within a certain gene ontology term.



Supplementary Fig. S4. Full-length blots corresponding to Fig. 7B in the main text. Abbreviations: RPL37A, 60S ribosomal protein L37a; ATP6V1B2, V-type proton ATPase subunit B brain isoform; SAP18, histone deacetylase complex subunit SAP18.

Supplementary Table S1. List of identified proteins in the PCs adsorbed on BSA-coated MWCNTs according to their physiological functions corresponding to Fig. 4 in the main text.

Accession	Symbol	Description
Acute phase		
Q3T052	ITIH4	Inter-alpha-trypsin inhibitor heavy chain H4
Q32L76	SAA4	Serum amyloid A-4 protein
P35541	SAA	Serum amyloid A protein
P28800	A2AP	Alpha-2-antiplasmin
P07589	FINC	Fibronectin
P00735	THRB	Prothrombin
Complement		
P01030	CO4	Complement C4 (Fragments)
P12082	CO5	Complement C5a anaphylatoxin
P81187	CFAB	Complement factor B
Q0VCX1	C1S	Complement C1s subcomponent
Q28065	C4BPA	C4b-binding protein alpha chain
Q28085	CFAH	Complement factor H
Q29RQ1	CO7	Complement component C7
Q29RU4	CO6	Complement component C6
Q2KIV9	C1QB	Complement C1q subcomponent subunit B
Q2UVX4	CO3	Complement C3
Q3MHN2	CO9	Complement component C9
Q3SYW2	CO2	Complement C2
Q3T0A3	CFAD	Complement factor D
Q5E9E3	C1QA	Complement C1q subcomponent subunit A
Lipoproteins		
P11151	LIPL	Lipoprotein lipase
P15497	APOA1	Apolipoprotein A-I
P17690	APOH	Beta-2-glycoprotein 1
P19034	APOC2	Apolipoprotein C-II
P19035	APOC3	Apolipoprotein C-III
P81644	APOA2	Apolipoprotein A-II
Q03247	APOE	Apolipoprotein E
Q2KJ93	CDC42	Cell division control protein 42 homolog
Q32KY0	APOD	Apolipoprotein D
Q32PJ2	APOA4	Apolipoprotein A-IV
Coagulation		
P00741	FA9	Coagulation factor IX
P00743	FA10	Coagulation factor X
P00744	PROZ	Vitamin K-dependent protein Z
P00745	PROC	Vitamin K-dependent protein C (Fragment)
P01044	KNG1	Kininogen-1
P01045	KNG2	Kininogen-2
P06868	PLMN	Plasminogen
P07224	PROS	Vitamin K-dependent protein S
P12260	F13A	Coagulation factor XIII A chain (Fragment)

P12799	FIBG	Fibrinogen gamma-B chain
P41361	ANT3	Antithrombin-III
P50448	F12AI	Factor XIIa inhibitor
P80012	VWF	von Willebrand factor (Fragment)
P98140	FA12	Coagulation factor XII
Q2KIG3	CBPB2	Carboxypeptidase B2
Q2KJ63	KLKB1	Plasma kallikrein
Q5E9Z2	HABP2	Hyaluronan-binding protein 2
Q5NTB3	FA11	Coagulation factor XI