Electronic Supplementary Material (ESI) for Nanoscale.
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Supporting Information for

Effective lock-in strategy for proteomic analysis of corona complexes bound to amino-free ligands of gold nanoparticles

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Supporting Information

Supplementary Figure S1. Transmission electron microscopy image and size distribution histogram of cysteine-attached gold nanoparticles (GNPs) used in the present study. Scale bar is 100 nm.

Supplementary Figure S2. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) analysis of a gold nanoparticle (GNP) protein corona obtained by phosphate-buffered saline (PBS) or SDS washing with sonication. The used GNPs were not attached with any ligands (i.e., cysteine).

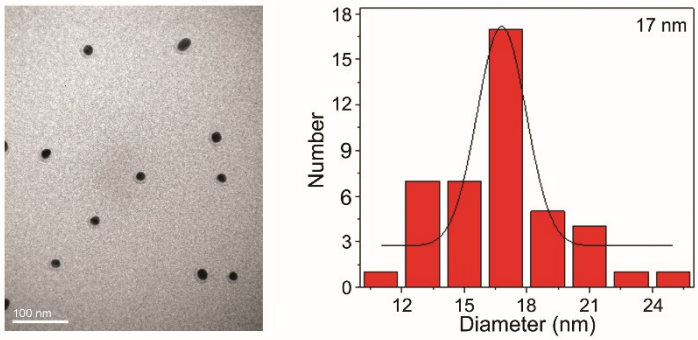
Supplementary Figure S3. Comparison of the percentages of proteins in the coronas from the three methods. The proteins were involved in the acute phase (A), coagulation (B), complement activation (C), immunoglobulins (D), lipoproteins (E), tissue leakage (F), and other plasma components (G). Given that the proteins were detected in more than two experiments, the error bars represent the standard deviation (SD) from the mean (n = 2 or n = 3).

Supplementary Figure S4. Reaction scheme (A or B) of formaldehyde crosslinking between cysteine-attached gold nanoparticles (GNPs) and corona proteins and the corresponding variable modification for mass spectrometry (MS)-based protein identification.

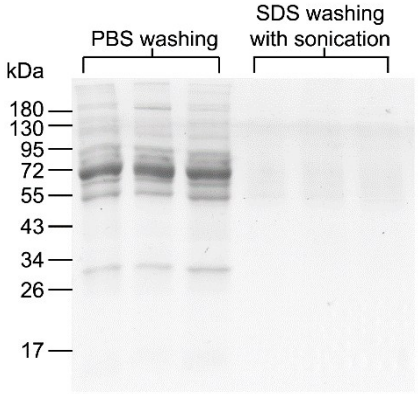
Supplementary Table S1. Corona proteins identified from the three methods (Methods I, II and III), including their molecular weight (MW), isoelectric point (pI), grand average values of hydropathicity (GRAVY), functional annotation as well as their relative percentage based on three different experiments.

Supplementary Table S2. Cysteine-binding corona proteins and formaldehyde-linked unique peptides identified from Method III.

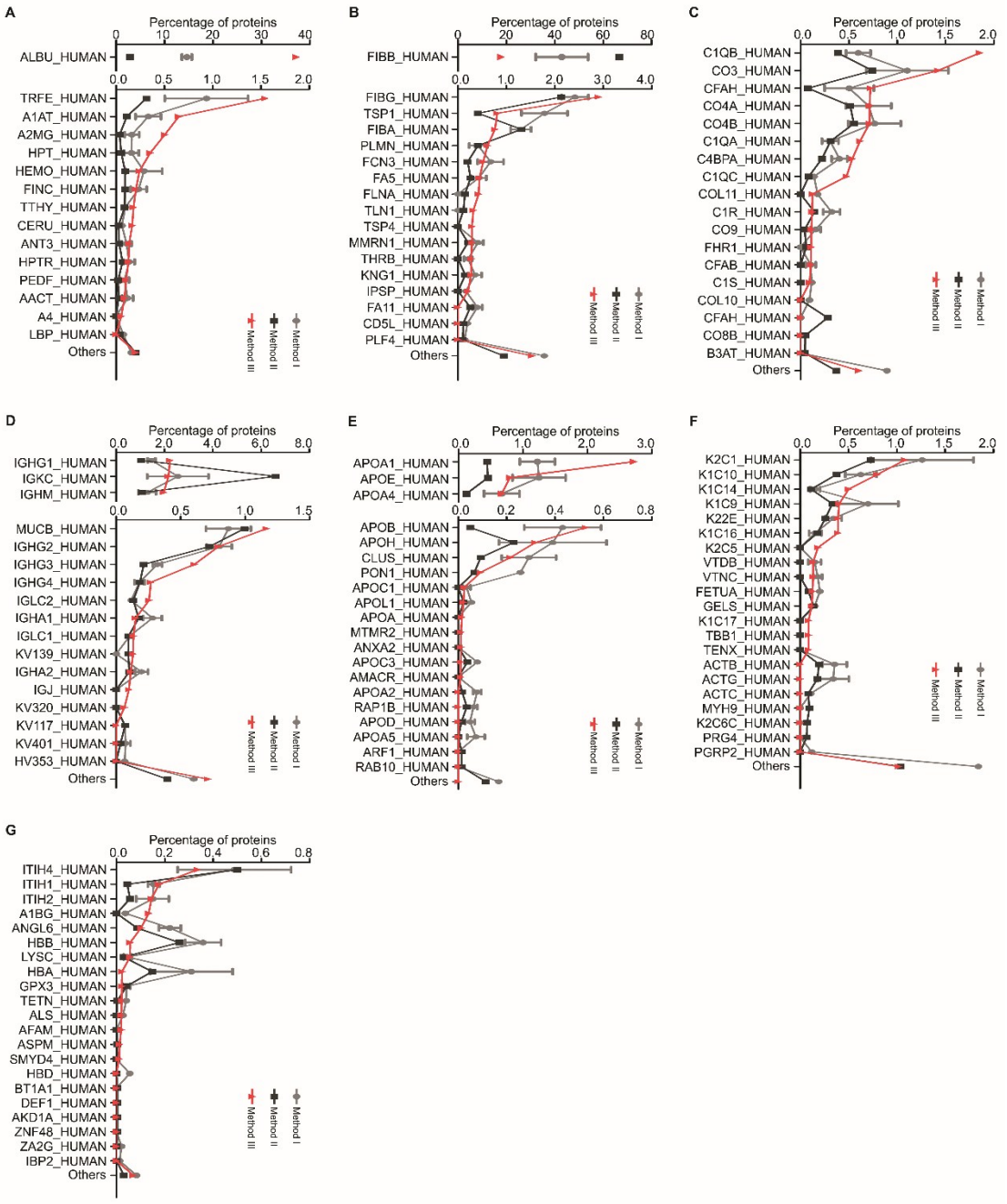
Supplementary Table S3. The 36 clusters of the Search Tool for the Retrieval of Interacting Genes/Proteins (STRING) interaction network of the cysteine-binding corona proteins generated using a Molecular Complex Detection (MCODE) analysis.



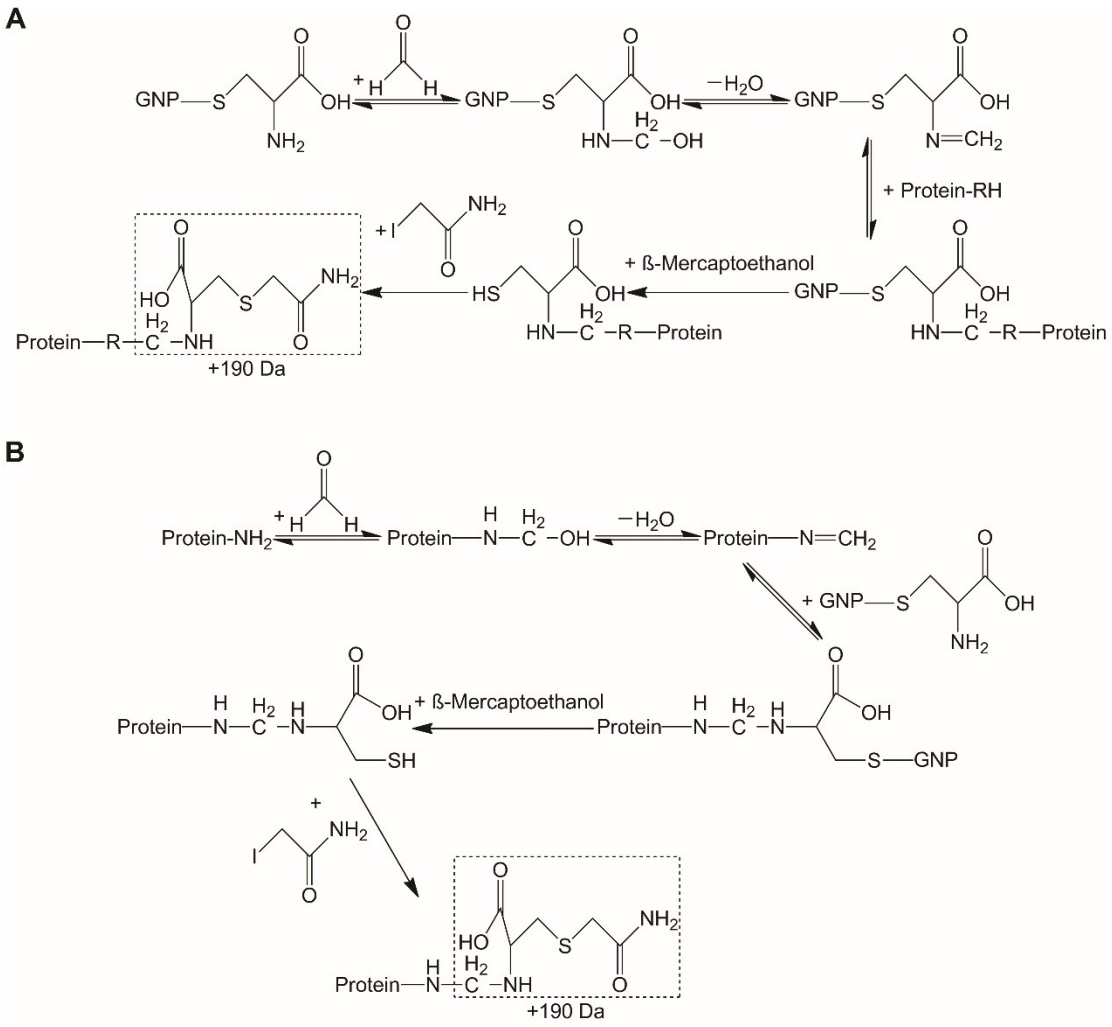
Supplementary Figure S1



Supplementary Figure S2



Supplementary Figure S3



Supplementary Figure S4