

A magnetic surface enhanced Raman scattering platform performing successive breast cancer exosome isolation and analysis

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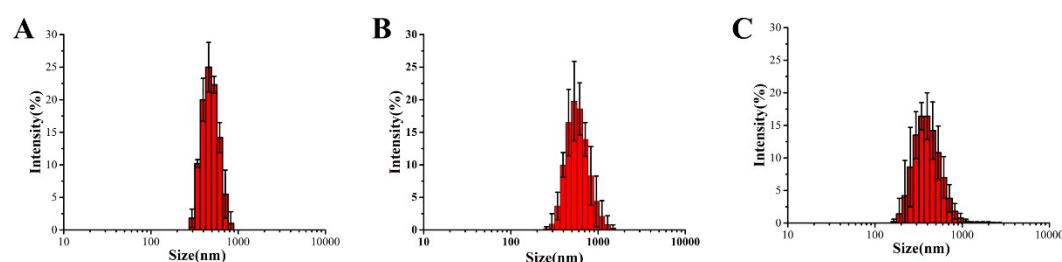


Figure S1. The change of particles size distribution during the modification of magnetic nanoparticles and the growth of gold nano-dots. The size distribution of MNPs (A), MNPs@PEI@MUA (B), and MNPs@Au (C). In this process, the particle size of magnetic nanoparticles gradually increased, from 256 ± 10.8 nm to 305.2 ± 29.5 nm after PEI and MUA modification, and finally to 359.6 ± 11.68 nm after the gold nano-dots growth.

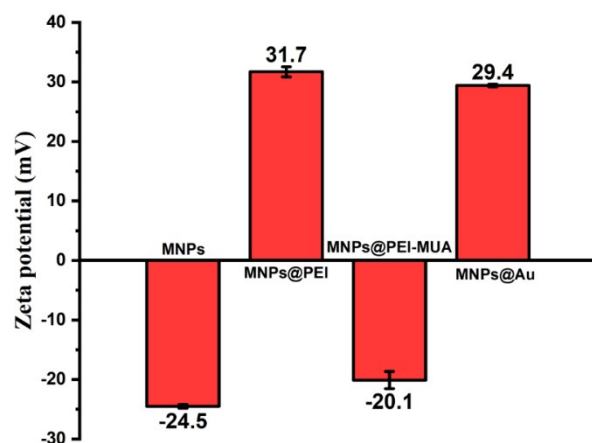


Figure S2. Zeta potential changes during modification of magnetic nanoparticles and growth of gold nano-dots.

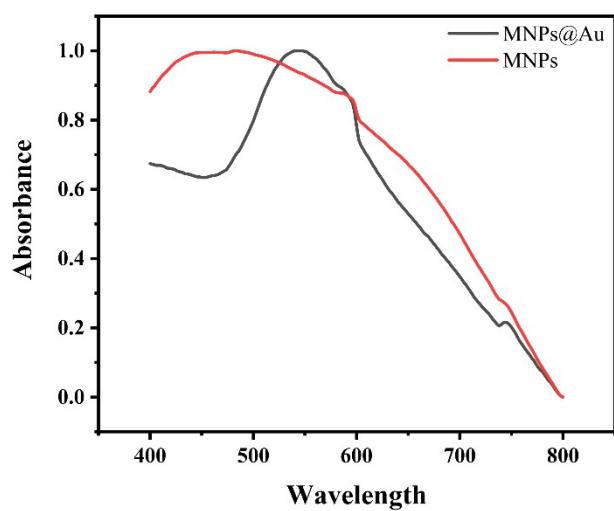


Figure S3. UV-vis absorption spectra of the MNPs and MNPs@Au.

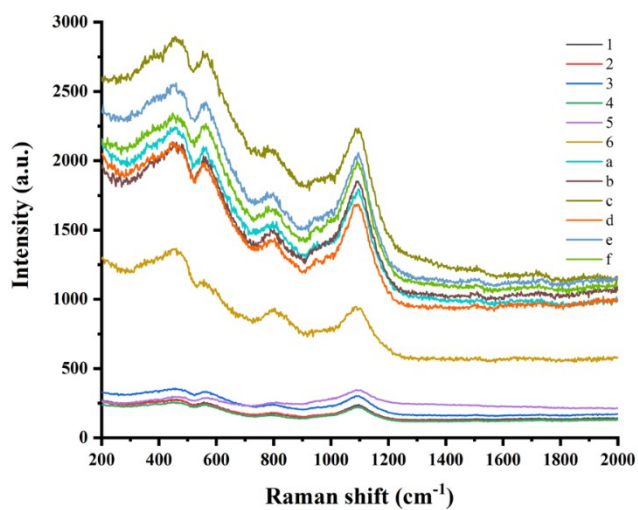


Figure S4. SERS curves of the two kinds of exosomes. Exosomes secreted by MCF-7 breast cancer cell lines (1 - 6) and MDA-MB-231 breast cancer cell lines (a - f).

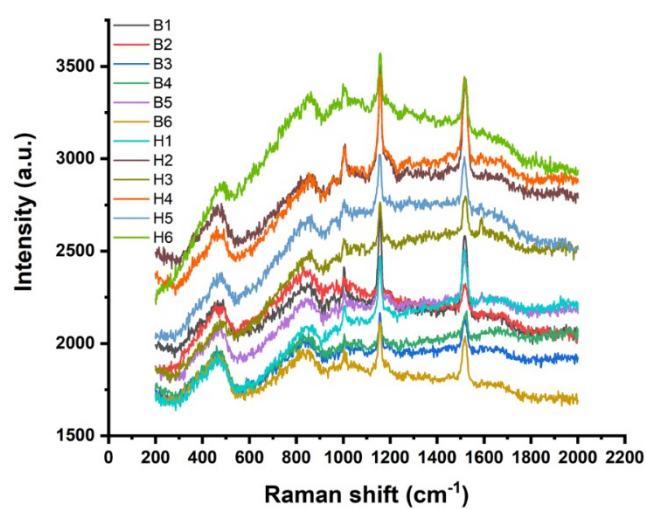


Figure S5. SERS results of serum exosomes derived from breast cancer patients (B1 – B14) and healthy people (H1 - H6).

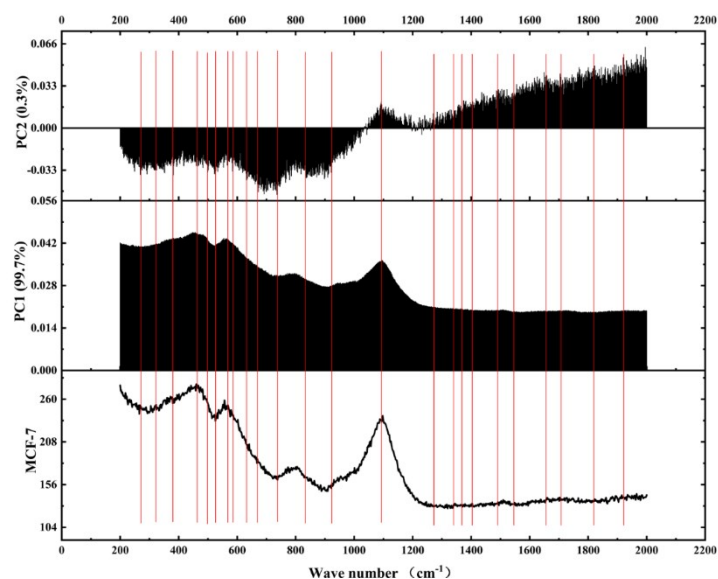


Figure S6. Loading with Reference Spectrum Plot of two pure exosomes.

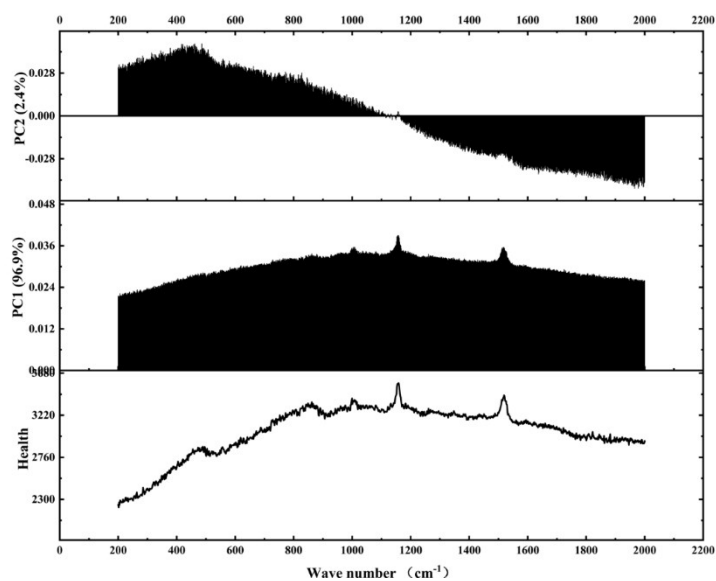


Figure S7. Loading with Reference Spectrum Plot of serum samples.

Table. S1 Information of the healthy donors and breast cancer patients.

Serial number	Gender	Age	Physical condition
B1	women	49 years old	Breast cancer
B2	women	48 years old	Breast cancer
B3	women	69 years old	Breast cancer
B4	women	85 years old	Breast cancer
B5	women	64 years old	Breast cancer
B6	women	50 years old	Breast cancer
B7	women	79 years old	Breast cancer
B8	women	41 years old	Breast cancer
B9	women	52 years old	Breast cancer
B10	women	43 years old	Breast cancer
B11	women	45 years old	Breast cancer
B12	women	72 years old	Breast cancer
B13	women	47 years old	Breast cancer
B14	women	47 years old	Breast cancer
N1	women	60 years old	health
N2	women	45 years old	health
N3	women	28 years old	health
N4	women	50 years old	health
N5	women	36 years old	health
N6	women	56 years old	health