

Supporting Information

Enabling sensitive phenotypic profiling of cancer-derived small extracellular vesicles using surface-enhanced Raman spectroscopy nanotags

Wei Zhang, [†] Lianmei Jiang, [†] Russell J. Diefenbach, [‡] Douglas H. Campbell, [§] Bradley Walsh, [§] Nicolle H. Packer, [†] and Yuling Wang ^{*,†}

[†] ARC Excellence Centre for Nanoscale BioPhotonics (CNBP), Department of Molecular Sciences, Macquarie University, Sydney, NSW 2109, Australia

[‡] Department of Biomedical Sciences, Macquarie University, Sydney, NSW 2109, Australia

[§] Minomic International Ltd, Macquarie Park NSW 2113, Australia

*Corresponding author.

Email: yuling.wang@mq.edu.au

Tel: +61-2-98506914

Table of contents

Figure S1	Raman intensity of DTNB on AuNPs of different sizes.
Figure S2	TEM image of AuNPs-DTNB-MIL-38 antibody (SERS nanotag).
Figure S3	UV absorption spectra of AuNPs, AuNPs-DTNB and AuNPs-DTNB-MIL-38 antibody (SERS nanotag).
Figure S4	Raman spectra of AuNPs and AuNPs-DTNB.
Figure S5	Specificity study of individual SERS nanotag for EV phenotypic profiling by using SERS assay.
Figure S6	TEM image of the sandwich complex formed on magnetic beads, with conditioned EV concentration of 1.2×10^8 particles/mL.
Figure S7	Correlation curve of EV concentration (Log (particles/mL)) and Raman intensity.
Figure S8	SERS spectra of the immunoassay with small EVs for 20 measurements.
Figure S9	Size distribution and concentration of conditioned C3 EVs measured by qNano.
Figure S10	Size distribution and concentration of conditioned SW480 EVs measured by qNano.

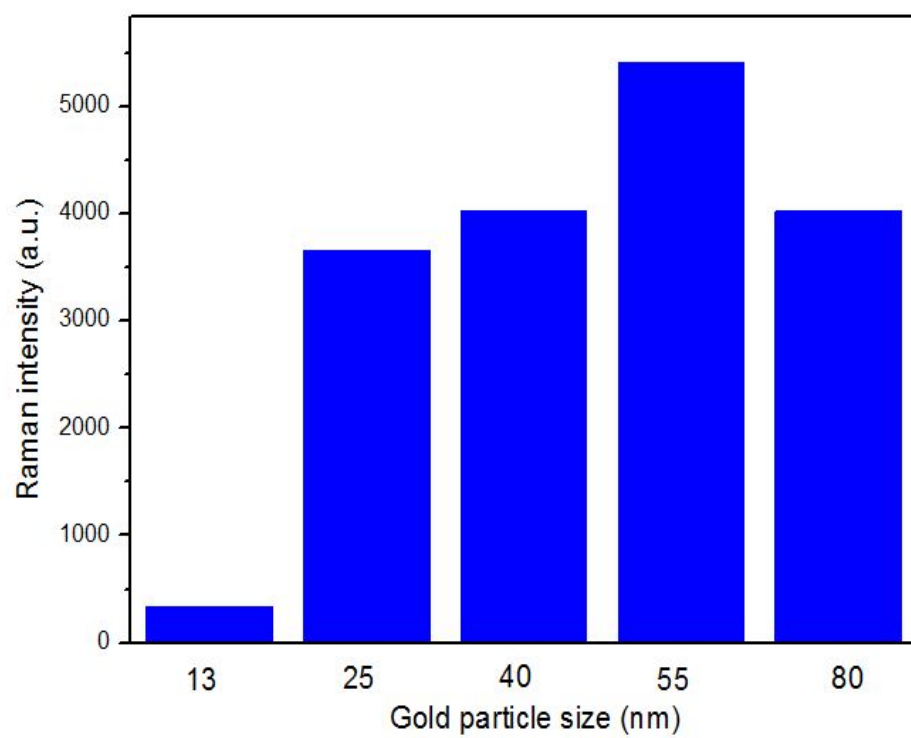


Figure S1. Raman intensity of DTNB on AuNPs at different sizes.

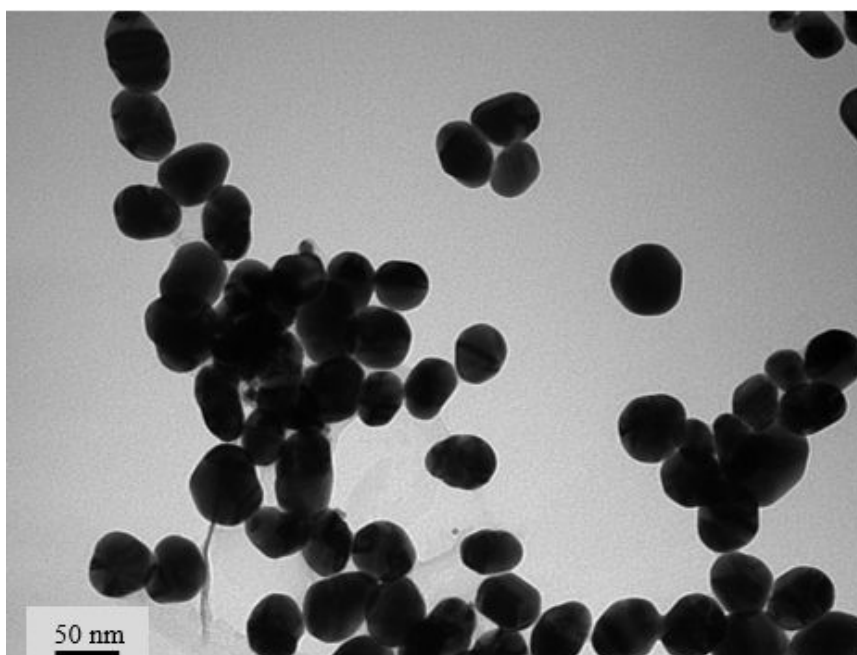


Figure S2. TEM image of AuNPs-DTNB-MIL-38 antibody (SERS nanotags).

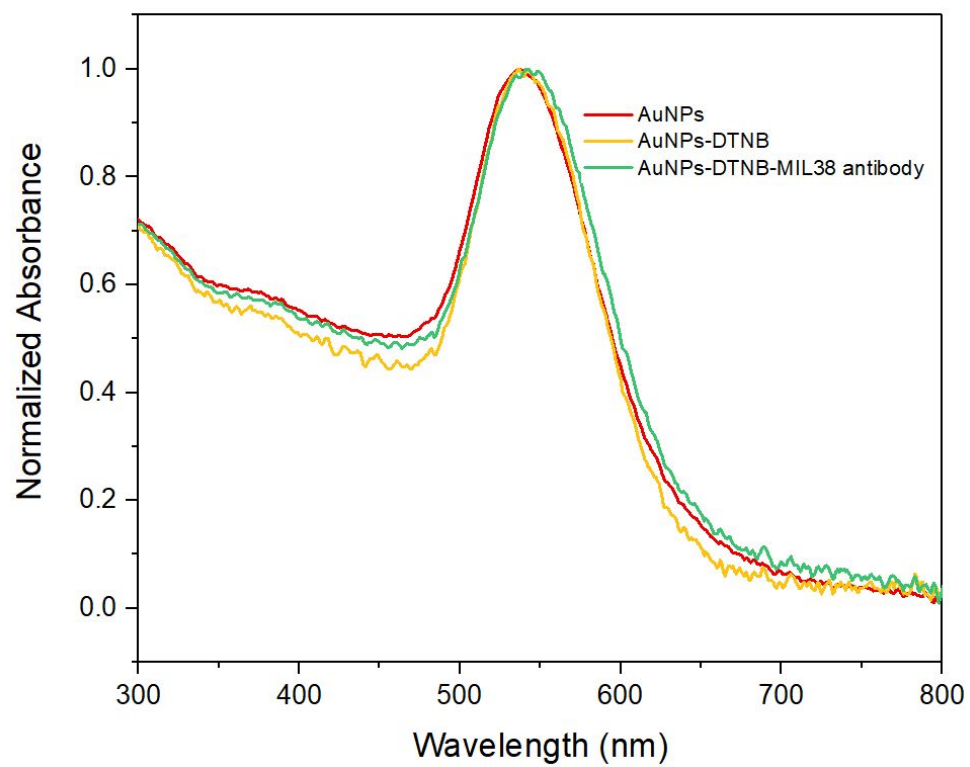


Figure S3. UV-vis absorption spectra of AuNPs, AuNPs-DTNB and AuNPs-DTNB-MIL-38 antibody (SERS nanotags).

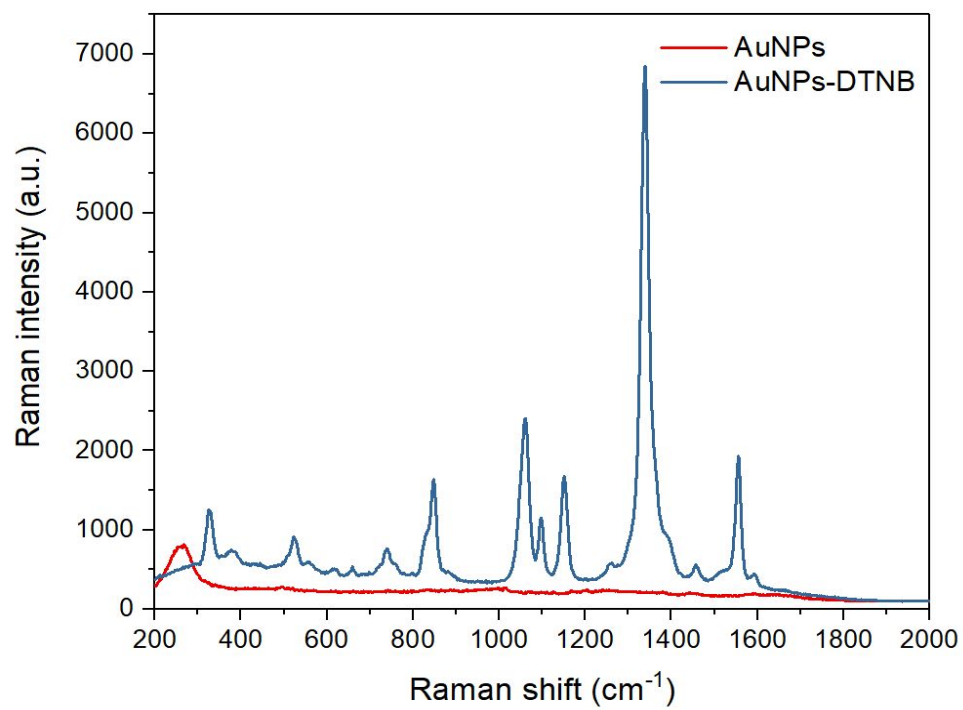


Figure S4. Raman spectra of AuNPs and AuNPs-DTNB.

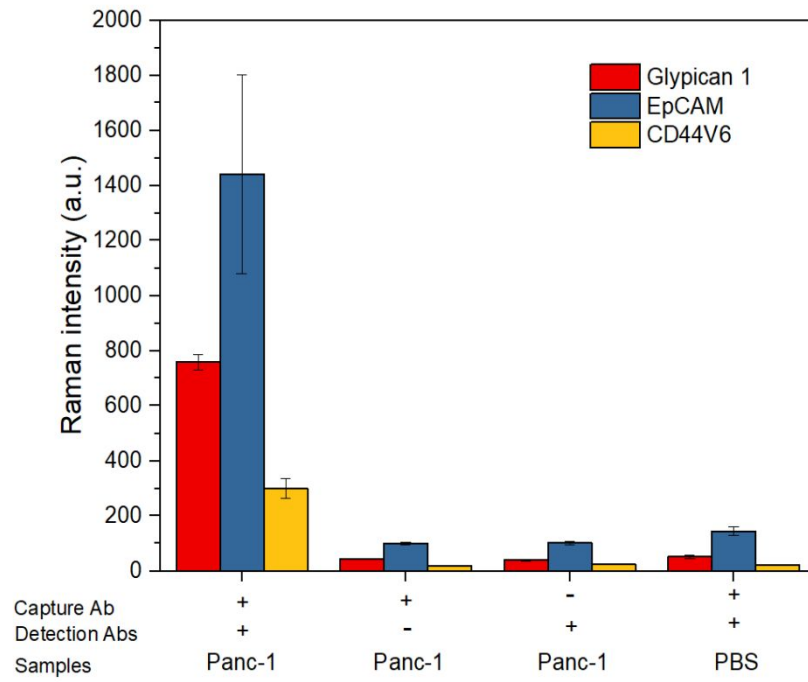


Figure S5. Specificity study of individual SERS nanotag for EV phenotypic profiling by using SERS assay (n=3).

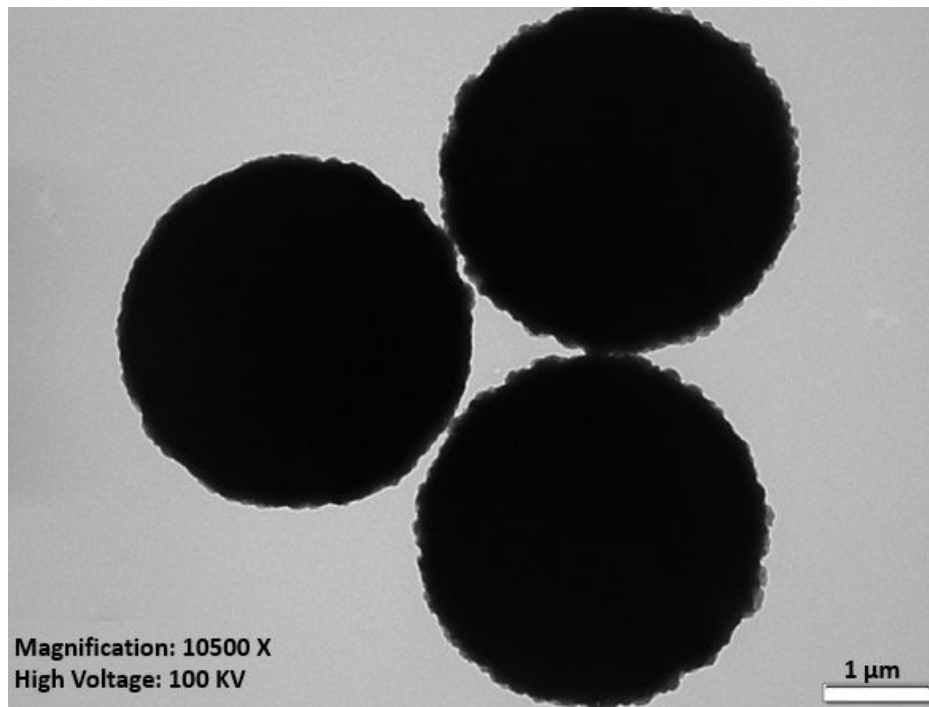


Figure S6. TEM image of the sandwich complex formed on magnetic beads, with conditioned EV concentration of 1.2×10^8 particles/mL.

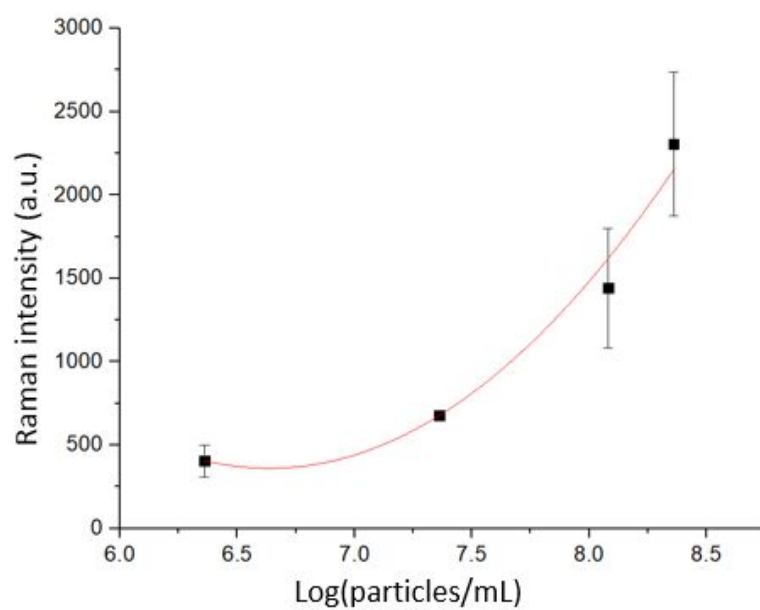


Figure S7. Correlation curve of EV concentration (Log (particles/mL)) and Raman intensity.

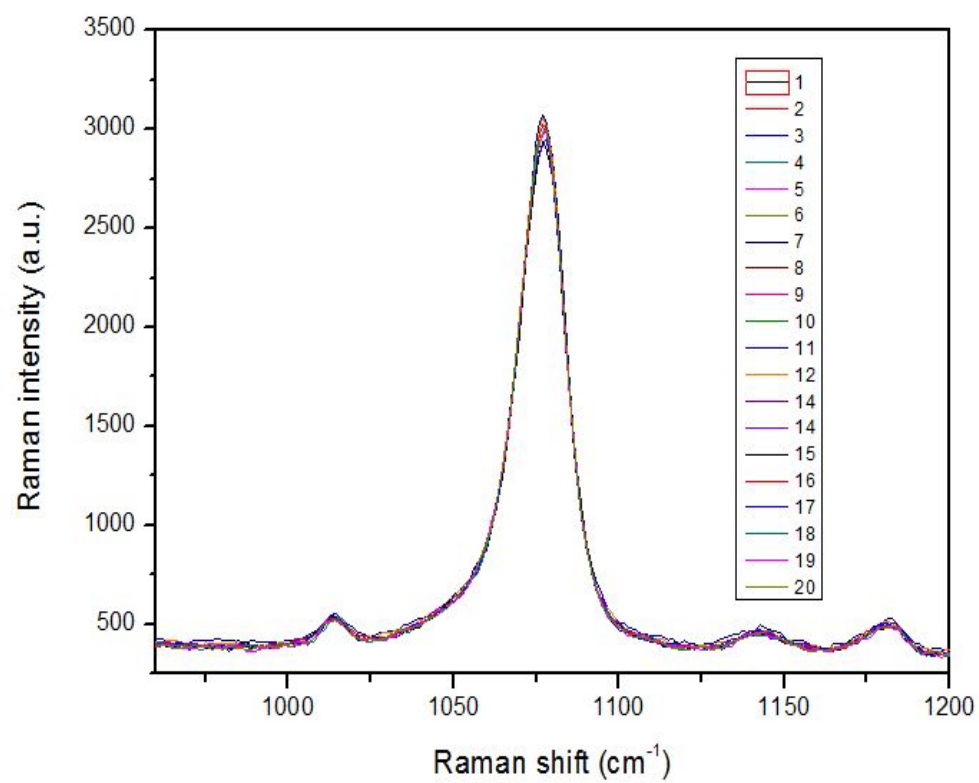


Figure S8. SERS spectra of the immunoassay with small EVs for 20 measurements.

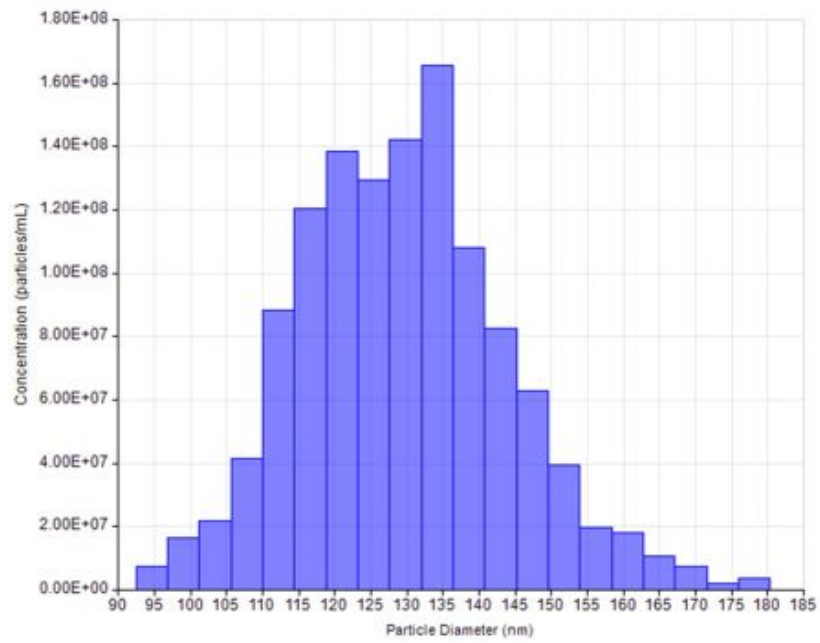


Figure S9. Size distribution and concentration of conditioned C3 EVs (1.2×10^9 particles/mL), measured by qNano.

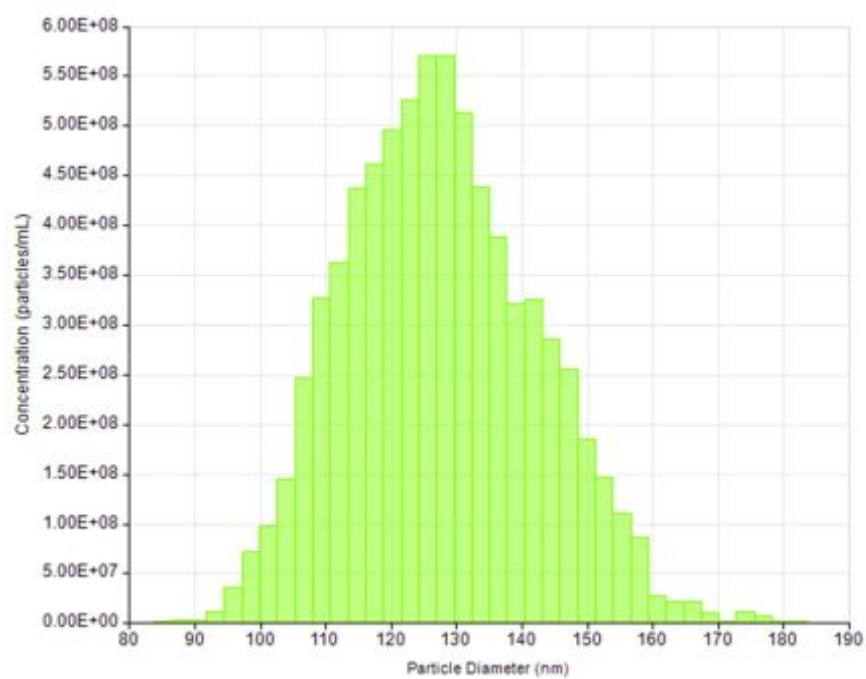


Figure S10. Size distribution and concentration of conditioned SW480 EVs (7.5×10^9 particles/mL), measured by qNano.