Supplementary Information

Nanoplasmonic label-free surface-enhanced Raman scattering strategy for non-invasive cancer genetic subtyping in patient samples

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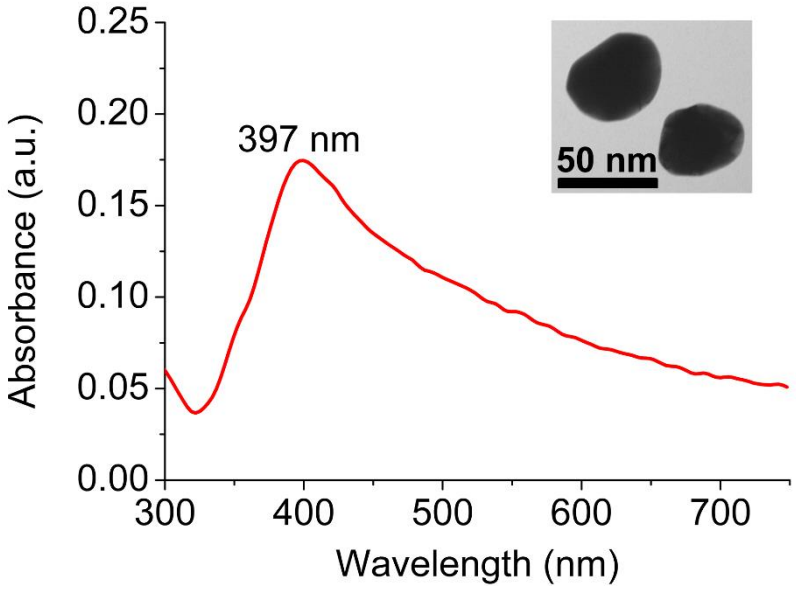

Fig. S1. UV-Vis absorption spectrum of AgNPs. The maximum absorption locates at 397 nm. The insert is the corresponding TEM image.

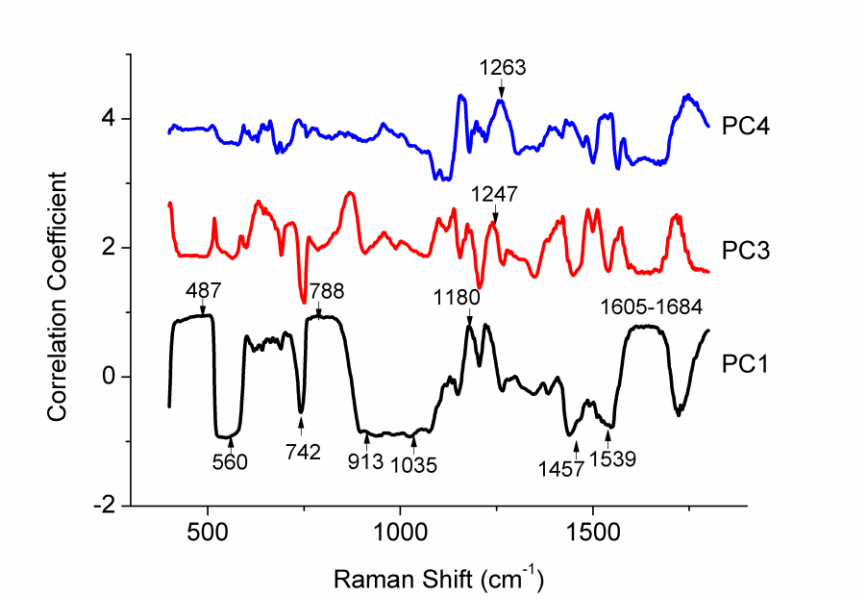

Fig. S2. Calculated correlation coefficient profiles of three diagnostically significant principal components (PCs) from a data set composed by 43 T1E4 and 43 RN7SL1 SERS spectra. Each PC revealed diagnostically significant spectral features ($p < 0.001$) for the discrimination between T1E4 and RN7SL1 RNA biomarkers.

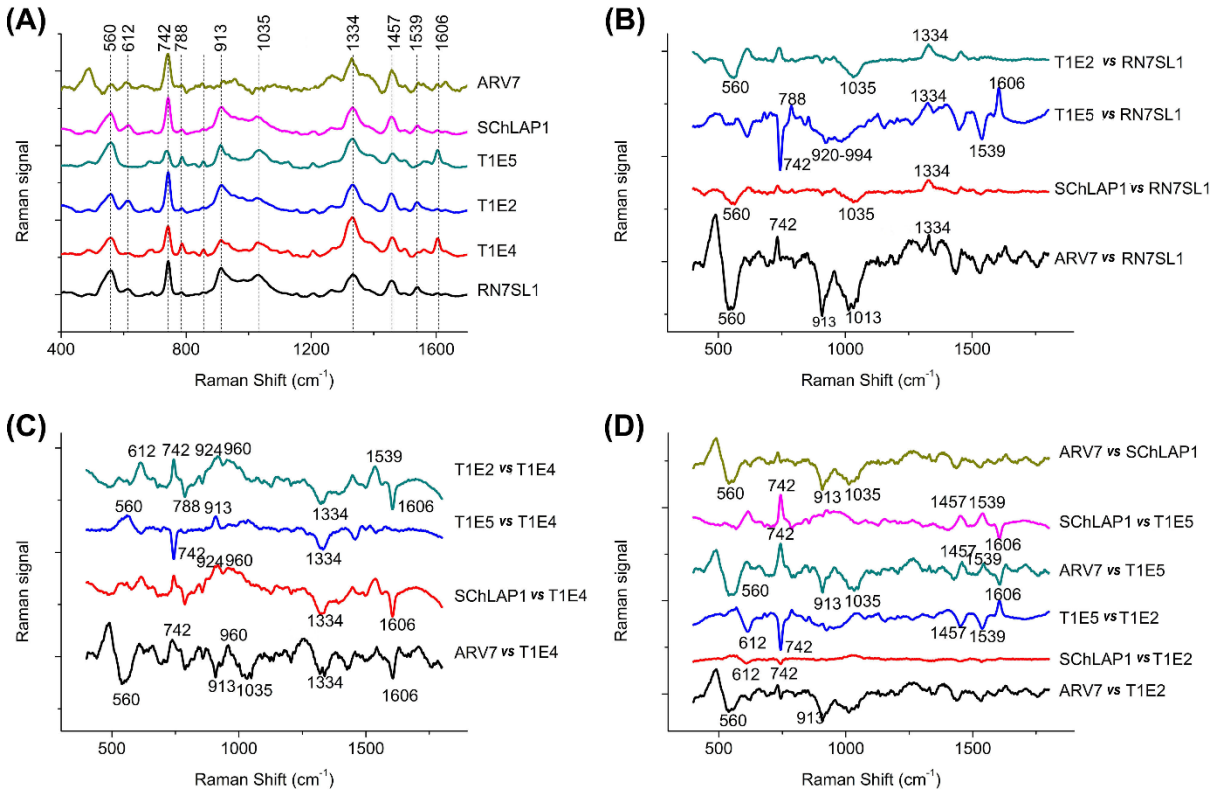

Fig. S3. (A) SERS spectra of various target RNA biomarkers isolated from patient unary samples (n = 3), including ARV7, SChLAP1, fusion genes between *TMPRSS2* exon 1 and *ERG* exon 5 (T1E5), *TMPRSS2* exon 1 and *ERG* exon 2 (T1E2), *TMPRSS2* exon 1 and *ERG* exon 4 (T1E4), and RN7SL1. Dotted lines indicate spectral positions for differentiating the distinct SERS signatures of each individual target. (B-D) Difference spectra obtained by digital subtraction between each combination pairs of target RNA signals.