Supplemental Data for

Simple, Sensitive and Accurate Multiplex Detection of Clinically Important Melanoma DNA Mutations in Circulating Tumour DNA With SERS Nanotags

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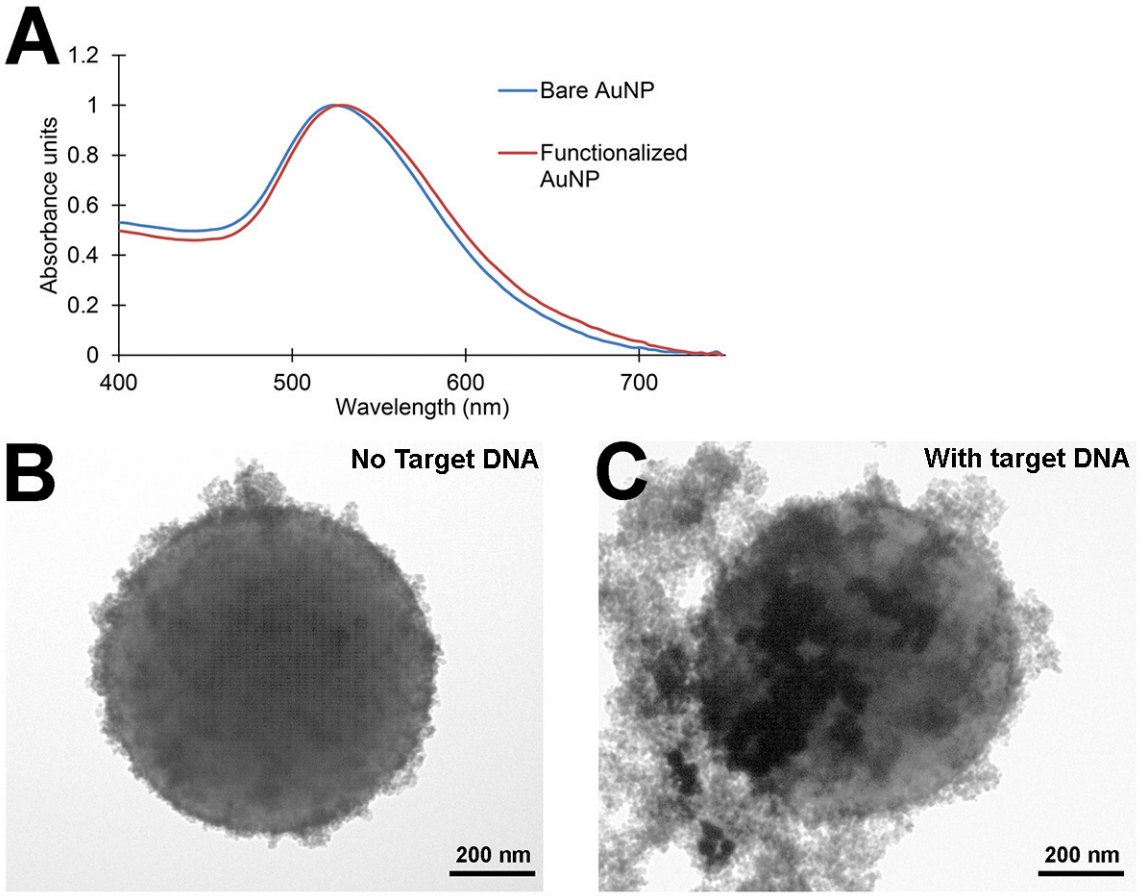

Figure S1. Characterization of SERS Nanotags. (A) UV-Vis characterization of Au nanoparticles before and after functionalization by Raman reporters and DNA probe. (B and C) TEM images of SERS Nanotags on surface of streptavidin magnetic beads after undergoing the assay. B: No target control. C: with target.

	Standard PCR/ qPCR[a]	ddPCR (BioRad)[b]	PCR/SERS Assay
Sensitivity (MT/WT%)	1%	<0.1%	0.1%
Assay time (PCR to result)	1.5 hours	2.5 - 3 hours	1.5 hours

a) Lopez-Rios F, et. al., PLoS ONE. 2013; 8: e53733.
b) Sanmamed MF, et. al., Clin Chem. 2015; 61(1):297-304.

Table S1. Comparison between standard PCR, ddPCR and PCR/SERS assays.

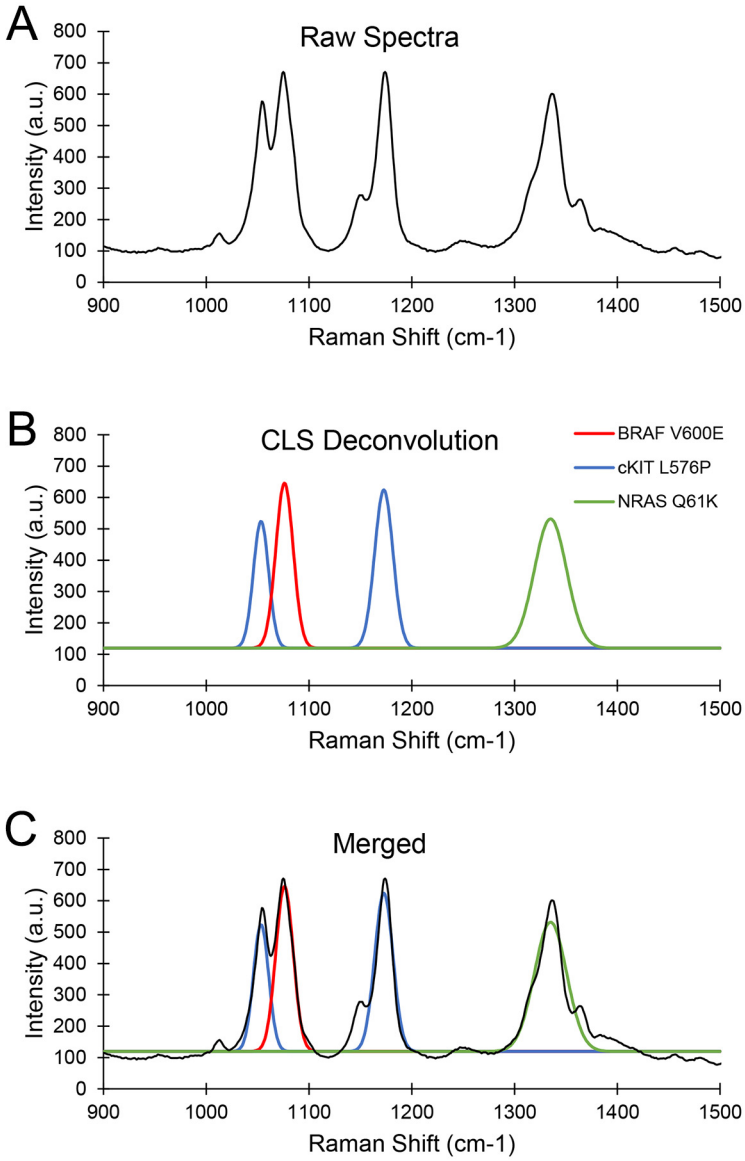

Figure S2. Classical Least Squares (CLS) deconvolution of raw spectra from a 3-plex sample. (A) Raw spectra. (B) CLS deconvoluted spectra. (C) Merged spectra of A and B. This data indicates that genotyping calls can be easily made from the direct observation of the spectra without post-processing.