Supporting Information

SERRS Multiplexing with Multivalent Nanostructures for the Identification and Enumeration of Epithelial and Mesenchymal Cells

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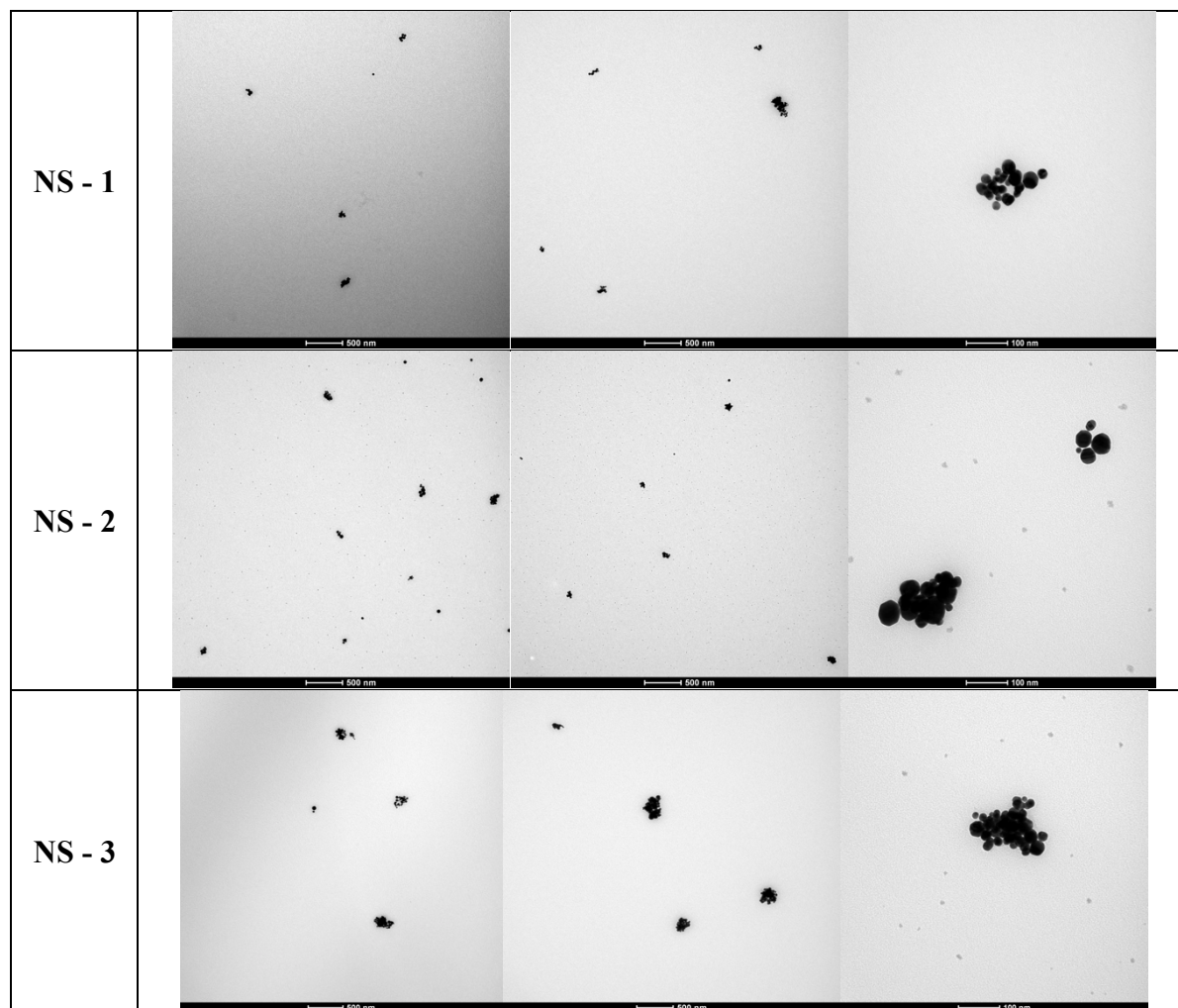
Figure S 1: TEM images for the three nanostructures NS-1, NS-2 and NS-3. In the first and second columns the bar below the images corresponds to 500 nm, whereas in the third it corresponds to 100 nm. We found average dimensions within 100 - 200 nm for all the nanostructures.
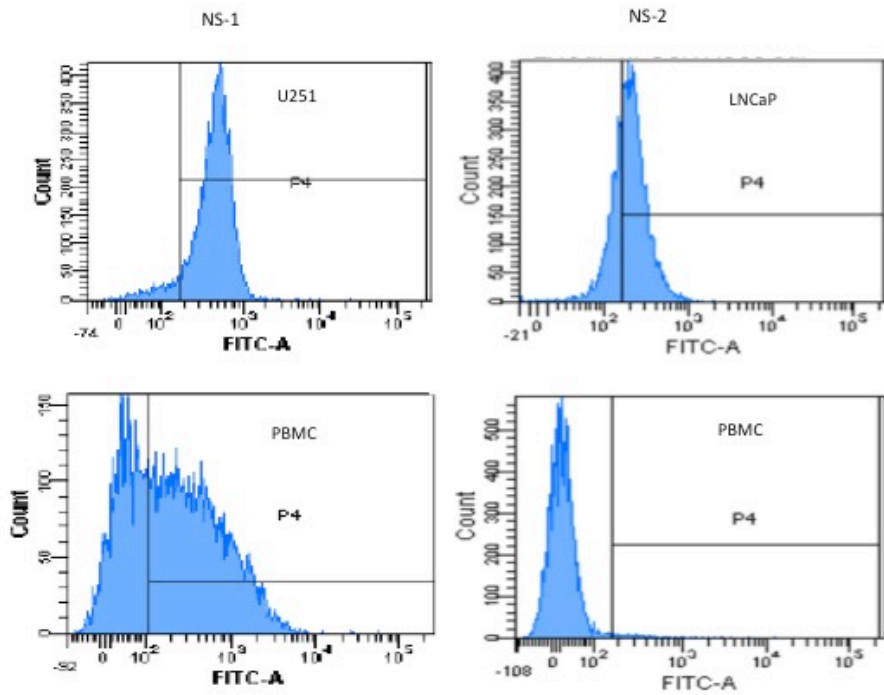
Figure S 2: Activity of NS-1 and NS-2 for U251, LNCaP respectively and of both for PBMC with a FACS analysis. The data give only a qualitative indication of the activity because of the fluorescence quenching activity of the plasmonic nanostructures.
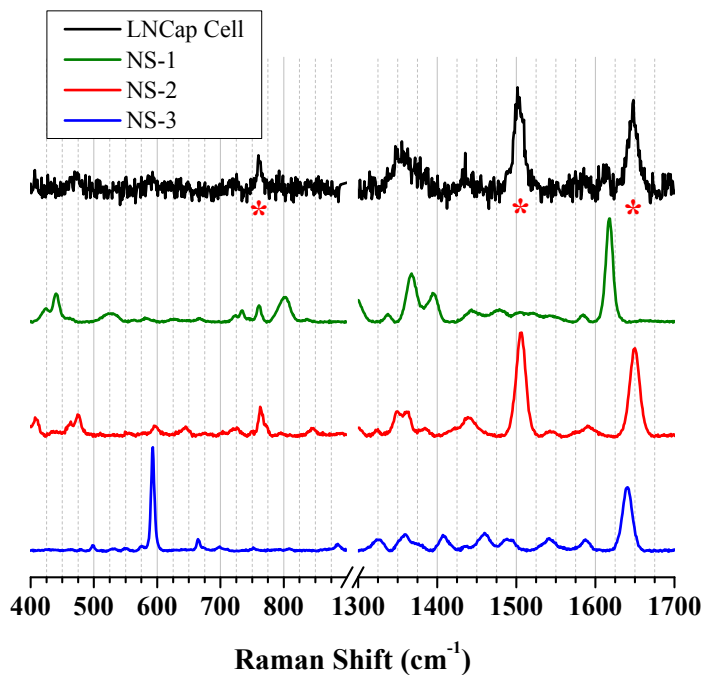
Figure S 3: SERRS spectra of an LNCaP cell after incubation with all three types of nanostructures and washing. Below are the reference SERRS spectra of NS-1, 2 and 3. In the cell spectrum asterisks indicate the relevant features of NS-2.
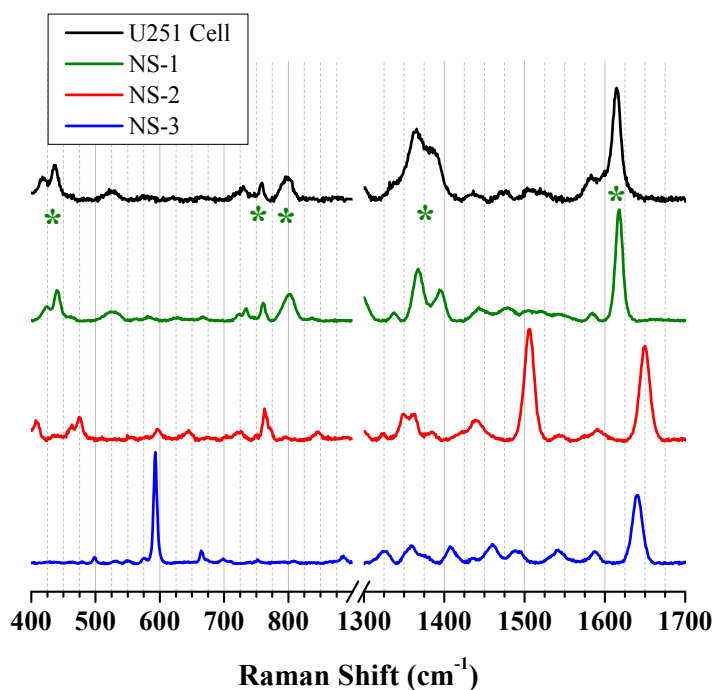

Figure S 4: SERRS spectra of a U251 cell after incubation with all three types of nanostructures and washing. Below are the reference SERRS spectra of NS-1, 2 and 3. In the cell spectrum asterisks indicate the relevant features of NS-1.
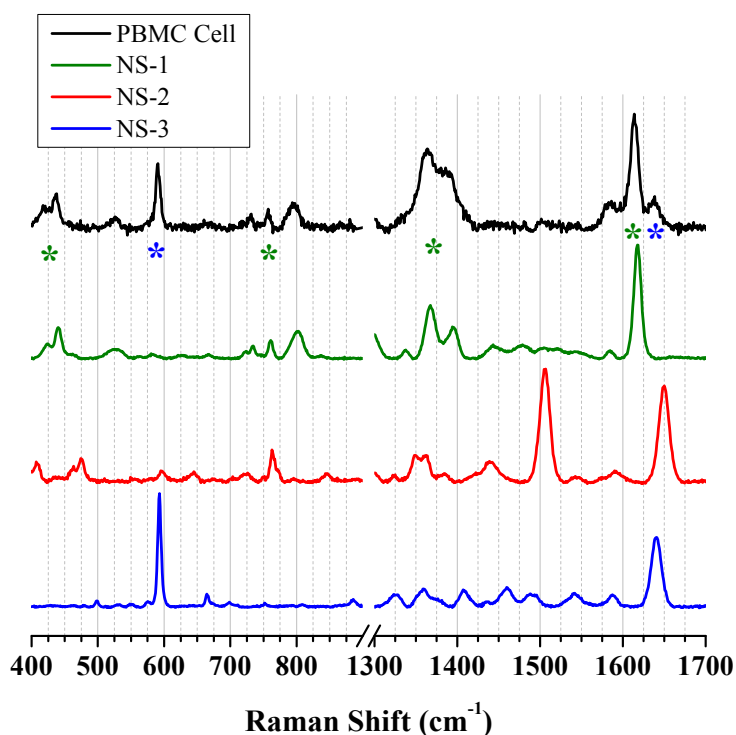
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Figure S5 SERRS spectra of a PBMC after incubation with all three types of nanostructures and washing. Below are the reference SERRS spectra of NS-1, 2 and 3. In the cell spectrum asterisks indicate the relevant features of NS-1 and NS-3.

	Classified as LNCaP	Classified as PBMC	Classified as U251	classification error
LNCap	142	6	4	6.6 %
PBMCs	34	798	66	11.1 %
U251	13	19	127	20.1 %

Table S 1: RF confusion matrix

Table S1 gives the estimated classification error rate for each kind of cell contained into the theoretical mixing, while the entire model has a percentage error of less than 12%.
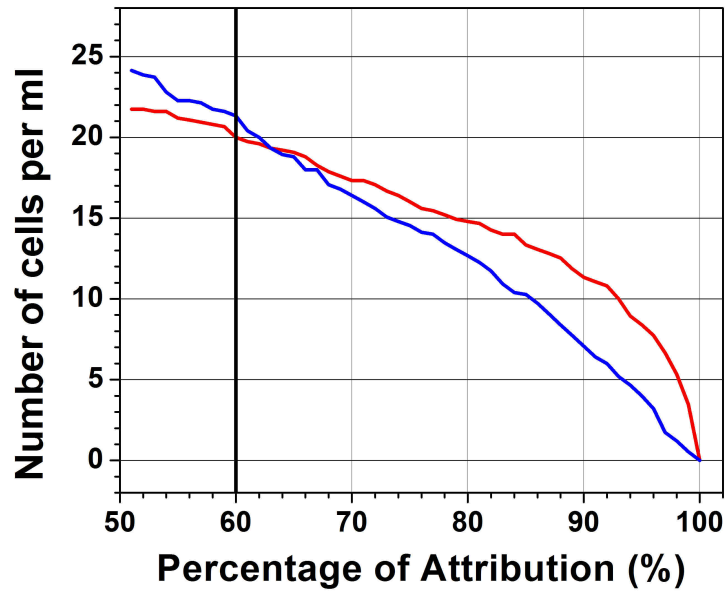
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Figure S6. Amount of cells found against percentage of attribution. Increasing the percentage of attribution the correct identification of a cell is increased, but lower number of cells are identified. 60% percentage attribution can be considered the best value for the identification.