Electronic Supplementary Information

Localized Surface Plasmon-Enhanced Nanosensor Platform using Dual-Responsive Polymer Nanocomposites

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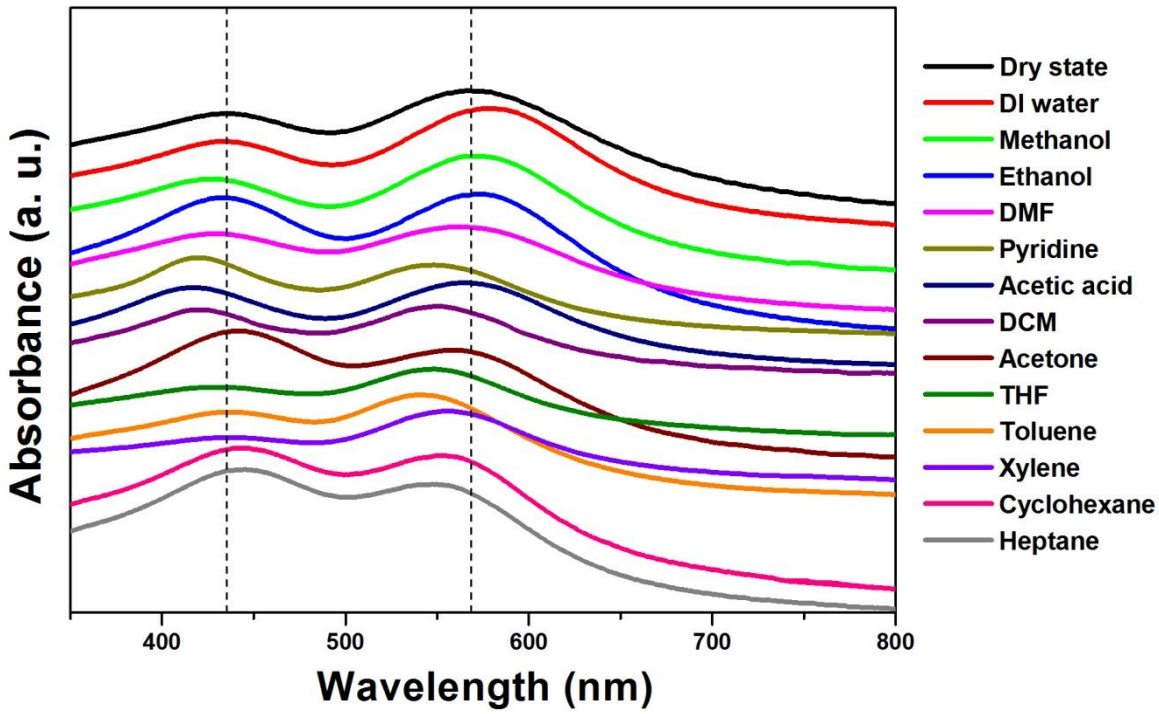

Figure S1. UV-Vis spectra of the dual-responsive nanocomposites under various types of surrounding media. Their background levels were adjusted in order to separate the spectra for easier comparison. The dotted lines indicate the peak positions (λ_1^{peak} and λ_2^{peak}) of dry state.

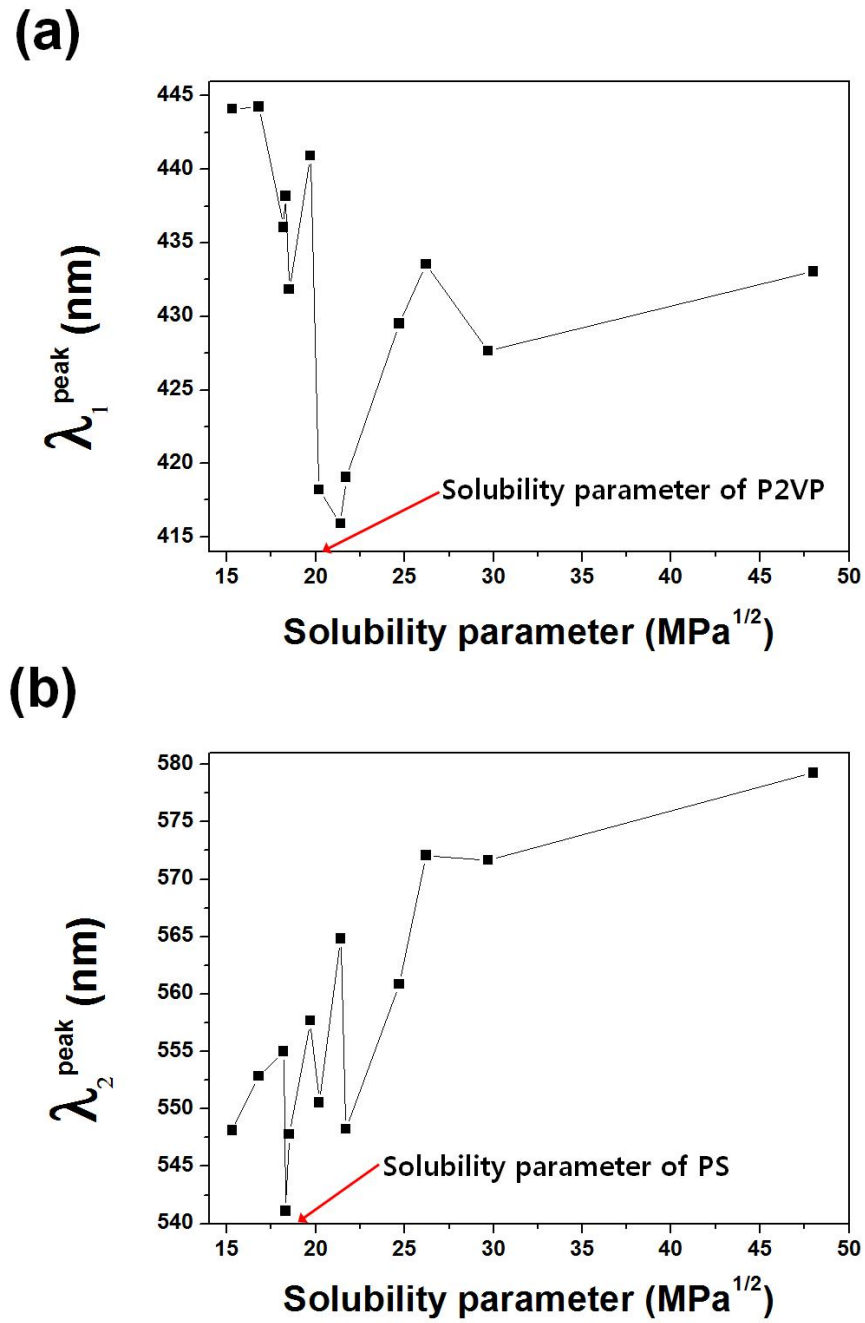

Figure S2. (a) – (b) The positions of the absorption peaks as a function of the solubility parameter (δ). (a) P2VP/AgNP and (b) PS/AuNP. The peak wavelengths reach a minimum when the solubility parameters of the polymer brush and liquid are best matched.

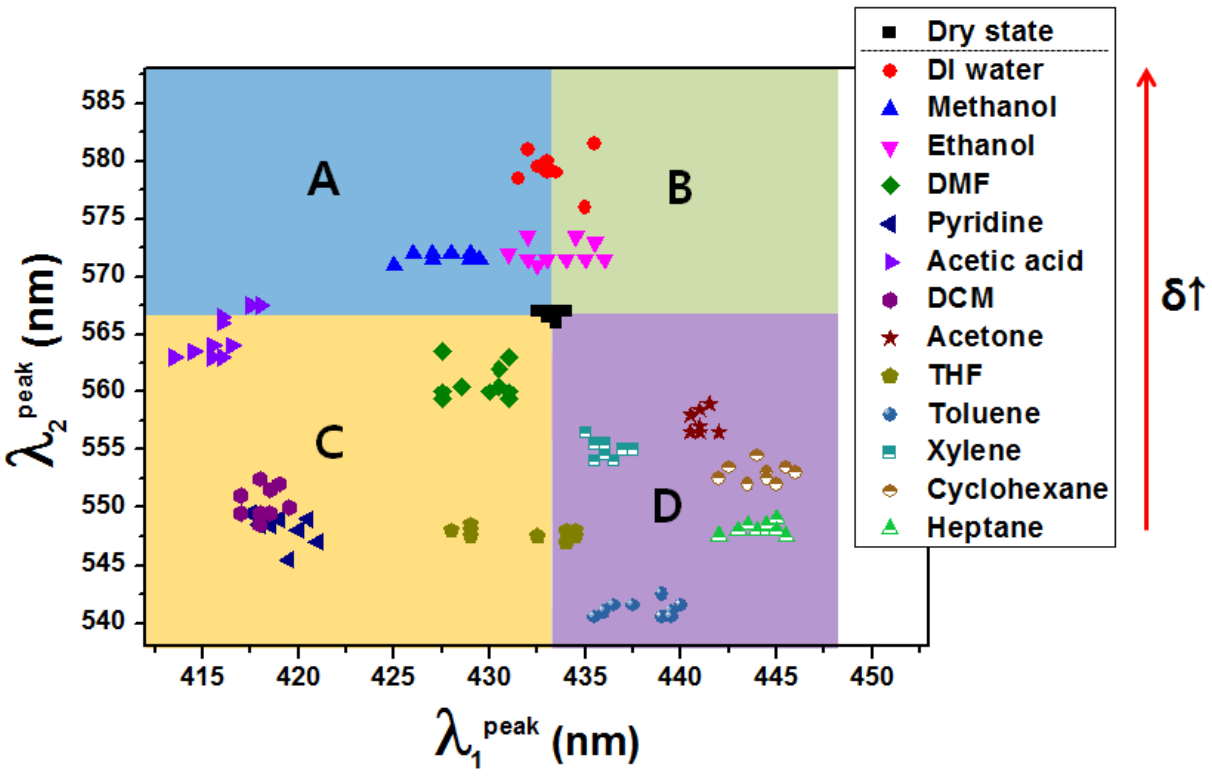

Figure S3. Classification of liquids depending on the type of peak shift. (Reference: dry state) The stretching of polymer brushes results in a negative shift, while the compression of chains combined with the effect of a liquid's refractive index induces a positive shift. (+) and (–) indicate positive and negative shifts, respectively. δ indicates the solubility parameter of a liquid.

A: λ_1^{peak} (–) and λ_2^{peak} (+), **B**: λ_1^{peak} (+) and λ_2^{peak} (+), **C**: λ_1^{peak} (–) and λ_2^{peak} (–), **D**: λ_1^{peak} (+) and λ_2^{peak} (–)