Supporting Information

Configuration-controlled Au Nanocluster Arrays on Inverse Micelle Nano-patterns: Versatile Platforms for SERS and SPR Sensors

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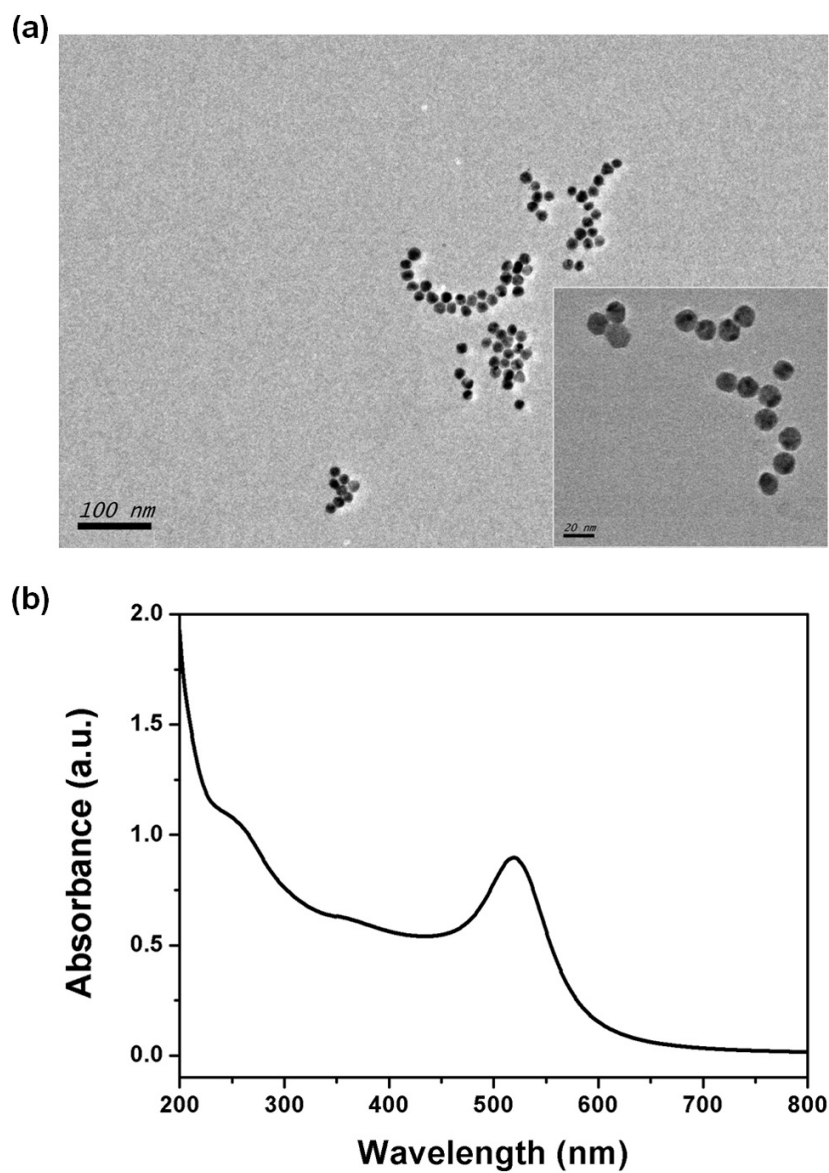
(a)

(b)

Fig. S1 (a) TEM image of citrate-capped Au NPs. Inset is magnified image. (b) UV-VIS absorption spectrum of citrate-capped Au NPs.
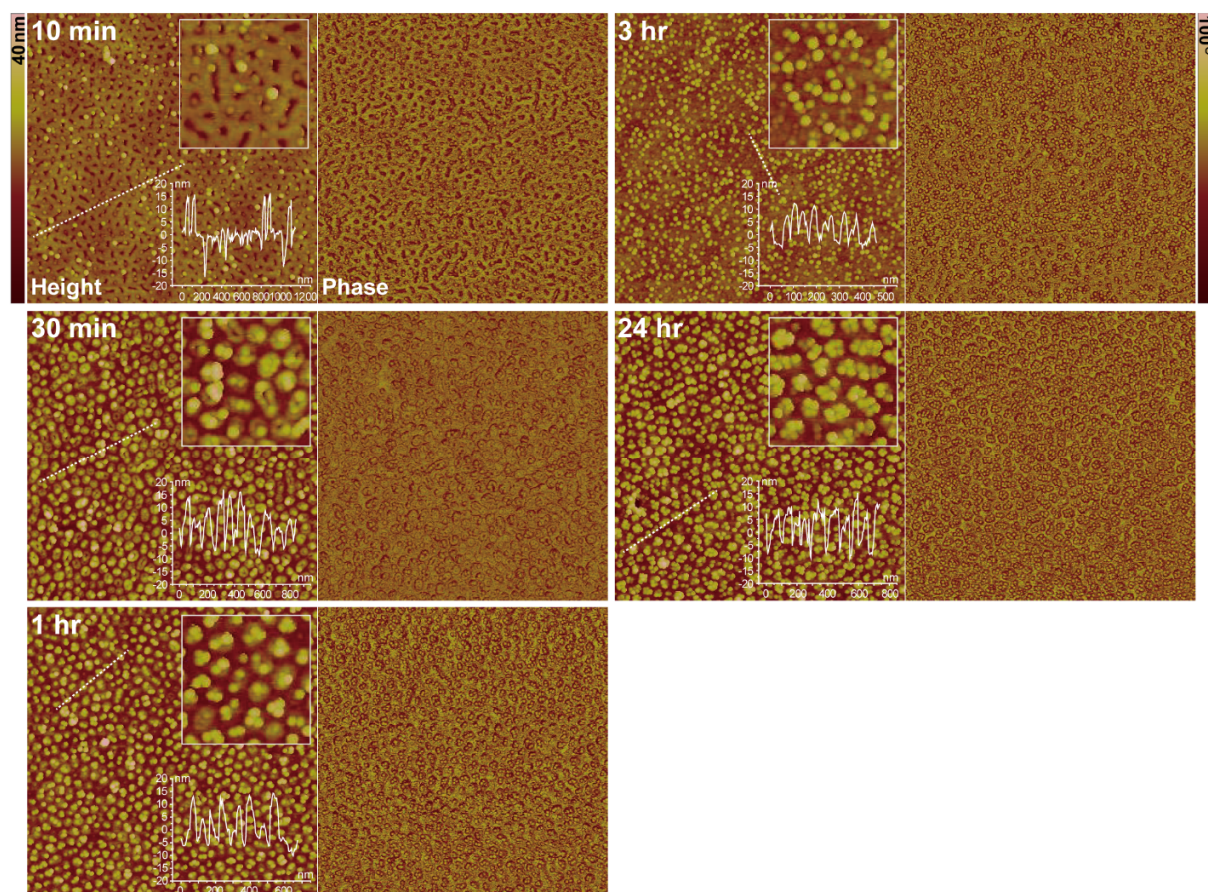
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Fig. S2 AFM height (left) and phase (right) images of core-centered Au NC (Au-CC) arrays deposited BCP films by one-step approach obtained from different immersion time in Au NP solution (Scale: 2 X 2 µm). Inset: magnified height images and sectional profiles along the dotted lines.

Fig. S3 AFM height (left) and phase (right) images of disordered Au NC (Au-DC) arrays deposited BCP films by two-step approach obtained from different immersion time in Au NP solution (Scale: 2 X 2 μm). Inset: magnified height images and sectional profiles along the dotted lines.
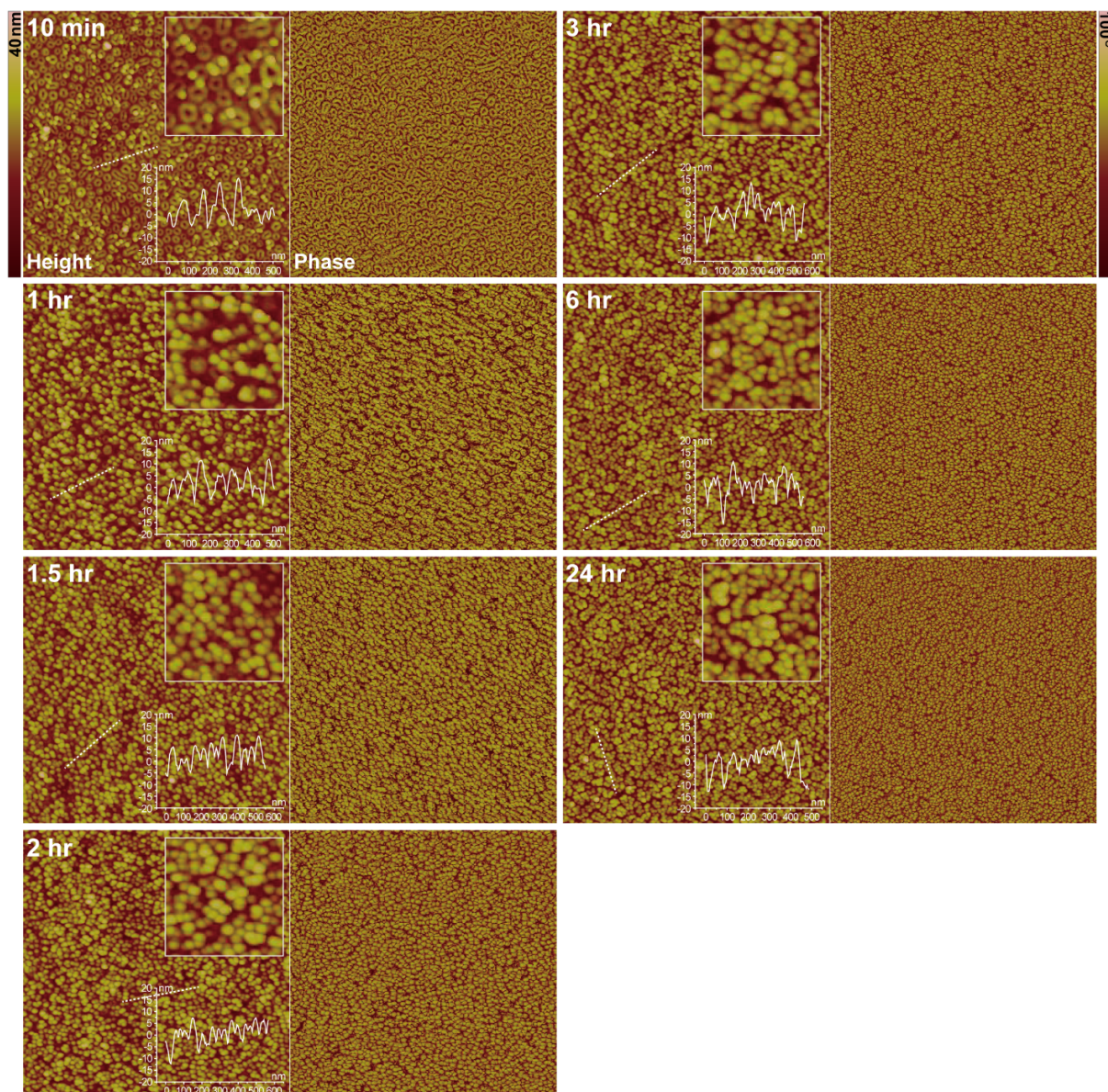
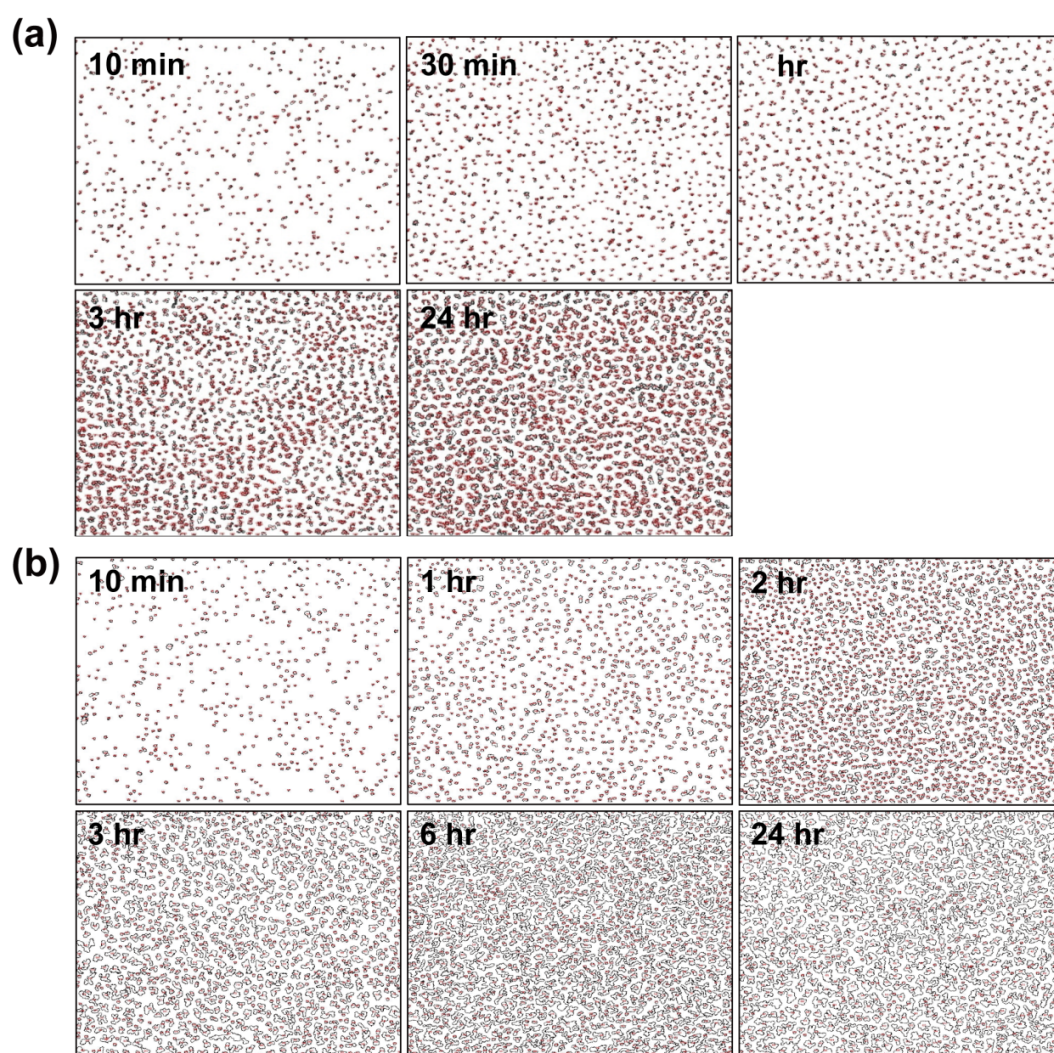**Fig. S4** ImageJ-analyzed results (from corresponding SEM images of Figure 1 and 2) of BCP$_{(PS\text{-}b\text{-}P4VP)}$-templated (a) Au-CC and (b) Au-DC arrays.

Immersion time	10 min	30 min	1 hr	3 hr	24 hr
One-step approach (Au-CC arrays)	2.1	3.3	3.8	9.9	11.4
Two-step approach (Au DC arrays)	3.0	7.4[*]	9.3	25.5	34.8

* interpolated value, while all other values were taken from ImageJ-analyzed area fraction (Fig. S4).

Table S1. Calculated %-surface coverage of samples with respect to immersion time for the two approaches.
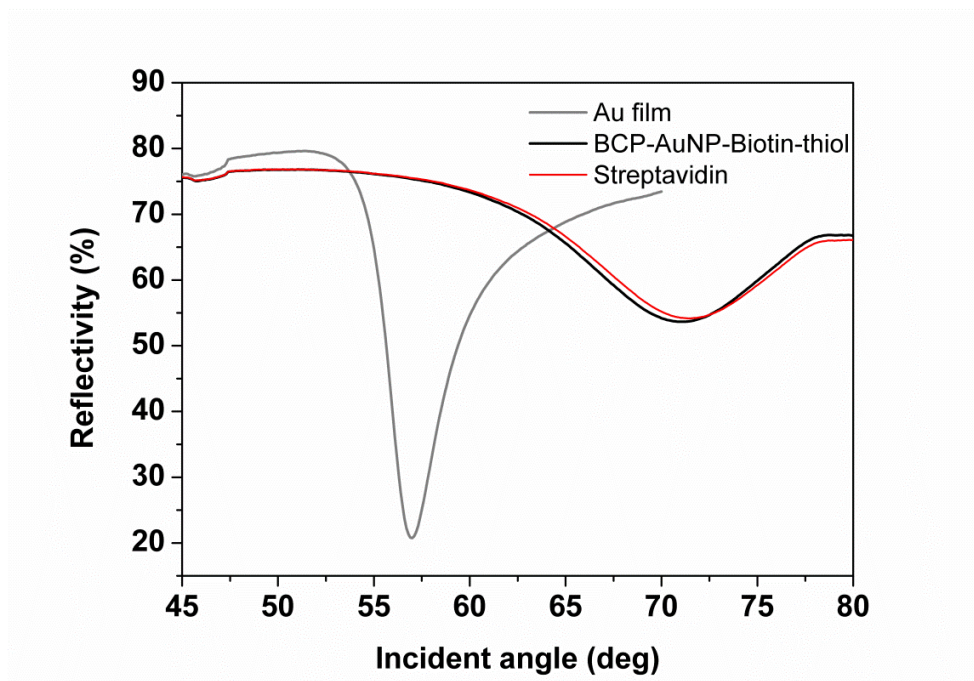
Fig. S5 SPR angular spectra of Au film (gray line), biotin-thiol SAM on BCP(PS-*b*-P4VP)-templated Au DC arrays with 1 hr of immersion time (black line), and streptavidin (500 nM) (red line) in PBS medium.
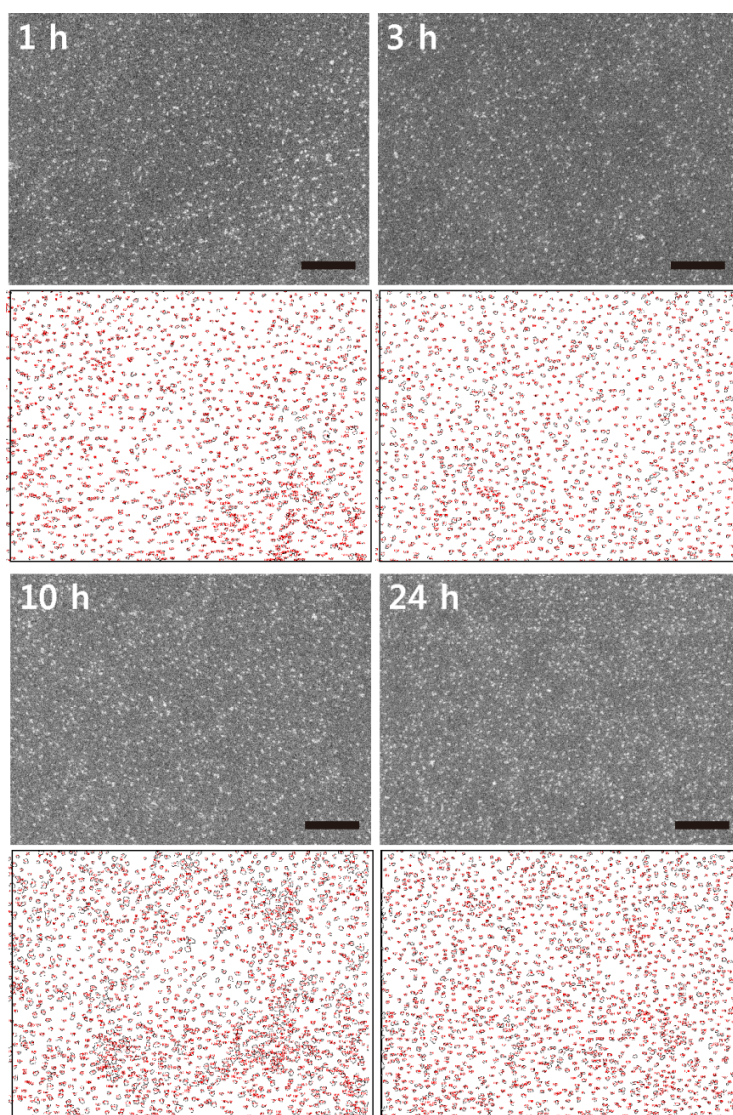
Fig. S6 SEM images (up) and corresponding ImageJ-analyzed results (bottom) of Au-CC arrays fabricated via one-step method varying Au NPs deposition time (1 hr ~ 24 hr). (Scale bar: 200 nm)
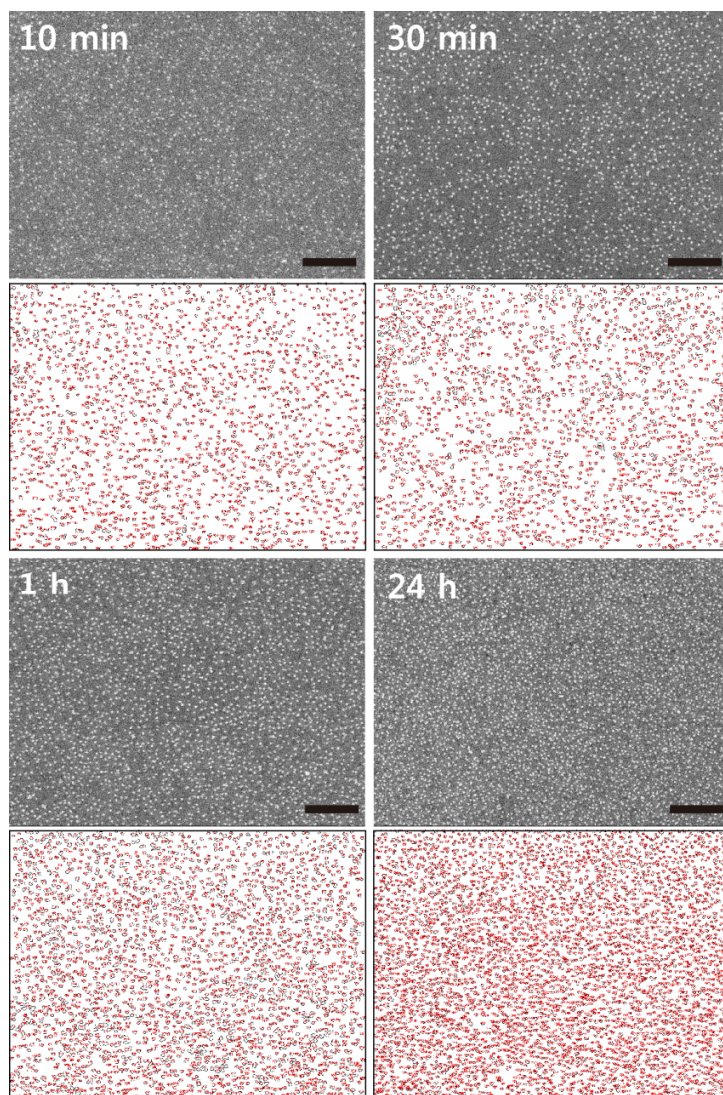
Fig. S7 SEM images (up) and corresponding ImageJ-analyzed results (bottom) of Au-DC arrays fabricated via two-step method varying Au NPs deposition time (10 min ~ 24 hr). (Scale bar: 200 nm)

Dipping time / One-step	1 hr	3 hr	10 hr	24 hr
Count	1503 ± 169.7	1306 ± 28.3	1027	753
Area Fraction (%)	7.95 ± 0.07	8.45 ± 0.6	10.65 ± 0.84	11.15 ± 0.95

Dipping time / Two-step	10 min	30 min	1 hr	24 hr
Count	1764.5 ± 85.5	2621 ± 168.3	3027 ± 19.8	3578.5 ± 74.2
Area Fraction (%)	9.45 ± 0.07	11.85 ± 0.05	13.7	16.4 ± 0.4

Table S2 Results of ImageJ analysis of BCP$_{(PS\text{-}b\text{-}P2VP)}$-templated Au NC arrays obtained from the SEM images in Fig. S6 and S7.