

Supporting Information

DNA-mediated assembly of gold-nanoparticle film with controllable sonic behaviors detected by novel electric-induced ultrasound

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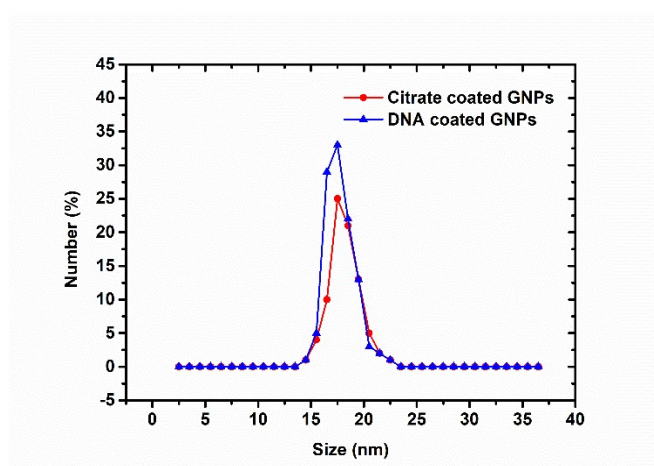


Figure S1 Size distribution of citrate coated gold nanoparticles and DNA coated gold nanoparticles in **Figure 1a,b**.

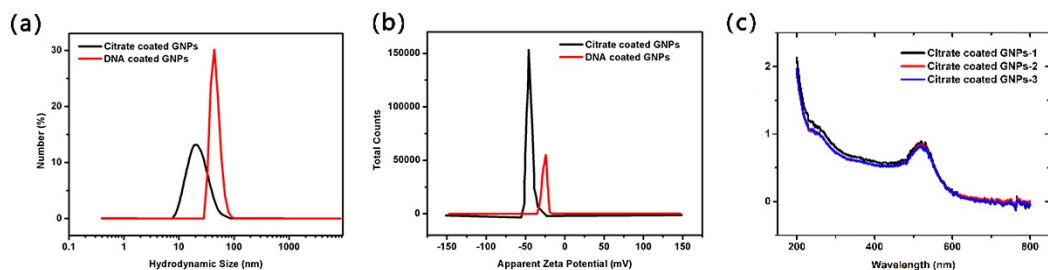


Figure S2 Characterization of as-prepared citrate coated GNPs alone, or further modified with HS-DNA. (a) DLS and (b) Zeta potential measurement of synthesized citrate coated GNPs alone, or further modified with HS-DNA. (c) UV-Vis spectra of synthesized GNPs in 3 batches.

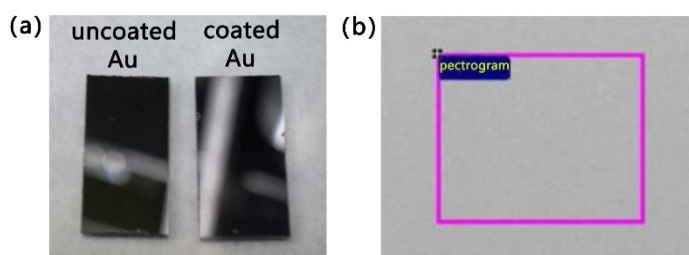


Figure S3 (a) Photographs of the substrate with Au uncoated and coated respectively, (b) SEM images of the Au coated substrate, purple box is the selected area for EDX.

Table S1 Elemental analysis of Au uncoated substrate for DNA coupling

Element	Percentage by weight (%)	Percentage by atomic (%)
C	3.66	8.45
Si	92.13	90.96
Au	4.21	0.59

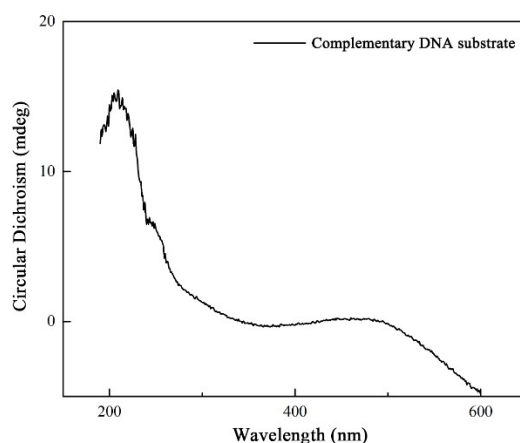


Figure S4 Circular dichroism spectrum of complementary DNA substrate

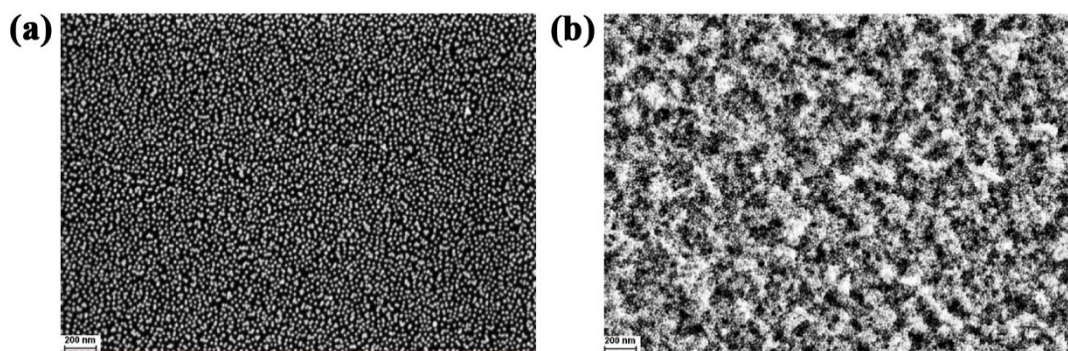


Figure S5 SEM images of 3 and 8 layers of gold nanoparticles film using PDDA as polymeric partner for LBL assembly.

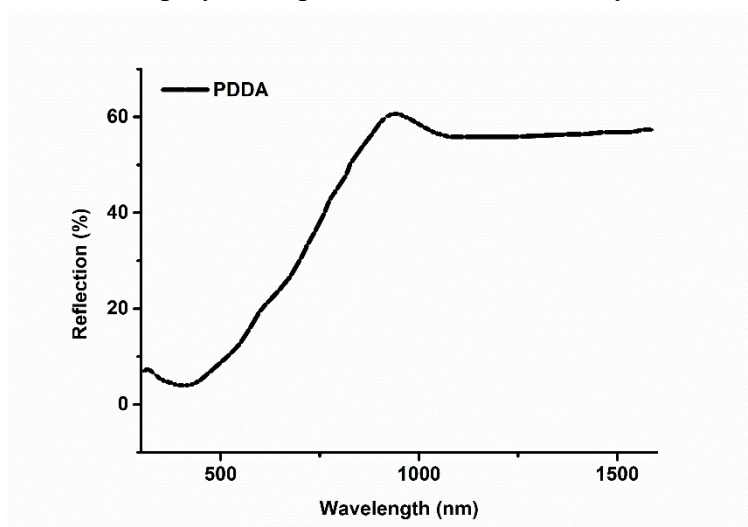


Figure S6 Specular reflection spectrum of assembled films with PDDA.

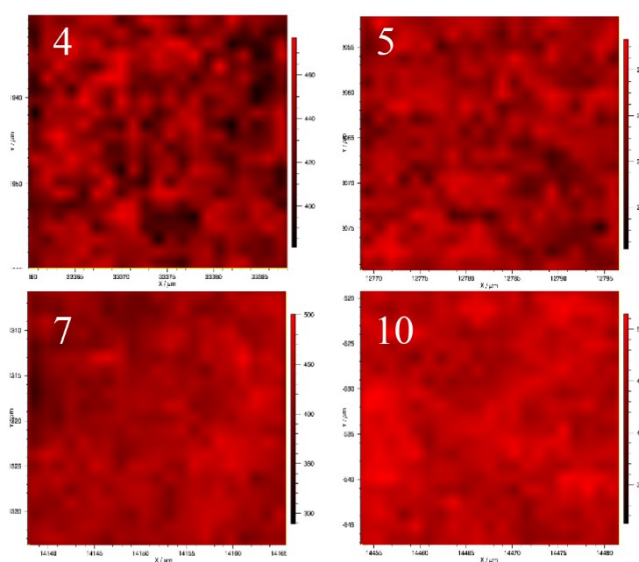


Figure S7 Raman mapping measurements of assembled films by PDDA with 4, 5, 7, 10 layers, respectively.

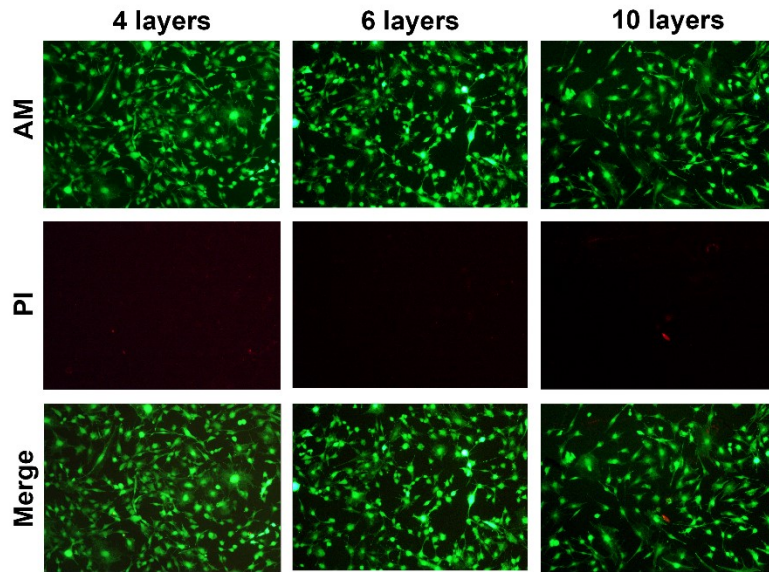


Figure S8 Representative scan of live/dead staining of MC3E3-T1 cells seeded with DNA-mediated assembled films with 4, 6 and 10 layers, green and red labeled cells represent living and dead cells, respectively.

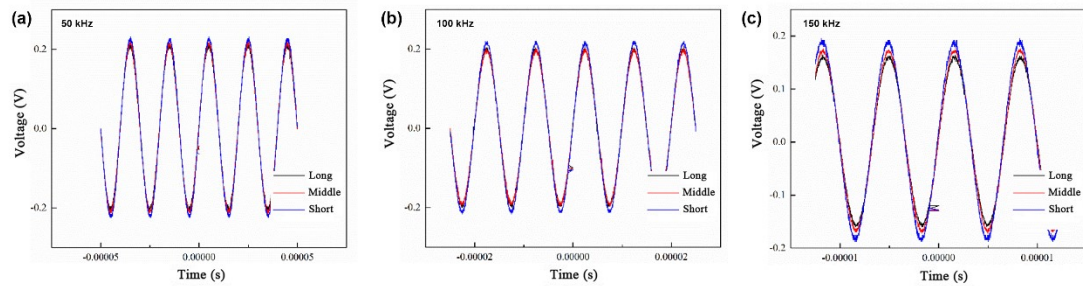


Figure S9 Detected signal by hydrophone through the assembly of films with three different lengths at 50 kHz, 100 kHz and 150 kHz respectively.

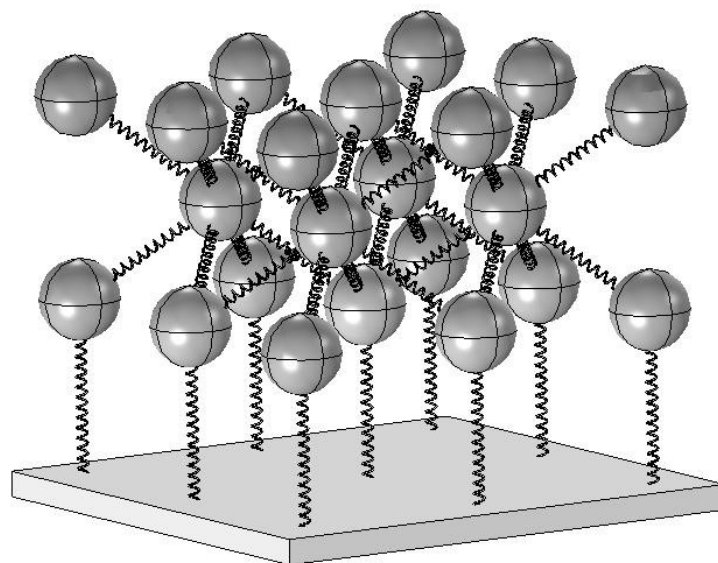


Figure S10 Schematic diagram of mimic DNA film consisting of springs and gold balls.