Electronic Supplementary Information

Silver nanocluster-lightened hybridization chain reaction

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Table S1. Sequences of synthesized oligonucleotides.[a]

RNA or DNA	Sequence（5′ - 3′）
mRNA target	UCU CAA GGA CCA CCG CAU CUC UAC
Nonhomologous RNA	AGU CUA GGA UUC GGC GUG GGU UAA GGU UAA
mRNA-1	UCU CAA GGA CCA CCG CAU CAC UAC
mRNA-2	UCU CAA GGA CCA CCG CAU CAC AAC
mRNA-3	UCU CAA GGA CCA CCG CAU CUG UAC
mRNA-4	UCU CAA GGA CCA CCG CAU CUC UAG
Hairpin probe H1	GTA GAG ATG CGG TGG TCC TTG AGA CAA AGT TCT CAA GGA CCA CCG CAT AAG ATA GGG TGG GGT GGG GTG GGG
Hairpin probe H2	TCT CAA GGA CCA CCG CAT AAT TGG ATG CGG TGG TCC TTG AGA ACT TTG
Hairpin probe H3	GTC TTA TAG CTA TTT CCC GCA TGA ACT TCC AAT TAT GCG GTG GTC CTT GAG AGA GTC TTC TCA AGG ACC ACC GCA T
Hairpin probe H4	TCT CAA GGA CCA CCG CAT CTC TAC ATG CGG TGG TCC TTG AGA AGA CTC
AgNC-templating probe	CCC TTA ATC CCC TAT TTC ATG CGG GAA ATA GCT ATA AGA C

[a] mRNA target is the initiator for HCR reaction among probes H1-H4. mRNA-1, mRNA-2, mRNA-3 and mRNA-4 with single base diverse from the mRNA target at diverse sites, as well as nonhomologous RNA are used in the control experiments. AgNC-templating probe is used for the synthesis of nucleic-acid-stabilized silver nanoclusters (DNA–AgNCs).

Figure S1. Typical high response transmission electron microscopy (HRTEM) image of nucleic-acid-stabilized silver nanoclusters (DNA–AgNCs). Scale bar is 5 nm.

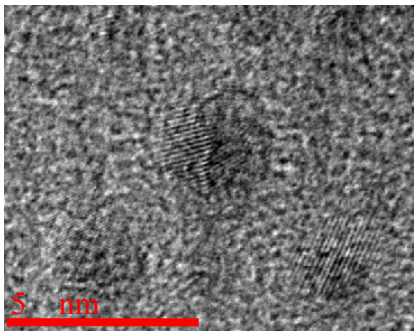


Figure S2. Atomic force microscopy (AFM) images and cross-section analysis of the HCR products before (A) and after (B) loading DNA–AgNCs. A 1/10 diluted solution was used for image B compared with that for image A.

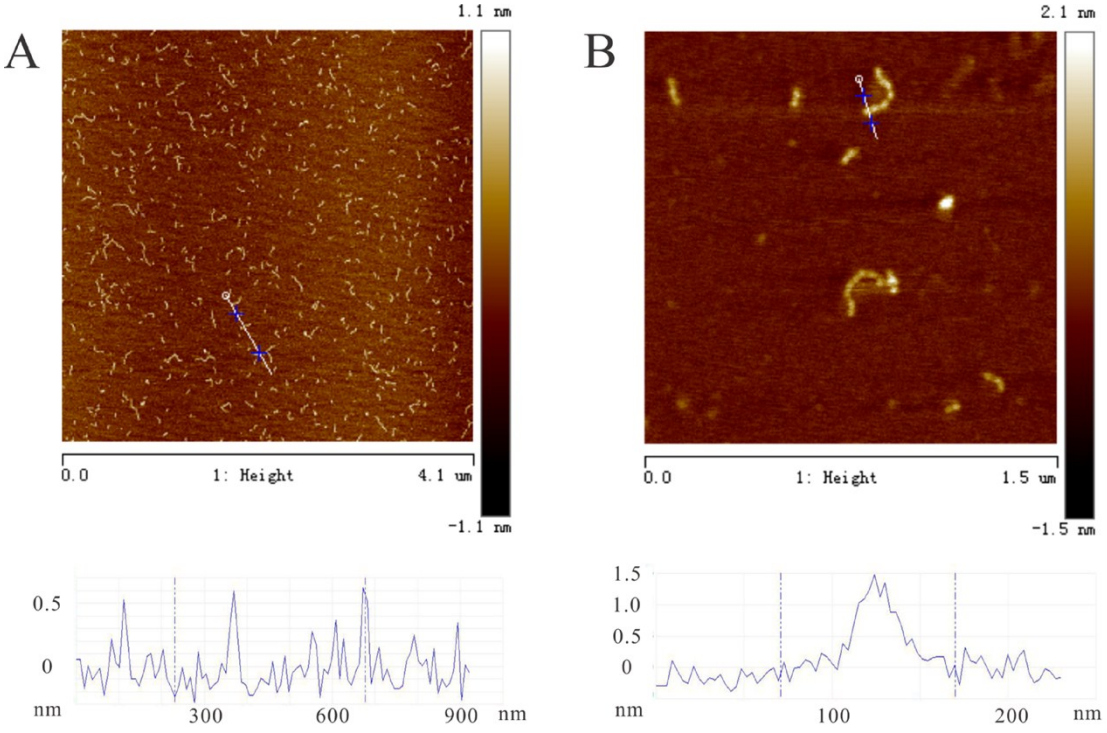
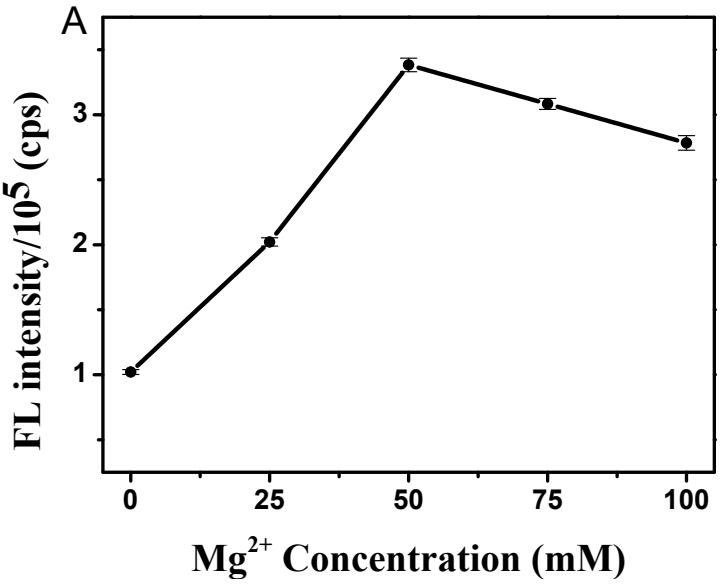


Figure S3. (A) Dependency of fluorescence signals on Mg^{2+} concentration. (B) Dependency of fluorescence intensity ratio (F/F0) values of mRNA assay on reaction temperature. Error bars are standard deviation of four repetitive experiments.



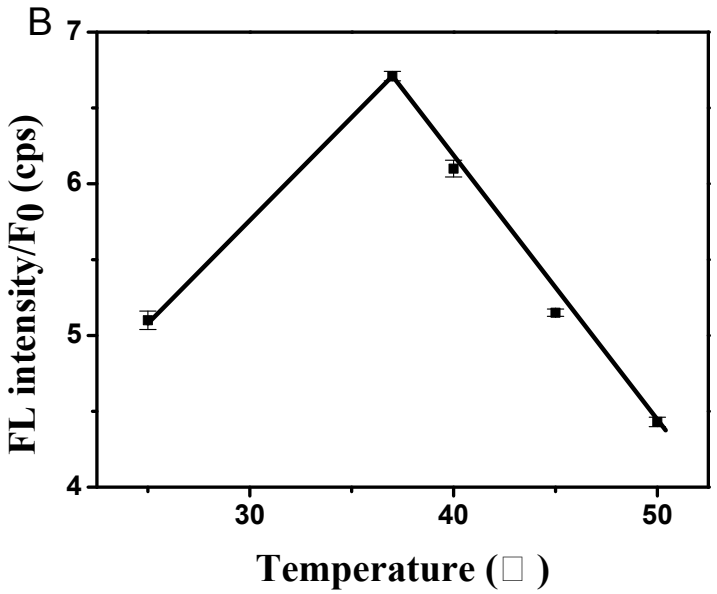


Figure S4. Specificity of AgNC-lightened HCR in mRNA assay. Bars represent the fluorescence intensity ratio (F/F0) upon the different mRNA targets with the same concentration of 100 nM, where F0 and F are the fluorescence signals in the absence and the presence of mRNA, respectively. Error bars are the standard deviation of four repetitive experiments.