

# Selection of a DNA aptamer for cadmium detection based on cationic polymer mediated aggregation of gold nanoparticles

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## Electronic Supplementary Information

Supplementary figures:

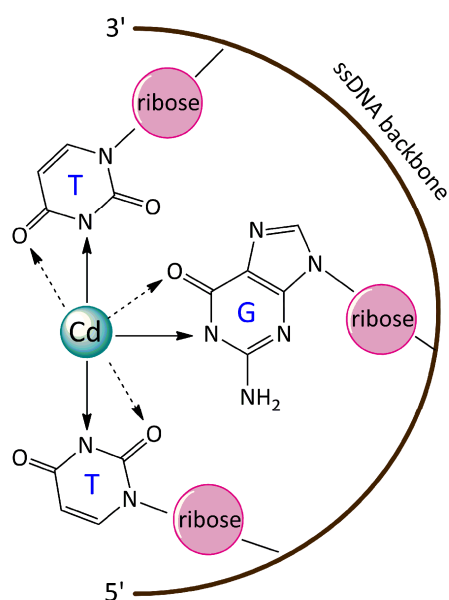


Fig. S1 One of the supposed structure of Cd(II)-aptamer binding interaction. The structure is maintaining by the coordination bonds between Cd(II) and the O or N of the adjacent T or G bases among the selected aptamer candidates.

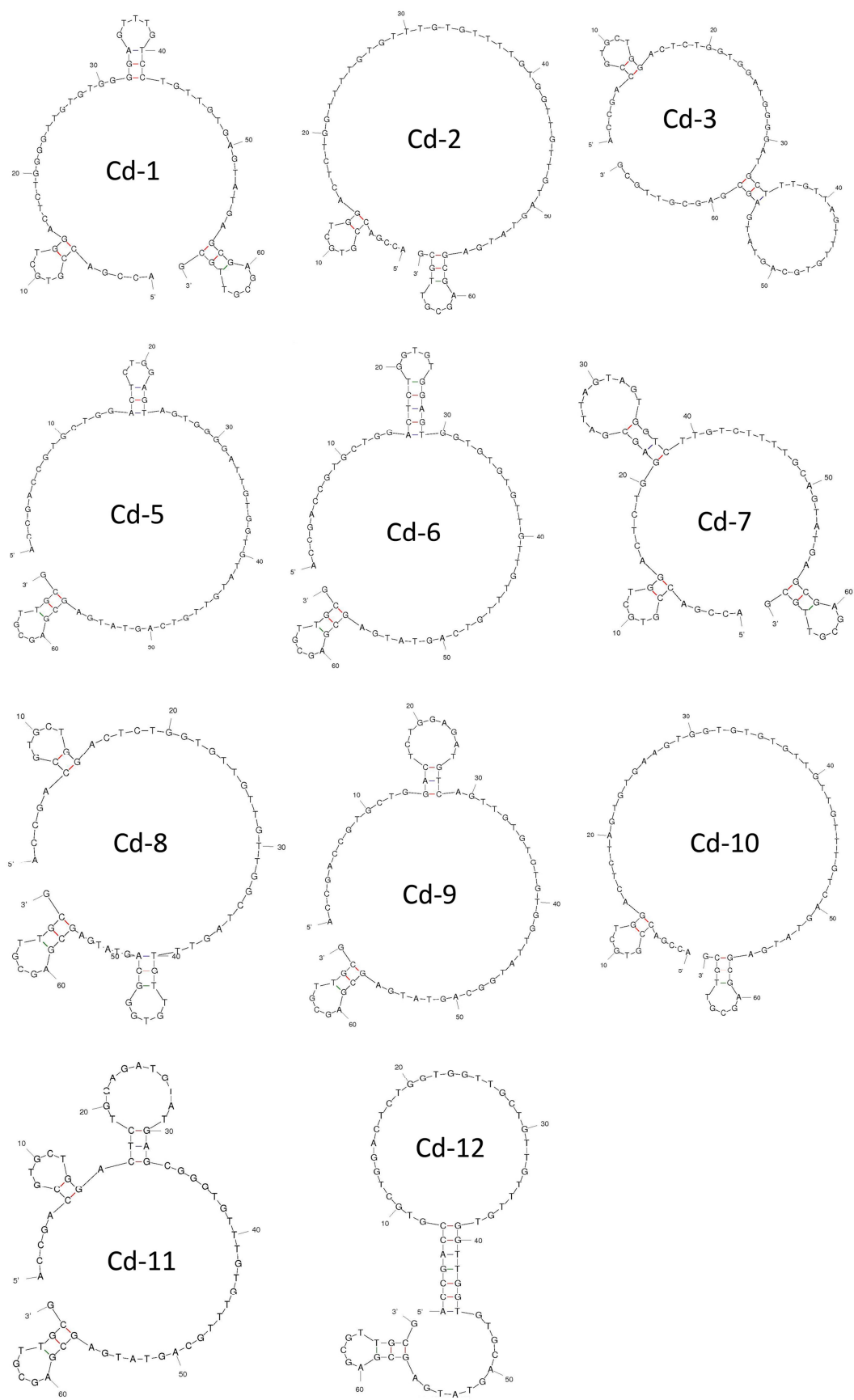


Fig. S2 Secondary structure of the selected ssDNA aptamers predicted using *Mfold* software.

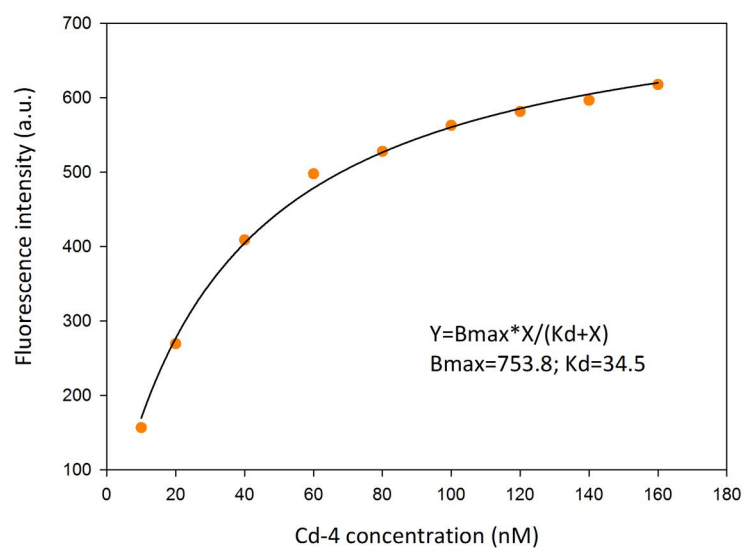


Fig. S3 The relationship between fluorescence intensities and concentration of FAM-labelled Cd-4 aptamer. The  $K_d$  value of Cd-4 aptamer bound to Cd(II) was calculated as 34.5 nM by fluorescence measurements.

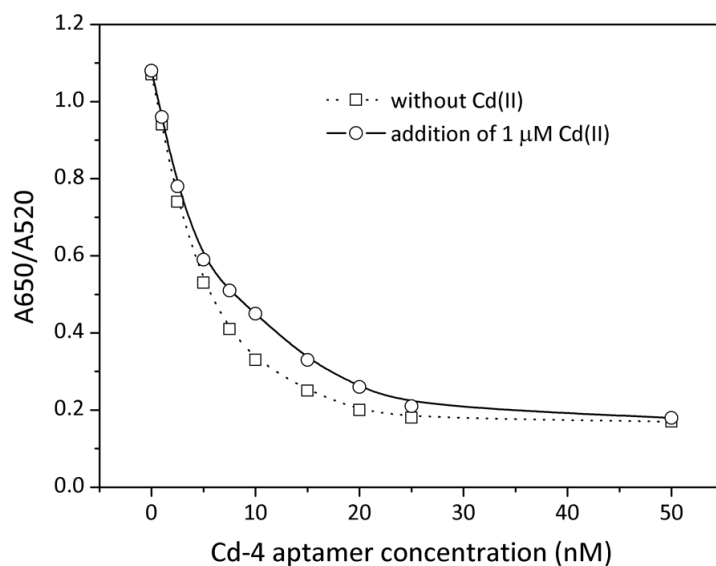


Fig. S4 Effect of Cd-4 aptamer concentration on the aggregation of AuNPs by 1.52 nM of PDPA.

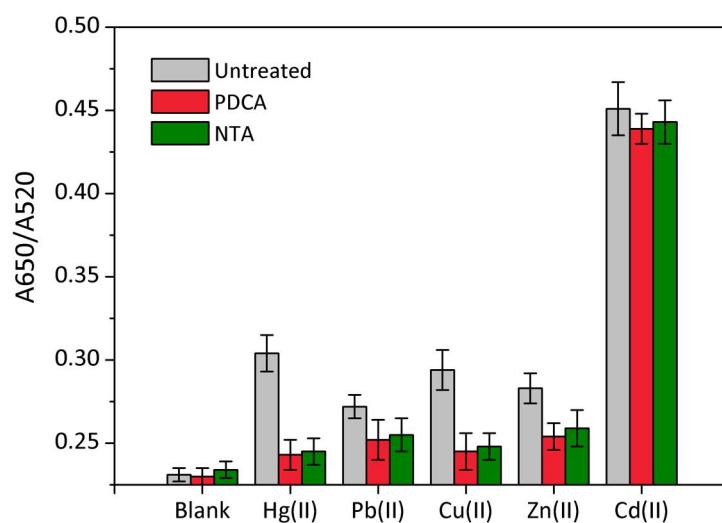


Fig. S5 Improving the selectivity of the assay toward Cd(II) by the addition of 5  $\mu$ M chelating ligands. The concentrations of metal ions are all 1  $\mu$ M. The chelating ligands are 2,6-pyridinedicarboxylic acid (PDCA) and nitrilotracetic acid (NTA), respectively.