

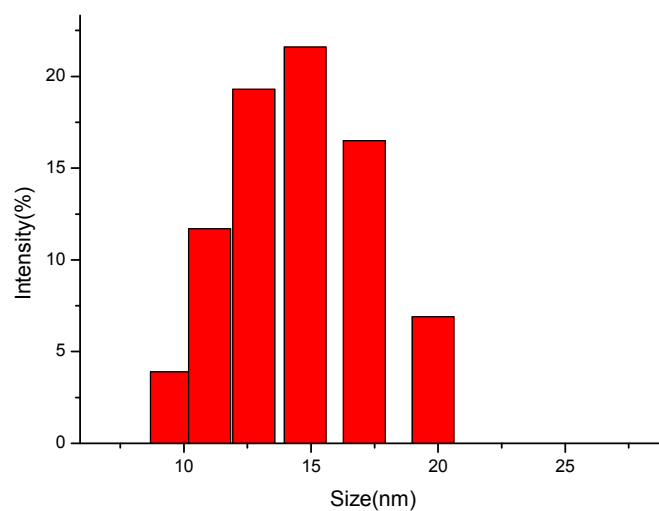
Supporting Information

Wash-free magnetic-oligonucleotide probes based NMR sensor for detecting the Hg ion

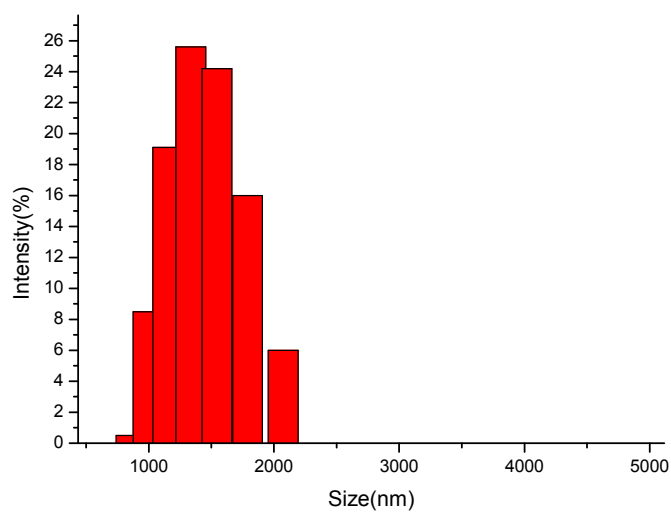
Wenwei Ma, Changlong Hao, Wei Ma, Changrui Xing, Wenjing Yan, Hua Kuang, Libing Wang*, Chuanlai Xu*

Characterizing the MNP Probes

Probe 3 (50 μ L, 10M) was added to the MNP oligonucleotide probe 1 solution. In order to improve the hybridization efficiency, the mixture solution was heated at 65 $^{\circ}$ C for 10 min and cooled to room temperature. The hybridization procedure needed approximately 3 hours. Then the excess probe 3 was removed by centrifugation at 4000 rpm for 5 min. A standard curve for probe 3 could be obtained through measuring the value of the fluorescence at the 520 nm with the different concentration of FAM modified oligonucleotides Probe 3. The concentration of Oligonucleotide Probe 3 was calculated by measuring the fluorescence maximums based on the standard calibration curve. Accordingly, the average number of DNA on each MNPs was determined. As similar to the above method, we also determined the number of Oligonucleotides Probe 2 attached onto the each MNP.



(A)



(B)

Figure S1. Typical size of MNP without the addition of Hg ion (A) and with the addition of Hg ion at the concentration of 10ppt (B).