Supplementary Information

Improvement of high affinity and selectivity on biosensor using genetically engineered phage by binding isotherm screening

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Supporting Figures

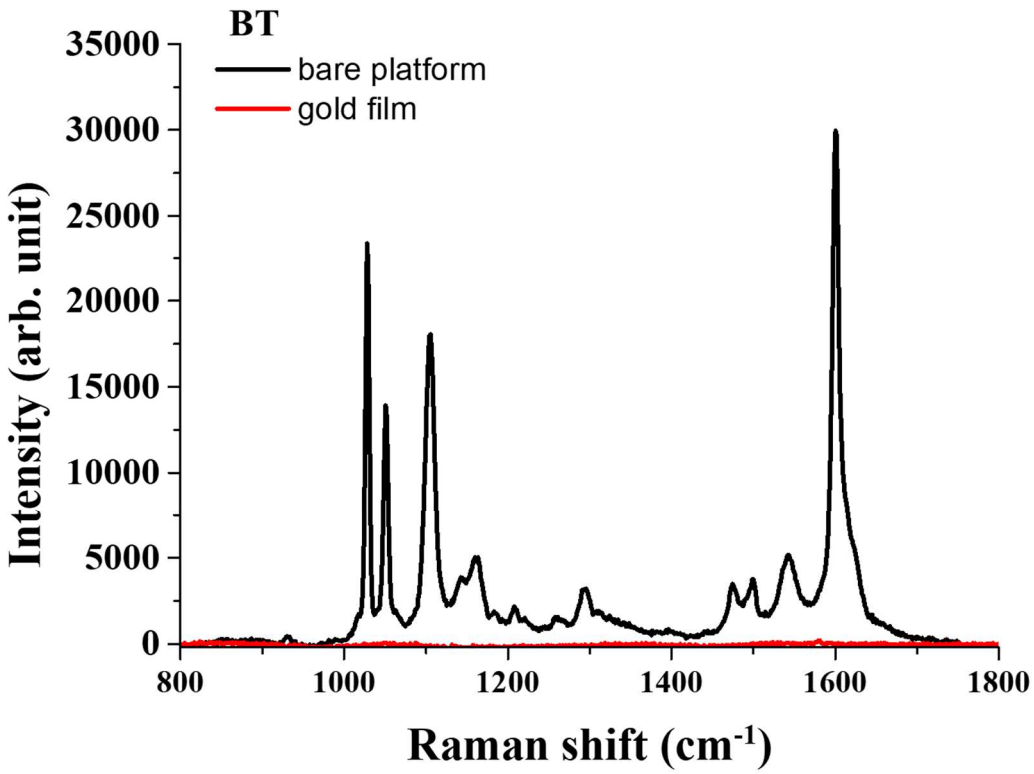

Fig. S1. Raman spectra of monolayer BT coated on the bare SERS platform (black line) and the gold film (red line). On the SERS platform, the Raman signal intensity of monolayer BT reaches over 10^4, but it is impossible to measure in the gold film.

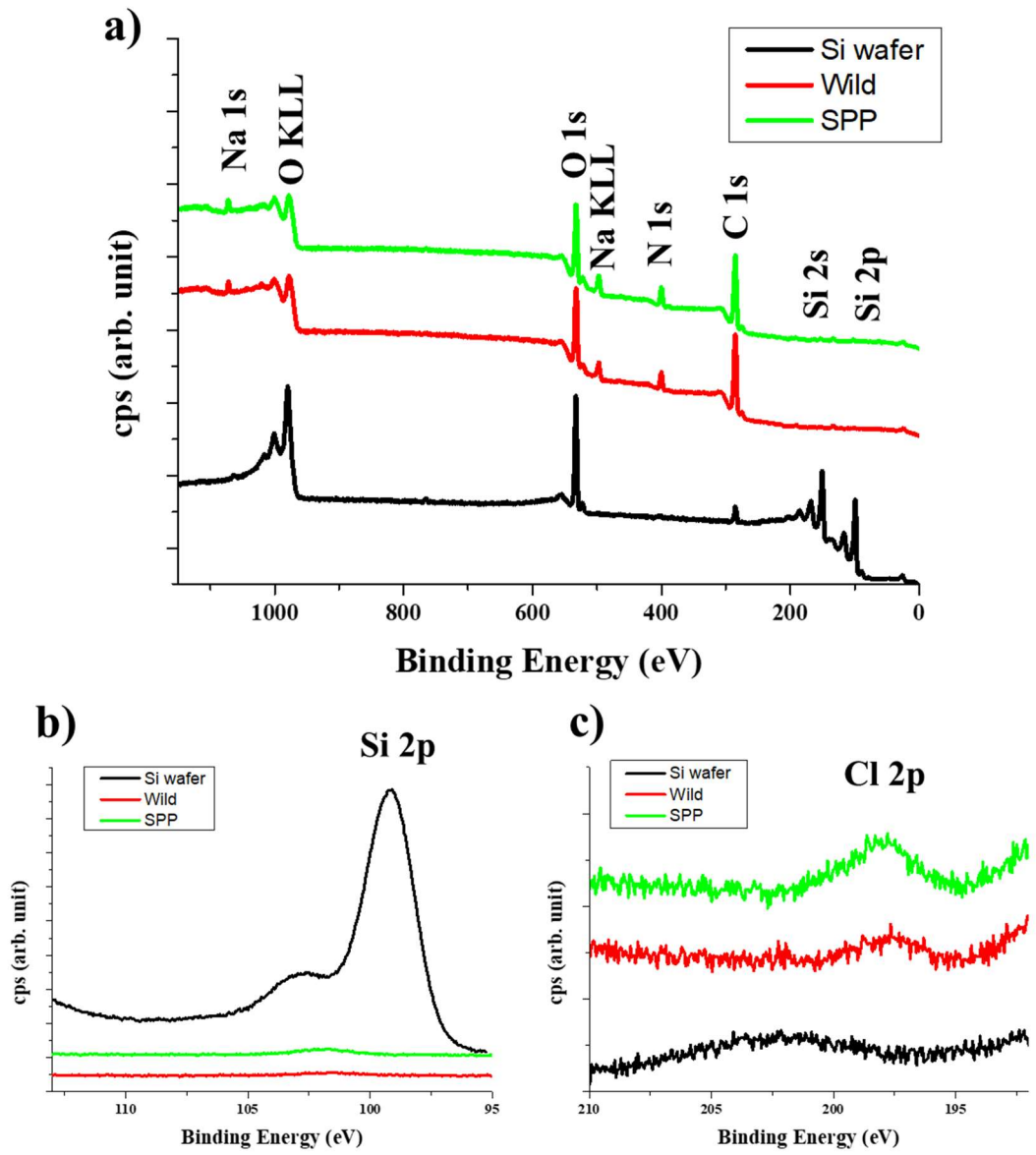

Fig. S2. XPS spectra of the phage bio-filters (the PQ binding phage and wild type) and silicon substrate. The phage bio-filters were immersed in PQ solution with 1 ppm. (a) XPS Survey spectra. (b) XPS spectra of Si 2p. Both the phage bio-filters were fabricated on Si substrates, but the Si signal do not appear in the XPS spectra. This result indicates that the phage bio-filter was made thick enough. (c) XPS spectra of Cl sp. The XPS spectrum of Si substrate to Cl 2p indicates that the Si signal does not overlap with the Cl signal.

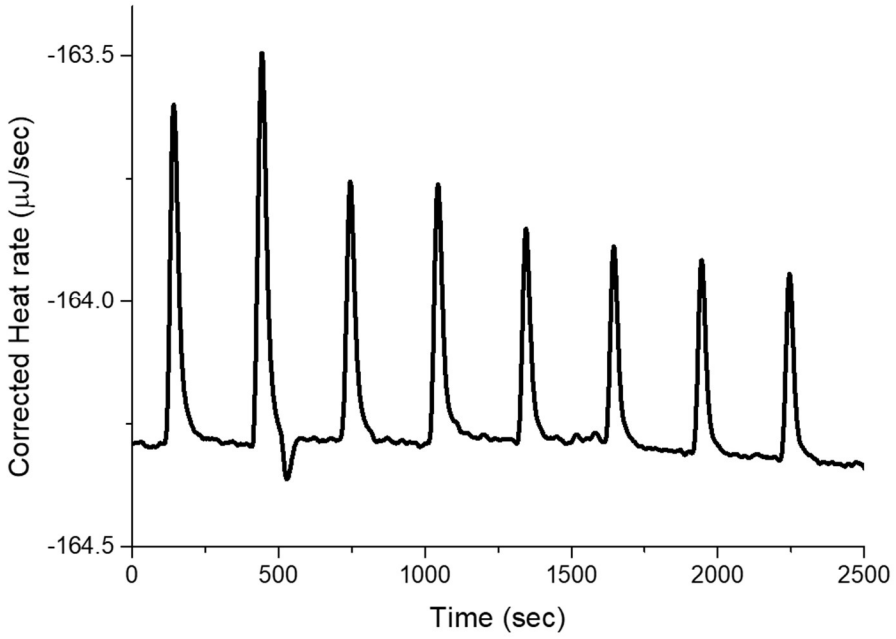

Fig. S3. Raw heat ratio of the PQ binding peptide to PQ measured by ITC.

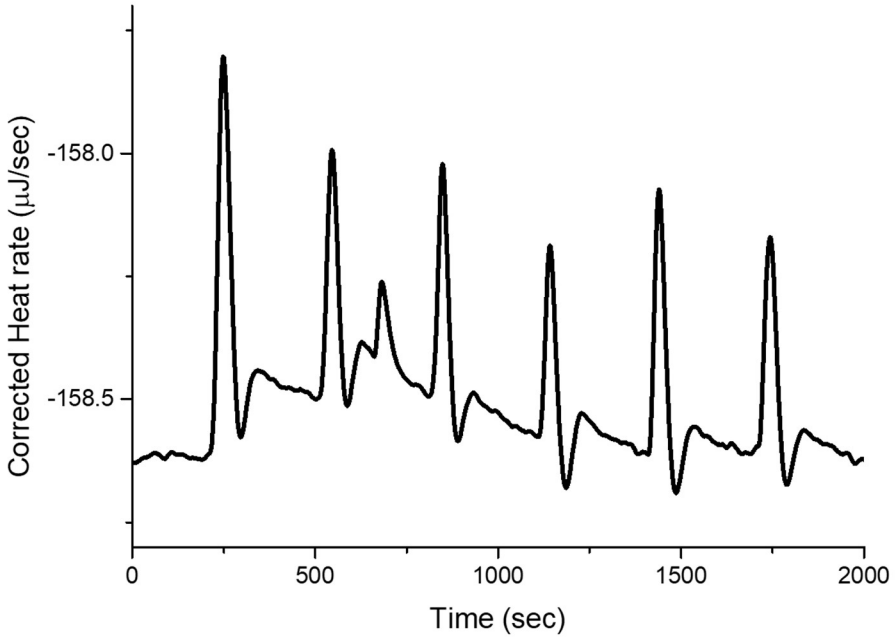

Fig. S4. Raw heat ratio of WHW peptide to PQ measured by ITC.

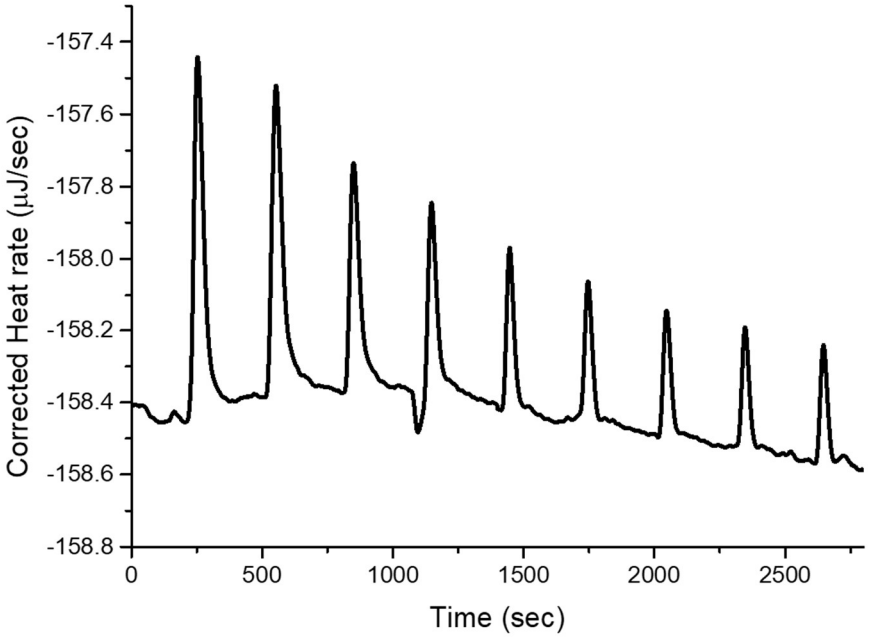

Fig. S5. Raw heat ratio of the PQ binding peptide to DQ measured by ITC.

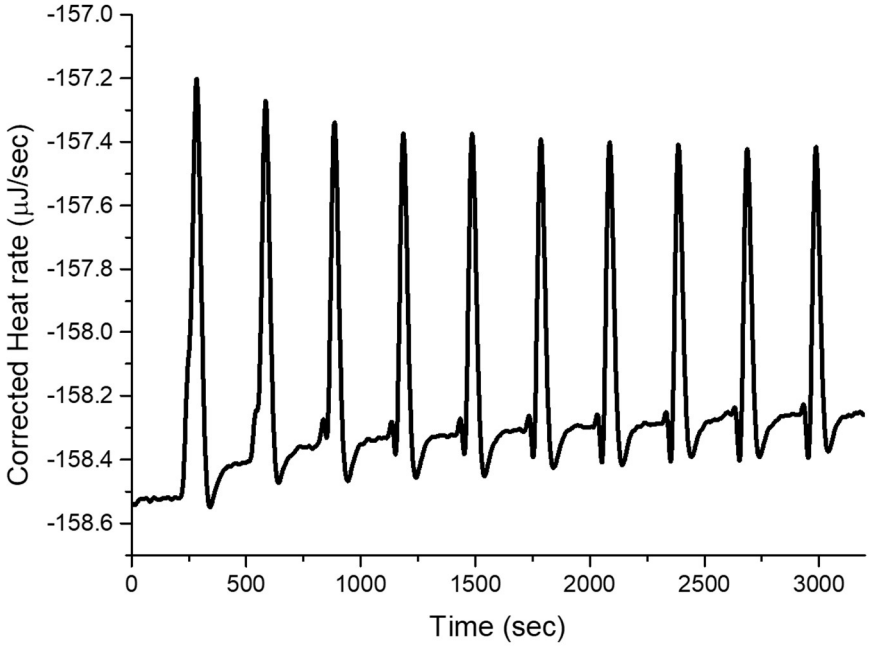

Fig. S6. Raw heat ratio of the PQ binding peptide to DIF measured by ITC.

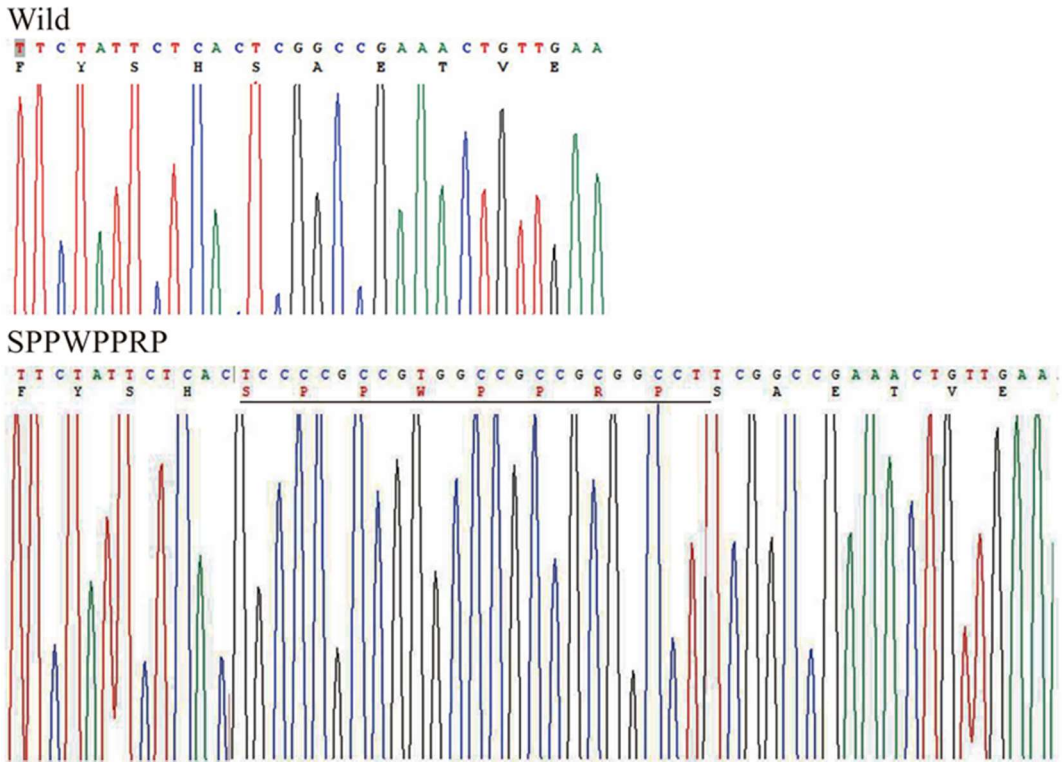

Fig. S7. DNA sequence information of wild-type and the paraquat binding phage measured by high throughput DNA analyser.