

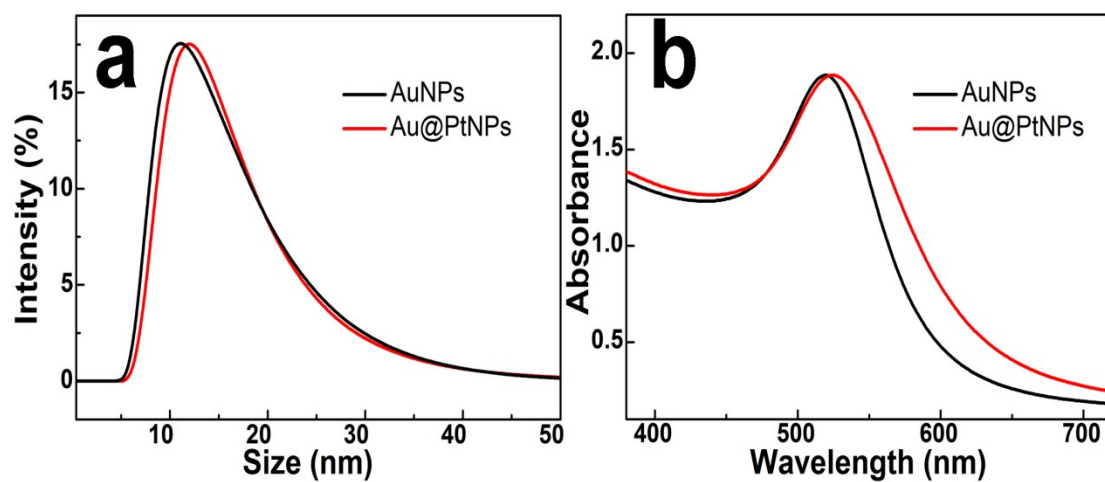
## **Electronic Supporting Information**

*For*

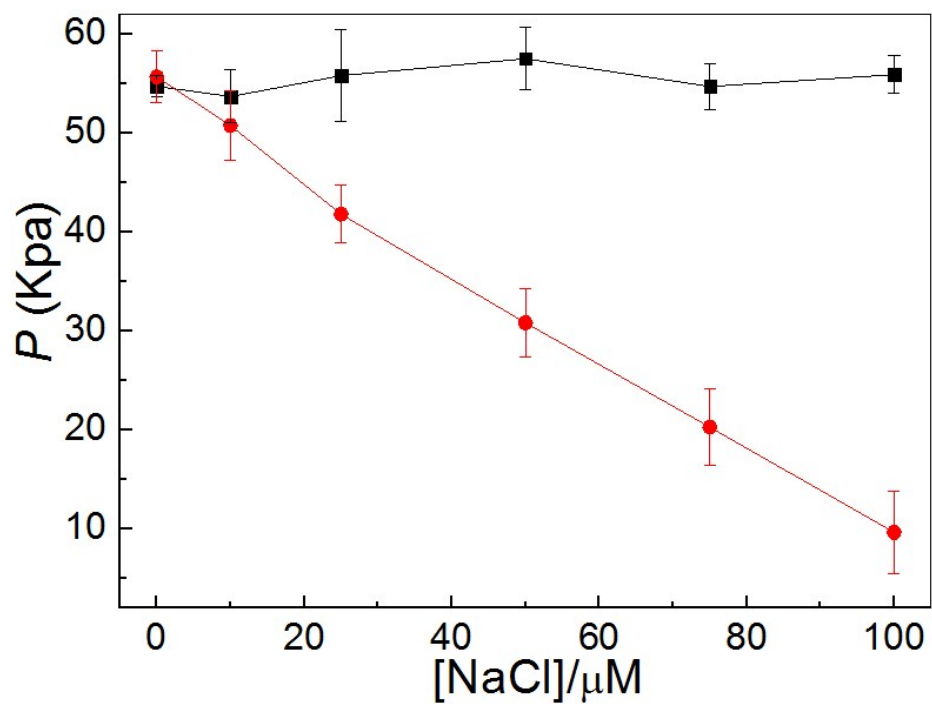
**Gas pressure and colorimetric signal dual-mode strategy for sensitive detection of spermine using the ssDNA-coated Au@Pt nanoparticles as the probe**

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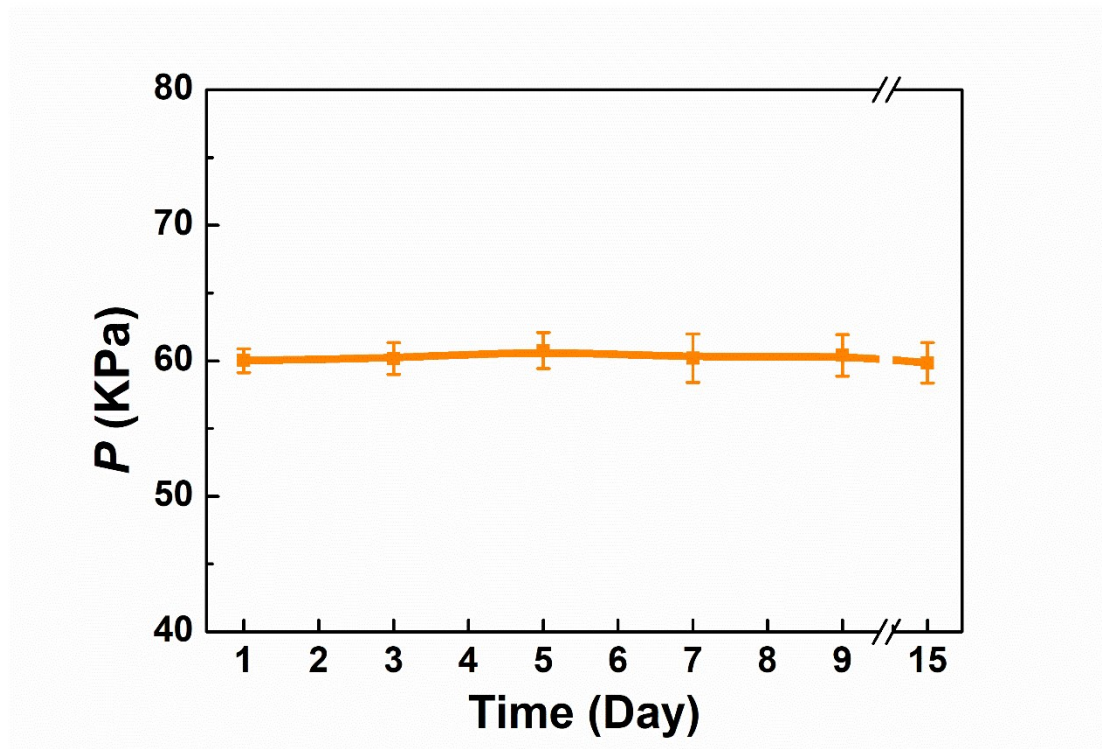
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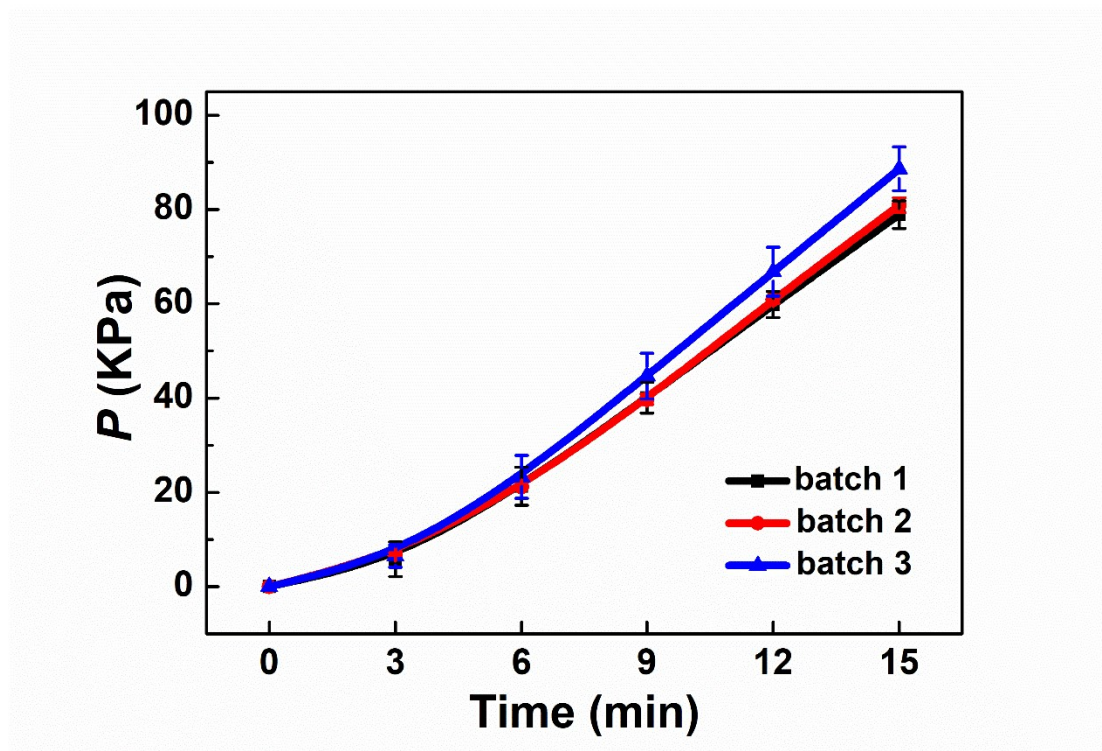
**Figure S1** (a) The particle size information of AuNPs before and after deposition of a thin Pt layer; (b) UV-vis absorbance spectra of the AuNPs and Au@PtNPs.



**Figure S2** Pressure change profiles of the  $\text{H}_2\text{O}_2$  decomposition reaction for 15 min with the increasing concentrations of NaCl in the absence (red curve) and presence (black curve) of ssDNA. Au@PtNPs,  $3.4 \mu\text{M}$ ; ssDNA,  $100\text{nM}$ ;  $200 \mu\text{L}$  of 30% (w/v)  $\text{H}_2\text{O}_2$ .



**Figure S3** The stability of catalytic activity of the ssDNA-coated Au@PtNPs. Concentration: Au@PtNPs, 3.4  $\mu\text{M}$ ; ssDNA, 100nM; 200  $\mu\text{L}$  of 30% (w/v)  $\text{H}_2\text{O}_2$ .



**Figure S4** The catalytic activity determination of the Au@PtNPs between different batches. Concentration: Au@PtNPs, 4.3  $\mu$ M; ssDNA, 100nM; 200  $\mu$ L of 30% (w/v)  $H_2O_2$ .