

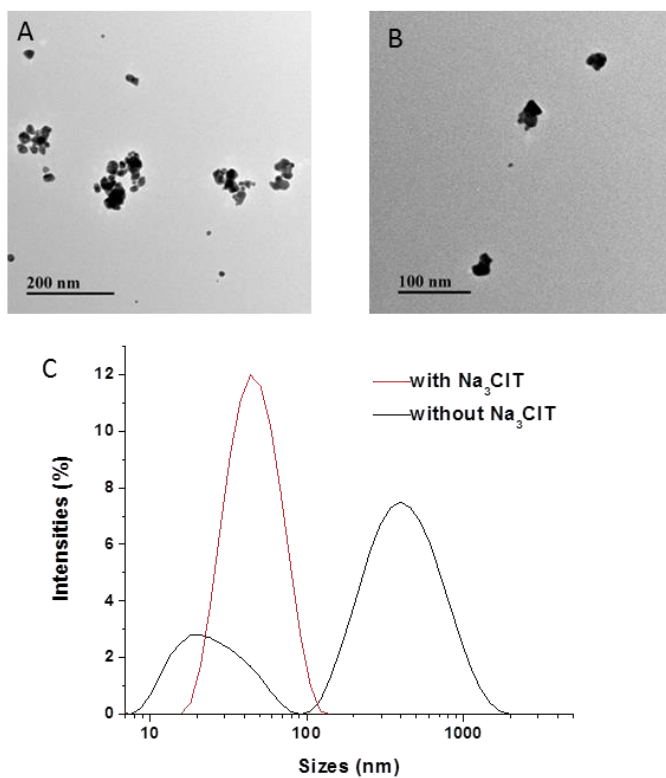
# Shape-controlled generation of gold nanoparticles assisted by dual-molecules: the development of hydrogen peroxide and oxidase-based biosensors

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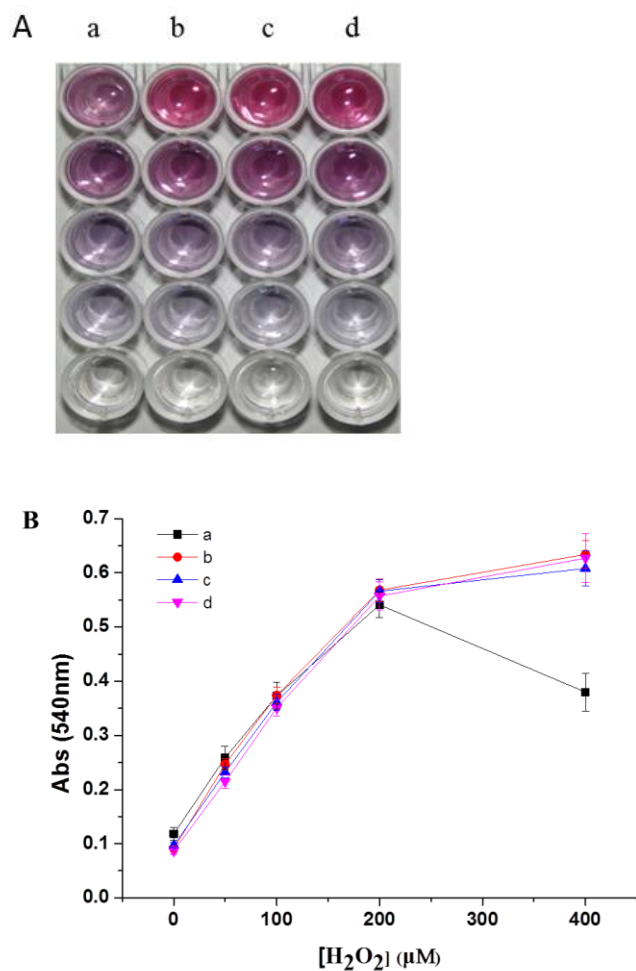
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## **SUPPLEMENTARY MATERIAL**



**Fig. S1** Effect of sodium citrate on the shape and size distribution of GNPs produced. TEM images of GNPs generated in the presence (A) and absence (B) of  $\text{Na}_3\text{CIT}$ ; DLS measurements of GNPs generated in the presence and absence of  $\text{Na}_3\text{CIT}$  (C).

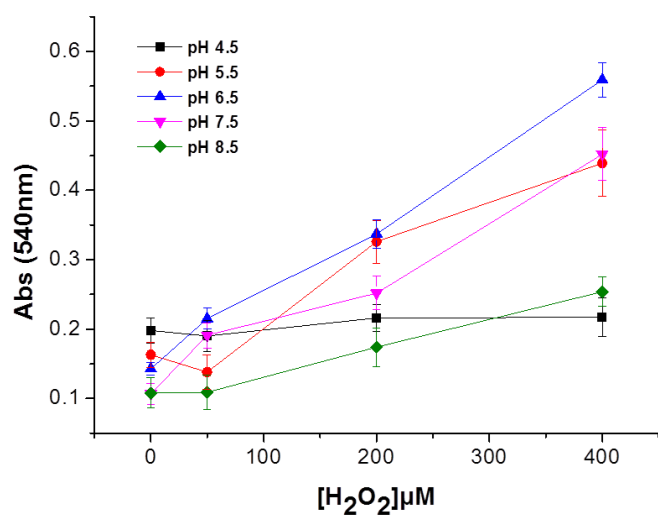


**Figure S2.** Effect of sodium citrate concentration on sensing H<sub>2</sub>O<sub>2</sub>.

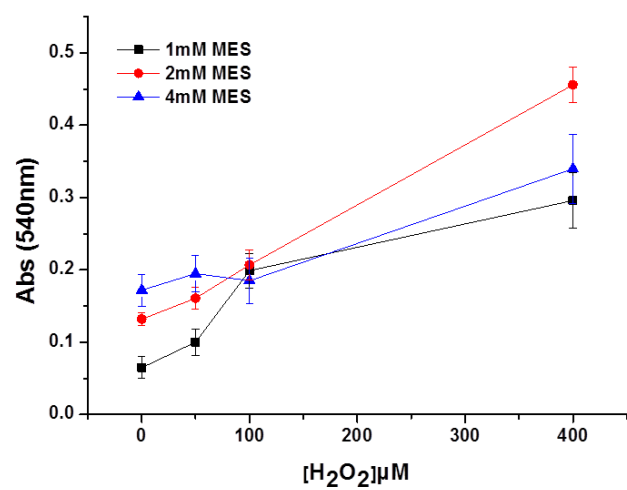
(A) Photograph showing the generation of GNPs solution. From bottom line to up line, the H<sub>2</sub>O<sub>2</sub> concentrations were 0, 50, 100, 200 and 400 μM, respectively.

(B) Absorbance values at 540 nm as a function of H<sub>2</sub>O<sub>2</sub> concentration.

Reaction condition: 3uL H<sub>Au</sub>CL<sub>4</sub> (20 mM), 6uL Na<sub>3</sub>CIT (20 mM) (a), 40 mM (b), 80 mM (c) or 120 mM (d), 91 uL MES (2.0 mM, pH 6.5) and 100 uL H<sub>2</sub>O<sub>2</sub>.



**Figure S3.** Effect of the MES pH on  $H_2O_2$  sensing.



**Figure S4.** Effect of the MES concentration on  $H_2O_2$  sensing.