Supporting Information

Polydopamine-Mediated Synthesis of Core-Shell Gold@Calcium Phosphate Nanoparticles for Enzyme immobilization

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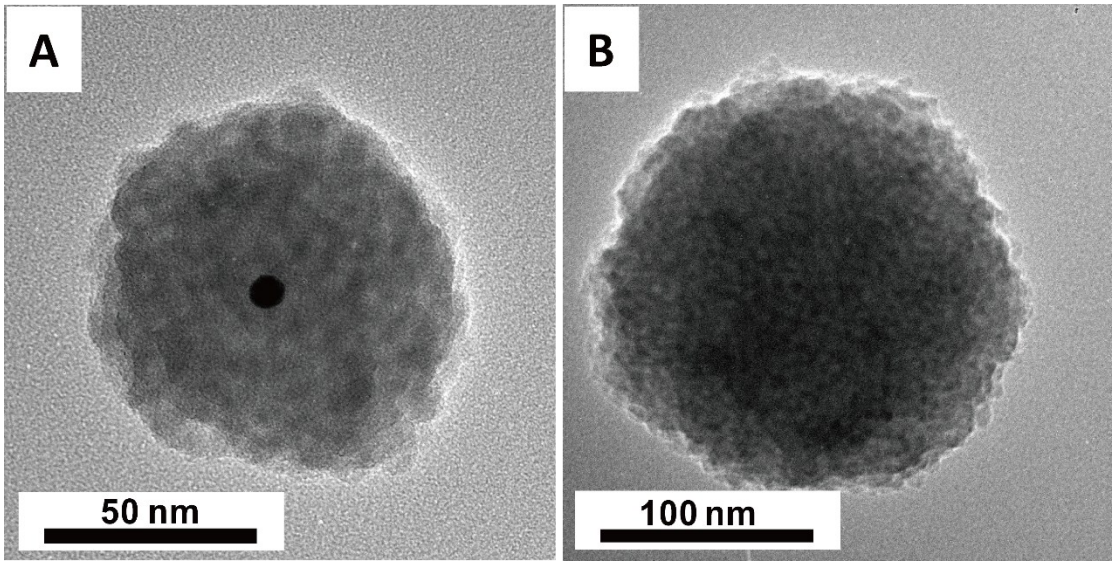

Figure S1. TEM image of a typical (A) Au@PDA@CaP-GOx and (B) N-CaP-GOx nanostructure.

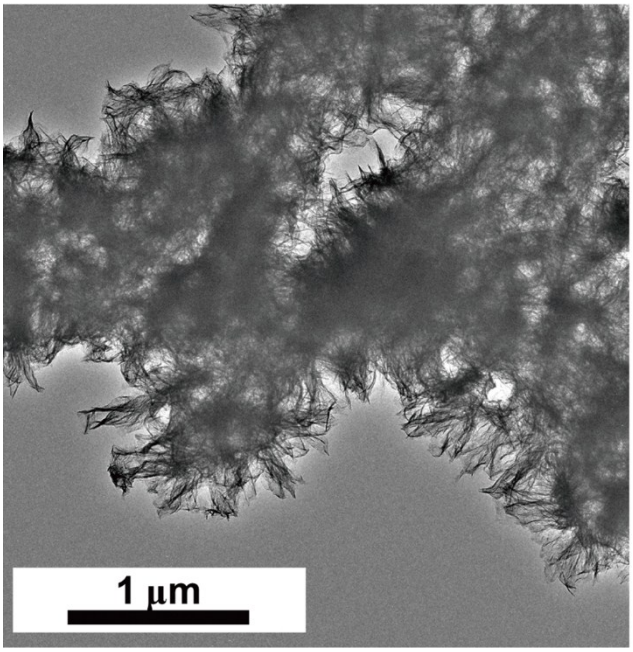

Figure S2. TEM image of bulk CaP-GOx.

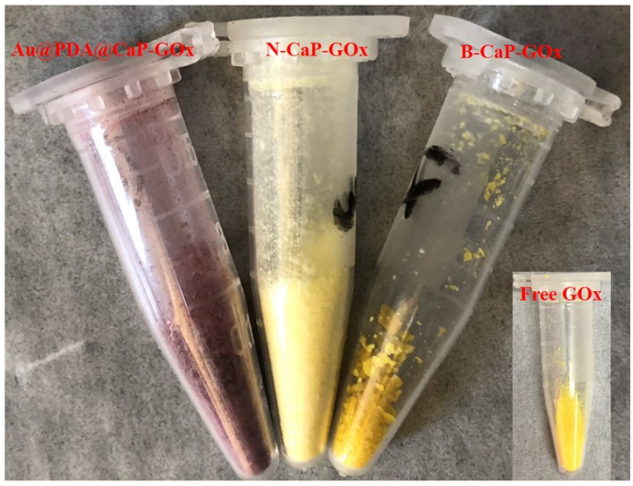

Figure S3. Photograph of the lyophilized powders of immobilized and free GOx.

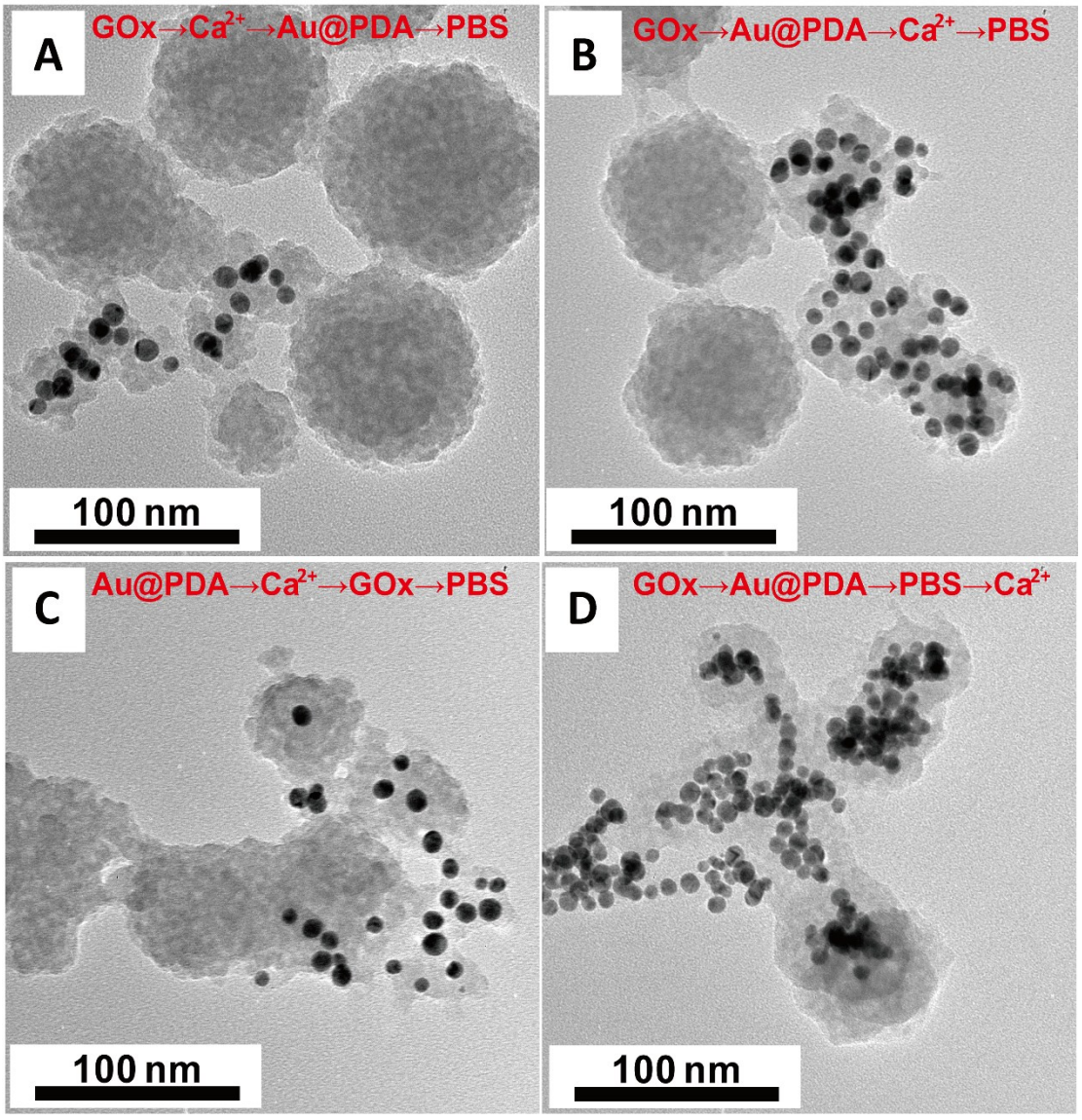

Figure S4. TEM images of Au@PDA@CaP-GOx samples with different adding

sequences of precursors (Table S1). The samples were prepared by adding 0.25 μmol of Au@PDA NPs and 20 μmol of Ca^{2+}, with growth time of 120 min

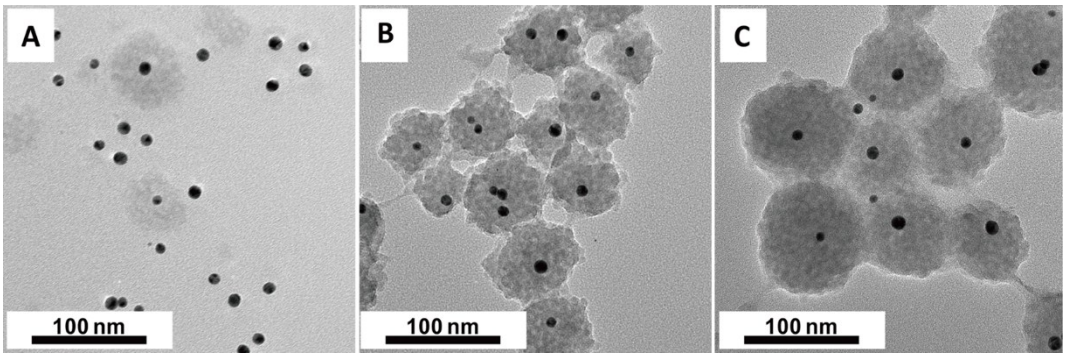

Figure S5. TEM images of Au@PDA@CaP-GOx NPs with addition of (A) 5, (B) 10 and (C) 15 μmol Ca^{2+}. The experiment conditions for Au@PDA@CaP-GOx NPs growth were addition of 0.25 μmol Au@PDA NPs, feeding sequence of GOx→Au@PDA→PBS→Ca^{2+} and growth time of 120 min.

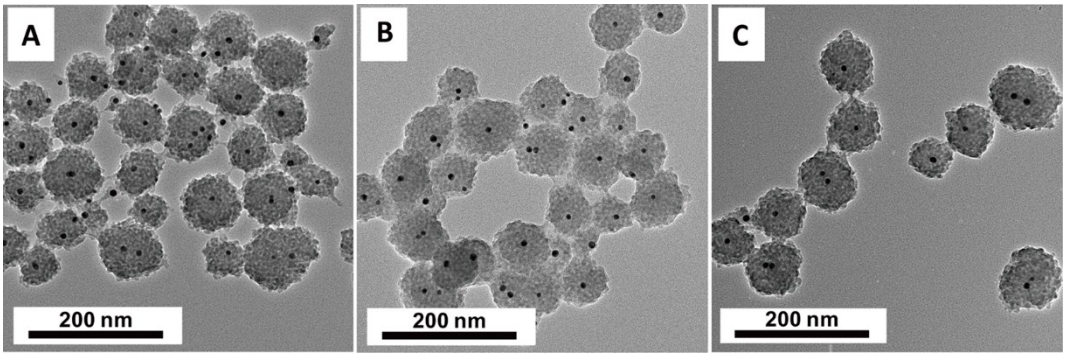

Figure S6. TEM images of Au@PDA@CaP-GOx NPs during growth of CaP-GOx shell for (A) 40, (B) 60 and (C) 80 min. The samples were prepared by adding 0.25 μmol of Au@PDA NPs and 20 μmol of Ca^{2+}, and employing feeding sequence of GOx→Au@PDA→PBS→Ca^{2+}.

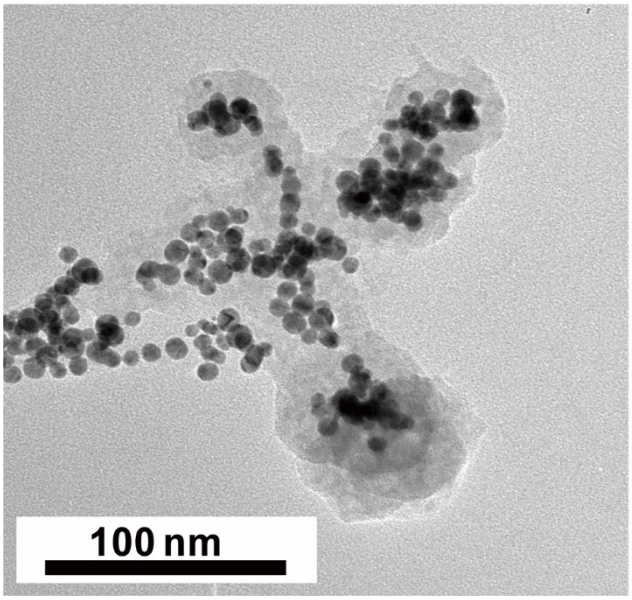

Figure S7. TEM image of the samples prepared by using lipoic acid-stabilized Au NPs as cores.

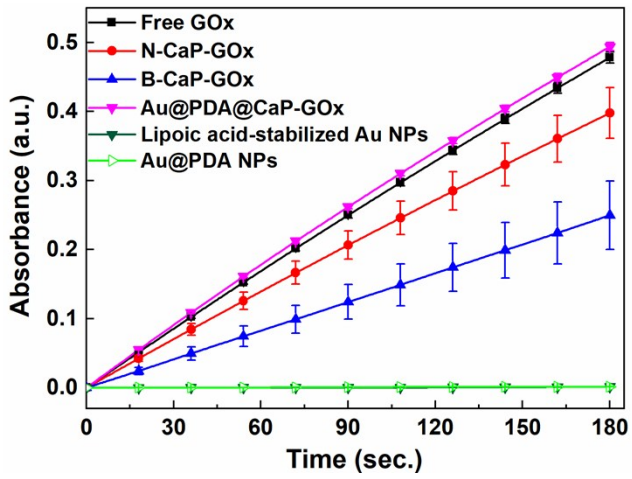

Figure S8. Absorbance at 729 nm as a function of reaction time. Activities of all samples were examined spectrometrically at λ=729 nm based on the colorimetric assay resulting from oxidation of ABTS in the presence of horseradish peroxidase by hydrogen peroxide, a product from the reaction of glucose with O_2 catalyzed by GOx.

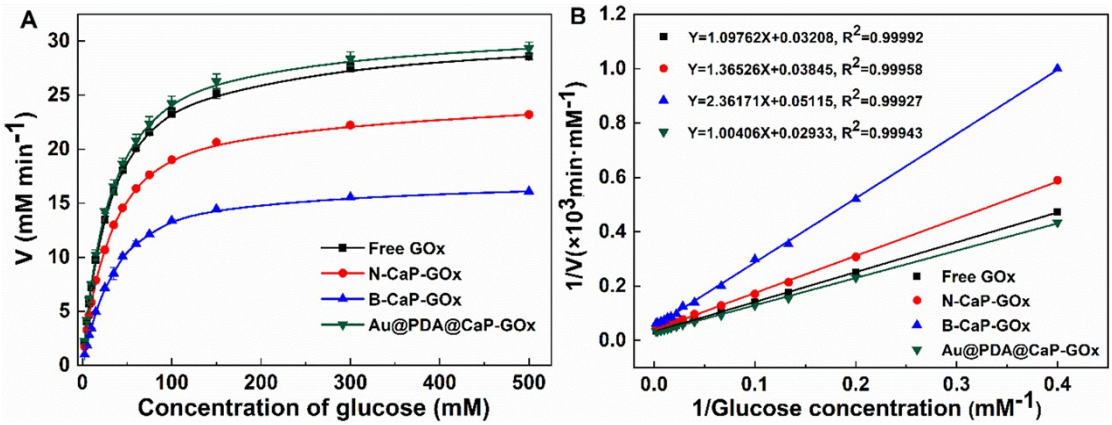

Figure S9. (A) E□ect of substrate concentration on reaction velocity of free and immobilized GOx. (B) Lineweaver−Burk plots for free GOx, N-CaP-GOx, B-CaP-GOx and Au@PDA@CaP-GOx. Results are the mean of triplicates.

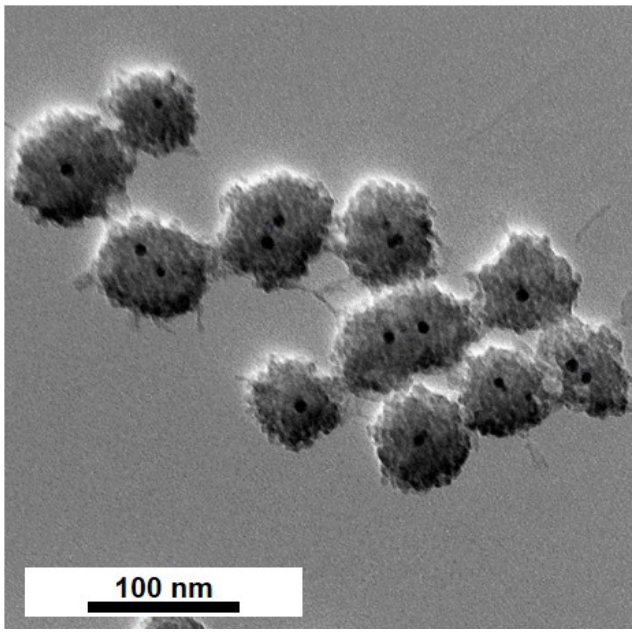

Figure S10. TEM image of Au@PDA@CaP-lactase.

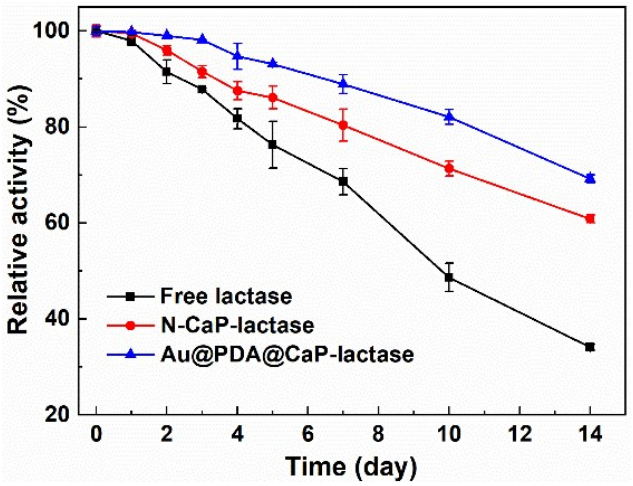

Figure S11. Long-term storage stability of free and immobilized lactase at 25°C.