

Supplementary Information for

**Enzyme-triggered in-situ formation of Ag nanoparticles with
oxidase-mimicking activity for amplified detection of
alkaline phosphatase activity**

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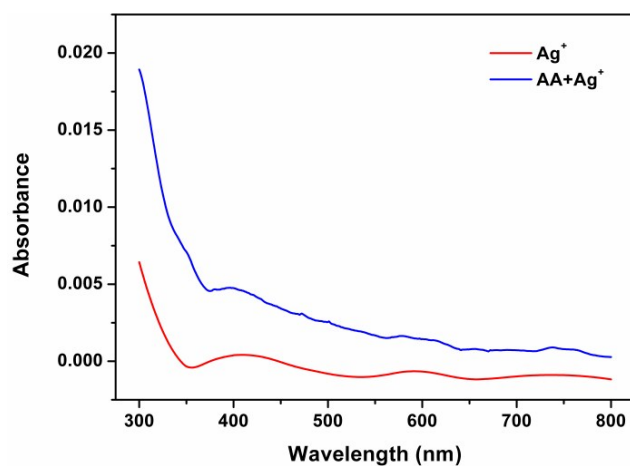


Figure S1. UV-Vis spectra of Ag^+ and $\text{AA}+\text{Ag}^+$.

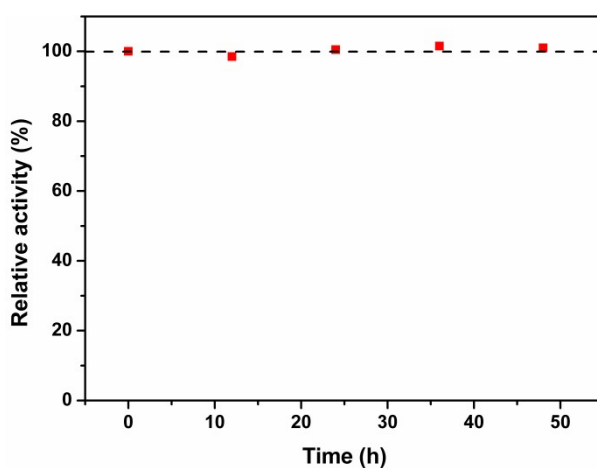


Figure S2. Oxidase-like activity stability of the in-situ formed Ag NPs.

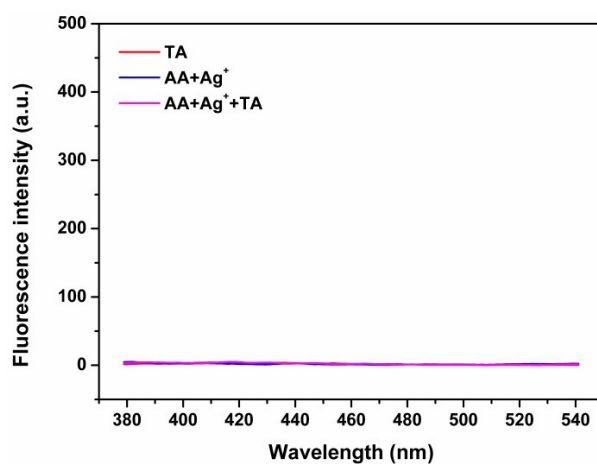


Figure S3. Fluorescence spectra of different systems.

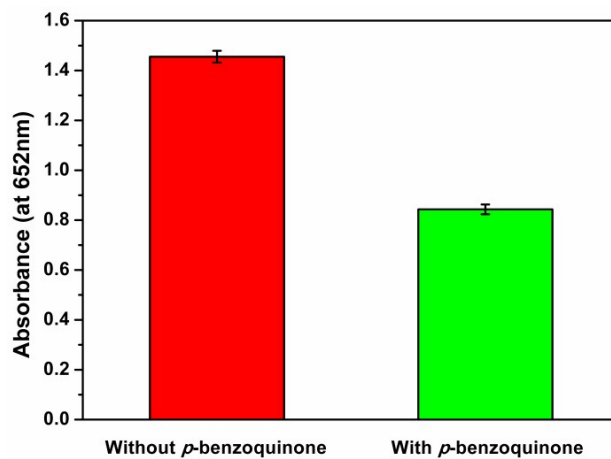


Figure S4. UV-Vis absorbance of the AA+Ag⁺+TMB system with/without the addition of *p*-benzoquinone.

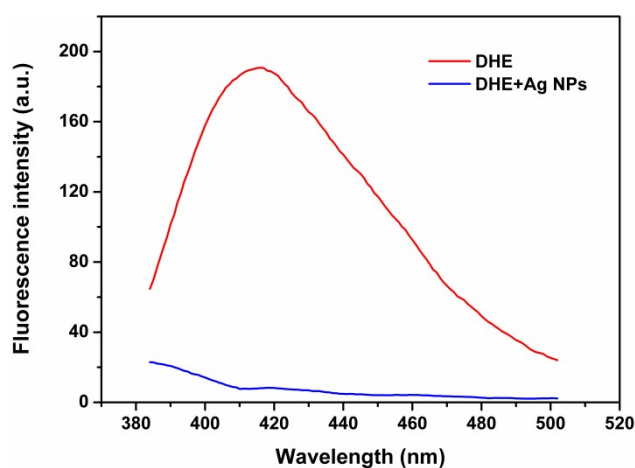


Figure S5. Fluorescence spectra of different systems.

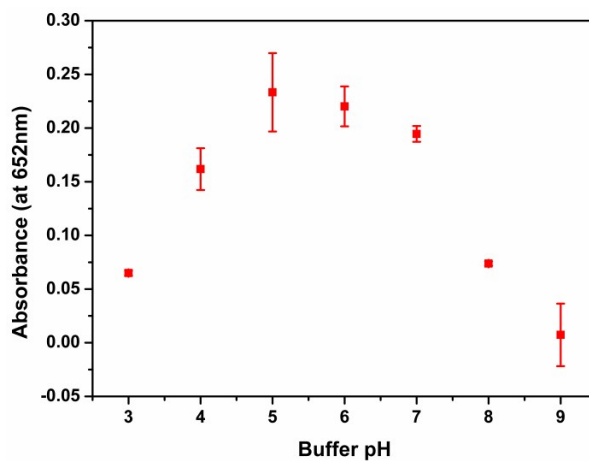


Figure S6. Effect of buffer pH on the oxidase-mimicking activity of the in-situ

formed Ag NPs.

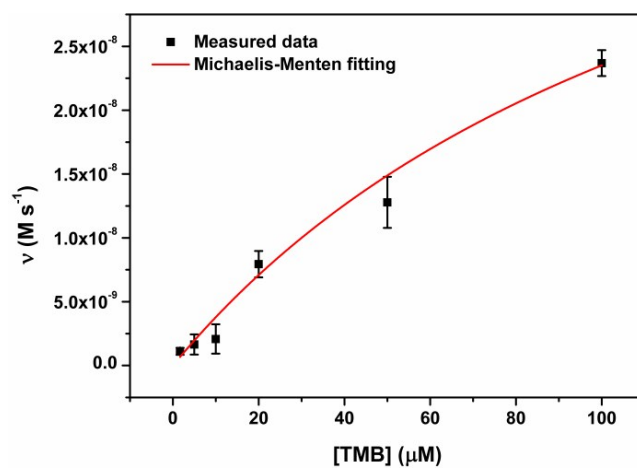


Figure S7. Steady kinetic measurements of Ag^+ with low oxidase-like activity toward the TMB substrate.

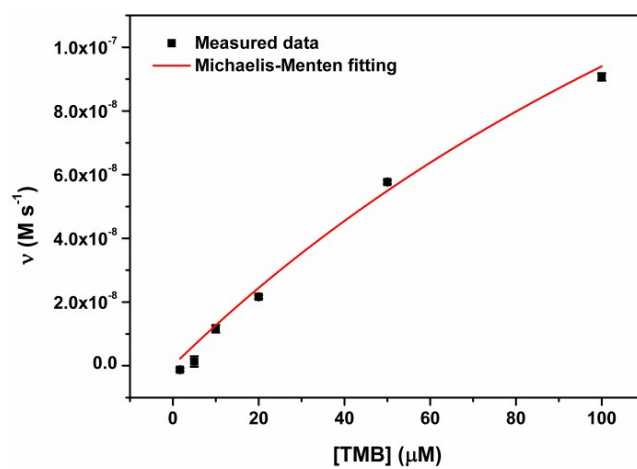


Figure S8. Steady kinetic measurements of the in-situ formed Ag NPs with high oxidase-like activity toward the TMB substrate.

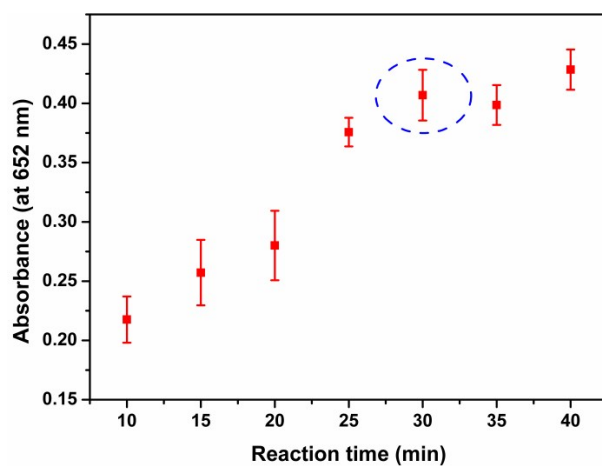


Figure S9. Effect of the reaction time of AAP+ALP+Ag⁺ on the detection of ALP activity.

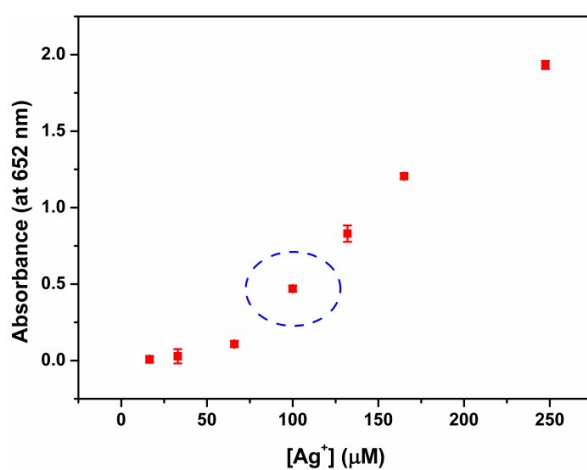


Figure S10. Effect of Ag⁺ concentration on the detection of ALP activity.

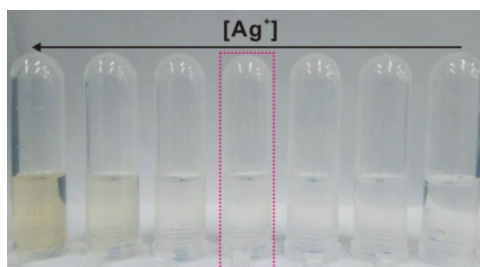


Figure S11. Photograph of the AAP+ALP+Ag⁺ system with different concentrations of Ag⁺.

Table S1. Performance comparison of different methods for ALP activity detection.

Material	Method	Linear range (U L⁻¹)	LOD (U L⁻¹)	Ref.
Coumarin@Tb-GMP ICPNPs	Fluorescent	25~200	10	[1]
PDA-NDs	Fluorescent	1~50	0.94	[2]
Fmoc-K(FITC)FFY	Fluorescent	0~2,800	60	[3]
Cu(BPDS) ₂ ²⁻	Colorimetric	0~200	1.75	[4]
HCAP	Fluorescent	0~150	0.15	[5]
DNA/AgNCs	Fluorescent	30~240	5	[6]
Fe(II)-phenanthroline	Colorimetric	0~220	0.94	[7]
CQDs	Fluorescent	4.6~383.3	1.4	[8]
APBA-Au NCs	Fluorescent	0.02~2	0.005	[9]
G ₂₀ -Cu(II)	Colorimetric	20~200	0.84	[10]
In-situ formed Ag NPs	Colorimetric	0.15~5	0.037	This work

References

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