

SUPPLEMENTARY FILE

Proof of concept for visual detection of *Helicobacter pylori* CagA gene using gold nanoparticle-assisted LAMP and freezing methods

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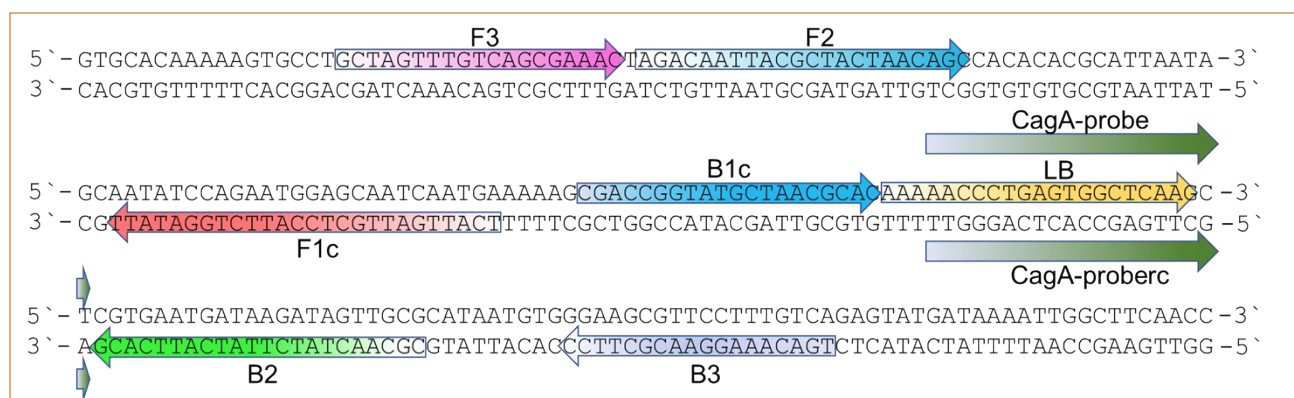


Figure S1. The position of LAMP primers (FIP (F1c+F2), BIP (B1c+B2), F3, B3, and LB) and probes (CagA-probe and CagA-proberc).

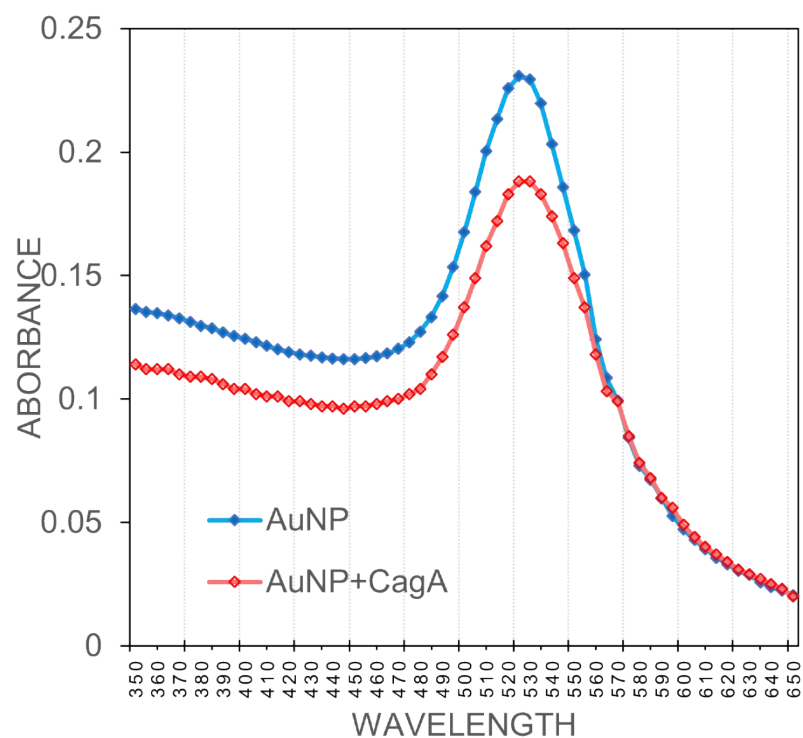


Figure S2. The UV-Vis absorption spectrum (350–650 nm) of AuNP and AuNP-CagA probe.

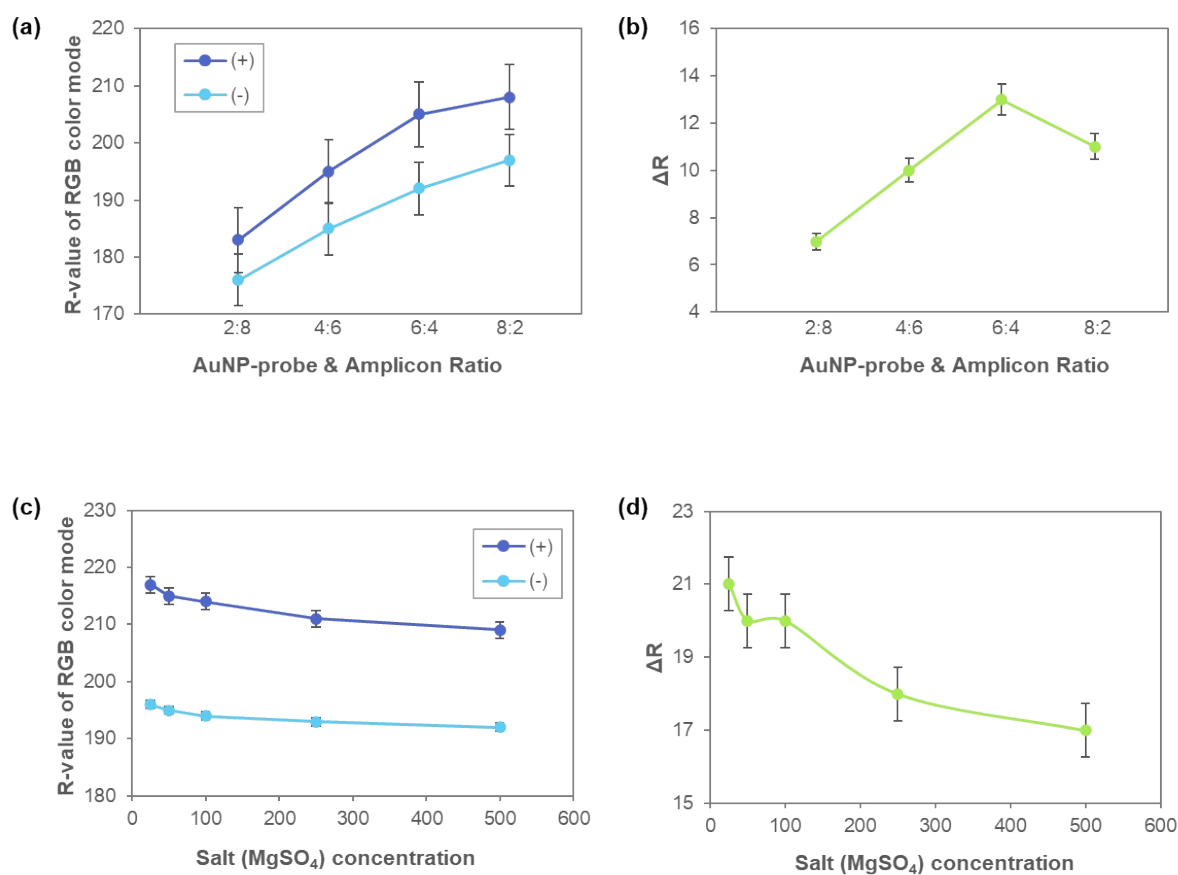


Figure S3. The R value of the RGB color mode in (a) AuNP-probe & amplicon ratio optimization tests shown in Fig. 3.

(a) and (b) show the effect of varying the AuNP-probe & Amplicon ratio (2:8, 4:6, 6:4, and 8:2) on the R-value of the RGB color mode and the ΔR (difference in R-value), respectively. The plots distinguish between positive (+) and negative (-) controls, indicating the assay's response to the presence or absence of the target. (c) and (d) illustrate the impact of different salt (MgSO_4) concentrations (25, 50, 100, 250, and 500 mM) on the R-value of RGB color mode and ΔR , respectively, showing the distinction between positive (+) and negative (-) samples. The error bars represent the standard deviation of the measurements ($n = 6$).