

Supplemental Information
Distance -based Paper Sensor for Determination of Chloride ion Using
Silver Nanoparticles

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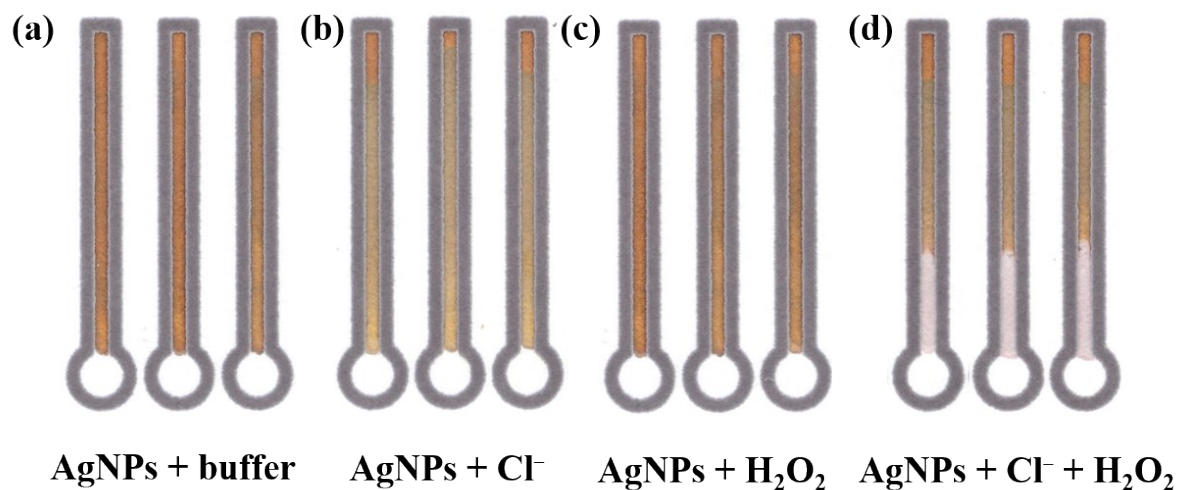


Fig. S1 Paper-based device modified with AgNPs the addition of (a) buffer, (b) Cl⁻ solution, (c) H₂O₂ solution, and (d) mixture solution of Cl⁻ and H₂O₂.

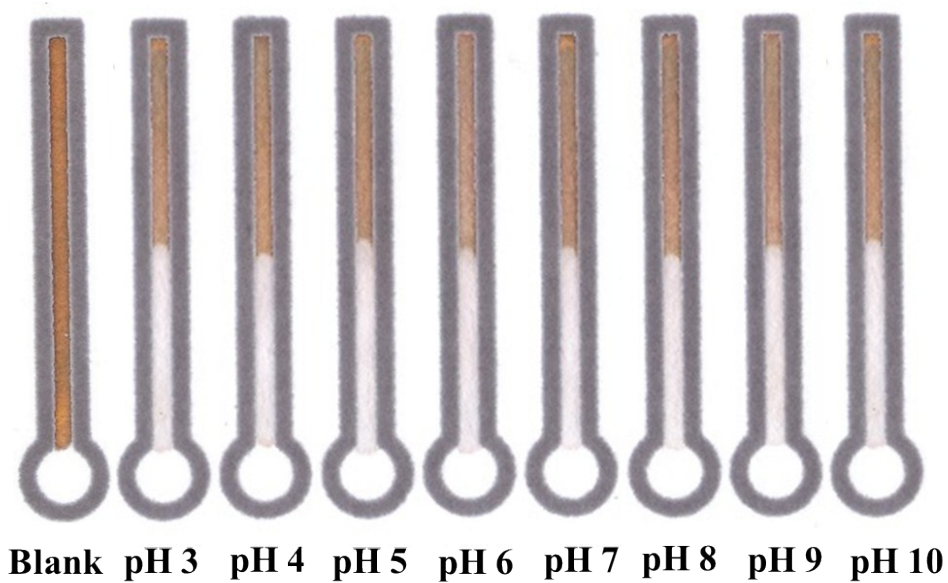
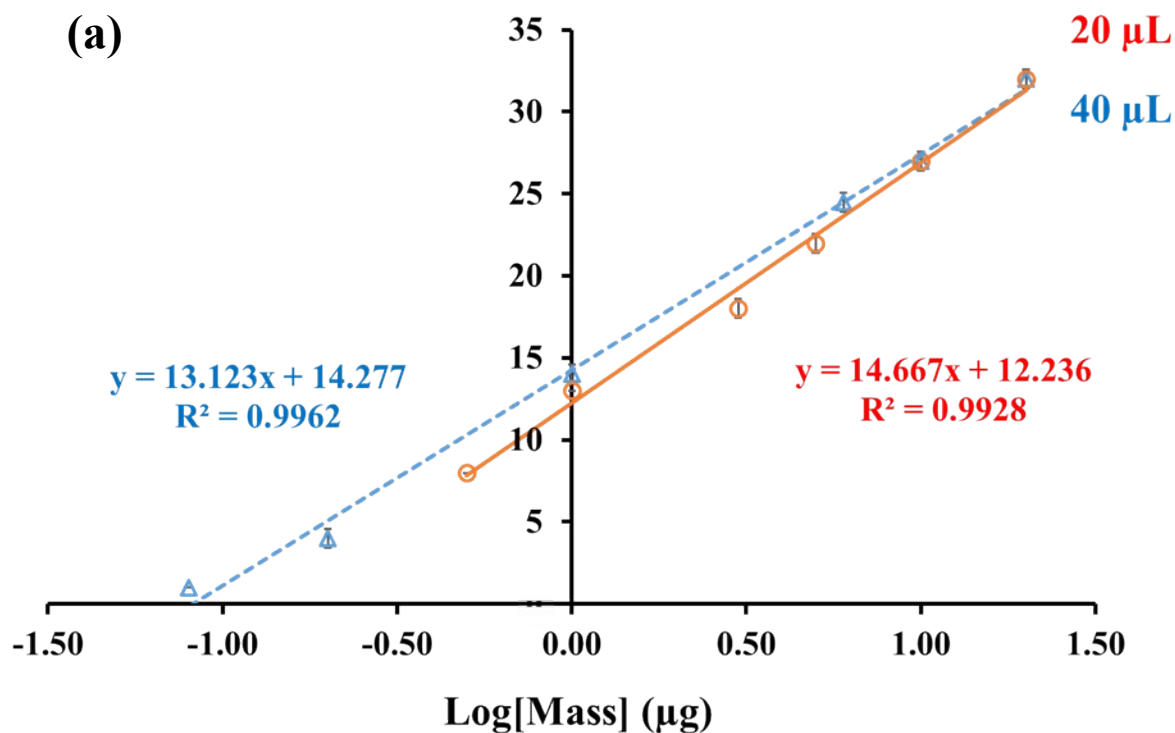
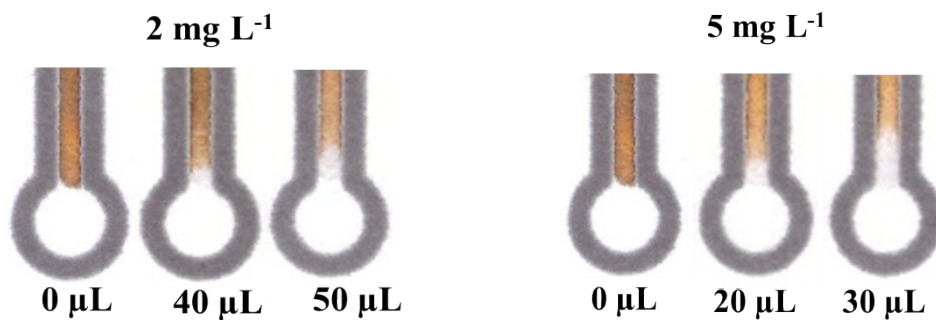


Fig. S2 The effect of pH on the Cl⁻ determination was determined using a buffer solution in pH range of 3–10.



(b)



Concentration (2 mg L^{-1})				Concentration (5 mg L^{-1})			
Volume (μL)	0	40	50	Volume (μL)	0	20	30
Mass (μg)	0	0.08	0.10	Mass (μg)	0	0.10	0.15

Fig. S3 (a) The calibration plot showing the color band distance (Y-axis) with the logarithmic mass of Cl^- (X-axis) at a volume of sample/standard 20 μL and 40 μL . (b) The mass of 2 mg L^{-1} (volume: 40 μL and 50 μL) and 5 mg L^{-1} of Cl^- (volume: 20 μL and 30 μL)

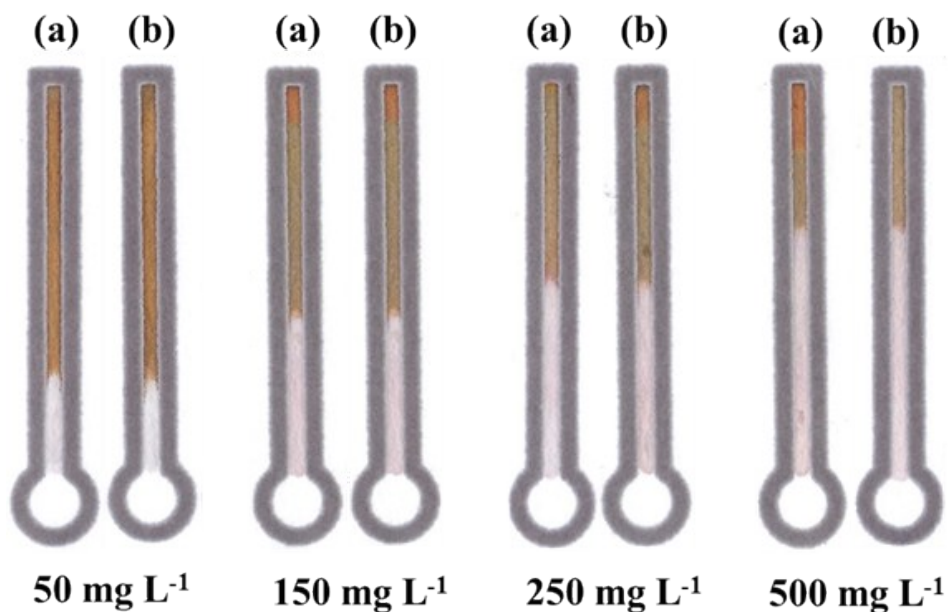


Fig. S4 The color band distance of Cl^- at the sample/standard concentration of 50, 150, 250 and 500 mg L^{-1} is in (a) the ratio of $\text{Cl}^- : \text{H}_2\text{O}_2$ (1:1) and (b) $\text{Cl}^- : \text{H}_2\text{O}_2$ (3-4 drops of 0.2%).

Table. S1 Comparison of the percentage of accuracy obtained from our device and test-kit (n = 30).

Sample	%Relative accuracy (n = 30)	
	Our device	Test-kit
Standard 500 mg L^{-1}	91-104%	66-200%
Standard 750 mg L^{-1}	98-105%	100-200%
Standard 1,000 mg L^{-1}	95-102%	50-150%
Standard 1,250 mg L^{-1}	99-106%	40-160%