

Supplementary Information

Dual dye-loaded Au@Ag coupled to a lateral flow immunoassay for the accurate and sensitive detection of *Mycoplasma pneumonia* infection

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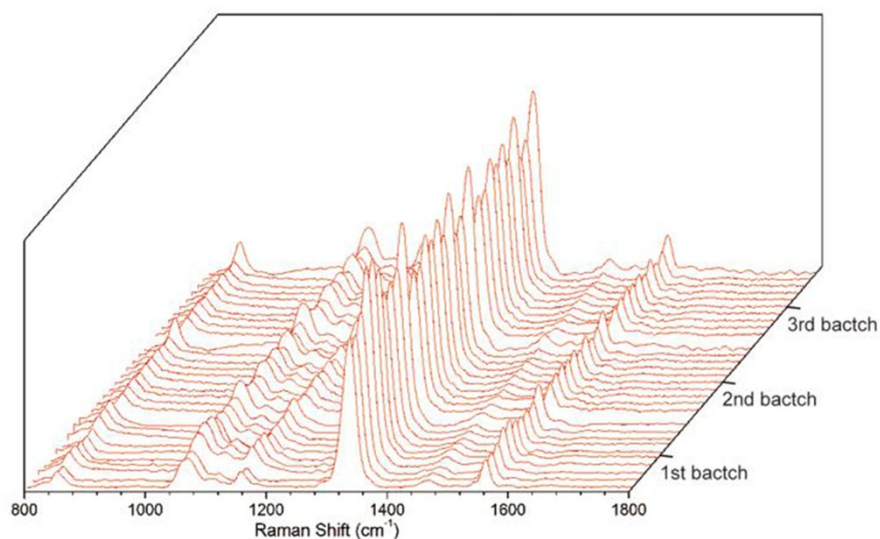


Figure S1. The repeatability of the proposed SERS-LFIA strips for human IgM detection (10 ng/mL). The SERS spectra collected randomly from 10 spots on the three different batches of SERS-LFIA strips.

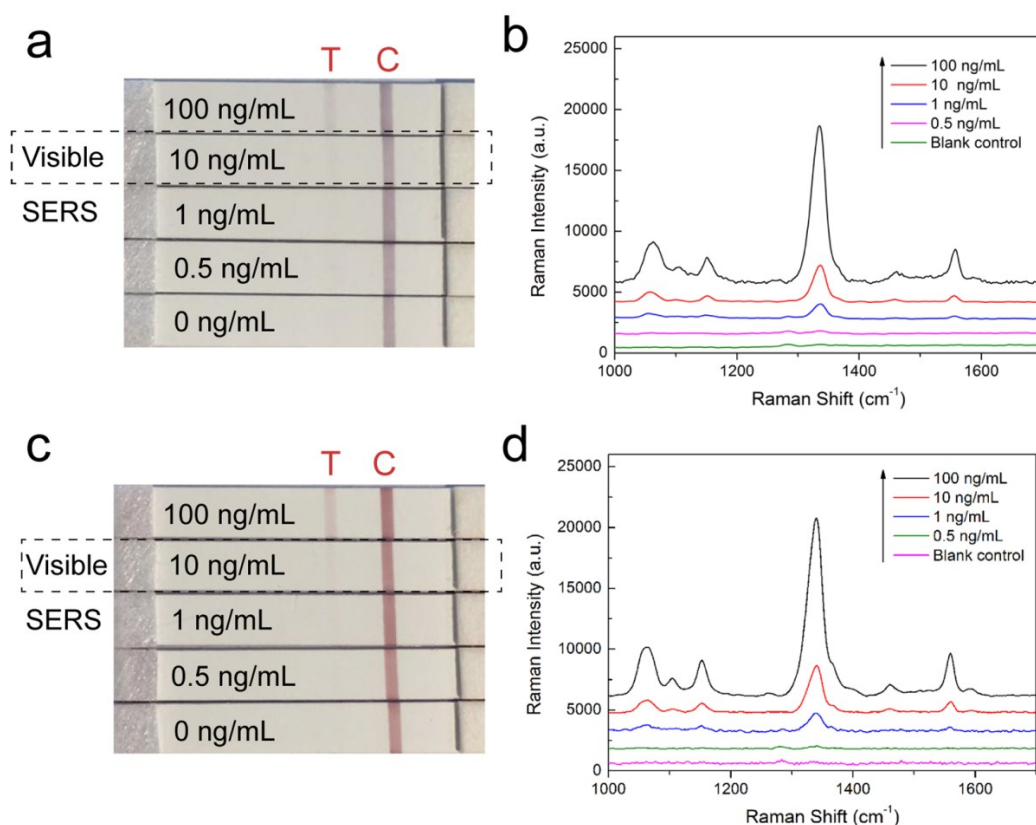


Figure S2. Photographs of the SERS-LFIA strips based on Au/DTNB (a) and Au@Ag/DTNB NPs (c) as the SERS tags after applying different concentrations of human IgM. (b) and (d) Corresponding SERS spectra obtained from the T line of (a) and (c), respectively. The integration times were 5 s and the excitation laser energy

was 10 mW.

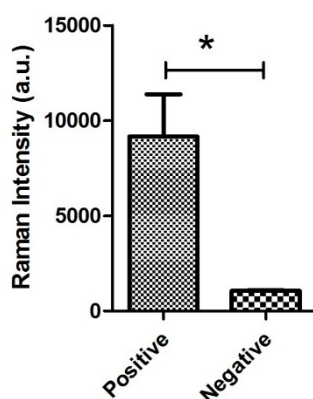


Figure S3. Comparison of positive group (20 MP-specific IgM positive serum specimens) and negative group (10 MP-specific IgM negative serum specimens) based on SERS-LFIA strips. * $p < 0.05$.

Table S1. Characteristics of the SERS-based LFIA strip developed in this work compared to other recently reported LFIA strip for respiratory pathogens detection.

Strategy	Respiratory pathogen	Limit of detection (LOD)	Tested sample	Reference
Fluorescence	Influenza A (H1N1)	250 ng mL ⁻¹	Allantoic fluid	Suwussa Bamrungsap et al
Au NPs	Influenza A (H1N1)	47 TCID ₅₀ mL ⁻¹	Influenza A infected MDCK cells	Natpapas Wiryachaiporn et al
Au NPs with silver amplification	Influenza A (H5N1)	0.5 ng mL ⁻¹	Allantoic fluid	Atsuhiko Wada et al
Quantum dot	Influenza A (H9N2)	0.25 HAU	Human serum	Feng Wu et al
SERS	Influenza A (H1N1)	6.7 ng mL ⁻¹	Allantoic fluid	Maneeprakorn et al
SERS	Mycoplasma pneumoniae	0.1 ng mL ⁻¹	Human serum	This work