Supporting Information

In Vitro Isothermal Nucleic Acid Amplification Assisted Surface-Enhanced Raman Spectroscopic for Ultrasensitive Detection of *Vibrio parahaemolyticus*

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Optimization results of the *in vitro* isothermal nucleic acid amplification assisted surface-enhanced Raman spectroscopic (SERS) for ultrasensitive detection of *Vibrio parahaemolyticus*.

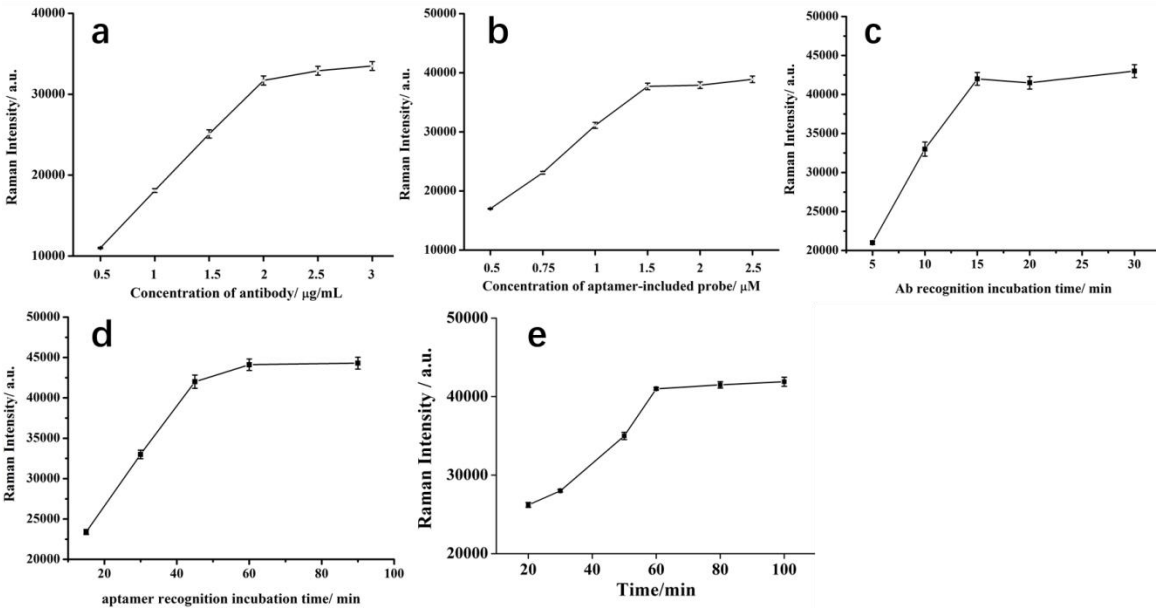

Figure S1. Optimization results of the signal enhanced SERS protocol for *Vibrio parahaemolyticus* detection. (a) Optimization of antibody concentration for immobilization onto the wells of the microplate; (b) optimization of aptamer-included ssDNA probe for recognition of *Vibrio parahaemolyticus*; (c) incubation time optimization results of antibody with target *Vibrio parahaemolyticus*; (d) incubation time optimization results of aptamer with target *Vibrio parahaemolyticus*; (e) time optimization results of RCA amplification for signal enhancement.

Table S1. Different batch detection results of the *V. parahaemolyticus* samples at the same concentration

Batch ($2.2*10^4$CFU/mL)	**Measured value (CFU/mL)**	**Average value (CFU/mL)**	**RSD (%)**
1	$2.25*10^4$	2.218	5.1
	$2.28*10^4$		
	$2.13*10^4$		
	$2.23*10^4$		
	$2.20*10^4$		
2	$2.23*10^4$	2.22	4.2
	$2.21*10^4$		
	$2.23*10^4$		
	$2.15*10^4$		
	$2.28*10^4$		
3	$2.28*10^4$	2.204	6.0
	$2.16*10^4$		
	$2.23*10^4$		
	$2.24*10^4$		
	$2.11*10^4$		

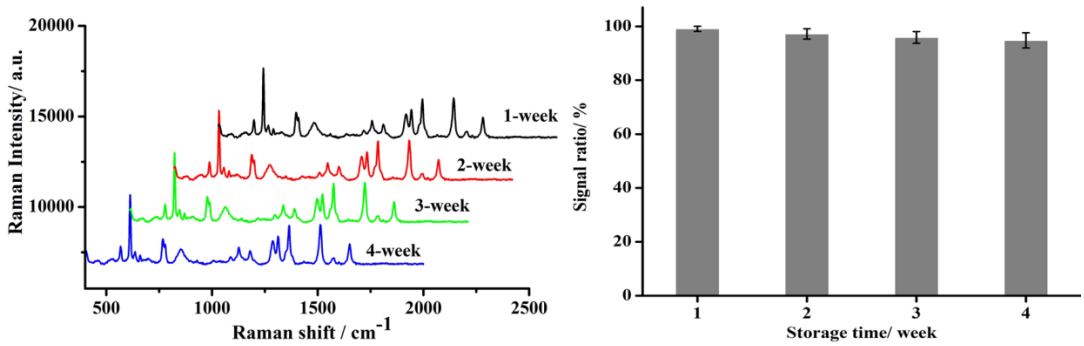

Figure S2. Detection results of the prepared SERS protocol after different storage time.