Supplemental Data for

Diagnosis of schistosomiasis japonica with interfacial co-assembly-based multi-channel electrochemical immunosensor arrays

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This file includes

Figure s1-s8

Table s1

Figure s1. A portable in-house built 16-channel electrochemical detector (ECH16) connected to a laptop.

Figure s2. Construction of disposable in-house built 16-channel SPCE array. Each consisting of a carbon working electrode (3 mm diameter), a carbon auxiliary electrode, and an Ag/AgCl reference electrode; the insulating layer printed around the working area constituting a reservoir of electrochemical microcell.

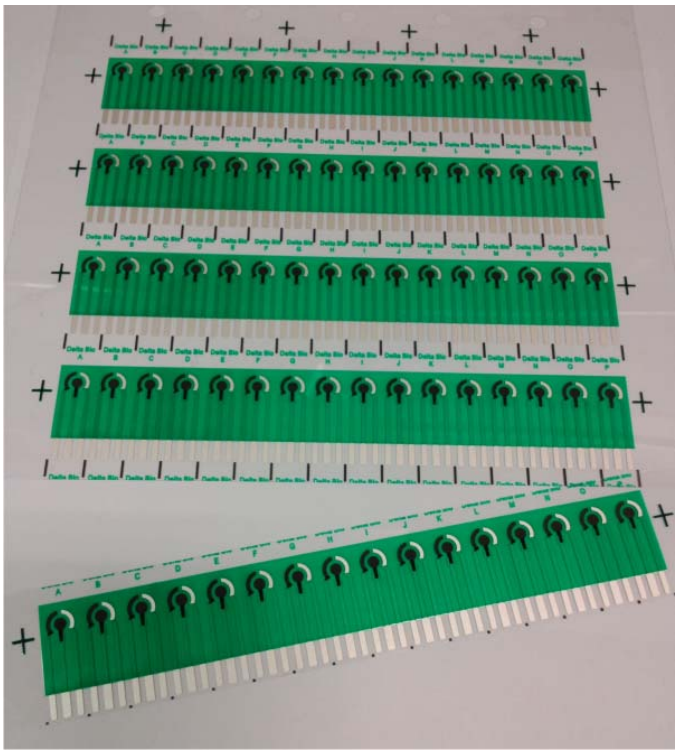


Figure s3. The CV curve of ferricyanatum kalium redox activity on SPCE array with ECH16. The CV measurement was performed at the presence of 5mM K_3 [Fe (CN) $_6$] in 0.1M KCL by running 2 segments in a potential range from -0.5 to 0.6 V at the scan rate of 0.1 V/s.

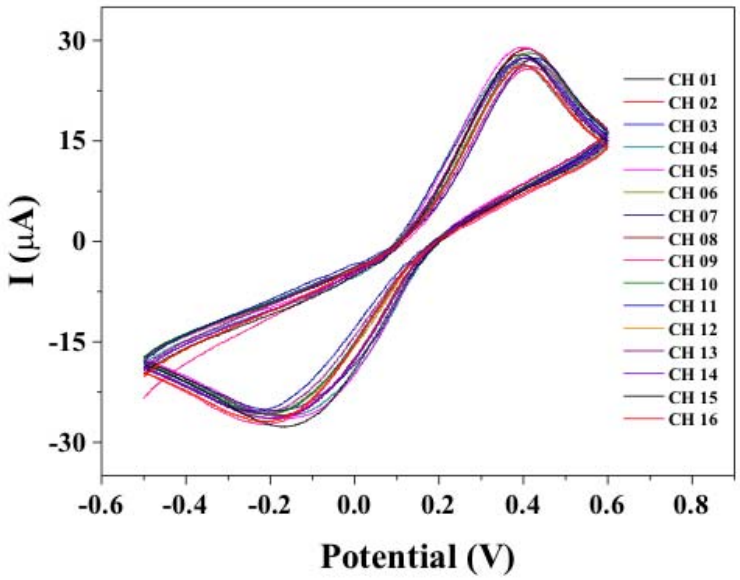


Figure s4. The CV curve and I-T curve in TMB containing H_2O_2. (A) CV curve and (B) I-T curve of TMB on 16 bare SPCE array with ECH16. The scan voltage for CV: -0.3 ~0.6 V, the scan rate: 0.1 V/S, The scan voltage for I-T: -0.1 V.

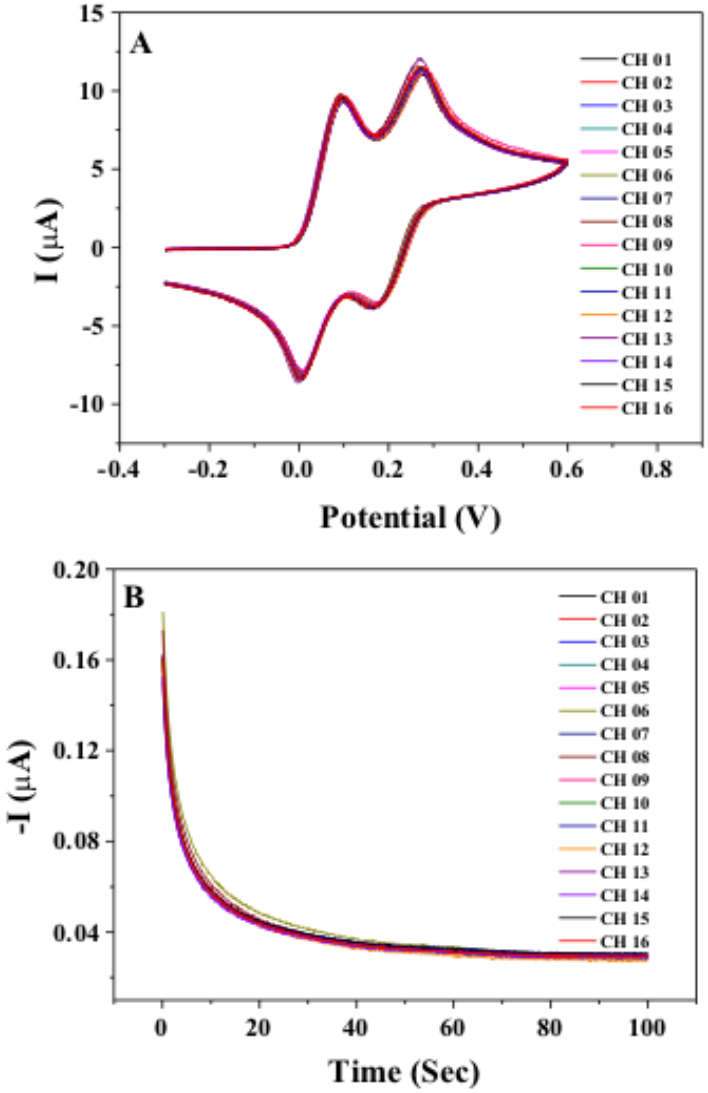


Figure s5. The CV curve of electrochemical activation of 16-channel SPCE array with ECH16. The inset shows the CV curve of electrochemical activation of channel l7. Electrochemical activation was performed in a 0.01M phosphate buffer (pH 7.2) by running 10 cycles of CV with potential range from -0.3 to 0.6 V at the scan rate of 0.5 V/s.

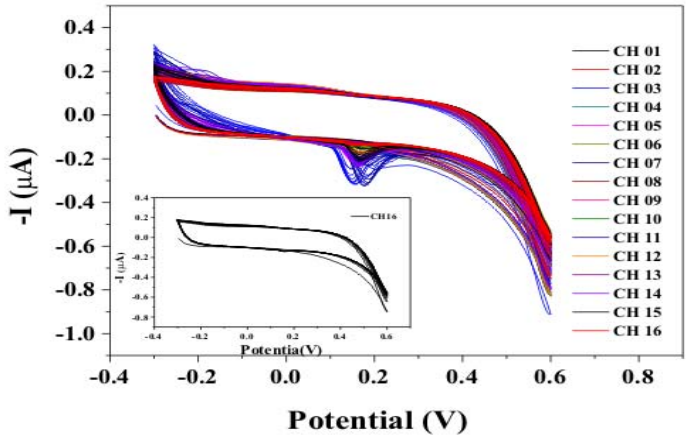


Figure s6. The stability evaluation of the ECISA. Amperometric read (A) and P/N ratio (B) of the array measured during the 16-day storage time at 37 °C.

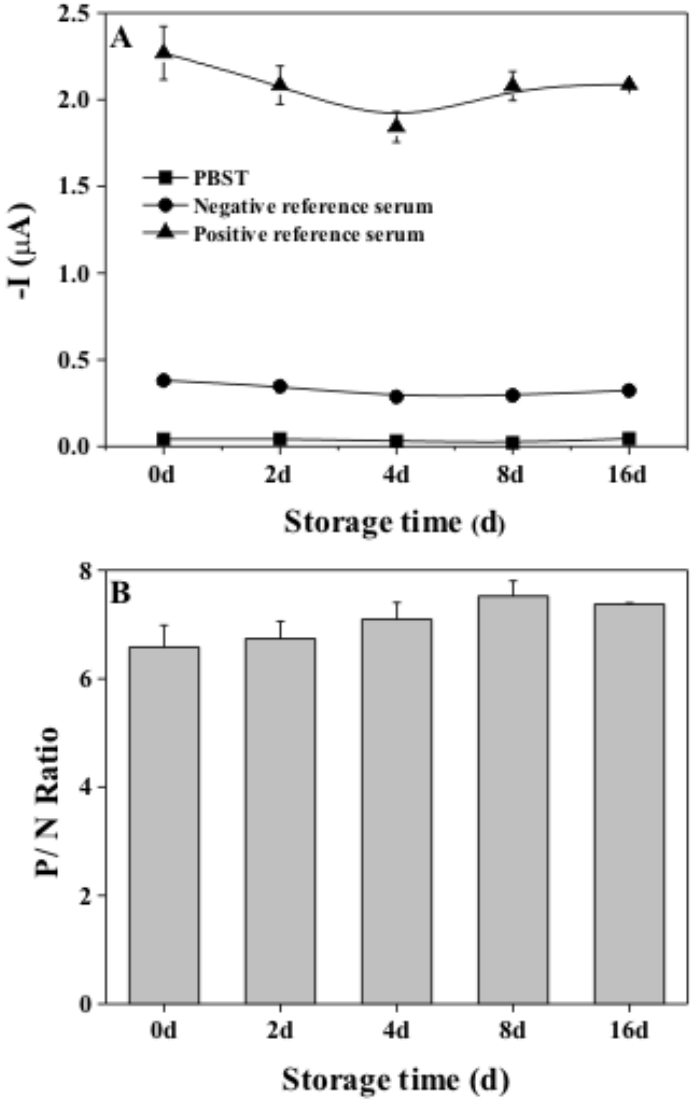


Figure s7. The dose-response curve of ECISA. Insert: The partitioned calibration curve (y=5581.96-1693.16x, R^2=0.999)

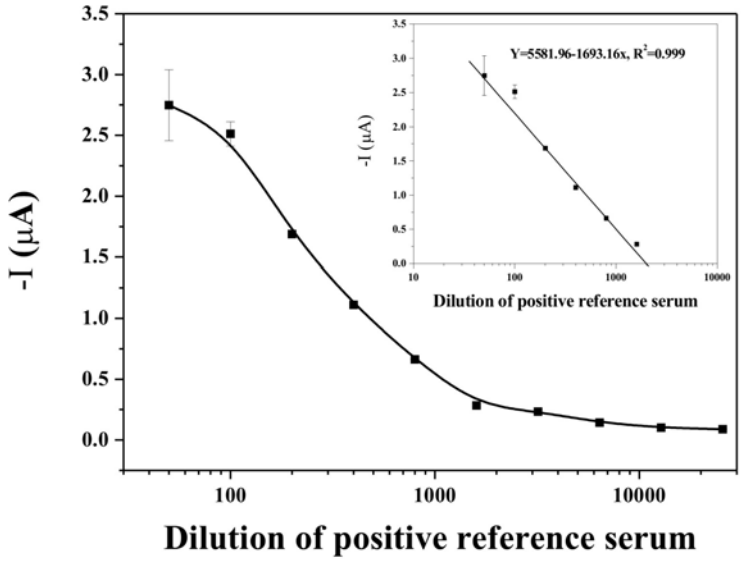
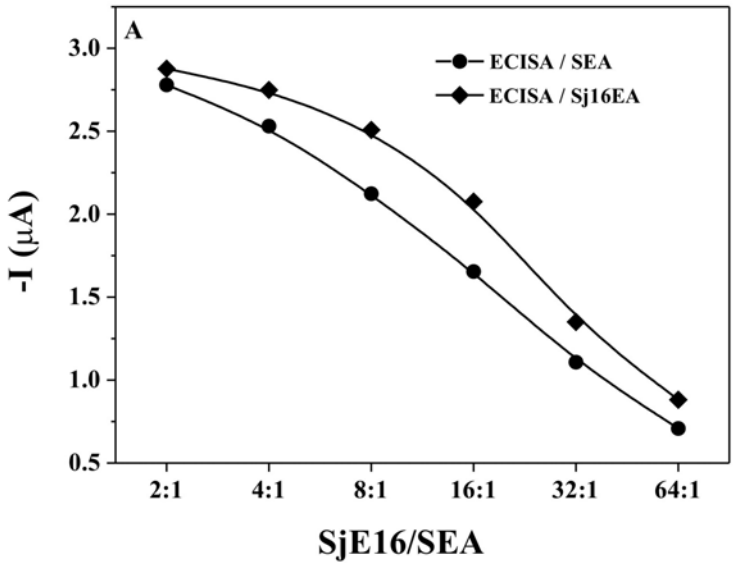


Figure s8. Control experiments on different quantitative ratios of SjE16/SEA. SjE16: 250ng; SEA 120ng (2:1), 60ng (4:1), 30ng (8:1), 15ng (16:1), 7.5ng (32:1), 3.375ng (64:1).



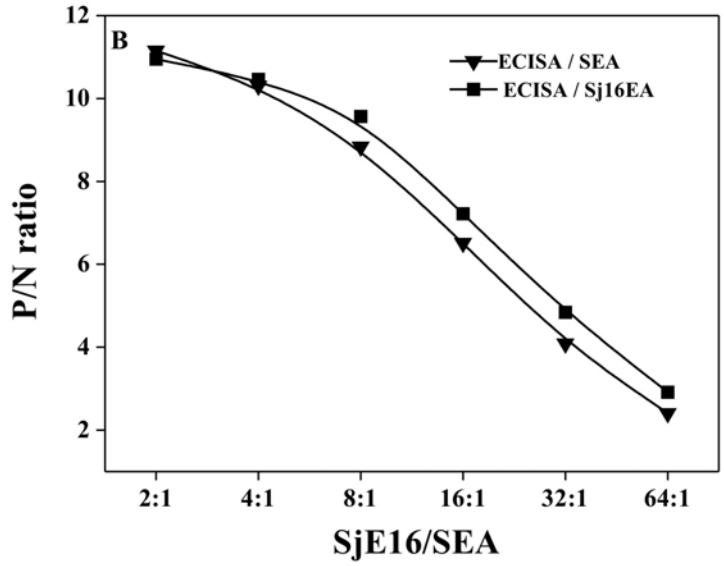


Table s1. The statistic results of the sensitivity, specificity and cross reactivity in Sj diagnosis by ECISA / Sj16EA and in-house ELISA / SEA or commercial ELISA kit.

Group studied (no.) and criterion assessed	Test results (%)				
	ECISA /Sj16EA			ELISA /SEA	ELISA kit
	COV(1:100)	COV(1:125)	COV(1:150)		
Sensitivity					
S. japonica (35)	94.3	97.1	100	97.1	97.1
Specificity					
Normal human control (15)	100	100	93.3	93.3	100
Cross-reactivity					
Clonorchiasis (5)	0	0	0	0	20
Trichinosis (9)	11	11	11	22.2	33.3
Cysticercosis (10)	0	0	0	10	60
Paragonimiasis (7)	28.6	42.9	85.7	71.4	100