

1 **A sandwich electrochemical immunoassay for *Salmonella***
2 *pullorum* and *Salmonella gallinarum* based on

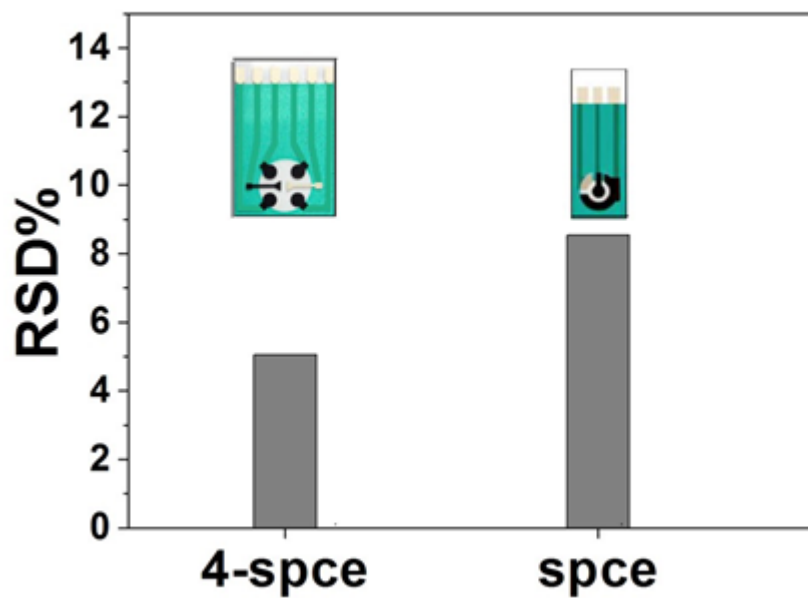
3 **AuNPs/SiO₂/Fe₃O₄ adsorpting antibody and 4 channels**
4 **screen printed carbon electrode electrodeposited gold**
5 **nanoparticles**

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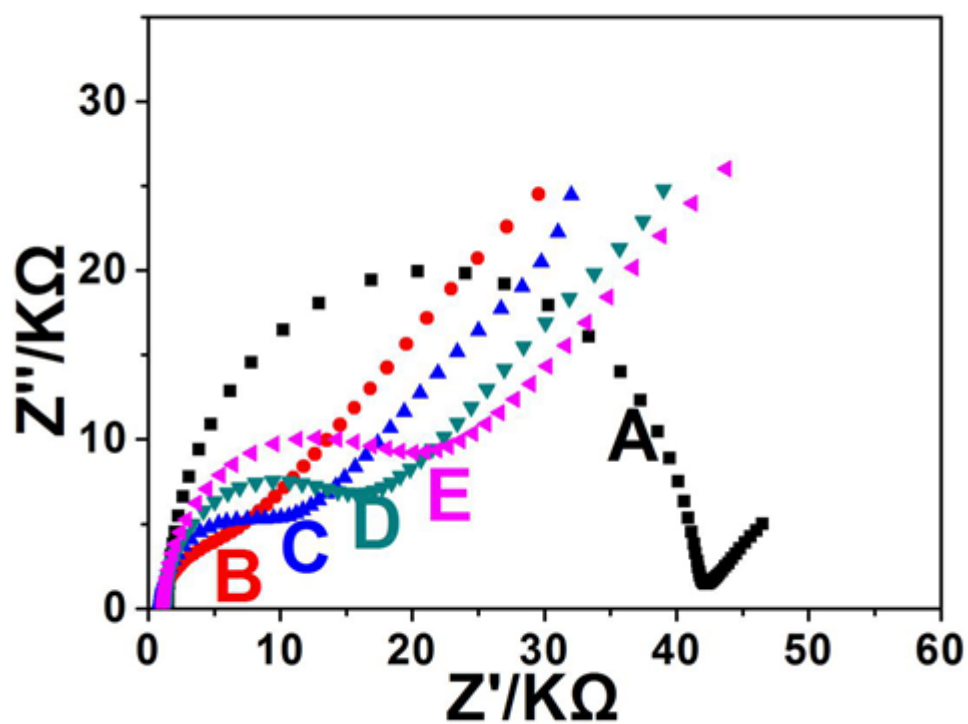
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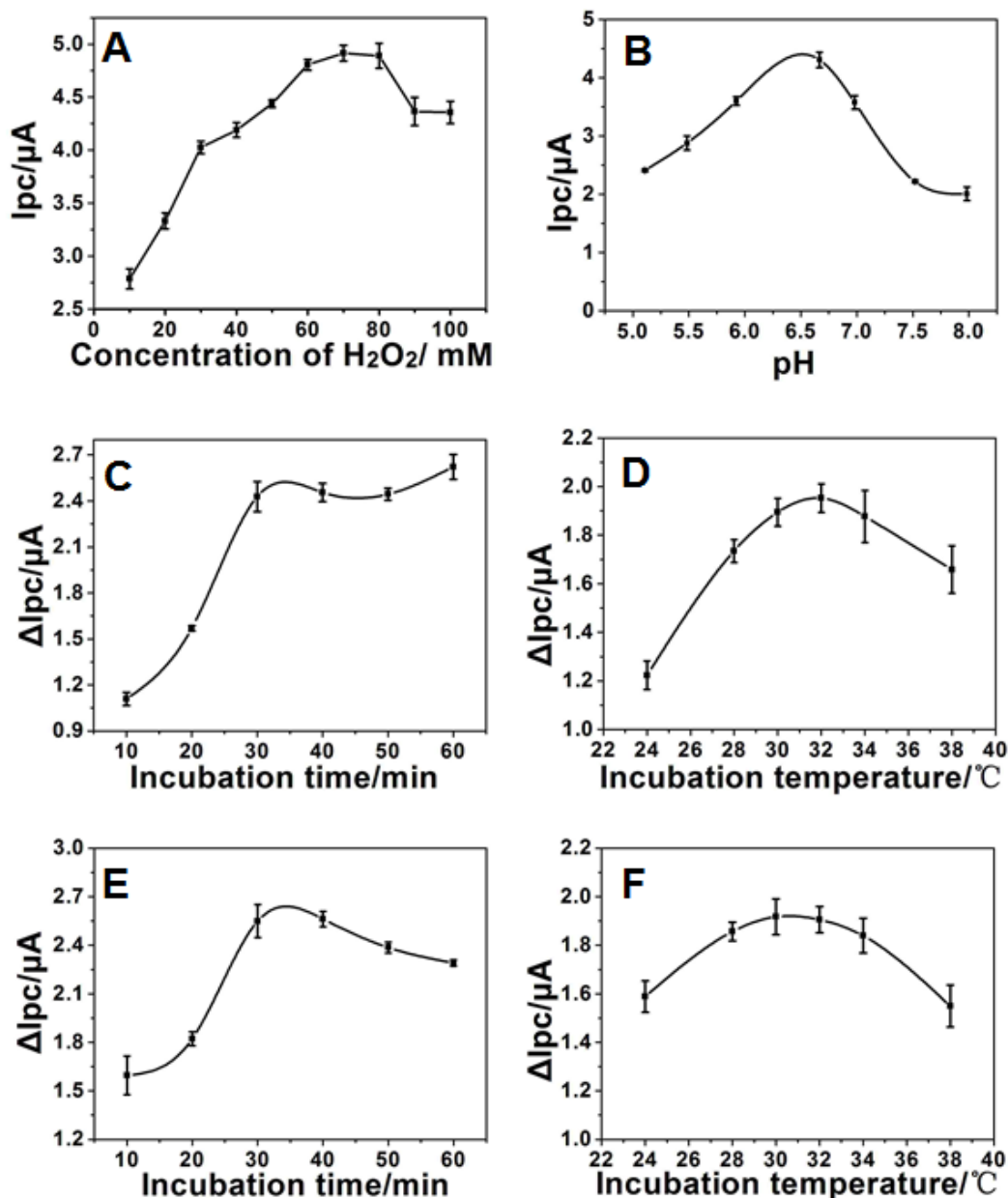


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 12 Fig. S.1 Comparison of reproducibility between SPCE and 4-SPCE.
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 15 Fig. S.2 Nyquist plots of EIS: (A) Bare 4-SPCE, (B) AuNPs/4-SPCE, (C) Anti-*S.*
 16 *pullorum* and *S. gallinarum*/AuMNP/4-SPCE, (D) *S. pullorum* and *S.*

17 *gallinarum*/Anti-*S. pullorum* and *S. gallinarum*/AuMNPs/4-SPCE, (E) HRP-anti-*S.*
 18 *pullorum* and *S. gallinarum*/*S. pullorum* and *S. gallinarum*/Anti-*S. pullorum* and *S.*
 19 *gallinarum*/AuMNPs/4-SPCE in 0.1 mM KCl containing 5.0 mM $[\text{Fe}(\text{CN})_6]^{3-/4-}$.
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 23 Fig. S.3 Optimization of the experimental parameters of the immunoassay method: (A)
 24 Concentration of H_2O_2 , (B) pH, (C) Incubation time between *S. pullorum* and *S.*
 25 *gallinarum* and $\text{Ab}_1/\text{AuMNPs}$, (D) Incubation temperature between *S. pullorum* and *S.*
 26 *gallinarum* and $\text{Ab}_1/\text{AuMNPs}$, (E) Incubation time between HRP-anti-*S. pullorum*
 27 and *S. Gallinarum* and $\text{Ag}/\text{Ab}_1/\text{AuMNPs}$, (F) Incubation temperature between HRP-
 28 anti-*S. pullorum* and *S. Gallinarum* and $\text{Ag}/\text{Ab}_1/\text{AuMNP}$.