CHA-Driven SERS-Nanoenzyme Sensor for Ultra-sensitive Diagnosis of Gastric Precancerous Lesions

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2. Experiments and Methods

2.5. Sensor Preparation and Raman Spectroscopy Measurement

Table S1 Basic characteristics of the participants in this study.

Groups	Health	Precancer	GC
Average age	49	53	59
Gender			
Male	16	15	18
Female	14	15	12
Sample number	30	30	30

3. Results and discussions

3.1. Feasibility Validation of CHA-Based Amplification Sensing Strategy

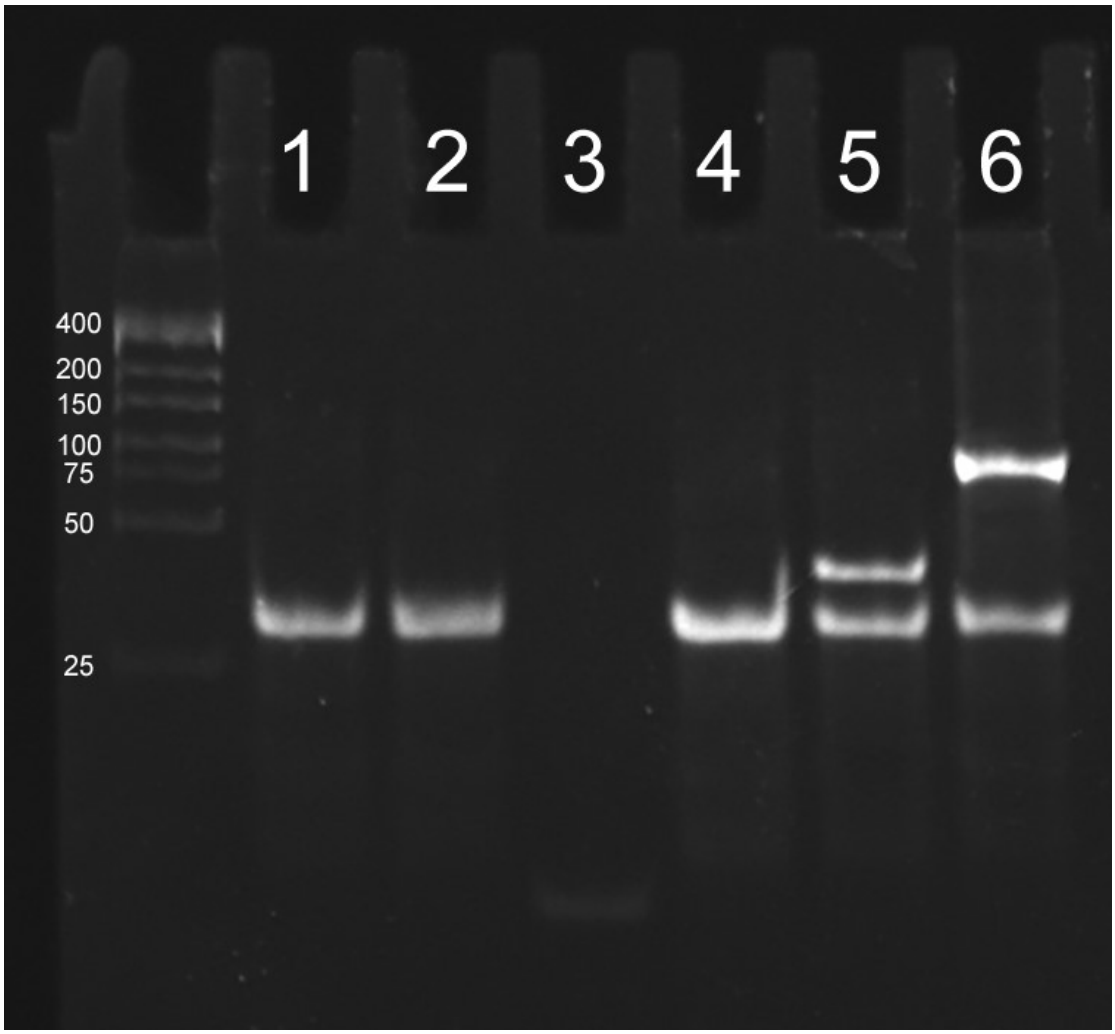

Fig. S1 PAGE verification based on CHA sensing strategy. Marker; Lane 1: HP1; Lane 2: HP2; Lane 3: miR-21; Lane 4: HP1+HP2; Lane 5: HP1+miR-21; Lane 6: HP1+HP2+miR-21.

3.6. Specific and Stability Evaluation

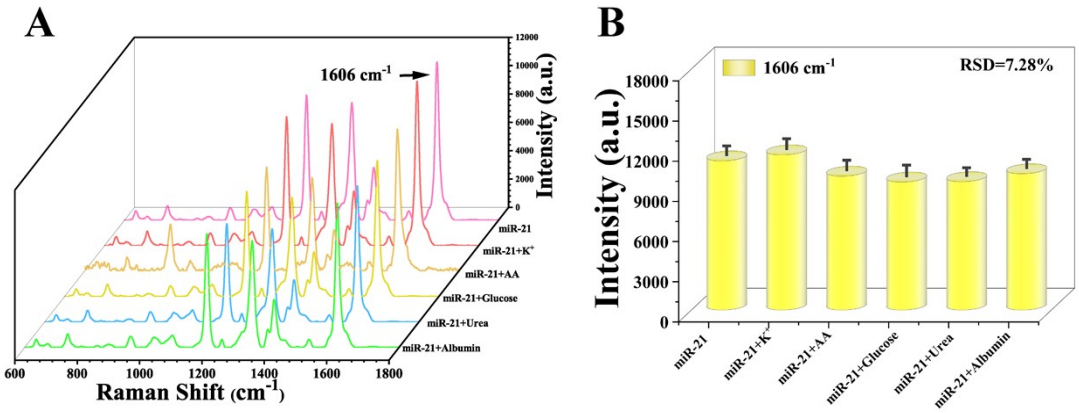

Fig. S2 (A) Detection of SERS spectra measured using miR-21 alone as a target, and in the presence of physiologically relevant serum interferents, and (B) histogram of the corresponding SERS intensity at 1606 cm^{-1}.

3.9. Detection of Clinical Sampl

Table S2. Concentrations of miR-21 detected by SERS using the proposed sensing system and qRT-PCR in healthy people, patients with precancerous lesions and patients with gastric cancer (n=3).

Sample	SERS (fM)			qRT-PCR (fM)		
	Health	Precancer	GC	Health	Precancer	GC
1	1.037	2.788	4.874	1.128	2.640	5.258
2	0.951	2.553	4.316	0.891	2.303	4.664
3	0.899	2.569	3.526	0.851	2.358	4.086
4	0.606	2.375	6.778	0.650	2.157	6.466
5	0.698	2.326	5.454	0.665	2.516	5.019
6	0.443	2.125	4.364	0.506	2.232	4.818
7	0.861	3.146	5.178	0.968	2.660	5.679
8	0.709	2.995	6.152	0.786	2.696	6.646

9	0.659	2.243	3.908	0.719	2.076	4.275
10	0.778	2.315	4.396	0.738	2.504	5.298
11	0.724	2.336	2.866	0.820	2.184	2.829
12	0.867	2.277	6.390	0.992	2.072	5.887
13	0.676	2.433	3.683	0.732	2.257	3.568
14	0.551	2.108	4.136	0.532	1.904	4.53
15	0.675	3.480	4.532	0.742	3.248	4.821
16	0.322	2.336	4.488	0.342	2.144	4.868
17	1.054	3.374	4.541	1.125	2.864	5.017
18	1.068	2.148	6.887	1.016	2.306	6.658
19	0.923	1.552	5.616	0.997	1.382	5.495
20	0.571	3.492	6.134	0.629	2.868	6.629
21	1.117	2.648	4.329	1.207	2.885	4.067
22	0.761	2.728	5.049	0.724	2.554	5.425
23	0.566	1.972	6.032	0.604	1.804	6.663
24	1.090	3.242	2.026	1.015	2.666	1.973
25	0.818	1.752	4.896	0.785	1.620	4.640
26	0.973	3.205	4.194	1.048	2.978	4.521
27	0.762	3.474	3.931	0.813	3.692	4.830
28	1.073	2.794	3.977	1.015	2.976	3.702
29	0.626	3.506	4.934	0.749	3.768	4.736
30	0.526	2.382	6.208	0.602	2.116	6.743