

Ultrasensitive detection of gastric cancer biomarkers via frequency shift-based SERS microfluidic chip

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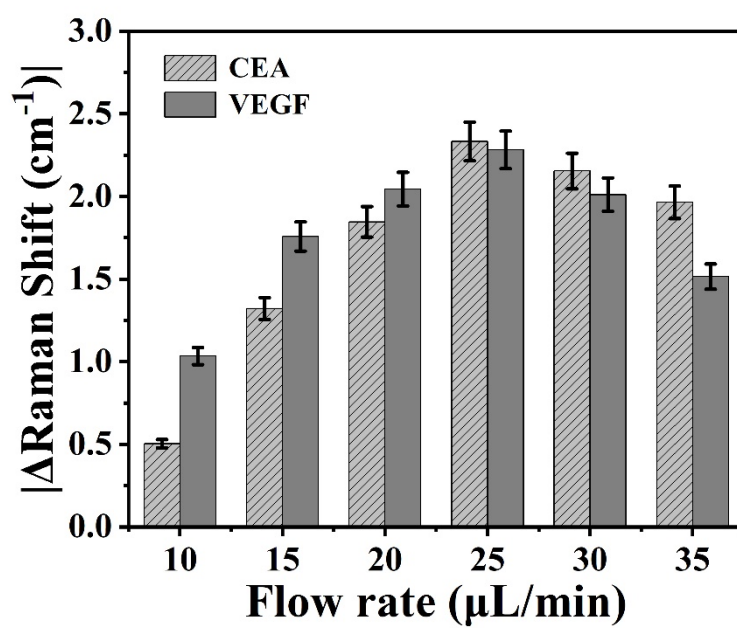


Fig. S1 Response of SERS platform to the flow rate.

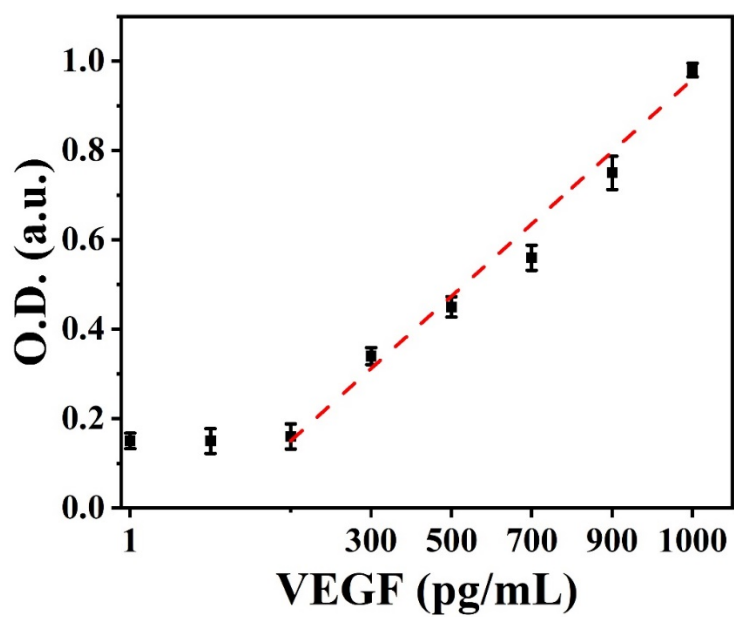


Fig. S1 OD calibration curve for VEGF concentrations based on ELISA.

Table S1 Results of the SERS and ELISA for healthy subjects

Sample	CEA (ng/mL)			VEGF (pg/mL)		
	SERS	ELISA	Relative error (%)	SERS	ELISA	Relative error (%)
1	3.22	3.52	-9.32	156.05	166.12	-6.45
2	3.38	3.24	4.14	164.31	153.26	6.73
3	3.02	3.36	-11.26	121.25	131.75	-8.66
4	3.95	3.79	4.05	133.08	121.47	8.72
5	3.52	3.82	-8.52	144.11	149.96	-4.06
6	4.03	4.41	-9.43	144.66	137.17	5.18
7	2.77	2.66	3.97	145.6	157.96	-8.49
8	3.32	3.64	-9.64	123.31	132.82	-7.71
9	4.02	4.31	-7.21	156.05	146.28	6.26
10	2.23	2.41	-8.07	154.8	139.37	9.97
11	2.35	2.58	-9.79	158.99	146.42	7.91
12	4.13	3.95	4.36	150.66	140.61	6.67
13	3.91	3.64	6.91	161.2	150.69	6.52
14	3.63	3.87	-6.61	141.43	131.38	7.11
15	3.21	3.44	-7.17	145.09	133.73	7.83
16	1.26	1.35	-7.14	140.8	132.66	5.78
17	1.47	1.41	4.08	158.3	145.7	7.96
18	1.81	1.92	-6.08	143.87	133.55	7.17
19	2.41	2.59	-7.47	55.15	50.88	7.74
20	2.83	2.68	5.30	132.18	139.52	-5.55
21	4.18	4.51	-7.89	159.77	169.87	-6.32
22	3.99	4.32	-8.27	57.69	53.63	7.04
23	1.06	1.15	-8.49	143.87	136.29	5.27
24	1.93	2.07	-7.25	136.91	127.01	7.23
25	3.08	3.38	-9.74	157.92	150.82	4.50
26	4.18	4.05	3.11	161.43	149.33	7.50
27	1.18	1.26	-6.78	159.77	150.36	5.89
28	4.31	4.13	4.18	159.77	149.58	6.38
29	3.37	3.69	-9.50	56.28	51.46	8.56
30	4.08	4.46	-9.31	161.8	152.62	5.67

Table S2 Results of the SERS and ELISA for GC patients

Sample	CEA (ng/mL)			VEGF (ng/mL)		
	SERS	ELISA	Relative error (%)	SERS	ELISA	Relative error (%)
1	27.91	25.58	8.35	2.54	2.37	6.69
2	13.15	12.21	7.15	2.56	2.38	7.03
3	26.05	24.48	6.03	2.47	2.28	7.69
4	16.15	15.07	6.69	2.53	2.32	8.30
5	17.64	18.36	-4.08	2.61	2.41	7.66
6	16.52	15.45	6.48	2.52	2.3	8.73
7	21.46	19.83	7.60	1.95	1.78	8.72
8	20.66	19.24	6.87	2.45	2.27	7.35
9	25.92	23.63	8.83	2.38	2.19	7.98
10	11.15	11.72	-5.11	1.74	1.89	-8.62
11	18.2	17.07	6.21	1.82	1.69	7.14
12	15.68	14.74	5.99	2.37	2.19	7.59
13	26.17	24.15	7.72	2.33	2.21	5.15
14	22.95	21.37	6.88	1.81	1.69	6.63
15	16.65	15.41	7.45	2.42	2.27	6.20
16	20.03	18.04	9.94	2.37	2.22	6.33
17	12.72	11.94	6.13	2.53	2.32	8.30
18	26.57	25.04	5.76	2.66	2.43	8.65
19	12.23	11.15	8.83	2.59	2.41	6.95
20	21.39	20.06	6.22	2.49	2.29	8.03
21	20.49	19.1	6.78	2.29	2.11	7.86
22	11.53	10.92	5.29	2.52	2.37	5.95
23	20.59	19.26	6.46	2.67	2.51	5.99
24	19.39	17.86	7.89	2.55	2.39	6.27
25	11.93	11.08	7.12	2.57	2.43	5.45
26	11.5	12.22	-6.26	2.43	2.25	7.41
27	16.32	15.15	7.17	2.51	2.35	6.37
28	11.23	10.35	7.84	2.61	2.47	5.36
29	16.04	16.72	-4.24	1.92	1.78	7.29
30	23.82	22.21	6.76	2.41	2.22	7.88