

# **Supplementary Information**

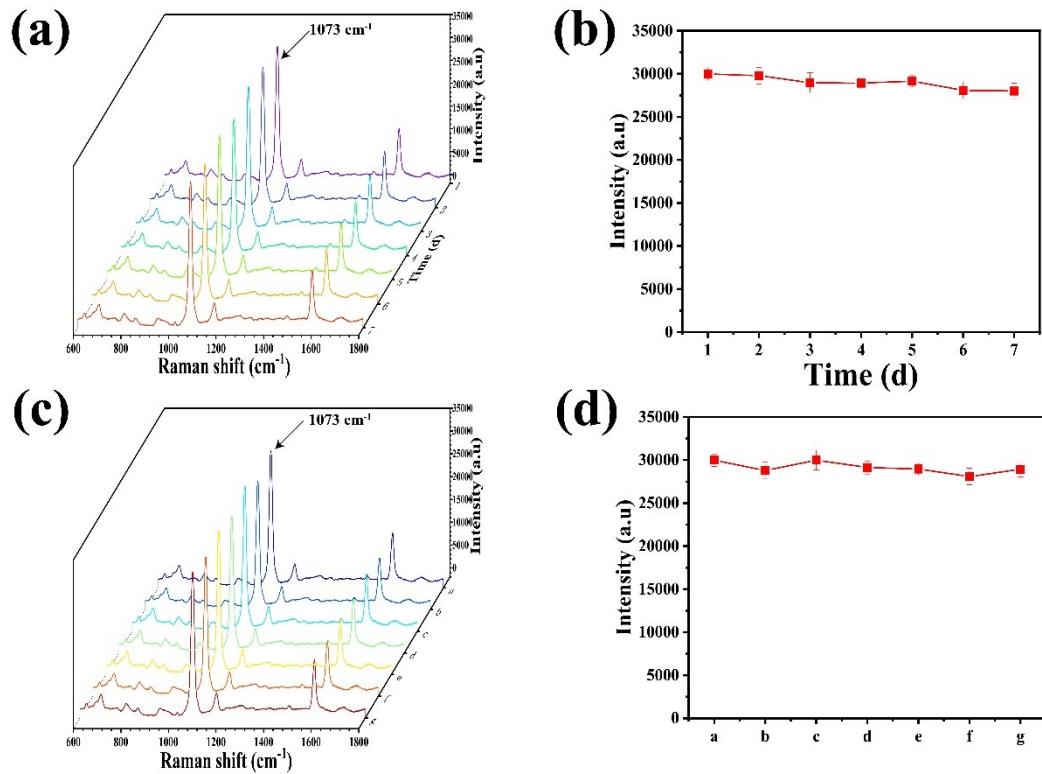
## **Efficient and accurate detection of GC-associated miR-96-5p using a competitive lateral flow method based on SERS**

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**Fig.S1** (a) SERS spectra of the Raman reporter gene were measured for seven consecutive days, (b) Raman intensity of the Raman reporter gene at  $1073 \text{ cm}^{-1}$  was measured for seven consecutive days, (c) SERS spectra of the Raman reporter gene were measured for different batches (a, b, c, d, e, f and g), (d) Raman intensity was measured at  $1073 \text{ cm}^{-1}$  for different batches.

**Table S1** SERS and qRT-PCR results of clinical serum samples from 30 healthy subjects.

	SERS (pM)	qRT-PCR (pM)	Relative error (%)
Healthy subject1	0.054	0.052	3.846
Healthy subject2	0.134	0.119	12.605
Healthy subject3	0.182	0.187	-2.674
Healthy subject4	0.104	0.112	-7.143
Healthy subject5	0.011	0.012	-8.333
Healthy subject6	0.021	0.023	-8.696
Healthy subject7	0.028	0.026	7.692
Healthy subject8	0.049	0.048	2.083
Healthy subject9	0.163	0.171	-4.678
Healthy subject10	0.041	0.047	-12.766
Healthy subject11	0.032	0.031	3.226
Healthy subject12	0.151	0.149	1.342
Healthy subject13	0.009	0.01	-10
Healthy subject14	0.012	0.011	9.091
Healthy subject15	0.056	0.061	-8.197
Healthy subject16	0.105	0.115	-8.696
Healthy subject17	0.095	0.105	-9.524
Healthy subject18	0.016	0.015	6.667
Healthy subject19	0.041	0.042	-2.381
Healthy subject20	0.014	0.013	7.692
Healthy subject21	0.021	0.023	-8.696
Healthy subject22	0.008	0.009	-11.111
Healthy subject23	0.043	0.046	-6.522
Healthy subject24	0.012	0.013	-7.692
Healthy subject25	0.016	0.015	6.667
Healthy subject26	0.041	0.043	-4.651
Healthy subject27	0.051	0.055	-7.273
Healthy subject28	0.053	0.058	-8.621
Healthy subject29	0.067	0.072	-6.944
Healthy subject30	0.014	0.015	-6.667

**Table S2** SERS and qRT-PCR results of clinical serum samples from 30 patients with mild intraepithelial neoplasia.

	SERS (pM)	qRT-PCR (pM)	Relative error (%)
Mild1	0.901	0.806	11.787
Mild2	0.302	0.298	1.342
Mild3	0.417	0.409	1.956
Mild4	0.199	0.204	-2.451
Mild5	0.209	0.215	-2.791
Mild6	0.294	0.289	1.730
Mild7	0.304	0.312	-2.564
Mild8	1.315	1.205	9.129

Mild9	0.786	0.781	0.640
Mild10	0.712	0.618	15.210
Mild11	0.621	0.628	-1.115
Mild12	1.653	1.454	13.686
Mild13	1.531	1.424	7.514
Mild14	1.102	1.098	0.364
Mild15	1.423	1.218	16.831
Mild16	0.898	0.989	9.201
Mild17	0.976	0.971	0.515
Mild18	0.845	0.84	0.595
Mild19	1.568	1.391	12.725
Mild20	1.617	1.498	7.944
Mild21	0.845	0.749	12.817
Mild22	0.974	0.969	0.516
Mild23	1.021	0.915	11.585
Mild24	0.746	0.741	0.675
Mild25	1.158	1.061	9.142
Mild26	1.134	1.031	9.990
Mild27	0.986	0.979	0.715
Mild28	1.647	1.538	7.078
Mild29	1.117	1.098	1.730
Mild30	1.121	1.020	9.901

**Table S3** SERS and qRT-PCR results of clinical serum samples from 30 patients with severe intraepithelial neoplasia.

	SERS (pM)	qRT-PCR (pM)	Relative error (%)
Severe1	1.744	1.804	-3.326
Severe2	2.576	2.325	10.796
Severe3	1.746	1.623	7.579
Severe4	1.476	1.587	-6.994
Severe5	1.298	1.205	7.718
Severe6	1.685	1.559	8.082
Severe7	1.545	1.643	-5.965
Severe8	1.682	1.774	-5.186
Severe9	1.471	1.384	6.286
Severe10	1.374	1.411	-2.622
Severe11	1.318	1.201	9.742
Severe12	1.418	1.518	-6.588
Severe13	1.748	1.854	-5.717
Severe14	1.854	1.977	-6.222
Severe15	1.754	1.911	-8.216
Severe16	1.278	1.418	-9.873
Severe17	1.357	1.491	-8.987
Severe18	2.558	2.608	-1.917
Severe19	2.478	2.558	-3.127

Severe20	2.142	2.214	-3.252
Severe21	2.209	2.315	-4.579
Severe22	2.237	2.401	-6.830
Severe23	2.207	2.407	-8.309
Severe24	2.107	2.267	-7.058
Severe25	1.617	1.718	-5.879
Severe26	1.624	1.801	-9.828
Severe27	1.496	1.569	-4.653
Severe28	1.215	1.402	-13.338
Severe29	1.815	1.973	-8.008
Severe30	1.391	1.497	-7.081

**Table S4** SERS and qRT-PCR results of clinical serum samples from 30 patients with gastric cancer (GC).

	SERS (pM)	qRT-PCR (pM)	Relative error (%)
GC1	3.255	3.095	5.169
GC2	3.374	3.317	1.718
GC3	2.785	2.643	5.373
GC4	2.601	2.481	4.837
GC5	2.498	2.381	4.914
GC6	2.984	3.095	-3.586
GC7	2.834	2.614	8.416
GC8	2.596	2.318	11.993
GC9	2.376	2.491	-4.617
GC10	2.257	2.107	7.119
GC11	3.385	3.493	-3.092
GC12	3.867	3.619	6.853
GC13	3.512	3.291	6.715
GC14	3.387	3.207	5.613
GC15	3.192	3.031	5.312
GC16	3.542	3.351	5.700
GC17	3.356	3.583	-6.335
GC18	3.218	3.019	6.592
GC19	3.215	3.091	4.012
GC20	3.297	3.012	9.462
GC21	3.587	3.319	8.075
GC22	3.479	3.219	8.077
GC23	3.352	3.109	7.816
GC24	3.648	3.492	4.467
GC25	3.841	3.613	6.311
GC26	3.672	3.415	7.526
GC27	3.849	3.673	4.792
GC28	3.556	3.289	8.118
GC29	3.499	3.209	9.037
GC30	3.468	3.318	4.521

