

Figure S1. Serum 2-DE results. (A) 2-DE of serum from a healthy person using normal lysis buffer. (B) 2-DE of serum from a healthy person using the new lysis buffer (as in Fig. 1A). 2-DE, 2-D gel electrophoresis; PI, isoelectric point.

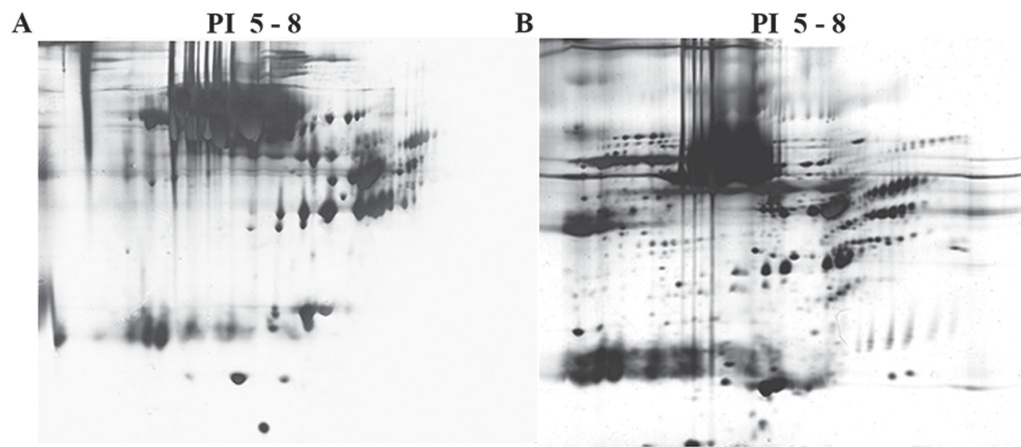


Figure S2. IHC results of RAS family member and APOE expression in grade II HCC tissues. (A) IHC results of RAS family member expression in grade II HCC tissues. (B) IHC results of APOE expression in grade II HCC tissues (as in Fig. 6E, HCC tissue grade II). Magnification, x400. IHC, immunohistochemistry; HCC, hepatocellular carcinoma; APOE, apolipoprotein E..

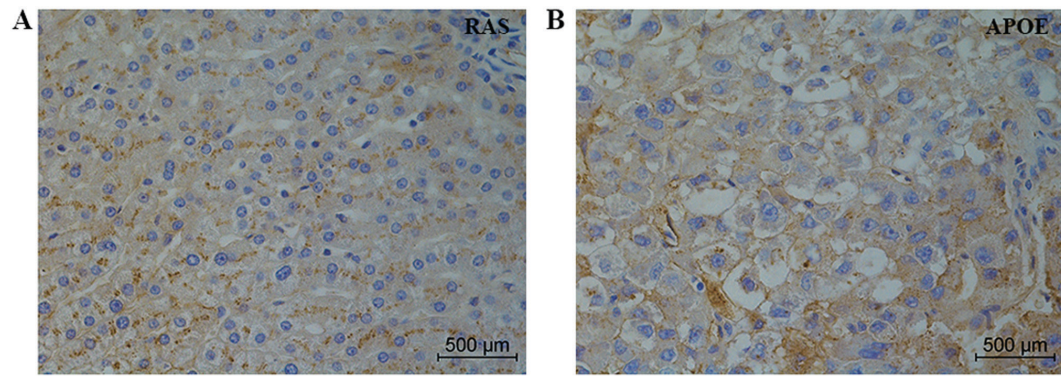


Table SI. Clinical data for the HCC patients used for serum 2-D gel electrophoresis in the present study.

ID no.	Sex	Age, years	Pathological typing	Primary	Stage
1	M	50	HCC	Y	I
2	M	60	HCC	Y	I
3	F	55	HCC	Y	I
4	M	56	HCC	Y	I
5	F	71	HCC	Y	I
6	M	51	HCC	Y	I
7	M	73	HCC	Y	I
8	M	55	HCC	Y	I
9	M	46	HCC	Y	I
10	F	39	HCC	Y	I
11	M	55	HCC	Y	I
12	M	41	HCC	Y	I
13	M	56	HCC	Y	I
14	M	56	HCC	Y	I
15	M	62	HCC	Y	I
16	F	28	HCC	Y	II
17	M	46	HCC	Y	II
18	M	48	HCC	Y	II
19	M	44	HCC	Y	II
20	F	66	HCC	Y	II
21	M	53	HCC	Y	II
22	M	47	HCC	Y	II
23	M	53	HCC	Y	II
24	M	54	HCC	Y	II
25	M	63	HCC	Y	II
26	M	44	HCC	Y	II
27	M	72	HCC	Y	II
28	F	60	HCC	Y	II
29	F	47	HCC	Y	II
30	M	45	HCC	Y	II
31	M	53	HCC	Y	II
32	M	53	HCC	Y	II
33	M	43	HCC	Y	II
34	M	51	HCC	Y	II
35	M	58	HCC	Y	II
36	F	65	HCC	Y	III
37	M	48	HCC	Y	III
38	M	61	HCC	Y	III
39	M	67	HCC	Y	III
40	M	40	HCC	Y	III
41	M	38	HCC	Y	III
42	F	54	HCC	Y	III
43	F	62	HCC	Y	III
44	M	56	HCC	Y	III
45	M	63	HCC	Y	III
46	F	59	HCC	Y	III
47	F	55	HCC	Y	III
48	M	45	HCC	Y	III
49	M	57	HCC	Y	III
50	M	61	HCC	Y	III

M, male; F, female; HCC, hepatocellular carcinoma; Y, yes.

Table SII. Clinical data for the HCC patients used for tissue detection in the present study.

ID no.	Sex	Age, years	Pathological typing	Primary	Tumor size, cm	Stage
1	M	61	HCC	Y	4x4x3	I
2	M	63	HCC	Y	4.5x3.5x3	I
3	M	64	HCC	Y	7x7x5	I
4	F	63	HCC	Y	4x3x3	II
5	F	56	HCC	Y	6x4x4	II
6	M	63	HCC	Y	3.5x3x3	II
7	M	53	HCC	Y	3.5x3x3	II
8	M	42	HCC	Y	6x5x5	III
9	F	68	HCC	Y	4.5x4x4	III
10	M	55	HCC	Y	6x6x5	III

M, male; F, female; HCC, hepatocellular carcinoma; Y, yes.

Table SIII. Relative expression quality of mRNA in tissue of related proteins identified from serum 2-D gel electrophoresis (CS and HCS groups).

Name	Sample no.	CS group (Control)	HCS group	P-value (Paired t-test)
HS3ST3A1	1	1.00	5.72±0.172 ^b	0.55
	2	1.00	0.91±0.050	
	3	1.00	4.90±0.154 ^b	
	4	1.00	0.43±0.074 ^b	
	5	1.00	0.51±0.093 ^b	
	6	1.00	0.13±0.052 ^b	
	7	1.00	0.12±0.046 ^b	
	8	1.00	0.07±0.057 ^b	
	9	1.00	1.26±0.120	
	10	1.00	0.06±0.007 ^b	
Tu ^b ulin βD	1	1.00	6.13±0.619 ^b	0.33
	2	1.00	0.81±0.250	
	3	1.00	9.66±0.226 ^b	
	4	1.00	0.74±0.204	
	5	1.00	0.72±0.155	
	6	1.00	0.15±0.016 ^b	
	7	1.00	0.12±0.010 ^b	
	8	1.00	0.26±0.082 ^b	
	9	1.00	0.37±0.093 ^b	
	10	1.00	1.63±0.143 ^a	
RAS oncogene family	1	1.00	7.36±0.280 ^b	0.29
	2	1.00	1.04±0.172	
	3	1.00	9.62±0.262 ^b	
	4	1.00	1.10±0.155	
	5	1.00	0.63±0.052	
	6	1.00	0.26±0.083 ^b	
	7	1.00	0.13±0.060 ^b	
	8	1.00	0.08±0.081 ^b	
	9	1.00	1.54±0.164 ^a	
	10	1.00	0.33±0.028 ^b	
Apolipoprotein A-D	1	1.00	0.06±0.005 ^b	0.79
	2	1.00	1.80±0.146 ^b	
	3	1.00	5.57±0.177 ^b	
	4	1.00	0.57±0.108 ^a	
	5	1.00	0.16±0.006 ^b	
	6	1.00	0.10±0.020 ^b	
	7	1.00	0.05±0.004 ^b	
	8	1.00	0.03±0.000 ^b	
	9	1.00	0.04±0.000 ^b	
	10	1.00	0.10±0.001 ^b	
60S acidic ri ^b osomal protein PO	1	1.00	0.08±0.016 ^b	0.94
	2	1.00	0.94±0.021	
	3	1.00	8.31±0.174 ^b	
	4	1.00	0.58±0.072 ^b	
	5	1.00	0.14±0.002 ^b	
	6	1.00	0.07±0.003 ^b	
	7	1.00	0.04±0.001 ^b	
	8	1.00	0.10±0.012 ^b	
	9	1.00	0.32±0.001 ^b	
	10	1.00	0.08±0.000 ^b	
OSBPL11	1	1.00	0.11±0.023 ^b	<0.001
	2	1.00	0.86±0.057	
	3	1.00	0.77±0.026 ^a	
	4	1.00	0.68±0.019 ^b	
	5	1.00	0.12±0.064 ^b	
	6	1.00	0.04±0.016 ^b	

Table SIII. Continued.

Name	Sample no.	CS group (Control)	HCS group	P-value (Paired t-test)
Cyclin H	7	1.00	0.05±0.010 ^b	0.19
	8	1.00	0.28±0.013 ^b	
	9	1.00	0.38±0.000 ^b	
	10	1.00	0.17±0.001 ^b	
	1	1.00	4.93±0.566 ^b	
	2	1.00	1.13±0.048	
	3	1.00	7.62±0.139 ^b	
	4	1.00	0.52±0.001 ^a	
	5	1.00	4.11±0.083 ^b	
	6	1.00	0.21±0.062 ^b	
	7	1.00	0.10±0.067 ^b	
	8	1.00	0.72±0.031	
	9	1.00	1.51±0.140 ^a	
	10	1.00	0.58±0.001 ^a	

^aP<0.05; ^bP<0.01. CS, control serum; HCS, hepatocellular carcinoma serum; OSBPL11, oxysterol binding protein-like 11; HS3ST3A1, heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1.

Table SIV. Relative expression quality of mRNA in tissue of related proteins identified from tissue 2-DE (AT and HCT groups).

Name	AT group (Control)	HCT group
EIF5A	1.00	8.53±0.176 ^b
Cytochrome b5	1.00	6.43±0.120 ^b
FTH1	1.00	7.47±0.240 ^b
Calpain small subunit 1	1.00	1.75±0.075 ^a
14-3-3 epsilon	1.00	9.23±0.175 ^b
Pyrophosphatase	1.00	12.50±0.577 ^b
Unnamed	1.00	13.83±0.726 ^b
Keratin 1	1.00	15.33±0.882 ^b
Centlein	1.00	13.83±0.722 ^b
APOE	1.00	0.37±0.009 ^b
Growth-inhibiting protein 1	1.00	4.51±0.158 ^b
Tapasin-ERP57	1.00	10.90±0.379 ^b

^aP<0.05; ^bP<0.01. AT, adjacent tissues; HCT, hepatocellular carcinoma tissues; FTH1, ferritin heavy polypeptide 1; APOE, apolipoprotein E; EIF5A, eukaryotic translation initiation factor Eif5a.