Supplementary Online Content

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. *ICD-10* Codes for Specific Malignant Neoplasms		
Category	*ICD-10*	Abbreviation
All cancer	C00-C97	—
Lip, oral cavity and pharynx cancer	C00-C14	Oral cavity
Esophagus cancer	C15	Esophagus
Stomach cancer	C16	Stomach
Colon, Rectosigmoid junction and Rectum	C18-C20	Colorectum
Liver cancer	C22	Liver
Pancreas cancer	C25	Pancreas
Trachea, Bronchus and Lung	C33-C34	Lung
Breast cancer	C50	Breast
Cervix uteri cancer	C53	Cervix
Endometrium cancer	C54.1	Endometrium
Ovary cancer	C56	Ovary
Prostate cancer	C61	Prostate
Bladder cancer	C67	Bladder
Lymphoma	C81-C85	Lymphoma
Leukemia	C91-C95	Leukemia

ICD-10, International Classification of Diseases-10.

eTable 2. Baseline Characteristics of the CKB Participants According to the HBsAg Status

Characteristic	All Participants (n = 496,732)	HBsAg-positive (n = 15,355)
Age, n (%)		
<50 years	224,086 (45.1)	8,311 (3.7)
≥50 years	272,646 (54.9)	7,044 (2.6)
Sex, n (%)		
Women	293,248 (59.0)	8,300 (2.8)
Men	203,484 (41.0)	7,055 (3.5)
Area, n (%)		
Urban	221,236 (44.5)	7,848 (3.5)
Rural	275,496 (55.5)	7,507 (2.7)
Region, n (%)		
Qingdao (Urban)	34,499 (6.9)	1,030 (3.0)
Harbin (Urban)	56,708 (11.4)	1,134 (2.0)
Haikou (Urban)	29,508 (5.9)	1,543 (5.2)
Suzhou (Urban)	51,511 (10.4)	2,200 (4.3)
Liuzhou (Urban)	49,010 (9.9)	1,941 (4.0)
Pengzhou (Rural)	51,797 (10.4)	949 (1.8)
Tianshui (Rural)	48,802 (9.8)	914 (1.9)
Huixian (Rural)	62,464 (12.6)	2,152 (3.4)
Tongxiang (Rural)	53,353 (10.7)	1,876 (3.5)
Liuyang (Rural)	59,080 (11.9)	1,616 (2.7)
Married, n (%)		
No	46,715 (9.4)	1,247 (2.7)
Yes	450,017 (90.6)	14,108 (3.1)
Educational level, n (%)		
No formal education	90,335 (18.2)	2,405 (2.6)
Primary school	159,951 (32.2)	4,706 (2.9)
Middle or high school	217,092 (43.7)	7,448 (3.4)
College or university	29,354 (5.91)	796 (2.7)
Household income, n (%)		
<10,000 yuan/yr	139,457 (28.1)	3,670 (2.6)
10,000—19,999 yuan/yr	144,915 (29.2)	4,541 (3.1)
20,000—34,999 yuan/yr	122,513 (24.7)	4,075 (3.3)
≥35,000 yuan/yr	89,847 (18.1)	3,069 (3.4)
Family history of cancer, n		
No	398,999 (82.7)	11,964 (3.0)
Yes	83,405 (17.3)	3,025 (3.6)
Regular smoking, n (%)		
Never	336,462 (67.7)	9,988 (3.0)
Current/Previous	160,270 (32.3)	5,367 (3.3)
Regular alcohol intake, n		
Never	414,669 (83.5)	12,714 (3.1)
Current/Previous	82,063 (16.5)	2,641 (3.2)
Body mass index, n (%)		
<24.0	278,450 (56.1)	8,961 (3.2)
24.0-27.9	165,359 (33.3)	4,854 (2.9)
≥28.0	52,921 (10.7)	1,540 (2.9)

At exchange rate as of June 2017, 1 yuan is approximately equal to 0.15 U.S. dollars.

Rank	Type	No. of cases	No. of person-years	Crude-incidence $(1/10^5)$	Standardized-incidence $(1/10^5)^*$
	All	20,891	4,430,988	471.48	422.21
1	Liver	1,775	4,430,988	40.06	40.28
2	Lung	3,847	4,430,988	86.82	78.23
3	Stomach	2,159	4,430,988	48.73	47.08
4	Colorectum	2,139	4,430,988	48.27	40.17
5	Breast	1,694	2,642,521	64.11	52.04
6	Esophagus	1,589	4,430,988	35.86	42.13
7	Oral cavity	416	4,430,988	9.39	8.61
8	Lymphoma	369	4,430,988	8.33	7.58
9	Pancreas	505	4,430,988	11.4	9.4
10	Cervix	699	2,642,521	26.45	25.92
11	Leukemia	430	4,430,988	9.7	8.73
12	Bladder	344	4,430,988	7.76	6.81
13	Ovary	263	2,642,521	9.95	8.91
14	Endometrium	273	2,642,521	10.33	8.35
15	Prostate	254	1,788,466	14.2	11.1

eTable 3. The Incidence Rates of Cancer in the CKB Cohort

* Standardized by age, sex and region based on the 2010 Chinese census population.

eTable 4. Adjusted Odds Ratio for HBsAg Status and Stomach Cancer Risk in the Changzhou Nested Case-Control Study

Variable	Stomach cancer cases	Healthy controls	OR (95% CI)	*P*
	N (%)	N (%)		
HBsAg				
Negative	94 (79.7)	412 (87.3)	1.00	0.04
Positive	24 (20.3)	60 (12.7)	1.76 (1.04-2.98)	

Logistic regression analyses were adjusted for age, sex, education level, household income, marital status, smoking status, alcohol consumption, family cancer history, and BMI.

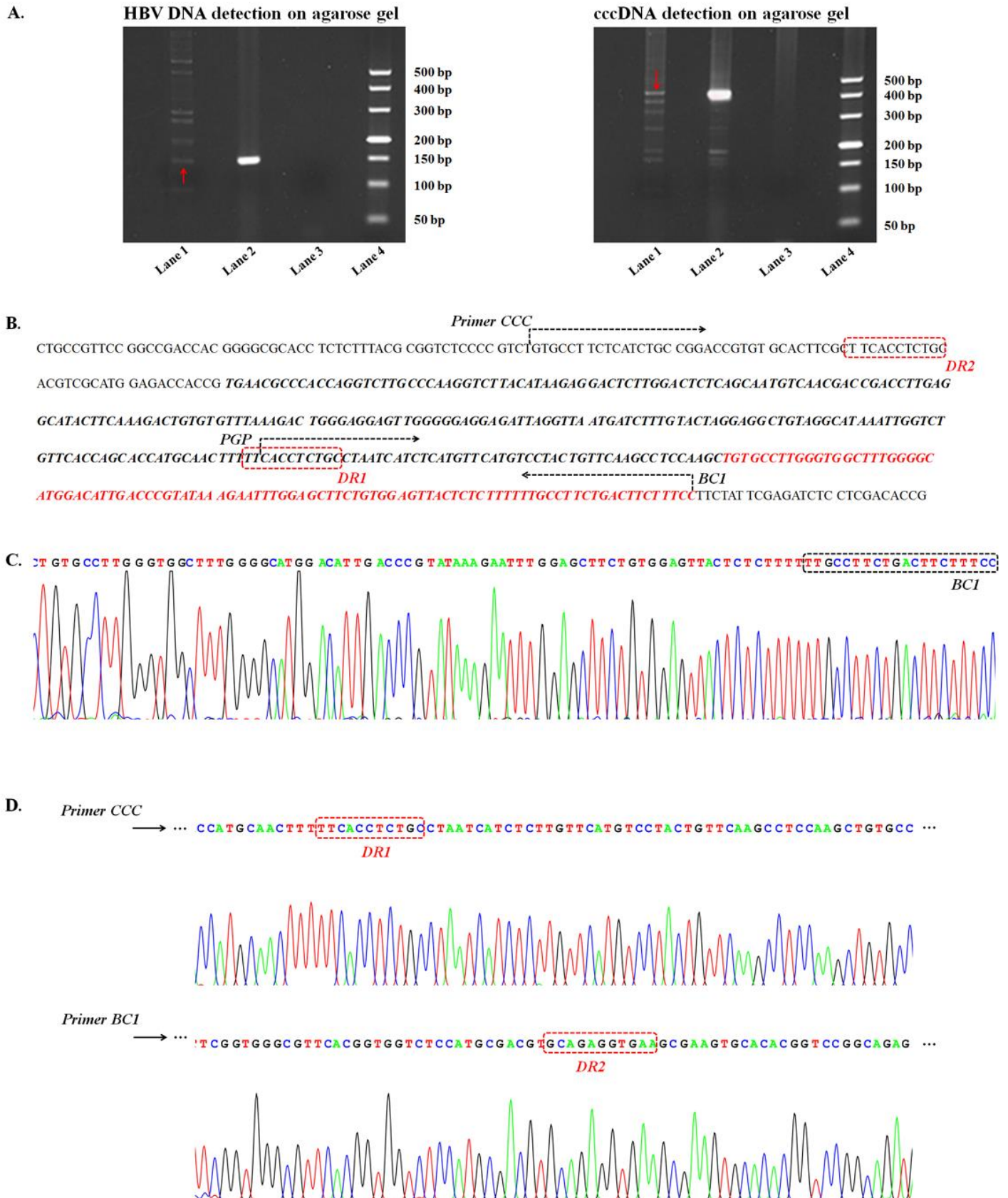| eTable 5. Distribution of HBV DNA in Stomach Tumor Tissues							
	Jiangsu (n = 47)		Zhejiang (n = 50)		All patients (n = 97)		*P*
Variable	HBV DNA positive	HBV DNA negative	HBV DNA positive	HBV DNA negative	HBV DNA positive	HBV DNA negative	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
All patients	12 (25.5)	35 (74.5)	19 (38.0)	31 (62.0)	31 (32.0)	66 (68.0)	-
HBV Status in serum							
anti-HBc (+)	12 (54.5)	10 (45.5)	19 (54.3)	16 (45.7)	31 (54.4)	26 (45.6)	-
anti-HBc (-)	0 (0)	25 (100.0)	0 (0)	15 (100.0)	0 (0)	40 (100.0)	
Gender							
Male	10 (27.8)	26 (72.2)	14 (37.8)	23 (62.2)	24 (32.9)	49 (67.2)	0.74
Female	2 (18.2)	9 (81.8)	5 (38.5)	8 (61.5)	7 (21.2)	17 (70.8)	
Age							
<60 years	1 (11.1)	8 (88.9)	8 (36.4)	14 (63.6)	9 (29.0)	22 (70.1)	0.67
≥60 years	11 (28.9)	27 (71.1)	11 (39.3)	17 (60.7)	22 (33.3)	44 (66.7)	
P for chi-square test for differences between subgroups with different HBV, sex and age statuses.							

eTable 6. The Expression of Anti-HBc and HBX in Stomach, Pancreatic and Lung Cancer Tissues

ID	Sex	Age at diagnosis	Diagnosis	Sero-HBsAg	Sero-anti-HBc	Anti-HBc in tissue	HBX in tissue
1	Male	67	Stomach cancer	-	+	+	+
2	Male	75	Stomach cancer	+	+	+	+
3	Male	59	Stomach cancer	-	+	+	+
4	Male	65	Stomach cancer	-	+	+	+
5	Male	61	Stomach cancer	-	+	+	+
6	Female	50	Stomach cancer	-	+	+	+
7	Male	66	Stomach cancer	-	+	+	+
8	Female	64	Stomach cancer	-	+	+	+
9	Male	58	Pancreatic cancer	-	+	+	+
10	Female	62	Pancreatic cancer	+	+	+	+
11	Male	53	Pancreatic cancer	+	+	+	+
12	Female	61	Pancreatic cancer	+	+	+	+
13	Male	64	Pancreatic cancer	+	+	+	+
14	Male	73	Pancreatic cancer	-	+	+	+
15	Female	61	Pancreatic cancer	-	+	+	+
16	Male	52	Pancreatic cancer	+	+	+	+
17	Female	67	Pancreatic cancer	+	+	+	+
18	Male	86	Pancreatic cancer	+	+	+	+
19	Female	52	Lung cancer	-	+	-	-
20	Male	63	Lung cancer	+	+	-	-
21	Female	64	Lung cancer	-	+	-	-
22	Female	69	Lung cancer	-	+	-	-
23	Female	65	Lung cancer	-	+	-	-
24	Male	66	Lung cancer	-	+	-	-
25	Female	66	Lung cancer	-	+	-	-
26	Male	56	Lung cancer	-	+	-	-
27	Female	43	Lung cancer	+	+	-	-

"+" represents positive expression; "-" represents negative expression.

eFigure 1. Results of PCR Tests Performed to Detect HBV DNA and cccDNA in the Tissues of all Stomach Cancer Subjects

A.

HBV DNA detection on agarose gel

500 bp
400 bp
300 bp
200 bp
150 bp
100 bp
50 bp

Lane 1   Lane 2   Lane 3   Lane 4

cccDNA detection on agarose gel

500 bp
400 bp
300 bp
200 bp
150 bp
100 bp
50 bp

Lane 1   Lane 2   Lane 3   Lane 4

B.

Primer CCC

CTGCCGTTCC GGCCGACCAC GGGGCGCACC TCTCTTTACG CGGTCTCCCC GTCTGTGCCT TCTCATCTGC CGGACCGTGT GCACTTCGCT TCACCTCTGC
DR2

ACGTCGCATG GAGACCACCG TGAACGCCCA CCAGGTCTTG CCCAAGGTCT TACATAAGAG GACTCTTGGA CTCTCAGCAA TGTCAACGAC CGACCTTGAG

GCATACTTCA AAGACTGTGT GTTTAAAGAC TGGGAGGAGT TGGGGGAGGA GATTAGGTTA ATGATCTTTG TACTAGGAGG CTGTAGGCAT AAATTGGTCT

PGP

GTTCACCAGC ACCATGCAAC TTTTTCACCT CTGCCTAATC ATCTCATGTT CATGTCCTAC TGTTCAAGCC TCCAAGCTGT GCCTTGGGTG GCTTTGGGGC
DR1   BC1

ATGGACATTG ACCCGTATAA AGAATTTGGA GCTTCTGTGG AGTTACTCTC TTTTTTGCCT TCTGACTTCT TTCCTTCTAT TCGAGATCTC CTCGACACCG

C. CT GTG CCT TG G GTG GC TTTG GGG CATGG ACATTG ACCCG TATAAA GAATTT G GAGCTTCT GTGG AGTTACTCT CTTTTTTT GCCT TCTG ACTTCTTTCC
BC1

D.

Primer CCC

... CCATGCAACTTT TTTCACCTCTGC CTAATCATCTCTTGTTCATGTCCTACTGTTCAAGCCTCCAAGCTGTGCC ...
DR1

Primer BC1

... TCGGTGGGCGTTCACGGTGGTCTCCATGCGACGT GCAGAGGTGAA GCGAAGTGCACACGGTCCGGCAGAG ...
DR2

eFigure 2. Anti-HBc and HBx Expression in Tissues of Stomach Cancer, Pancreatic Cancer, or Lung Cancer Using the IHC Test