

Table S1: Detailed information of the selected six SNPs in DNA repair genes and *ABCG2* gene

Genes	Full name	SNP	Base change	SNP location
<i>XPA</i>	Xeroderma pigmentosus group A	rs10817938	T>C	Promoter
<i>XPA</i>	Xeroderma pigmentosus group A	rs2808668	C>T	Intron
<i>XPC</i>	Xeroderma pigmentosus group C	rs2607775	C>G	Exon, K939Q
<i>WRN</i>	Werner syndrome	rs1346044	C>A	Exon, Cys1367Arg
<i>ABCG2</i>	ATP-binding cassette, sub-family G, member 2	rs2231142	C>A	Exon, Q141K
<i>ABCG2</i>	ATP-binding cassette, sub-family G, member 2	rs2622621	C>G	Exon

Table S2: Baseline characteristic in colorectal cancer patients (n=580)

Variables	No.	%
Total no.	580	100
Mean age (range), yrs	59 (21-82)	-
Mean body weight (SD), kg	61 (8.23)	-
Age at diagnosis, yrs		
<59	282	48.6
≥59	298	51.4
BMI (kg/m²)		
<25	317	54.7
≥25	263	45.3
Gender		
Male	351	60.5
Female	229	39.5
First-degree family history of cancer		
No	500	86.2
Yes	80	13.8
Smoking status		
Ever	485	83.6
Never #	95	16.4
Prime cancer		
Colon cancer	336	57.9
Rectum cancer	244	42.1
Tumor size (cm)		
≤ 4.0	120	20.7
>4.0	460	79.3
Tumor differentiation		
Grade 2 (G2, moderate)	57	9.8
Grade 3 (G3, poor)	523	90.2
Clinical Stage		
III	507	12.6
IV	73	87.4
Lymph node metastases		
No	23	4.0
Yes	557	96.0
Serum tumor markers		
B-mg		
Normal	327	56.4
Elevated	251	43.3
AFP		
Normal	514	88.6
Elevated	66	11.4
CEA		
Normal	277	47.8
Elevated	295	50.9
CA12-5		
Normal	308	53.1
Elevated	270	46.6
CA15-3		
Normal	325	56.0
Elevated	255	46.6
CA19-9		
Normal	277	47.8
Elevated	295	50.9
Chemotherapy regimens[§]		
FOLFOX regimen	464	80.0
XELOX regimen	116	20.0

Defined as <100 cigarettes in lifetime.

§ Chemotherapy regimens include FOLFOX (Oxaliplatin, 5-Fluorouracil [5-FU], and Folinic acid,) and XELOX (Oxaliplatin and Capecitabine)

Ever	304(78.1)	85(21.9)		1.00	187(48.1)	202(51.9)		1.00	177(45.5)	212(54.5)		1.00
Never	54(72.0)	21(28.0)	0.167	0.67(0.38-1.18)	31(41.3)	44(58.7)	0.325	0.76(0.47-1.29)	27(36.0)	48(64.0)	0.083	0.63(0.38-1.06)
Prime cancer												
Rectum	215(78.8)	58(21.2)		1.00	130(47.6)	143(52.4)		1.00	124(45.4)	149(54.6)		1.00
Colon	143(74.9)	48(25.1)	0.214	0.75(0.48-1.18)	88(46.1)	103(53.9)	0.821	0.96(0.66-1.39)	80(41.9)	111(58.1)	0.452	0.87(0.59-1.26)
Tumor size (cm)												
≤ 4.0	77(71.3)	31(28.7)		1.00	45(41.7)	63(58.3)		1.00	56(51.9)	52(48.1)		1.00
>4.0	281(78.9)	75(21.1)	0.106	1.50(0.92-2.45)	173(48.6)	183(51.4)	0.199	1.33(0.86-2.06)	148(41.6)	208(58.4)	0.063	0.66(0.43-1.02)
Lymph node metastases												
No	144(78.7)	39(21.3)		1.00	74(40.4)	109(59.6)		1.00	91(49.7)	92(50.3)		1.00
Yes	214(76.2)	67(23.8)	0.452	0.84(0.53-1.32)	144(51.2)	137(48.8)	0.028	1.53(1.05-2.24)	113(40.2)	168(59.8)	0.036	0.67(0.45-0.97)

#*P* value and §adjusted OR were obtained from Multinomial-logistic regression analysis adjusted for gender, age at diagnosis, body weight, smoking status.

Table S4: Association between candidate SNPs and serum tumor markers in the colorectal cancer patients treated with FOLFOX regimen (n=464)

Variables	XPA rs10817938				XPA rs2808668				XPC rs2607775			
	TT No. (%)	CT/CC No. (%)	P#	Adjusted OR (95%CI) §	CC No. (%)	CT/TT No. (%)	P#	Adjusted OR (95%CI) §	CC No. (%)	CG/GG No. (%)	P#	Adjusted OR (95%CI) §
B-mg												
Normal	140(54.7)	116(45.3)		1.00	60(23.4)	196(76.6)		1.00	68(26.6)	188(73.4)		1.00
Elevated	110(52.9)	98(47.1)	0.648	0.92(0.63-1.33)	52(25.0)	156(75.0)	0.600	1.12(0.73-1.73)	68(32.7)	140(67.3)	0.184	1.32(0.88-1.97)
AFP												
Normal	227(55.1)	185(44.9)		1.00	101(24.5)	311(75.5)		1.00	122(29.6)	290(70.4)		1.00
Elevated	23(44.2)	29(55.8)	0.158	0.66(0.36-1.18)	11(21.2)	41(78.8)	0.609	0.83(0.41-1.69)	14(26.9)	38(73.1)	0.652	0.86(0.45-1.65)
CEA												
Normal	129(57.6)	95(42.4)		1.00	50(22.3)	174(77.7)		1.00	60(26.8)	164(73.2)		1.00
Elevated	121(50.4)	119(49.6)	0.088	0.72(0.50-1.05)	62(25.8)	178(74.2)	0.316	1.25(0.81-1.92)	76(31.7)	164(68.3)	0.273	1.25(0.84-1.88)
CA12-5												
Normal	142(56.3)	110(43.7)		1.00	55(21.8)	197(78.2)		1.00	70(27.8)	182(72.2)		1.00
Elevated	108(50.9)	104(49.1)	0.207	0.79(0.54-1.14)	57(26.9)	155(73.1)	0.176	1.34(0.88-2.07)	66(31.1)	146(68.9)	0.496	1.15(0.77-1.72)
CA15-3												
Normal	150(56.2)	117(43.8)		1.00	58(21.7)	209(78.3)		1.00	72(27.0)	195(73.0)		1.00
Elevated	100(50.8)	97(49.2)	0.227	0.80(0.55-1.15)	54(27.4)	143(72.6)	0.140	1.38(0.90-2.13)	64(32.5)	133(67.5)	0.230	1.28(0.86-1.92)
CA19-9												
Normal	126(56.5)	97(43.5)		1.00	51(22.9)	172(77.1)		1.00	59(26.5)	164(73.5)		1.00
Elevated	124(51.5)	117(48.5)	0.201	0.79(0.54-1.14)	61(25.3)	180(74.7)	0.433	1.19(0.77-1.83)	77(32.0)	164(68.0)	0.222	1.29(0.86-1.93)
Continued Table S4												
Variables	WRN rs1346044				ABCG2 rs2231142				ABCG2 rs2622621			
	CC No. (%)	CA/AA No. (%)	P#	Adjusted OR (95%CI) §	CC No. (%)	CA/AA No. (%)	P#	Adjusted OR (95%CI) §	CC No. (%)	CG/GG No. (%)	P#	Adjusted OR (95%CI) §
B-mg												
Normal	195(76.2)	61(23.8)		1.00	132(51.6)	124(48.4)		1.00	111(43.4)	145(56.6)		1.00
Elevated	163(78.4)	45(21.6)	0.495	1.17(0.75-1.81)	86(41.3)	122(58.7)	0.260	0.66(0.45-0.95)	93(44.7)	115(55.3)	0.688	1.08(0.74-1.57)
AFP												
Normal	319(77.4)	93(22.6)		1.00	195(47.3)	217(52.7)		1.00	188(45.6)	224(54.4)		1.00
Elevated	39(75.0)	13(25.0)	0.764	0.90(0.46-1.77)	23(44.2)	29(55.8)	0.690	0.89(0.50-1.59)	16(30.8)	36(69.2)	0.055	0.54(0.29-1.01)
CEA												
Normal	177(79.0)	47(21.0)		1.00	108(48.2)	116(51.8)		1.00	94(42.0)	130(58.0)		1.00
Elevated	181(75.4)	59(24.6)	0.347	0.81(0.52-1.26)	110(45.8)	130(54.2)	0.580	0.90(0.62-1.30)	110(45.8)	130(54.2)	0.403	1.17(0.81-1.70)
CA12-5												
Normal	201(79.8)	51(20.2)		1.00	126(50.0)	126(50.0)		1.00	108(42.9)	144(57.1)		1.00
Elevated	157(74.1)	55(25.9)	0.166	0.73(0.47-1.14)	92(43.4)	120(56.6)	0.180	0.78(0.54-1.12)	96(45.3)	116(54.7)	0.518	1.13(0.78-1.64)
CA15-3												
Normal	214(80.1)	53(19.9)		1.00	133(49.8)	134(50.2)		1.00	115(43.1)	152(56.9)		1.00
Elevated	144(73.1)	53(26.9)	0.086	0.68(0.44-1.06)	85(43.1)	112(56.9)	0.183	0.78(0.53-1.13)	89(45.2)	108(54.8)	0.556	1.12(0.77-1.63)
CA19-9												
Normal	175(78.5)	48(21.5)		1.00	107(48.0)	116(52.0)		1.00	95(42.6)	128(57.4)		1.00
Elevated	183(75.9)	58(24.1)	0.511	0.86(0.56-1.34)	111(46.1)	130(53.9)	0.624	0.91(0.63-1.32)	109(45.2)	132(54.8)	0.569	1.11(0.77-1.62)

#P value and §adjusted OR were obtained from Multinomial-logistic regression analysis adjusted for gender, age at diagnosis, body weight, smoking status.