

Supplementary Materials: The Cumulative Effect of Gene-Gene and Gene-Environment Interactions on the Risk of Prostate Cancer in Chinese Men

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Table S1. PCR primers of 36 SNPs and annealing temperature for HRM.

SNPs	Primer (5'-3')	Annealing Temperature
rs2710646F	5'-TTTAGGGGGACACAAGCA-3'	59 °C
rs2710646R	5'-GGACAGACAGATATCAAATACACTC-3'	
rs721048F	5'-CCTGAGGATTATCAAGGTCCC-3'	63 °C
rs721048R	5'-GGCTCCTGTTCCACACTG-3'	
rs1465618F	5'-TCTGGTAGAGCTTGGTAAGTCC-3'	59 °C
rs1465618R	5'-ATATTGTGAAGCCTTGGTG-3'	
rs12621278F	5'-TTCCTTGCTGCAGTAGACAGTGTT-3'	59 °C
rs12621278R	5'-CCAAGCAATTCATAACCACTAAGACATC-3'	
rs2660753F	5'-AGGTACAGCAAGGGCAAACAA-3'	63 °C
rs2660753R	5'-GGGTTCCAATTGAGGGTCTAT-3'	
rs10934853F	5'-TTGGCCTGTGTGTTACA-3'	56 °C
rs10934853R	5'-GGCATACGCTTTGTG-3'	
rs17021918F	5'-GCTGCTATTTTTCCTT-3'	50 °C
rs17021918R	5'-TTACTAAGCAGGTGCTC-3'	
rs7679673F	5'-GCCAAGATTATAGGAA-3'	50 °C
rs7679673R	5'-TCATGGGAAAATTCTAC-3'	
rs9364554F	5'-CCACTATGATTAGTCCATCCTTGTC-3'	63 °C
rs9364554R	5'-ACAGCTCAAATGTGTTCACTC-3'	
rs6465657F	5'-TCTGGTACGTATTGGCTTA-3'	50 °C
rs6465657R	5'-CTCAAAGAGGAAGAAGTTAGG-3'	
rs1512268F	5'-CCCAATGCAGATTGAGTTA-3'	56 °C
rs1512268R	5'-GAAGCAAACCCTTTCTGTAGA-3'	
rs12543663F	5'-GCCACCTCAATATGAATA-3'	54 °C
rs12543663R	5'-CCATCAGCTTTTGTAGTTTC-3'	
rs10086908F	5'-GATGAAATGAAACCAGTG-3'	51 °C
rs10086908R	5'-CTTCTATCACCTCAAACCTT-3'	
rs1016343F	5'-CCAAGACCATGTGTTACA-3'	56 °C
rs1016343R	5'-GAACTGTGAAGCTGTGAGT-3'	
rs13252298F	5'-CTTGCTGTCTTCTCAGATA-3'	54 °C
rs13252298R	5'-CACACTTGCCATTTAG-3'	
rs6983561F	5'-AGGAGAATTGCAAACCT-3'	54 °C
rs6983561R	5'-CCTTGATATGCAATTAGC-3'	
rs16901966F	5'-GGAAAACAGATGTCACAA-3'	54 °C
rs16901966R	5'-GAGGAAATGCTGGAAAAT-3'	
rs16902094F	5'-TAGATACAGGCCACCTTT-3'	54 °C
rs16902094R	5'-CCACAATAACCCAAATG-3'	
rs445114F	5'-CAAGCAGTGATCCGTTT-3'	50 °C
rs445114R	5'-GCAAGTAAGTGCTAAAATAAAGGTA-3'	
rs620861F	5'-TTGTAGTTGAATGCCTGTG-3'	50 °C
rs620861R	5'-AGCCCCTAAAATGGTAGATAC-3'	

Table S1. Cont.

SNPs	Primer (5'-3')	Annealing Temperature
rs6983267F	5'-AGAGTTAATACCCTCATCGT-3'	50 °C
rs6983267R	5'-TTCCTTGTACTTTTCTCAGT-3'	
rs1447295F	5'-GCCATTGGGGAGGTATGT-3'	56 °C
rs1447295R	5'-GGGGTTCCTGTTGCTTT-3'	
rs10090154F	5'-CAGCTTTAATGCAATTCT-3'	50 °C
rs10090154R	5'-TCCAATATTGTTTTAGC-3'	
rs7837688F	5'-CCAACATTTCCCACTAGAG-3'	54 °C
rs7837688R	5'-GACGTGTCAACATAGACC-3'	
rs10993994F	5'-CTCAATGTGTTCTCACCTTGTATC-3'	64 °C
rs10993994R	5'-TTTATACTGGAGAGGGCAACC-3'	
rs4962416F	5'-TGGAAGTTTCTGACACCG-3'	59 °C
rs4962416R	5'-AGGAACAGGGAGTGACTCA-3'	
rs7127900F	5'-GGCCATGCGAGGAATGAT-3'	64 °C
rs7127900R	5'-GTGAGGCCTGTCCATGCT-3'	
rs7931342F	5'-ACAGGATCAGGGAAAGTTGC-3'	59 °C
rs7931342R	5'-GCCCATCCTTCCACATTC-3'	
rs4430796F	5'-AGAGAGGCAGCACAGACT-3'	64 °C
rs4430796R	5'-GCCCTGCCCAATTTAAG-3'	
rs1859962F	5'-AGACTTTTCCAAATCCCTG-3'	54 °C
rs1859962R	5'-GCCCATATTAGAAATCTTG-3'	
rs2735839F	5'-CGCCTAGGGATCTGGTT-3'	56 °C
rs2735839R	5'-CCTCCTTCTTGGGATAGC-3'	
rs13385191F	5'-GCTGAGGTCCCTATGTC-3'	56 °C
rs13385191R	5'-CTCCAATCCTTCTTCTCG-3'	
rs12653946F	5'-CCACACAAATGTGCTTATG-3'	56 °C
rs12653946R	5'-CTTGCTTGTGATGAACAGA-3'	
rs1983891F	5'-GGTCCCATTCTCCTCGTA-3'	54 °C
rs1983891R	5'-ACAAGGACCAACAGACAG-3'	
rs339331F	5'-CACTTTGCATGAACTCTC-3'	51 °C
rs339331R	5'-CCTCCTAGTCACTAAAGATAAACCT-3'	
rs9600079F	5'-TTGCACCCACTTACAAT-3'	54 °C
rs9600079R	5'-TTGGTCTCAATTTTACAG-3'	

F: Forward primer; R: Reverse primer; Rs11986220 was genotyped by sequencing.

Table S2. PCR primers of 37 SNPs for sequencing.

SNPs	Primer (5'-3')	Annealing Temperature
rs2710646F	5'-TTTAGGGGGACACAAGCA-3'	59 °C
rs2710646R	5'-GGACAGACAGATATCAAATACACTC-3'	
rs721048F	5'-CCTGAGGATTATCAAGGTCCC-3'	63 °C
rs721048R	5'-GGCTCCTGTTCCCACTG-3'	
rs1465618F	5'-TCTGGTAGAGCTTGGTAAGTCC-3'	59 °C
rs1465618R	5'-ATATTGTGAAGCCTTGGTG-3'	
rs12621278F	5'-TTCCTTGCTGCAGTAGACAGTGT-3'	59 °C
rs12621278R	5'-CCAAGCAATTCATACCACTAAGACATC-3'	
rs2660753F	5'-AGGTACAGCAAGGGCAAACAA-3'	63 °C
rs2660753R	5'-GGGTTCGAATTGAGGGTCTAT-3'	

Table S2. Cont.

SNPs	Primer (5'-3')	Annealing Temperature
rs10934853F	5'-TTGGCCTGTGTGTTACA-3'	56 °C
rs10934853R	5'-GGCATACGCTTTGTG-3'	
rs17021918F	5'-GCTGCTATTTTTCCTT-3'	50 °C
rs17021918R	5'-TACTAAGCAGGTGCTC-3'	
rs7679673F	5'-GCCAAGATTATAGGAA-3'	50 °C
rs7679673R	5'-TCATGGGAAAATTCTAC-3'	
rs9364554F	5'-CCACTATGATTAGTCCATCCTTGTC-3'	63 °C
rs9364554R	5'-ACAGCTCAAATGTGTTCACTC-3'	
rs6465657F	5'-TCTGGTACGTATTGGCTTA-3'	50 °C
rs6465657R	5'-CTCAAAGAGGAAGAAGTTAGG-3'	
rs1512268F	5'-CCCAATGCAGATTGAGTTA-3'	56 °C
rs1512268R	5'-GAAGCAAACCTTTCTGTAGA-3'	
rs12543663F	5'-GCCACCTCAATATGAATA-3'	54 °C
rs12543663R	5'-CCATCAGCTTTTGTAGTTTC-3'	
rs10086908F	5'-GATGAAATGAAACCAGTG-3'	51 °C
rs10086908R	5'-CTTCTATCACCTCAAACCTT-3'	
rs1016343F	5'-CCAAGACCATGTGTTACA-3'	56 °C
rs1016343R	5'-GAACTGTGAAGCTGTGAGT-3'	
rs13252298F	5'-CTTGCTGCTTCTCAGATA-3'	54 °C
rs13252298R	5'-CACACTTGCCATTTAG-3'	
rs6983561F	5'-AGGAGAATTGCAAACCT-3'	54 °C
rs6983561R	5'-CCTTGATATGCAATTAGC-3'	
rs16901966F	5'-GGAAAACAGATGTCACAA-3'	54 °C
rs16901966R	5'-GAGGAAATGCTGGAAAAT-3'	
rs16902094F	5'-TAGATACAGGCCACCTTT-3'	54 °C
rs16902094R	5'-CCACAATAACCCAAATG-3'	
rs445114F	5'-CAAGCAGTGATCCGTTT-3'	50 °C
rs445114R	5'-GCAAGTAAGTGCTAAAATAAAGGTA-3'	
rs620861F	5'-TTGTAGTTGAATGCCTGTG-3'	50 °C
rs620861R	5'-AGCCCCTAAAATGGTAGATAC-3'	
rs6983267F	5'-AGAGTTAATACCCTCATCGT-3'	50 °C
rs6983267R	5'-TTCCTTGTACTTTTCTCAGT-3'	
rs1447295F	5'-GCCATTGGGGAGGTATGT-3'	56 °C
rs1447295R	5'-GGGGTTCCTGTTGCTTT-3'	
rs10090154F	5'-CAGCTTTAATGCAATTCT-3'	50 °C
rs10090154R	5'-TCCAATATTGTTTTAGC-3'	
rs7837688F	5'-CCAACATTTCCCACTAGAG-3'	54 °C
rs7837688R	5'-GACGTGTCAACATAGACC-3'	
rs10993994F	5'-CTCAATGTGTTCTCACCTTGTTATC-3'	64 °C
rs10993994R	5'-TTTATACTGGAGAGGGCAACC-3'	
rs4962416F	5'-TGGAAGTTTCCTGACACCG-3'	59 °C
rs4962416R	5'-AGGAACAGGGAGTGACTCA-3'	
rs7127900F	5'-GGCCATGCGAGGAATGAT-3'	64 °C
rs7127900R	5'-GTGAGGCCCTGTCCATGCT-3'	
rs7931342F	5'-ACAGGATCAGGGAAGTTGC-3'	59 °C
rs7931342R	5'-GCCATCCTTCCACATTC-3'	
rs4430796F	5'-AGAGAGGCAGCACAGACT-3'	64 °C
rs4430796R	5'-GCCCTGCCCAATTTAAG-3'	

Table S2. Cont.

SNPs	Primer (5'-3')	Annealing Temperature
rs1859962F	5'-AGACTTTTCCAAATCCCTG-3'	54 °C
rs1859962R	5'-GCCCCATTATTAGAAATCTTG-3'	
rs2735839F	5'-CGCCTAGGGATCTGGTT-3'	56 °C
rs2735839R	5'-CCTCCTTCTTGGGATAGC-3'	
rs13385191F	5'-GCTGAGGTCCCTATGTC-3'	56 °C
rs13385191R	5'-CTCCAATCCTTCTTCTCG-3'	
rs12653946F	5'-CCACACAAATGTGCTTATG-3'	56 °C
rs12653946R	5'-CTTGCTTGTGATGAACAGA-3'	
rs1983891F	5'-GGTCCCATTCTCCTCGTA-3'	54 °C
rs1983891R	5'-ACAAGGACCAACAGACAG-3'	
rs339331F	5'-CACTTTGCATGAACTCTC-3'	51 °C
rs339331R	5'-CCTCCTAGTCACTAAAGATAAACCT-3'	
rs9600079F	5'-TTGCACCCACTTACAAT-3'	54 °C
rs9600079R	5'-TTGGTCTCAATTTTACAG-3'	
rs11986220F	5'-ACCATGTTTAACTAACCCAC-3'	57 °C
rs11986220R	5'-CTTATAGCTTACGACCTTACTG-3'	

F: Forward primer; R: Reverse primer.

Table S3. Distribution of the risk alleles and genotypes (n/fre) of 36 SNPs in PCa cases and control subjects, and the test result for HWE.

SNPs ID	Our Study										Hapmap
	Alleles	Allele1 (n/RAF)			Genotype (n/freq)						RAF
	(1/2)	Case	Control	HWE	Case			Control			
		1	1	(p)	11	12	22	11	12	22	
rs721048	A/G	20 (0.038)	12 (0.024)	0.697	2 (0.008)	16 (0.061)	244 (0.931)	0 (0.000)	12 (0.048)	237 (0.952)	0.020
rs2710646	A/C	24 (0.042)	20 (0.035)	0.000	3 (0.010)	18 (0.062)	268 (0.927)	3 (0.010)	14 (0.049)	269 (0.941)	0.020
rs1465618	A/G	391 (0.694)	350 (0.646)	0.505	138 (0.496)	110 (0.396)	30 (0.108)	118 (0.445)	114 (0.430)	33 (0.125)	0.670
rs12621278	A/G	406 (0.720)	411 (0.719)	0.920	148 (0.525)	110 (0.390)	24 (0.085)	148 (0.517)	115 (0.402)	23 (0.080)	0.760
rs13385191	G/A	272 (0.472)	255 (0.444)	0.384	68 (0.236)	136 (0.472)	84 (0.292)	53 (0.185)	149 (0.519)	85 (0.296)	0.430
rs2660753	A/G	186 (0.338)	171 (0.330)	0.828	34 (0.124)	118 (0.429)	123 (0.447)	29 (0.112)	113 (0.436)	117 (0.452)	0.360
rs10934853	A/C	243 (0.423)	247 (0.432)	0.937	54 (0.188)	135 (0.470)	98 (0.341)	53 (0.185)	141 (0.493)	92 (0.322)	0.420
rs17021918	C/T	373 (0.650)	379 (0.667)	0.138	119 (0.415)	135 (0.470)	33 (0.115)	132 (0.465)	115 (0.405)	37 (0.130)	0.680
rs7679673	C/A	124 (0.225)	117 (0.210)	0.413	19 (0.069)	86 (0.313)	170 (0.618)	10 (0.036)	97 (0.348)	172 (0.616)	0.160
rs12653946	T/C	249 (0.431)	229 (0.398)	0.386	58 (0.201)	133 (0.460)	98 (0.339)	42 (0.146)	145 (0.503)	101 (0.351)	0.330
rs9364554	T/C	178 (0.327)	181 (0.342)	0.180	31 (0.114)	116 (0.426)	125 (0.460)	26 (0.098)	129 (0.487)	110 (0.415)	0.360
rs1983891	T/C	205 (0.355)	180 (0.314)	0.626	36 (0.125)	133 (0.460)	120 (0.415)	30 (0.105)	120 (0.418)	137 (0.477)	0.410
rs339331	T/C	399 (0.690)	351 (0.620)	0.643	141 (0.488)	117 (0.405)	31 (0.107)	107 (0.378)	137 (0.484)	39 (0.138)	0.690
rs6465657	C/T	506 (0.878)	490 (0.863)	0.410	221 (0.767)	64 (0.222)	3 (0.010)	213 (0.750)	64 (0.225)	7 (0.025)	0.910
rs1512268	A/G	196 (0.340)	179 (0.312)	0.177	28 (0.097)	140 (0.486)	120 (0.417)	23 (0.080)	133 (0.463)	131 (0.456)	0.340
rs12543663	C/A	58 (0.101)	48 (0.084)	0.127	6 (0.021)	46 (0.160)	235 (0.819)	4 (0.014)	40 (0.140)	242 (0.846)	0.110
rs10086908	T/C	412 (0.786)	347 (0.803)	0.558	171 (0.653)	70 (0.267)	21 (0.080)	138 (0.639)	71 (0.329)	7 (0.032)	0.790
rs1016343	T/C	246 (0.429)	218 (0.384)	0.967	63 (0.220)	120 (0.418)	104 (0.362)	42 (0.148)	134 (0.472)	108 (0.380)	0.400
rs13252298	G/A	159 (0.285)	153 (0.287)	0.783	27 (0.097)	105 (0.376)	147 (0.527)	21 (0.079)	111 (0.416)	135 (0.506)	0.330
rs6983561	C/A	167 (0.300)	144 (0.254)	0.680	29 (0.104)	109 (0.392)	140 (0.504)	17 (0.060)	110 (0.389)	156 (0.551)	0.290

Table S3. Cont.

SNPs ID	Our Study										Hapmap
	Alleles	Allele1 (n/RAF)			Genotype (n/freq)						RAF
	(1/2)	Case	Control	HWE	Case			Control			
	1	1	(p)	11	12	22	11	12	22		
rs16901966	G/A	171 (0.299)	139 (0.244)	0.205	27 (0.094)	117 (0.409)	142 (0.497)	13 (0.046)	113 (0.396)	159 (0.558)	0.290
rs16902094	G/A	160 (0.288)	152 (0.265)	0.970	22 (0.079)	116 (0.417)	140 (0.504)	20 (0.070)	112 (0.390)	155 (0.540)	0.310
rs445114	T/C	311 (0.546)	309 (0.542)	0.675	87 (0.305)	137 (0.481)	61 (0.214)	82 (0.288)	145 (0.509)	58 (0.204)	0.510
rs620861	C/T	320 (0.559)	309 (0.562)	0.769	92 (0.322)	136 (0.476)	58 (0.203)	88 (0.320)	133 (0.484)	54 (0.196)	0.600
rs6983267	G/T	261 (0.463)	239 (0.424)	0.930	56 (0.199)	149 (0.528)	77 (0.273)	51 (0.181)	137 (0.486)	94 (0.333)	0.390
rs1447295	A/C	124 (0.224)	94 (0.164)	0.111	8 (0.029)	108 (0.390)	161 (0.581)	4 (0.014)	86 (0.300)	197 (0.686)	0.110
rs11986220	A/T	118 (0.211)	81 (0.145)	0.370	5 (0.018)	108 (0.387)	166 (0.595)	4 (0.014)	73 (0.261)	203 (0.725)	0.100
rs10090154	T/C	116 (0.208)	81 (0.145)	0.370	5 (0.018)	106 (0.380)	168 (0.602)	4 (0.014)	73 (0.261)	203 (0.725)	0.100
rs7837688	T/C	113 (0.203)	92 (0.163)	0.126	5 (0.018)	103 (0.369)	171 (0.613)	4 (0.014)	84 (0.298)	194 (0.688)	0.100
rs10993994	T/C	280 (0.522)	218 (0.491)	0.350	75 (0.280)	130 (0.485)	63 (0.235)	57 (0.257)	104 (0.468)	61 (0.275)	0.410
rs7127900	G/A	464 (0.847)	352 (0.900)	0.403	195 (0.712)	74 (0.270)	5 (0.018)	159 (0.815)	33 (0.169)	3 (0.015)	0.870
rs7931342	G/T	149 (0.260)	162 (0.283)	0.084	27 (0.094)	95 (0.332)	164 (0.573)	17 (0.059)	128 (0.448)	141 (0.493)	0.230
rs9600079	T/G	268 (0.464)	251 (0.436)	0.302	68 (0.235)	132 (0.457)	89 (0.308)	89 (0.308)	133 (0.462)	96 (0.333)	0.500
rs4430796	A/G	298 (0.764)	227 (0.709)	0.178	119 (0.610)	60 (0.308)	16 (0.082)	77 (0.481)	73 (0.456)	10 (0.062)	0.710
rs1859962	G/T	242 (0.453)	217 (0.409)	0.384	54 (0.202)	134 (0.502)	79 (0.296)	41 (0.155)	135 (0.509)	89 (0.336)	0.490
rs2735839	G/A	330 (0.579)	340 (0.607)	0.191	102 (0.358)	126 (0.442)	57 (0.200)	98 (0.350)	144 (0.514)	38 (0.136)	0.640

The risk alleles determined in our study are in bold. 1 and 2 represent the risk and non-risk alleles, respectively. 11, 12 and 22 represent the allele corresponding genotypes. SNP: single nucleotide polymorphism; RAF: risk allele frequency; HWE: Hardy-Weinberg equilibrium.

