

Supplementary Table S1 The basic information of the cases and controls

Factors	Cases (%) (N=347)	Controls (%) (N=353)	<i>p</i>
Gender			<i>p</i> =0.105
Male	203 (58.5)	185 (52.4)	
Female	144 (41.5)	168 (47.6)	
Age			<i>p</i> =0.062
Mean±Std.	61.4±11.0	59.6±14.4	
Median	61	61	
Range	24-91	28-90	
Smoking			<i>p</i> =0.815
Yes	110 (31.7)	109 (30.9)	
No	237 (68.3)	244 (69.1)	
Drinking			<i>p</i> =0.102
Yes	46 (13.3)	33 (9.3)	
No	301 (86.7)	320 (90.7)	

Supplementary Table S2 Association between the epidemiological risk factors of patients with LRC and the selected p53 SNPs

Factors	Genotype	Cases vs Controls (N=347 vs 353)	<i>p</i>	OR (95% CI)
p53 rs1042522				
Gender				
Male	GG	59/65		1 (Ref)
	CG	102/90	0.357	1.240(0.784-1.962)
	CC	42/30	0.21	1.462(0.808-2.645)
	CC+CG vs GG		0.242	1.295(0.840-1.996)
	CC vs CG+GG		0.364	1.274(0.755-2.152)
Female	GG	42/51		1 (Ref)
	CG	76/86	0.797	1.070(0.641-1.785)
	CC	59/65	0.936	1.028(0.529-1.997)
	CC+CG vs GG		0.804	1.064(0.653-1.733)
	CC vs CG+GG		0.994	0.980(0.550-1.745)
Smoking				

Yes	GG		1 (Ref)
	CG	0.996	0.999(0.551-1.810)
	CC	0.032	2.639(1.086-6.412)
	CC+CG vs GG	0.458	1.240(0.703-2.187)
	CC vs CG+GG	0.022	2.561(1.146-5.721)
	No	GG	
No	CG	0.245	1.284(0.843-1.957)
	CC	0.977	1.008(0.596-1.704)
	CC+CG vs GG	0.368	1.200(0.807-1.786)
	CC vs CG+GG	0.483	0.850(0.541-1.337)
	Drinking		
Yes	GG		1 (Ref)
	CG	0.54	0.701(0.225-2.181)
	CC	0.219	3.081(0.513-18.516)
	CC+CG vs GG	0.974	0.983(0.345-2.798)
	CC vs CG+GG	0.14	3.744(0.649-21.609)
No	GG		1 (Ref)

		CG	0.341	1.193(0.829-1.717)
		CC	0.469	1.187(0.746-1.888)
		CC+CG vs GG	0.305	1.198(0.849-1.690)
		CC vs CG+GG	0.778	1.060(0.708-1.585)
Age				
	≥60	GG		1 (Ref)
		CG	0.974	0.984(0.618-1.569)
		CC	0.506	0.822(0.461-1.466)
		CC+CG vs GG	0.76	0.933(0.600-1.451)
		CC vs CG+GG	0.449	0.824(0.500-1.360)
	<60	GG		1 (Ref)
		CG	0.213	1.376(0.833-1.274)
		CC	0.016	2.344(1.176-4.672)
		CC+CG vs GG	0.067	1.563(0.969-2.519)
		CC vs CG+GG	0.044	1.877(1.017-3.465)
P 53 rs12947788				
Gender				

Male	GG	90/100		1 (Ref)
	GA	90/72	0.151	1.366(0.892-2.091)
	AA	23/13	0.088	1.915(0.909-4.033)
	AA+GA VS.GG		0.072	1.451(0.968-2.175)
	AA VS.GA+GG		0.165	1.661(0.811-3.403)
	Female	GG	52/72	
	GA	77/77	0.174	1.393(0.864-2.248)
	AA	15/19	0.831	1.087(0.505-2.339)
	AA+GA VS.GG		0.215	1.336(0.845-2.113)
	AA VS.GA+GG		0.783	0.904(0.441-1.854)
Smoking				
Yes	GG			1 (Ref)
	GA		0.4	1.275(0.725-2.244)
	AA		0.139	2.553(0.737-8.842)
	AA+GA VS.GG		0.231	1.393(0.810-2.394)
	AA VS.GA+GG		0.174	2.328(0.689-7.868)
No	GG			1 (Ref)

		GA	0.088	1.401(0.951-2.064)
		AA	0.405	1.289(0.709-2.342)
		AA+GA VS.GG	0.087	1.381(0.954-1.998)
		AA VS.GA+GG	0.808	1.071(0.613-1.872)
Drinking				
	Yes	GG		1 (Ref)
		GA	0.018	3.867(1.267-11.808)
		AA	0.744	1.380(0.199-9.592)
		AA+GA VS.GG	0.025	3.235(1.158-9.040)
		AA VS.GA+GG	0.781	0.765(0.116-5.042)
	No	GG		1 (Ref)
		GA	0.252	1.217(0.870-1.703)
		AA	0.184	1.449(0.839-2.504)
		AA+GA VS.GG	0.152	1.263(0.912-1.740)
		AA VS.GA+GG	0.34	1.286(0.767-2.156)
Age				
	≥60	GG		1 (Ref)

		GA		0.561	1.134(0.742-1.733)
		AA		0.387	1.375(0.668-2.831)
		AA+GA VS.GG		0.431	1.177(0.784-1.769)
		AA VS.GA+GG		0.469	1.289(0.648-2.565)
	<60	GG			1 (Ref)
		GA		0.017	1.786(1.109-2.876)
		AA		0.22	1.614(0.751-3.469)
		AA+GA VS.GG		0.015	1.749(1.113-2.748)
		AA VS.GA+GG		0.654	1.180(0.572-2.432)
p53 rs1625895					
Gender					
	Male	GG	180/163		1 (Ref)
		GA	23/22	0.783	0.915(0.487-1.720)
	Female	GG	133/153		1 (Ref)
		GA	11/15	0.712	0.857(0.379-1.939)
Smoking					
	Yes	GG			1 (Ref)

		GA		0.576	1.280(0.539-3.040)
	No	GG			
		GA		0.401	0.769(0.417-1.419)
Drinking					
	Yes	GG			1 (Ref)
		GA		0.88	0.877(0.161-4.784)
	No	GG			1 (Ref)
		GA		0.697	0.902(0.535-1.519)
Age					
	≥60	GG			1 (Ref)
		GA		0.814	0.928(0.499-1.726)
	<60	GG			1 (Ref)
		GA		0.703	0.852(0.373-1.944)
p53 rs2909430					
Gender					
	Male	AA	176/163		1 (Ref)
		GA	27/22	0.742	1.108(0.602-2.038)

	Female	AA	131/154		1 (Ref)
		GA	13/14	0.802	1.107(0.501-2.444)
Smoking					
	Yes	AA			1 (Ref)
		GA		0.248	1.632(0.711-3.750)
	No	AA			1 (Ref)
		GA		0.842	0.941(0.518-1.709)
Drinking					
	Yes	AA			1 (Ref)
		GA		0.733	1.317(0.271-6.409)
	No	AA			1 (Ref)
		GA		0.766	1.080(0.649-1.798)
Age					
	≥60	AA			1 (Ref)
		GA		0.965	1.014(0.545-1.887)
	<60	AA			1 (Ref)
		GA		0.512	1.288(0.604-2.746)

p53 rs12951053

Gender

Male	AA	102/99		1 (Ref)
	CA	80/78	0.927	0.980(0.643-1.495)
	CC	21/8	0.044	2.442(1.024-5.826)
	CA+CC VS.AA		0.854	1.119(0.747-1.676)
	CC VS.CA+AA		0.036	2.473(1.061-5.765)
Female	AA	68/74		1 (Ref)
	CA	63/76	0.682	0.906(0.565-1.452)
	CC	13/18	0.535	0.779(0.355-1.713)
	CA+CC VS.AA		0.597	0.886(0.566-1.388)
	CC VS.CA+AA		0.604	0.819(0.386-1.739)

Smoking

Yes	AA			1 (Ref)
	CA		0.996	1.001(0.570-1.760)
	CC		0.079	4.222(0.848-21.030)
	CA+CC VS.AA		0.617	1.149(0.667-1.980)

	CC VS.CA+AA	0.076	4.184(0.860-20.364)
No	AA		1 (Ref)
	CA	0.626	0.910(0.621-1.332)
	CC	0.796	1.085(0.583-2.022)
	CA+CC VS.AA	0.746	0.942(0.655-1.354)
	CC VS.CA+AA	0.675	1.135(0.628-2.049)
Drinking			
Yes	AA	NA	NA
	CA	0.11	2.337(0.825-6.618)
	CC	NA	NA
	CA+CC VS.AA	0.06	2.686(0.960-7.511)
	CC VS.CA+AA		
No	AA	NA	NA
	CA	0.282	0.833(0.597-1.162)
	CC	NA	NA
	CA+CC VS.AA	0.49	0.894(0.652-1.228)
	CC VS.CA+AA		

Age				
≥60	AA			1 (Ref)
	CA	0.425		0.843(0.554-1.282)
	CC	0.273		1.546(0.709-3.372)
	CA+CC VS.AA	0.722		0.930(0.621-1.391)
	CC VS.CA+AA	0.178		1.676(0.791-3.548)
<60	AA			1 (Ref)
	CA	0.641		1.119(0.698-1.793)
	CC	0.711		1.165(0.519-2.614)
	CA+CC VS.AA	0.602		1.126(0.721-1.757)
	CC VS.CA+AA	0.814		1.098(0.503-2.397)

Supplementary Table S3 Relationship between genotypes of the selected p53 SNPs and prognosis. MST is the abbreviation for median survival time.

SNPs	All GC (N=304)	Death (N=44)	MST (M)	Univariate		Multivariate	
				<i>P-value</i>	Hazard ratio (95% CI)	<i>P-value</i>	Hazard ratio (95% CI)
p53 rs1042522							
GG	88	11	39.07		1 (Ref)		
CG	158	24	39.119	0.595	1.213 (0.594-2.478)	0.882	1.092 (0.510-2.338)
CC	58	9	38.33	0.681	1.203 (0.498-2.905)	0.679	1.237 (0.452-3.385)
CC+CG VS.GG				0.574	1.216 (0.615-2.407)	0.790	1.103 (0.536-2.272)
CC VS.CG+GG				0.871	1.063 (0.511-2.211)	0.822	1.098 (0.487-2.474)
p53 rs12947788							
GG	120	14	39.713		1 (Ref)		
GA	148	25	38.418	0.220	1.506 (0.783-2.898)	0.585	1.220 (0.598-2.487)
AA	36	5	37.934	0.636	1.280 (0.461-3.554)	0.274	2.224 (0.531-9.306)
AA+GA VS.GG				0.245	1.457 (0.772-2.747)	0.775	1.106 (0.553-2.215)
AA VS.GA+GG				0.983	1.010 (0.398-2.564)	0.593	0.749 (0.260-2.161)
p53 rs1625895							
GG	279	37	39.770		1 (Ref)		
GA	25	7	35.074	0.108	1.942 (0.865-4.357)	0.353	1.511 (0.633-3.610)
p53 rs2909430							
AA	274	37	39.663		1 (Ref)		
GA	30	7	36.547	0.285	1.554 (0.692-3.487)	0.793	1.121 (0.477-2.634)
p53 rs12951053							
AA	144	18	39.498		1 (Ref)		
CA	127	21	38.286	0.209	1.499 (0.798-2.815)	0.102	1.779 (0.891-3.551)

CC	33	5	37.453	0.559	1.344 (0.499-3.623)	0.288	1.973 (0.563-6.911)
CA+CC VS.AA				0.221	1.456 (0.798-2.656)	0.150	1.623 (0.839-3.139)
CC VS.CA+AA				0.820	1.114 (0.439-2.827)	1	1 (0.345-2.902)

Supplementary Table S4 Subgroup analyses of the associations of five SNPs with the prognosis of LRC based on clinical characteristics.

Variables	Genotype (death/All)			HT vs. WT		MT vs. WT		Dominant model		Recessive model	
	Wild type	Hetero zygous type	Mutant type	<i>P</i>	HR	<i>P</i>	HR	<i>P</i>	HR	<i>P</i>	HR
p53 rs1042522											
Gender											
Male	6/52	17/89	6/37	0.313	1.703(0.605-4.796)	0.169	2.732(0.653-11.431)	0.267	1.782(0.642-4.945)	0.977	0.985(0.360-2.694)
Female	5/36	7/69	3/21	0.862	0.875(0.195-3.931)	0.504	0.447(0.042-4.471)	0.801	0.836(0.207-3.372)	0.967	1.036(0.200-5.374)
Age											
≥60	5/50	13/87	6/29	0.987	1.010(0.296-3.450)	0.206	2.656(0.584-12.076)	0.792	1.159(0.387-3.475)	0.176	2.086(0.720-6.044)
<60	6/38	11/71	3/29	0.746	1.198(0.401-3.577)	0.313	0.366(0.052-2.580)	0.821	1.133(0.383-3.356)	0.336	0.478(0.106-2.149)
Smoking											
Yes	3/32	7/44	2/18	0.654	1.415(0.310-6.468)	0.365	3.169(0.262-38.392)	0.498	1.633(0.395-6.755)	0.976	1.025(0.205-5.132)
No	8/56	17/114	7/40	0.953	0.973(0.386-2.453)	0.916	1.073(0.289-3.984)	0.920	0.956(0.393-2.322)	0.925	1.049(0.392-2.805)
Drinking											
Yes	1/14	2/21	1/8	0.983	1.055 (0.07-153.821)	0.992	3.136 (NA)	1	1 (0.115-0.718)	1	1 (0.080-12.492)
No	10/74	22/137	8/58	0.916	1.044 (0.467-2.337)	0.890	1.079 (0.366-3.182)	0.956	1.022 (0.476-2.190)	0.990	0.995 (0.414-2.388)
Lymphatic metastasis											
Positive	8/32	20/58	8/20	0.365	1.519(0.614-3.759)	0.306	1.869(0.564-6.193)	0.366	1.481(0.632-3.474)	0.526	1.349(0.534-3.410)
Negative	3/55	4/100	1/38	0.492	0.573(0.117-2.806)	0.446	0.382(0.032-4.542)	0.384	0.513(0.114-2.303)	0.484	0.463(0.054-3.998)
TNM stage											
III-IV	8/36	20/64	8/22	0.440	1.422 (0.582-3.474)	0.291	1.928 (0.570-6.527)	0.386	1.454 (0.624-3.390)	0.478	1.397 (0.555-3.516)

I - II	3/51	4/94	1/36	0.848	0.846 (0.152-4.703)	0.331	0.285 (0.023-3.574)	0.574	0.646 (0.140-2.973)	0.501	0.478 (0.056-4.103)
Depth of invasion											
T3+T4	10/59	22/113	8/45	0.797	1.111 (0.499-2.472)	0.663	1.284 (0.416-3.966)	0.773	1.119(0.522-2.399)	0.917	1.047(0.439-1.496)
T1+T2	1/29	2/45	1/13	0.935	0.446 (0-NA)	0.877	4.438 (0-663237845)	0.846	NA	0.842	NA
Growth mode											
Invasion	10/50	19/91	6/28	0.669	0.832(0.358-1.934)	0.996	1.003(0.299-3.368)	0.644	0.829(0.374-1.837)	0.813	1.130(0.411-3.106)
Nest	1/38	5/67	3/30	0.225	7.223(0.297-175.909)	0.954	4.767(0.228-99.462)	0.117	6.605(0.624-69.880)	0.253	2.753(0.486-15.604)
p53 rs12947788											
Gender											
Male	11/76	15/79	3/23	0.844	1.093(0.452-2.640)	0.342	2.290(0.414-12.661)	0.947	0.972(0.416-2.268)	0.595	0.709(0.200-2.515)
Female	3/44	10/69	2/13	0.191	2.891(0.588-14.219)	0.902	NA	0.269	2.427(0.504-11.682)	0.554	0.525(0.062-4.436)
Age											
≥60	8/66	13/80	3/20	0.798	0.877(0.320-2.401)	0.098	4.908(0.744-32.399)	0.817	0.894(0.346-2.310)	0.731	1.257(0.341-4.638)
<60	6/54	12/68	2/16	0.504	1.446(0.441-4.258)	0.751	0.638(0.040-10.201)	0.697	1.236(0.425-3.589)	0.397	0.413(0.053-3.196)
Smoking											
Yes	2/46	10/39	0/9	0.049	4.897(1.007-23.801)	0.958	2.775(0-7.433E+16)	0.095	3.843(0.791-18.677)	0.986	NA
No	12/74	15/109	5/27	0.708	0.842(0.343-2.069)	0.613	1.462(0.336-6.363)	0.575	0.786(0.340-1.820)	0.864	0.908(0.301-2.742)
Drinking											
Yes	1/16	2/24	1/3	0.876	0.801(0.049-13.115)	0.982	7.306 (0-8.921E+75)	1	1(0.128-7.810)	1	1(0.022-44.490)
No	13/103	23/124	4/33	0.740	1.137(0.533-2.428)	0.512	1.702(0.347-8.343)	0.984	1.008(0.480-2.114)	0.414	0.604(0.180-2.023)
Lymphatic metastasis											
Positive	11/42	20/55	5/13	0.523	1.308(0.574-2.985)	0.077	4.981(0.841-29.516)	0.559	1.269(0.570-2.823)	0.807	1.147(0.382-3.442)

Negative	3/77	5/93	0/23	0.989	0.988(0.196-4.989)	0.982	NA	0.713	0.739(0.147-3.708)	0.986	NA
TNM stage											
III-IV	11/49	20/59	5/14	0.536	1.294(0.572-2.929)	0.051	5.865 (0.994-34.608)	0.555	1.269(0.575-2.802)	0.786	1.164(0.387-3.501)
I - II	3/70	5/89	0/22	0.887	0.886(0.169-4.638)	0.968	0 (0-4.753E-226)	0.644	0.680(0.133-3.479)	0.972	0(0-3.482E-283)
Depth of invasion											
T3+T4	13/85	22/104	5/28	0.913	1.042(0.497-2.187)	0.274	2.224(0.531-9.306)	0.939	0.972(0.476-1.987)	0.727	0.825(0.281-2.423)
T1+T2	1/35	3/44	0/8	0.861	NA	NA		0.914	NA	0.954	0(0-1.584E+132)
Growth mode											
Invasion	10/71	20/78	5/20	0.061	2.468(0.958-6.357)	0.095	3.531(0.802-15.557)	0.135	1.938(0.813-4.616)	0.623	1.311(0.445-3.856)
Nest	4/49	5/70	0/16	0.047	0.204(0.042-0.980)	1	1(0.090-11.065)	0.029	0.172(0.035-0.836)	0.786	0.001(0-1.051E+19)
p53 rs1625895											
Gender											
Male	23/161		6/17	0.161	2.022(0.355-5.411)						
Female	14/118		1/8	0.513	0.495(0.060-4.073)						
Age											
≥60	19/151		5/15	0.470	1.498(0.501-4.481)						
<60	18/128		2/10	0.707	1.382(0.256-7.460)						
Smoking											
Yes	10/86		2/8	0.127	3.769(0.684-20.762)						
No	27/193		5/17	0.964	1.025(0.353-2.974)						
Drinking											
Yes	4/39		0/4	1	1(0.022-44.498)						
No	33/240		7/21	0.446	1.420(0.576-3.502)						

Lymphatic metastasis				
Positive	30/99	6/11	0.511	1.400(0.513-3.819)
Negative	7/179	1/14	0.642	1.662(0.196-14.115)
TNM stage				
III-IV	30/110	6/12	0.544	1.357(0.506-3.640)
I - II	7/168	1/13	0.589	1.816(0.209-15.788)
Depth of invasion				
T3+T4	34/197	6/20	0.499	1.378(0.543-3.496)
T1+T2	3/82	1/5	0.544	NA
Growth mode				
Invasion	32/154	3/15	0.491	0.642(0.182-2.267)
Nest	5/125	4/10	0.007	26.189(2.399-285.91)
p53 rs2909430				
Gender				
Male	23/157	6/21	0.535	1.348(0.525-3.457)
Female	14/117	1/9	0.504	0.488(0.059-4.010)
Age				
≥60	19/150	5/16	0.628	1.306(0.443-3.846)
<60	18/124	2/14	0.635	0.681(0.139-3.333)
Smoking				
Yes	10/83	2/11	0.372	2.135(0.403-11.293)
No	27/191	5/19	0.701	0.815(0.287-2.316)

Drinking											
Yes	4/37		0/6	1	1(0.045-22.119)						
No	33/237		7/24	0.819	1.108(0.460-2.673)						
Lymphatic metastasis											
Positive	30/97		6/13	0.903	1.062(0.402-2.803)						
Negative	7/176		1/17	0.762	1.390(0.164-11.748)						
TNM stage											
III-IV	30/108		6/14	0.909	1.058(0.405-2.759)						
I - II	7/165		1/16	0.677	1.585(0.182-13.837)						
Depth of invasion											
T3+T4	34/192		6/25	0.981	1.011(0.407-2.515)						
T1+T2	3/82		1/5	0.544	NA						
Growth mode											
Invasion	32/153		3/16	0.394	0.580(0.166-2.028)						
Nest	5/121		4/14	0.020	7.284(1.361-38.996)						
p53 rs12951053											
Gender											
Male	13/87	13/70	3/21	0.216	1.696(0.735-3.915)	0.171	3.151(0.610-16.282)	0.235	1.633(0.727-3.670)	0.990	0.992(0.281-3.508)
Female	5/57	8/57	2/12	0.047	4.170(1.017-17.106)	0.807	1.358(0.117-15.800)	0.129	2.838(0.737-10.924)	0.571	0.539(0.064-4.572)
Age											
≥60	10/76	11/71	3/19	0.795	1.137(0.430-3.008)	0.137	3.543(0.669-18.775)	0.755	1.154(0.470-2.832)	0.670	1.326(0.363-4.840)
<60	8/68	10/56	2/14	0.023	3.561(1.192-10.638)	0.859	1.228(0.129-11.724)	0.059	2.684(0.965-7.468)	0.614	0.586(0.073-4.682)

Smoking												
Yes	4/52	8/34	0/8	0.029	4.940(1.178-20.718)	0.845	0.000291(1.2226E-39 -6.911E+31)	0.067	3.811(0.909-15.973)	0.987	NA	
No	14/92	13/93	5/25	0.408	1.436(0.609-3.386)	0.236	2.311(0.579-9.229)	0.414	1.400(0.625-3.138)	0.658	1.288(0.420-3.952)	
Drinking												
Yes	1/19	2/21	1/3	0.876	0.801(0.049-13.124)	0.984	7.384(0-4.036E+87)	1	1(0.131-7.613)	1	1(0.022-44.490)	
No	17/125	19/106	4/30	0.105	1.817(0.882-3.744)	0.458	1.682(0.427-6.626)	0.169	1.629(0.813-3.263)	0.799	0.854(0.252-2.892)	
Lymphatic metastasis												
Positive	14/53	17/45	5/12	0.043	2.367(1.028-5.453)	0.055	4.464(0.966-20.623)	0.042	2.252(1.030-4.920)	0.340	1.753(0.553-5.555)	
Negative	4/90	4/82	0/21	0.903	1.095(0.257-4.662)	0.797	NA	0.785	0.820(0.197-3.409)	0.987	NA	
TNM stage												
III-IV	14/60	17/49	5/13	0.064	2.156(0.956-4.863)	0.043	4.895(1.053-22.756)	0.053	2.126(0.989-4.568)	0.332	1.772(0.557-5.635)	
I - II	4/83	4/78	0/20	0.790	1.220(0.282-5.281)	0.954	0(0-1.026E+146)	0.939	0.946(0.226-3.963)	0.974	0(0-6.401E+303)	
Depth of invasion												
T3+T4	16/105	19/87	5/25	0.135	1.733(0.843-3.563)	0.159	2.598(0.689-9.799)	0.172	1.611(0.812-3.194)	0.820	1.133(0.385-3.332)	
T1+T2	2/39	2/40	0/8	0.832	NA	0.996	0.229(0-2.878E+274)	0.842	NA	0.954	0(0-1.584E+132)	
Growth mode												
Invasion	14/89	16/62	5/18	0.012	3.007(1.271-7.115)	0.049	3.668(1.001-13.442)	0.013	2.765(1.238-6.175)	0.236	1.932(0.649-5.749)	
Nest	4/55	5/65	0/15	0.987	0.987(0.213-4.566)	0.909	0(0-4.303E+55)	0.711	0.751(0.165-3.422)	0.786	0.001(0-5.464E+18)	