

Supplementary Table 1. Primers sequence of PCR and UEP used in this study

SNP	First Primer(5'-3')	Second Primer (5'-3')	UEP SEQ (5'-3')
rs4712523	ACGTTGGATGCACCCCACTGCTGTAAATCT	ACGTTGGATGAGAGCCTGATAAGATGTTGC	CTTTACATTTGGGTATAAAGGAT
rs4712524	ACGTTGGATGGTCCATAACTGTCATGTCAC	ACGTTGGATGGACTCTAAGGGATTTACTGTC	cGCACAATTTCTGGATCTTAATCA
rs10946398	ACGTTGGATGAACGATGACTTGATGCAATG	ACGTTGGATGGGTTGAACTGGTTTTTCCTC	cTGATGCAATGACAGCA
rs7754840	ACGTTGGATGTAACAGAGACATCACTGTCC	ACGTTGGATGATCAACTGCTTGCTGTTGGG	gCAAAATCCTCTATCAAGTCAAC
rs7756992	ACGTTGGATGGACAATTAATATCCCCCCTG	ACGTTGGATGTCATGCAACCAAGAGAGGTC	TTCCCCCCTGTATTTTAGTTTT
rs35612982	ACGTTGGATGGTCTTCCTTAAACATCAGCC	ACGTTGGATGGAACCCTGGGTCAATTAAAC	CTGAGACTGGATAATTTATGG
rs10440833	ACGTTGGATGTGCCAGTAGATCTACCTTGC	ACGTTGGATGCTGCTTCTTTCTCTAGATCC	ggAGATCTACCTTGCAAGAAATT
rs6931514	ACGTTGGATGCAGCTTTTTTCTAGGGAAGG	ACGTTGGATGCTCCAAAAAACTTACAGCCC	cAAATATGACATAAATAGTAAAAACATG

SNP: Single nucleotide polymorphism; UEP: Unextended mini sequencing primer

Supplementary Table 2. Relationships between *CDKAL1* polymorphisms and T2D risk

SNP ID	Model	Genotype	Case	Control	Adjusted by age and gender	
					OR (95%CI)	<i>p</i>
rs7756992	Genotype	GG	160	133	1.00	
		GA	239	246	0.81 (0.60-1.08)	0.1498
		AA	110	120	0.76 (0.54-1.08)	0.1261
	Dominant	GG	160	133	1.00	
		GA-AA	349	366	0.79 (0.60-1.04)	0.0958
	Recessive	GG-GA	399	379	1.00	
		AA	110	120	0.87 (0.65-1.17)	0.3629
	Log-additive	---	---	---	0.87 (0.73-1.03)	0.1126
rs6931514	Genotype	GG	160	132	1.00	
		GA	238	250	0.79 (0.59-1.05)	0.1037
		AA	112	121	0.76 (0.54-1.08)	0.1287
	Dominant	GG	160	132	1.00	
		GA-AA	350	371	0.78 (0.59-1.02)	0.0726
	Recessive	GG-GA	398	382	1.00	
		AA	112	121	0.89 (0.66-1.19)	0.4366
	Log-additive	---	---	---	0.87 (0.73-1.03)	0.1117

SNP, single nucleotide polymorphism; T2D, type 2 diabetes; OR, odds ratio; 95% CI, 95% confidence interval.

p values were calculated by logistic regression analysis with adjustments for age and gender.

Bold indicate that $p < 0.05$ indicates statistical significance.

Supplementary Table 3. Relationships between *CDKALI* polymorphism and T2D risk according to the stratification by gender and age

SNP ID	Model	Male		Female		> 59 years		≤ 59 years	
		OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>
rs4712523	Allele	1.47 (1.16-1.86)	0.0015	1.38 (1.06-1.80)	0.0152	1.26 (0.99-1.60)	0.0652	1.64 (1.27-2.12)	1.32×10⁻⁴
	Homozygote	2.10 (1.31-3.35)	0.0020	1.90 (1.11-3.23)	0.0187	1.66 (0.99-2.77)	0.0532	2.23 (1.31-3.77)	0.0030
	Heterozygote	1.36 (0.92-2.01)	0.1188	1.45 (0.94-2.23)	0.0949	0.99 (0.66-1.49)	0.9619	2.08 (1.33-3.26)	0.0014
	Dominant	1.57 (1.09-2.25)	0.0155	1.57 (1.04-2.36)	0.0317	1.15 (0.78-1.69)	0.4758	2.13 (1.40-3.24)	0.0004
	Recessive	1.74 (1.16-2.61)	0.0074	1.50 (0.95-2.36)	0.0816	1.67 (1.07-2.61)	0.0252	1.41 (0.90-2.19)	0.1310
	Additive	1.44 (1.14-1.82)	0.0021	1.38 (1.06-1.80)	0.0167	1.25 (0.97-1.61)	0.0819	1.52 (1.17-1.97)	0.0020
rs4712524	Allele	1.42 (1.12-1.80)	0.0037	1.36 (1.04-1.76)	0.0237	1.17 (0.92-1.49)	0.2071	1.68 (1.30-2.17)	6.72×10⁻⁵
	Homozygote	1.93 (1.21-3.08)	0.0057	1.81 (1.06-3.08)	0.0288	1.39 (0.84-2.29)	0.2054	2.37 (1.39-4.04)	0.0015
	Heterozygote	1.46 (0.99-2.16)	0.0592	1.42 (0.92-2.20)	0.1179	0.98 (0.65-1.48)	0.9278	2.16 (1.38-3.39)	0.0008
	Dominant	1.60 (1.11-2.30)	0.0117	1.53 (1.01-2.31)	0.0443	1.09 (0.74-1.61)	0.6566	2.23 (1.46-3.40)	0.0002
	Recessive	1.54 (1.03-2.30)	0.0354	1.45 (0.92-2.28)	0.1079	1.40 (0.91-2.17)	0.1302	1.47 (0.94-2.29)	0.0936
	Additive	1.39 (1.11-1.76)	0.0050	1.35 (1.04-1.76)	0.0263	1.16 (0.90-1.49)	0.2482	1.57 (1.20-2.04)	0.0009
rs10946398	Allele	1.48 (1.17-1.88)	0.0012	1.40 (1.08-1.82)	0.0122	1.26 (0.99-1.61)	0.0639	1.67 (1.30-2.16)	7.50×10⁻⁵
	Homozygote	2.14 (1.34-3.44)	0.0016	1.96 (1.15-3.35)	0.0141	1.68 (1.01-2.82)	0.0469	2.36 (1.38-4.02)	0.0016
	Heterozygote	1.39 (0.94-2.04)	0.0978	1.40 (0.91-2.15)	0.1310	0.98 (0.65-1.47)	0.9116	2.07 (1.33-3.24)	0.0014
	Dominant	1.59 (1.11-2.29)	0.0122	1.54 (1.02-2.32)	0.0386	1.14 (0.78-1.68)	0.4933	2.16 (1.42-3.29)	0.0003
	Recessive	1.76 (1.17-2.65)	0.0069	1.59 (1.00-2.51)	0.0496	1.71 (1.09-2.68)	0.0198	1.49 (0.95-2.34)	0.0818
	Additive	1.46 (1.15-1.84)	0.0016	1.40 (1.07-1.83)	0.0134	1.26 (0.98-1.62)	0.0767	1.56 (1.20-2.04)	0.0010
rs7754840	Allele	1.47 (1.16-1.86)	0.0015	1.41 (1.08-1.83)	0.0103	1.26 (0.99-1.60)	0.0651	1.67 (1.30-2.16)	7.50×10⁻⁵
	Homozygote	2.12 (1.32-3.39)	0.0019	1.99 (1.16-3.39)	0.0122	1.68 (1.00-2.80)	0.0487	2.36 (1.38-4.02)	0.0016
	Heterozygote	1.36 (0.92-2.00)	0.1209	1.41 (0.92-2.18)	0.1156	0.96 (0.64-1.45)	0.8572	2.07 (1.33-3.24)	0.0014
	Dominant	1.56 (1.09-2.24)	0.0159	1.56 (1.04-2.35)	0.0326	1.13 (0.77-1.66)	0.5285	2.16 (1.42-3.29)	0.0003

	Recessive	1.76 (1.17-2.65)	0.0069	1.59 (1.01-2.53)	0.0469	1.71 (1.09-2.69)	0.0191	1.49 (0.95-2.34)	0.0818
	Additive	1.45 (1.14-1.83)	0.0020	1.41 (1.08-1.84)	0.0114	1.25 (0.97-1.61)	0.082	1.56 (1.20-2.04)	0.0010
rs35612982	Allele	1.33 (1.05-1.69)	0.0188	1.38 (1.06-1.79)	0.0167	1.19 (0.94-1.52)	0.1548	1.54 (1.20-1.99)	0.0008
	Homozygote	1.73 (1.08-2.77)	0.0226	1.89 (1.11-3.22)	0.0198	1.50 (0.89-2.51)	0.1252	1.94 (1.14-3.29)	0.0140
	Heterozygote	1.28 (0.88-1.88)	0.1992	1.29 (0.85-1.97)	0.2356	0.95 (0.64-1.42)	0.8169	1.73 (1.12-2.67)	0.0132
	Dominant	1.41 (0.98-2.01)	0.0606	1.44 (0.97-2.14)	0.0716	1.08 (0.74-1.58)	0.6812	1.79 (1.19-2.69)	0.0049
	Recessive	1.49 (0.99-2.26)	0.0574	1.62 (1.01-2.59)	0.0444	1.54 (0.97-2.43)	0.0647	1.39 (0.88-2.20)	0.1551
	Additive	1.31 (1.04-1.66)	0.0222	1.36 (1.05-1.77)	0.0207	1.18 (0.92-1.52)	0.1939	1.42 (1.09-1.85)	0.0087
rs10440833	Allele	1.29 (1.02-1.63)	0.0359	1.39 (1.07-1.81)	0.0141	1.15 (0.90-1.46)	0.2739	1.57 (1.22-2.02)	0.0005
	Homozygote	1.65 (1.03-2.64)	0.0393	1.95 (1.14-3.33)	0.0151	1.38 (0.82-2.32)	0.2195	2.07 (1.22-3.53)	0.0074
	Heterozygote	1.26 (0.86-1.84)	0.2460	1.27 (0.83-1.94)	0.2655	0.90 (0.60-1.35)	0.6106	1.79 (1.16-2.76)	0.0090
	Dominant	1.36 (0.95-1.95)	0.0926	1.44 (0.96-2.14)	0.0753	1.01 (0.69-1.48)	0.9415	1.87 (1.24-2.81)	0.0028
	Recessive	1.44 (0.95-2.17)	0.0865	1.68 (1.05-2.70)	0.0306	1.47 (0.93-2.33)	0.0963	1.45 (0.92-2.30)	0.1107
	Additive	1.28 (1.01-1.62)	0.0390	1.38 (1.06-1.80)	0.0170	1.14 (0.88-1.46)	0.3278	1.47 (1.13-1.91)	0.0044
rs7756992	Allele	0.88 (0.69-1.11)	0.2797	0.84 (0.65-1.09)	0.1921	0.90 (0.71-1.15)	0.3877	0.82 (0.64-1.06)	0.1318
	Homozygote	0.78 (0.49-1.24)	0.2891	0.73 (0.43-1.23)	0.2331	0.84 (0.51-1.38)	0.4975	0.76 (0.44-1.29)	0.3098
	Heterozygote	0.88 (0.59-1.30)	0.5114	0.72 (0.47-1.12)	0.1430	0.80 (0.52-1.23)	0.3069	0.94 (0.61-1.45)	0.7724
	Dominant	0.84 (0.59-1.22)	0.3628	0.72 (0.48-1.09)	0.1230	0.82 (0.55-1.21)	0.3137	0.88 (0.58-1.33)	0.5432
	Recessive	0.84 (0.57-1.26)	0.3998	0.90 (0.58-1.39)	0.6248	0.97 (0.64-1.47)	0.8849	0.79 (0.50-1.25)	0.3129
	Additive	0.88 (0.70-1.11)	0.2860	0.85 (0.65-1.10)	0.2062	0.91 (0.71-1.17)	0.4765	0.88 (0.67-1.14)	0.3288
rs6931514	Allele	0.88 (0.69-1.11)	0.2759	0.84 (0.65-1.09)	0.1924	0.91 (0.71-1.15)	0.4214	0.82 (0.63-1.05)	0.1155
	Homozygote	0.78 (0.49-1.24)	0.2956	0.73 (0.44-1.23)	0.2352	0.85 (0.52-1.40)	0.5297	0.75 (0.44-1.28)	0.2949
	Heterozygote	0.83 (0.56-1.23)	0.3627	0.72 (0.47-1.12)	0.1425	0.79 (0.51-1.20)	0.2674	0.92 (0.59-1.42)	0.6921
	Dominant	0.82 (0.57-1.18)	0.2774	0.72 (0.48-1.09)	0.1235	0.81 (0.54-1.20)	0.2957	0.86 (0.57-1.30)	0.4863
	Recessive	0.87 (0.59-1.30)	0.5031	0.90 (0.58-1.39)	0.6326	0.99 (0.66-1.50)	0.9804	0.79 (0.50-1.26)	0.3253
	Additive	0.88 (0.70-1.11)	0.2806	0.85 (0.65-1.10)	0.2100	0.92 (0.72-1.18)	0.5088	0.87 (0.67-1.14)	0.3074

SNP, single nucleotide polymorphism; T2D, type 2 diabetes; OR, odds ratio; 95% CI, 95% confidence interval.

p values were calculated by logistic regression analysis with adjustments for age and gender.

Bold indicate that $p < 0.05$ indicates statistical significance.

Supplementary Table 4. Relationships between *CDKAL1* polymorphisms and T2D risk according to the stratification by BMI, smoking and drinking

SNP ID	Model	BMI				Status of smoking				Status of drinking			
		BMI > 24 kg/m ²		BMI ≤ 24kg/m ²		Non-smoking		Smoking		Non-drinking		Drinking	
		OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>
rs4712523	Allele	1.34 (1.01-1.80)	0.0452	1.33 (0.96-1.84)	0.0818	1.43 (1.09-1.88)	0.0103	1.32 (0.92-1.87)	0.1276	1.4 (1.07-1.82)	0.0135	1.29 (0.84-1.99)	0.2491
	Homozygote	2.17 (1.06-4.41)	0.0335	1.29 (0.61-2.72)	0.5028	2.12 (1.16-3.90)	0.0151	1.11 (0.43-2.87)	0.8362	1.81 (1.00-3.27)	0.0498	1.49 (0.54-4.07)	0.4424
	Heterozygote	1.08 (0.59-1.98)	0.8049	1.14 (0.63-2.05)	0.6691	1.42 (0.87-2.31)	0.1651	0.80 (0.37-1.76)	0.5851	1.31 (0.81-2.11)	0.2769	0.88 (0.38-2.03)	0.7650
	Dominant	1.38 (0.79-2.41)	0.2645	1.18 (0.67-2.06)	0.5715	1.60 (1.01-2.54)	0.0462	0.88 (0.42-1.85)	0.7446	1.44 (0.91-2.27)	0.1160	1.04 (0.48-2.25)	0.9246
	Recessive	2.07 (1.12-3.81)	0.0198	1.18 (0.63-2.23)	0.6013	1.71 (1.01-2.89)	0.0455	1.27 (0.56-2.87)	0.5654	1.52 (0.92-2.53)	0.1029	1.60 (0.66-3.87)	0.2973
	Additive	1.45 (1.02-2.06)	0.0399	1.14 (0.79-1.64)	0.4991	1.45 (1.08-1.96)	0.0148	1.03 (0.64-1.65)	0.8995	1.34 (1.00-1.8)	0.0498	1.18 (0.71-1.95)	0.5155
rs4712524	Allele	1.33 (0.99-1.77)	0.0582	1.30 (0.94-1.79)	0.1173	1.39 (1.06-1.84)	0.0184	1.37 (0.96-1.95)	0.083	1.39 (1.06-1.82)	0.016	1.30 (0.84-2.02)	0.2335
	Homozygote	2.11 (1.03-4.31)	0.0408	1.24 (0.59-2.58)	0.5727	1.97 (1.08-3.60)	0.0268	1.23 (0.47-3.21)	0.6768	1.73 (0.96-3.10)	0.0682	1.58 (0.57-4.38)	0.3824
	Heterozygote	1.05 (0.57-1.93)	0.8755	1.32 (0.73-2.37)	0.3576	1.51 (0.92-2.47)	0.1052	0.84 (0.39-1.82)	0.6591	1.41 (0.87-2.29)	0.1617	0.86 (0.37-1.98)	0.7227
	Dominant	1.34 (0.76-2.36)	0.3096	1.29 (0.74-2.26)	0.365	1.64 (1.03-2.61)	0.0375	0.94 (0.45-1.95)	0.8632	1.50 (0.95-2.37)	0.0800	1.04 (0.48-2.24)	0.9305
	Recessive	2.05 (1.11-3.77)	0.0215	1.03 (0.55-1.93)	0.9259	1.53 (0.91-2.56)	0.1079	1.37 (0.60-3.13)	0.4567	1.38 (0.84-2.28)	0.2034	1.72 (0.70-4.23)	0.2348
	Additive	1.43 (1.00-2.04)	0.0476	1.13 (0.78-1.63)	0.5188	1.41 (1.05-1.91)	0.0240	1.08 (0.67-1.73)	0.7495	1.32 (0.98-1.77)	0.0633	1.21 (0.73-2.01)	0.4676
rs10946398	Allele	1.36 (1.02-1.82)	0.0374	1.33 (0.97-1.84)	0.0806	1.45 (1.10-1.91)	0.0080	1.37 (0.96-1.95)	0.0803	1.41 (1.08-1.84)	0.0112	1.34 (0.87-2.07)	0.1843
	Homozygote	2.24 (1.09-4.62)	0.0281	1.39 (0.66-2.94)	0.3838	2.13 (1.16-3.92)	0.0145	1.35 (0.51-3.60)	0.547	1.88 (1.04-3.43)	0.0378	1.69 (0.61-4.68)	0.3108
	Heterozygote	1.03 (0.56-1.88)	0.9314	1.25 (0.70-2.24)	0.4555	1.45 (0.89-2.36)	0.1403	0.81 (0.38-1.77)	0.6036	1.32 (0.82-2.13)	0.2556	0.92 (0.40-2.10)	0.8365
	Dominant	1.34 (0.76-2.35)	0.3081	1.29 (0.74-2.24)	0.3768	1.63 (1.03-2.58)	0.0391	0.94 (0.45-1.95)	0.8632	1.47 (0.93-2.31)	0.0991	1.11 (0.51-2.39)	0.7965
	Recessive	2.21 (1.19-4.10)	0.0122	1.21 (0.63-2.29)	0.5708	1.69 (1.00-2.86)	0.0491	1.54 (0.66-3.60)	0.3218	1.57 (0.94-2.63)	0.0826	1.78 (0.73-4.37)	0.2078
	Additive	1.47 (1.03-2.09)	0.0353	1.19 (0.82-1.72)	0.3621	1.46 (1.08-1.97)	0.0138	1.12 (0.69-1.81)	0.6483	1.37 (1.02-1.84)	0.0380	1.25 (0.76-2.08)	0.3825
rs7754840	Allele	1.36 (1.02-1.82)	0.0374	1.33 (0.96-1.83)	0.0858	1.46 (1.11-1.93)	0.0065	1.35 (0.95-1.93)	0.0956	1.43 (1.09-1.86)	0.0091	1.30 (0.84-2.01)	0.2327
	Homozygote	2.23 (1.09-4.56)	0.0288	1.39 (0.66-2.94)	0.3838	2.17 (1.18-3.98)	0.0122	1.27 (0.48-3.37)	0.6316	1.92 (1.06-3.48)	0.0326	1.59 (0.58-4.36)	0.3686

	Heterozygote	0.99 (0.54-1.81)	0.9808	1.25 (0.70-2.24)	0.4555	1.47 (0.90-2.39)	0.1230	0.73 (0.34-1.59)	0.4335	1.34 (0.83-2.16)	0.2295	0.82 (0.36-1.86)	0.6318
	Dominant	1.31 (0.75-2.29)	0.3439	1.29 (0.74-2.24)	0.3768	1.65 (1.04-2.62)	0.0323	0.86 (0.41-1.78)	0.6792	1.49 (0.95-2.34)	0.0848	1.01 (0.47-2.15)	0.9872
	Recessive	2.23 (1.20-4.15)	0.0109	1.21 (0.63-2.29)	0.5708	1.71 (1.01-2.89)	0.0455	1.54 (0.66-3.60)	0.3218	1.59 (0.95-2.65)	0.0772	1.78 (0.73-4.37)	0.2078
	Additive	1.45 (1.02-2.07)	0.0379	1.19 (0.82-1.72)	0.3621	1.47 (1.09-1.99)	0.0115	1.07 (0.67-1.73)	0.7682	1.38 (1.03-1.85)	0.0324	1.20 (0.73-1.98)	0.4775
rs7756992	Allele	0.78 (0.58-1.04)	0.0926	0.85 (0.62-1.18)	0.3257	1.31 (1.00-1.73)	0.0512	0.93 (0.65-1.32)	0.6767	1.29 (0.99-1.68)	0.0605	0.96 (0.62-1.48)	0.8442
	Homozygote	0.69 (0.34-1.39)	0.302	0.57 (0.28-1.16)	0.1185	1.89 (1.05-3.41)	0.0343	0.94 (0.37-2.42)	0.9034	1.67 (0.94-2.97)	0.0824	0.69 (0.26-1.85)	0.4653
	Heterozygote	0.63 (0.34-1.17)	0.1449	0.80 (0.44-1.45)	0.462	1.56 (0.92-2.64)	0.1006	0.55 (0.25-1.21)	0.1353	1.29 (0.77-2.16)	0.3378	0.63 (0.27-1.48)	0.2893
	Dominant	0.65 (0.37-1.16)	0.1443	0.72 (0.41-1.27)	0.2552	1.67 (1.02-2.75)	0.0421	0.65 (0.31-1.36)	0.2568	1.42 (0.87-2.30)	0.1593	0.65 (0.29-1.44)	0.2915
	Recessive	0.92 (0.51-1.65)	0.7677	0.65 (0.36-1.19)	0.1651	1.40 (0.88-2.24)	0.1593	1.36 (0.61-3.04)	0.449	1.40 (0.89-2.22)	0.1471	0.93 (0.41-2.11)	0.8539
	Additive	0.83 (0.58-1.17)	0.284	0.75 (0.53-1.08)	0.1232	1.37 (1.02-1.84)	0.0375	0.94 (0.59-1.48)	0.7768	1.29 (0.97-1.72)	0.0816	0.83 (0.50-1.35)	0.4491
rs35612982	Allele	1.30 (0.97-1.74)	0.0738	1.27 (0.91-1.75)	0.1547	1.44 (1.09-1.90)	0.0095	1.21 (0.85-1.73)	0.2826	1.35 (1.03-1.76)	0.0285	1.30 (0.84-2.01)	0.2327
	Homozygote	1.91 (0.93-3.91)	0.0779	1.4 (0.68-2.88)	0.3652	1.96 (1.07-3.58)	0.0285	1.17 (0.45-3.03)	0.7469	1.6 (0.89-2.85)	0.1137	1.96 (0.69-5.53)	0.2038
	Heterozygote	0.89 (0.50-1.60)	0.7048	1.27 (0.71-2.24)	0.4204	1.48 (0.92-2.38)	0.1050	0.58 (0.27-1.26)	0.1700	1.25 (0.78-1.99)	0.3532	0.83 (0.37-1.87)	0.6502
	Dominant	1.15 (0.67-1.96)	0.6197	1.3 (0.76-2.23)	0.3416	1.61 (1.03-2.51)	0.0365	0.72 (0.35-1.48)	0.3742	1.35 (0.87-2.08)	0.1842	1.06 (0.5-2.26)	0.8724
	Recessive	2.03 (1.07-3.85)	0.03	1.21 (0.64-2.26)	0.5623	1.55 (0.91-2.65)	0.1057	1.61 (0.7-3.7)	0.2633	1.4 (0.84-2.33)	0.1966	2.18 (0.86-5.54)	0.1025
	Additive	1.31 (0.93-1.86)	0.1244	1.19 (0.83-1.71)	0.3391	1.41 (1.05-1.9)	0.0230	1.01 (0.64-1.61)	0.9542	1.26 (0.95-1.68)	0.1111	1.3 (0.78-2.15)	0.3172
rs10440833	Allele	1.30 (0.97-1.74)	0.0744	1.24 (0.89-1.71)	0.2006	1.42 (1.08-1.87)	0.0124	1.18 (0.82-1.67)	0.3712	1.36 (1.04-1.77)	0.0248	1.26 (0.82-1.95)	0.2896
	Homozygote	1.96 (0.96-4.00)	0.066	1.45 (0.70-2.99)	0.322	1.98 (1.09-3.61)	0.026	1.22 (0.47-3.18)	0.679	1.64 (0.92-2.92)	0.0950	1.99 (0.70-5.66)	0.1956
	Heterozygote	0.93 (0.52-1.67)	0.81	1.33 (0.75-2.35)	0.3338	1.51 (0.94-2.42)	0.0911	0.63 (0.29-1.37)	0.246	1.30 (0.81-2.07)	0.2722	0.86 (0.38-1.94)	0.7128
	Dominant	1.19 (0.70-2.04)	0.5239	1.36 (0.79-2.34)	0.2707	1.63 (1.05-2.55)	0.0309	0.77 (0.38-1.59)	0.4853	1.39 (0.90-2.16)	0.1356	1.09 (0.51-2.32)	0.8276
	Recessive	2.04 (1.07-3.86)	0.0294	1.21 (0.64-2.26)	0.5623	1.56 (0.91-2.65)	0.1046	1.61 (0.70-3.70)	0.2633	1.40 (0.84-2.33)	0.1940	2.18 (0.86-5.54)	0.1025
	Additive	1.34 (0.94-1.89)	0.1036	1.22 (0.85-1.75)	0.2905	1.42 (1.06-1.91)	0.0204	1.05 (0.66-1.66)	0.8527	1.28 (0.96-1.71)	0.0888	1.31 (0.79-2.19)	0.2958
rs6931514	Allele	0.77 (0.58-1.03)	0.0795	0.87 (0.63-1.20)	0.3857	1.32 (1.00-1.73)	0.0488	0.96 (0.67-1.37)	0.8179	1.28 (0.98-1.67)	0.0681	0.95 (0.62-1.46)	0.8101
	Homozygote	0.73 (0.36-1.45)	0.3616	0.59 (0.29-1.21)	0.15	1.87 (1.04-3.36)	0.0357	1.10 (0.43-2.79)	0.8395	1.60 (0.90-2.83)	0.1069	0.75 (0.29-1.98)	0.5650

Heterozygote	0.60 (0.32-1.12)	0.1077	0.85 (0.47-1.53)	0.5838	1.50 (0.89-2.54)	0.1282	0.60 (0.27-1.31)	0.2013	1.27 (0.76-2.13)	0.3565	0.60 (0.25-1.42)	0.2427
Dominant	0.65 (0.37-1.14)	0.1331	0.76 (0.44-1.33)	0.3408	1.63 (1.00-2.67)	0.0514	0.73 (0.35-1.52)	0.4052	1.39 (0.86-2.25)	0.183	0.65 (0.29-1.44)	0.2915
Recessive	0.99 (0.55-1.76)	0.9619	0.66 (0.36-1.20)	0.1742	1.43 (0.89-2.28)	0.1385	1.50 (0.67-3.33)	0.3233	1.36 (0.86-2.14)	0.1866	1.03 (0.46-2.32)	0.9410
Additive	0.85 (0.60-1.20)	0.3456	0.77 (0.54-1.11)	0.1601	1.36 (1.02-1.83)	0.0380	1.01 (0.64-1.59)	0.9634	1.26 (0.95-1.68)	0.1068	0.86 (0.53-1.40)	0.5499

SNP, single nucleotide polymorphism; T2D, type 2 diabetes; OR, odds ratio; 95% CI, 95% confidence interval.

p values were calculated by logistic regression analysis with adjustments for age, gender, BMI, smoking and/or drinking.

Bold indicate that $p < 0.05$ indicates statistical significance.

Supplementary Table 5. Relationships of *CDKALI* polymorphisms with diabetes duration and retinopathy

SNP ID	Model	Diabetes duration (> 9 years vs ≤ 9 years)		T2D with retinopathy (Yes vs No)	
		OR (95%CI)	<i>p</i>	OR (95%CI)	<i>p</i>
rs4712523	Allele	1.08 (0.79-1.46)	0.6295	1.13 (0.83-1.54)	0.4236
	Homozygote	0.94 (0.50-1.78)	0.8599	1.68 (0.87-3.24)	0.1250
	Heterozygote	0.76 (0.44-1.31)	0.3171	0.87 (0.50-1.52)	0.6330
	Dominant	0.81 (0.49-1.37)	0.4377	1.07 (0.64-1.81)	0.7959
	Recessive	1.14 (0.68-1.90)	0.6172	1.84 (1.07-3.16)	0.0281
	Additive	0.97 (0.71-1.34)	0.8685	1.29 (0.93-1.78)	0.130
rs4712524	Allele	1.08 (0.79-1.46)	0.6294	1.11 (0.81-1.51)	0.5187
	Homozygote	0.96 (0.51-1.80)	0.8937	1.56 (0.81-3.02)	0.1861
	Heterozygote	0.75 (0.43-1.30)	0.3014	0.87 (0.50-1.51)	0.6231
	Dominant	0.81 (0.48-1.37)	0.4331	1.04 (0.62-1.77)	0.8714
	Recessive	1.16 (0.70-1.95)	0.5651	1.72 (1.00-2.95)	0.0501
	Additive	0.98 (0.71-1.35)	0.9005	1.24 (0.90-1.72)	0.1903
rs10946398	Allele	0.95 (0.70-1.29)	0.7314	1.14 (0.84-1.55)	0.4137
	Homozygote	1.09 (0.58-2.05)	0.7902	1.66 (0.86-3.22)	0.1335
	Heterozygote	0.79 (0.46-1.36)	0.3949	0.88 (0.51-1.53)	0.6555
	Dominant	0.88 (0.53-1.47)	0.6172	1.07 (0.64-1.81)	0.7959
	Recessive	1.28 (0.76-2.15)	0.3612	1.81 (1.05-3.12)	0.0332
	Additive	1.04 (0.76-1.43)	0.8048	1.28 (0.92-1.77)	0.1414
rs7754840	Allele	0.96 (0.71-1.30)	0.7843	1.15 (0.85-1.57)	0.3658
	Homozygote	1.12 (0.60-2.10)	0.7271	1.71 (0.89-3.32)	0.1096
	Heterozygote	0.82 (0.48-1.41)	0.4766	0.92 (0.53-1.60)	0.7792
	Dominant	0.91 (0.55-1.52)	0.7146	1.12 (0.66-1.88)	0.6731

	Recessive	1.28 (0.76-2.15)	0.3612	1.81 (1.05-3.12)	0.0332
	Additive	1.06 (0.77-1.45)	0.7426	1.30 (0.94-1.80)	0.1171
rs7756992	Allele	1.07 (0.78-1.45)	0.6821	0.94 (0.69-1.28)	0.7024
	Homozygote	0.92 (0.49-1.75)	0.8015	0.79 (0.41-1.52)	0.4705
	Heterozygote	1.16 (0.69-1.94)	0.5710	0.61 (0.36-1.04)	0.0668
	Dominant	1.08 (0.67-1.76)	0.7455	0.66 (0.40-1.08)	0.0974
	Recessive	0.84 (0.48-1.47)	0.5430	1.07 (0.60-1.88)	0.8282
	Additive	0.98 (0.71-1.34)	0.8927	0.85 (0.62-1.18)	0.3330
rs35612982	Allele	0.88 (0.65-1.19)	0.3916	1.15 (0.84-1.56)	0.3851
	Homozygote	0.92 (0.50-1.72)	0.8015	1.65 (0.87-3.13)	0.1257
	Heterozygote	0.89 (0.52-1.50)	0.6515	1.11 (0.65-1.88)	0.7068
	Dominant	0.90 (0.55-1.47)	0.6689	1.26 (0.76-2.07)	0.3705
	Recessive	1.00 (0.59-1.69)	0.9854	1.55 (0.90-2.67)	0.1170
	Additive	0.96 (0.70-1.30)	0.7795	1.27 (0.93-1.75)	0.1369
rs10440833	Allele	0.88 (0.65-1.19)	0.4019	1.12 (0.82-1.52)	0.4874
	Homozygote	0.93 (0.50-1.74)	0.8291	1.58 (0.83-3.02)	0.1619
	Heterozygote	0.90 (0.53-1.53)	0.7059	1.04 (0.61-1.77)	0.8926
	Dominant	0.91 (0.56-1.50)	0.7187	1.18 (0.72-1.96)	0.5092
	Recessive	1.00 (0.59-1.69)	0.9854	1.55 (0.90-2.67)	0.1170
	Additive	0.96 (0.71-1.32)	0.8125	1.25 (0.90-1.71)	0.1786
rs6931514	Allele	1.04 (0.77-1.42)	0.7940	0.91 (0.67-1.25)	0.5716
	Homozygote	0.86 (0.45-1.62)	0.6382	0.72 (0.37-1.37)	0.3150
	Heterozygote	1.19 (0.71-1.99)	0.5180	0.63 (0.37-1.06)	0.0794
	Dominant	1.08 (0.66-1.74)	0.7704	0.65 (0.40-1.07)	0.0891
	Recessive	0.77 (0.45-1.35)	0.3649	0.96 (0.55-1.68)	0.8827
	Additive	0.95 (0.69-1.30)	0.7425	0.82 (0.60-1.13)	0.2317

SNP, single nucleotide polymorphism; T2D, type 2 diabetes; OR, odds ratio; 95% CI, 95% confidence interval.

p values were calculated by logistic regression analysis with adjustments for age, gender, BMI, smoking and/or drinking.

Bold indicate that $p < 0.05$ indicates statistical significance.

Supplementary Table 6. Comparisons of clinical characteristics among T2D patients with different genotypes of selected SNPs

Characteristics	rs4712523				rs4712524			
	AA	GA	GG	p	AA	GA	GG	p
Fasting blood glucose	10.03 (3.62)	9.79 (4.83)	10.2 (5.39)	0.810	10.03 (3.62)	9.88 (5.00)	10.03 (5.08)	0.960
Glycated hemoglobin	9.57 (2.44)	9.25 (2.15)	9.11 (3.05)	0.476	9.57 (2.46)	9.28 (2.17)	9.03 (3.02)	0.407
Total cholesterol	4.43 (1.36)	4.57 (1.19)	4.57 (1.49)	0.637	4.43 (1.36)	4.61 (1.26)	4.51 (1.37)	0.557
Triglyceride	2.49 (2.28)	2.48 (2.15)	2.53 (2.46)	0.987	2.42 (2.23)	2.55 (2.29)	2.40 (2.22)	0.873
LDL-C	2.60 (0.92)	2.69 (1.05)	2.51 (1.13)	0.346	2.60 (0.92)	2.72 (1.11)	2.46 (1.01)	0.119
HDL-C	1.24 (0.69)	1.15 (0.43)	1.24 (0.67)	0.375	1.24 (0.69)	1.18 (0.60)	1.18 (0.40)	0.689
Urea	6.72 (4.59)	6.29 (2.70)	5.75 (2.24)	0.084	6.77 (4.62)	6.25 (2.72)	5.82 (2.21)	0.097
Creatinine	68.47 (20.60)	68.27 (32.87)	70.63 (30.39)	0.783	68.97 (20.48)	68.47 (32.74)	70.31 (30.65)	0.871
Cystatin C	1.35 (4.21)	0.82 (0.22)	0.88 (0.75)	0.201	1.36 (4.24)	0.82 (0.21)	0.87 (0.75)	0.194
ALBP	31.25 (56.92)	30.66 (58.58)	17.82 (24.72)	0.224	31.63 (57.28)	30.89 (58.75)	17.56 (24.60)	0.196
GFR	117.53 (38.26)	122.43 (33.72)	127.68 (36.95)	0.216	116.57 (37.62)	121.92 (33.21)	128.63 (37.65)	0.114
CRP	1.26 (0.85)	1.51 (2.06)	1.26 (0.98)	0.407	1.26 (0.85)	1.50 (2.04)	1.28 (1.00)	0.463
INS	16.82 (13.32)	20.97 (23.68)	16.81 (10.86)	0.172	16.93 (13.38)	20.94 (23.60)	16.80 (10.92)	0.186
25QWD	24.48 (9.01)	25.44 (20.37)	23.45 (7.12)	0.729	24.48 (9.09)	25.44 (20.30)	23.43 (7.01)	0.727
UCRP	0.54 (1.21)	0.65 (1.54)	0.33 (0.54)	0.212	0.54 (1.22)	0.65 (1.54)	0.33 (0.54)	0.206
RBP	39.12 (10.46)	38.64 (11.89)	38.56 (10.65)	0.952	39.25 (10.50)	38.92 (11.93)	38.06 (10.52)	0.832

Characteristics	rs10946398				rs7754840			
	AA	CA	CC	p	CC	CG	GG	p
Fasting blood glucose	10.03 (3.62)	9.87 (4.98)	10.04 (5.12)	0.954	10.04 (5.12)	9.89 (4.99)	9.99 (3.61)	0.969
Glycated hemoglobin	9.57 (2.44)	9.27 (2.17)	9.05 (3.04)	0.424	9.05 (3.04)	9.27 (2.17)	9.57 (2.43)	0.420
Total cholesterol	4.43 (1.36)	4.60 (1.26)	4.52 (1.38)	0.553	4.52 (1.38)	4.61 (1.26)	4.42 (1.36)	0.486
Triglyceride	2.49 (2.28)	2.54 (2.28)	2.41 (2.23)	0.914	2.41 (2.23)	2.55 (2.29)	2.48 (2.26)	0.907

LDL-C	2.60 (0.92)	2.72 (1.11)	2.46 (1.01)	0.121	2.46 (1.01)	2.73 (1.11)	2.59 (0.92)	0.108
HDL-C	1.24 (0.69)	1.18 (0.60)	1.18 (0.40)	0.692	1.18 (0.40)	1.19 (0.60)	1.24 (0.69)	0.693
Urea	6.72 (4.59)	6.25 (2.71)	5.81 (2.22)	0.118	5.81 (2.22)	6.26 (2.72)	6.70 (4.57)	0.129
Creatinine	68.47 (20.60)	68.30 (32.73)	70.62 (30.63)	0.792	70.62 (30.63)	68.24 (32.81)	68.57 (20.52)	0.789
Cystatin C	1.35 (4.21)	0.82 (0.22)	0.88 (0.76)	0.201	0.88 (0.76)	0.82 (0.22)	1.35 (4.19)	0.206
ALBP	31.25 (56.92)	30.66 (58.58)	17.82 (24.72)	0.224	17.82 (24.72)	30.86 (58.77)	30.86 (56.57)	0.225
GFR	117.53 (38.26)	122.48 (33.73)	127.71 (37.01)	0.219	127.71 (37.01)	122.69 (33.77)	117.22 (38.09)	0.197
CRP	1.26 (0.85)	1.51 (2.04)	1.25 (0.98)	0.374	1.25 (0.98)	1.51 (2.05)	1.26 (0.84)	0.374
INS	16.82 (13.32)	21.03 (23.54)	16.58 (10.82)	0.146	16.58 (10.82)	21.13 (23.59)	16.69 (13.27)	0.127
25QWD	24.48 (9.01)	25.40 (20.21)	23.46 (7.07)	0.743	23.46 (7.07)	25.40 (20.21)	24.48 (9.01)	0.743
UCRP	0.54 (1.21)	0.65 (1.54)	0.33 (0.54)	0.222	0.33 (0.54)	0.65 (1.54)	0.53 (1.21)	0.216
RBP	39.12 (10.46)	38.85 (11.89)	38.17 (10.58)	0.888	38.17 (10.58)	38.78 (11.92)	39.23 (10.41)	0.870

SNP, single nucleotide polymorphism; T2D, type 2 diabetes; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; ALBP, adipocyte lipid-binding protein; GFR, glomerular filtration rate; CRP, C-reactive protein; INS, insulin; 25QWD, 25 hydroxy-vitamin D; UCRP, ubiquitin cross-reactive protein; RBP, retinol-binding protein.

Bold indicate that $p < 0.05$ indicates statistical significance.