

T2DM GWAS in the Lebanese population confirms the role of *TCF7L2* and *CDKAL1* in disease susceptibility

Michella Ghassibe-Sabbagh¹, Marc Haber¹, Angeliqe K Salloum¹, Yasser Al-Sarraj², Yasmine Akle³, Kamal Hirbli^{1,4}, Jihane Romanos¹, Francis Mouzaya¹, Dominique Gauguier⁵, Daniel E Platt⁶, Hatem El-Shanti^{2,7}, Pierre A Zalloua^{1,8,*}

¹Lebanese American University, School of Medicine, Beirut 1102 2801, Lebanon

²Shafallah Medical Genetics Center, Doha, Qatar

³Centre Hospitalier du Nord-CHN, Zgharta, Lebanon

⁴University Medical Center - Rizk Hospital (UMC-RH), Lebanon

⁵INSERM, UMRS872, Centre de Recherche des Cordeliers, Paris, France

⁶Bioinformatics and Pattern Discovery, IBM T. J. Watson Research Centre, Yorktown Hgts, NY 10598, USA

⁷University of Iowa Carver College of Medicine, Iowa City

⁸Harvard School of Public Health, Boston, MA 02215, USA

* Correspondence should be addressed to PAZ. Lebanese American University, School of Medicine, Chouran, Beirut 1102 2801, Lebanon. Tel: +961-1-786456; Fax: +961-1-788160. pierre.zalloua@lau.edu.lb

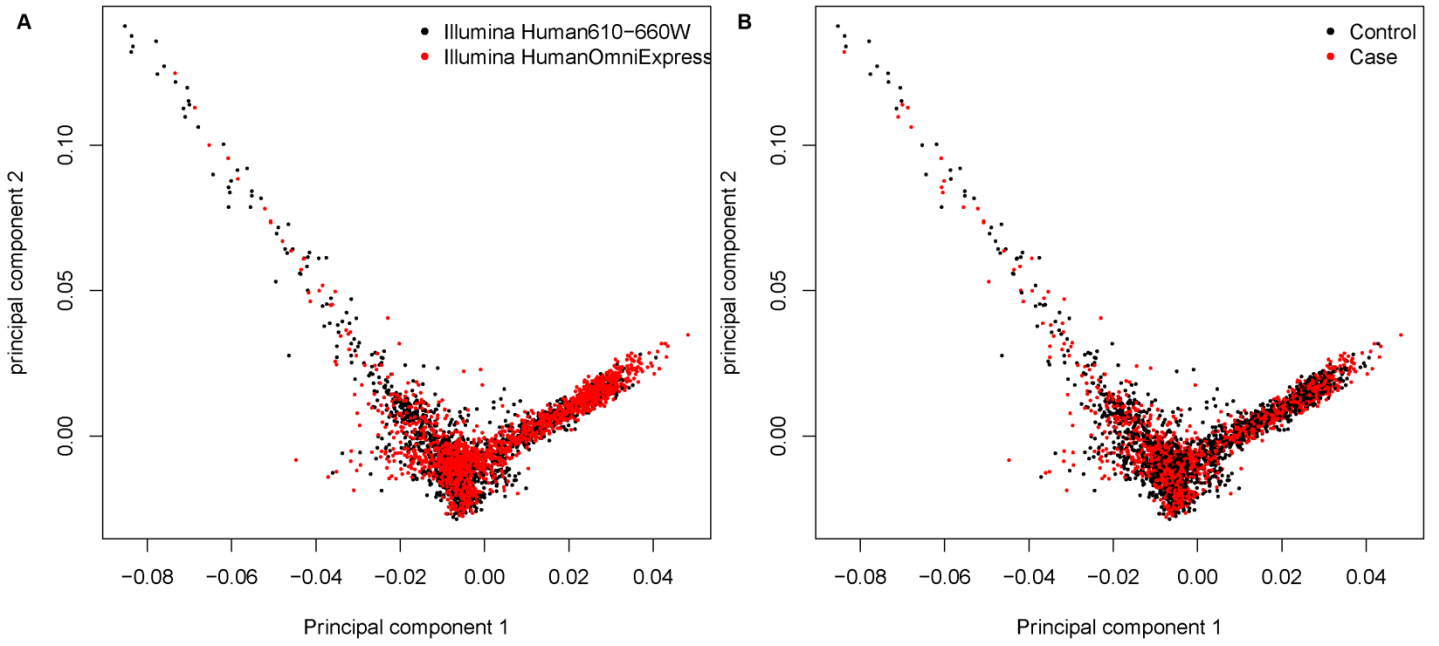


Figure S1: Principal component analysis showing sample distribution. PCA painted by A) chip type and B) phenotype.

Supplementary Table 1. Association analyses for the most significant SNPs in the GWA phase and the imputation phase sorted by the level of significance under an additive model.

SNP	Imputation	Chr	Position	Gene	Add model		Dom model		Rec model		Allele		Info		Case		Cont		Cont		OR		Add		Dom		Rec	
					p-value	p-value	p-value	p-value	A	B	AA	AB	BB	MAF	OR	OR	lower	upper	beta	SE	beta	SE	beta	SE	beta	SE	beta	SE
rs12504493	Imputed	4	189062547	TRIM11	2.21E-05	5.83E-06	0.0759561	C	T	0.99597	757	496	117	891	800	196	0.30	0.79	0.71	0.88	0.26	0.05	0.37	0.07	0.27	0.11	0.27	0.11
rs12507761	Imputed	4	113305623	ALPK1	4.66E-05	0.0165107	5.43E-06	A	G	0.99773	460	612	282	714	886	275	0.40	1.24	1.12	1.37	0.27	0.05	0.33	0.07	0.41	0.10	0.41	0.10
rs7766070	Imputed	6	20686573	CDKAL1	9.37E-09	3.43E-07	2.72E-05	C	A	0.99905	622	577	168	1023	705	147	0.29	1.38	1.24	1.54	0.20	0.06	0.32	0.07	0.04	0.13	0.04	0.13
rs9368222	Imputed	6	20686996	CDKAL1	4.02E-08	1.75E-06	3.04E-05	C	A	0.99838	634	568	164	1029	702	143	0.29	1.36	1.22	1.52	0.28	0.06	0.34	0.07	0.41	0.14	0.41	0.14
rs7754840	Imputed	6	20661250	CDKAL1	9.67E-08	9.57E-07	0.000233	G	C	0.9997	602	592	188	992	728	180	0.31	1.34	1.21	1.49	0.28	0.05	0.34	0.07	0.41	0.11	0.41	0.11
rs9356744	Imputed	6	20685486	CDKAL1	1.03E-07	3.44E-07	0.0006012	T	C	0.99812	472	644	241	806	793	246	0.38	1.33	1.20	1.47	0.43	0.10	0.51	0.11	-0.29	0.47	-0.29	0.47
rs9295474	Imputed	6	20652717	CDKAL1	1.07E-07	6.24E-06	2.25E-05	C	G	0.99902	619	573	184	1004	726	165	0.31	1.35	1.21	1.50	0.22	0.05	0.34	0.07	0.13	0.11	0.13	0.11
rs7756992	Genotyped	6	20679709	CDKAL1	1.08E-07	1.58E-06	0.0001786	A	G	1	622	590	172	1016	726	160	0.30	1.34	1.21	1.49	0.17	0.06	0.07	0.07	0.74	0.14	0.74	0.14
rs10946398	Imputed	6	20661034	CDKAL1	1.14E-07	1.20E-06	0.0002282	A	C	0.9997	602	592	188	991	730	180	0.31	1.34	1.21	1.49	0.21	0.06	0.39	0.09	0.12	0.10	0.12	0.10
rs10440833	Imputed	6	20688121	CDKAL1	1.38E-07	5.09E-06	4.88E-05	T	A	0.99294	633	556	165	1013	687	145	0.29	1.35	1.21	1.51	0.26	0.05	0.33	0.07	0.39	0.11	0.39	0.11
rs7747752	Imputed	6	20725423	CDKAL1	1.96E-07	1.29E-07	0.0052087	G	C	0.99736	550	617	182	924	728	189	0.33	1.33	1.20	1.48	-0.18	0.10	-0.08	0.11	-1.94	0.53	-1.94	0.53
rs4712524	Imputed	6	20657865	CDKAL1	2.24E-07	2.75E-06	0.0002369	A	G	0.99991	603	593	188	986	736	180	0.31	1.33	1.20	1.48	-0.33	0.07	-0.11	0.22	-0.43	0.08	-0.43	0.08
rs4712523	Genotyped	6	20657564	CDKAL1	2.35E-07	2.91E-06	0.0002369	A	G	1	604	592	188	987	735	180	0.31	1.33	1.20	1.48	0.38	0.09	0.43	0.10	0.18	0.36	0.18	0.36
rs2206734	Genotyped	6	20694884	CDKAL1	6.68E-07	1.26E-06	0.0047335	C	T	1	706	550	128	1132	645	125	0.26	1.34	1.19	1.49	0.27	0.05	0.34	0.07	0.35	0.13	0.35	0.13
rs1873747	Imputed	9	94395860	ROR2	4.05E-06	2.72E-05	0.0022176	A	T	0.99802	993	344	38	1484	380	24	0.13	1.41	1.22	1.63	0.91	0.20	1.00	0.21	-0.38	1.23	-0.38	1.23
rs34872471	Imputed	10	114754071	TCF7L2	8.30E-08	2.28E-08	0.0043799	T	C	0.99857	425	696	251	762	846	274	0.40	1.32	1.19	1.46	-0.16	0.05	-0.08	0.08	-0.42	0.09	-0.42	0.09
rs7903146	Genotyped	10	114758349	TCF7L2	1.39E-07	3.76E-08	0.0053531	C	T	1	434	699	251	774	852	276	0.40	1.31	1.19	1.45	0.28	0.05	0.38	0.07	0.31	0.11	0.31	0.11
rs4506565	Imputed	10	114756041	TCF7L2	1.60E-07	3.95E-08	0.0053693	A	T	0.99927	415	704	263	741	856	289	0.41	1.31	1.18	1.44	0.28	0.05	0.35	0.07	0.41	0.11	0.41	0.11
rs7901695	Genotyped	10	114754088	TCF7L2	3.23E-07	8.88E-08	0.0066277	T	C	1	421	703	260	750	863	289	0.41	1.30	1.18	1.43	0.26	0.05	0.34	0.07	0.30	0.13	0.30	0.13
rs4132670	Imputed	10	114767771	TCF7L2	6.20E-06	5.11E-06	0.0084412	G	A	0.9981	402	695	268	685	864	296	0.42	1.26	1.14	1.39	0.21	0.11	10.89	38.72	0.14	0.12	0.14	0.12
rs55649817	Imputed	12	5946984	ANO2	4.45E-05	5.90E-06	0.673162	C	A	0.9807	847	398	37	1234	395	44	0.16	1.34	1.16	1.54	0.16	0.06	0.40	0.09	0.01	0.10	0.01	0.10
rs275856	Imputed	18	21839152	OSBP1A	1.24E-06	2.28E-07	0.293466	A	T	0.98344	973	288	28	1463	268	29	0.11	1.51	1.28	1.77	0.27	0.05	0.33	0.07	0.41	0.11	0.41	0.11

