

Brun *et al.* **Supplementary files**

AMPK profiling in rodent and human pancreatic beta-cells under nutrient-rich metabolic stress

Supplemental Table S1: Quantitative data related to the transcriptomic profiles of AMPK-associated genes of human islets under different metabolic stresses.

Supplementary Table S2: Clinical Data related to human islets

Supplementary Table S3: Rat and human primers used for quantitative RT-PCR analysis

Supplemental information Table S1: Quantitative data related to the transcriptomic profiles of AMPK-associated genes of human islets under different metabolic stresses.

		Donor #1		Donor #2		Donor #3		Donor #4		Donor #5	
		log2 FC	p adj	log2 FC	p adj	log2 FC	p adj	log2 FC	p adj	log2 FC	p adj
G25		-		-							
	PRKAA1	0.42831342	0.16654696	0.56726992	0.12152884	0.0567878	0.95372166	0.01620298	0.98271495	NA	NA
		-		-		-		-			
	PRKAA2	0.66494688	0.12029618	0.13017463	0.93477811	0.21777626	0.69120286	0.39350653	0.18098591	NA	NA
	PRKAB1	0.6762521	0.07096901	0.30198245	0.55904086	0.20929898	0.67662011	0.6520113	0.01363645	NA	NA
		-									
	PRKAB2	0.36960339	0.32701834	-0.0937707	0.92395808	0.34312064	0.4128375	0.32944334	0.26102151	NA	NA
		-				-		-			
	PRKAG1	0.05927429	0.94773709	0.2429154	0.60119097	0.24960104	0.59289296	0.17436253	0.5910228	NA	NA
		-		-		-					
	PRKAG2	0.44267163	0.23543569	0.40415471	0.35794498	0.27283055	0.56600041	-0.4926408	0.06478275	NA	NA
	STK11	0.98217715	0.01077677	0.06999019	0.96296821	0.03007558	0.99055702	0.05952606	0.88118264	NA	NA
				-		-		-			
	CAMKK1	0.55135249	0.20379345	0.03548186	1	0.53833293	0.16899806	0.58021163	0.03016005	NA	NA
								-			
	CAMKK2	0.62244535	0.09980416	0.06717643	0.96803951	0.2650393	0.59017252	0.07261492	0.86713887	NA	NA
				-		-					
	ACACA	0.02169252	1	0.52746313	0.14249328	0.17643036	0.77398209	0.38301186	0.16929891	NA	NA
				-							
	MTOR	0.0103755	1	0.26929589	0.56683119	0.24928203	0.62138171	0.51712911	0.05493795	NA	NA
	RPTOR	0.35668739	0.44863895	0.03768111	0.98392317	0.0208219	1	0.53641652	0.04972474	NA	NA
				-		-		-			
	ABCC8	0.07063173	0.86392464	0.08596365	0.86837572	1.23311191	2.92E-07	1.17837165	6.362E-07	NA	NA
						-		-			
	KCNJ11	0.83991577	0.01426651	0.03195187	0.98863756	0.54237846	0.16515224	0.88084167	0.00039333	NA	NA
	PKM	0.76444825	0.00302404	0.46498419	0.13642505	0.20150029	0.67026294	-0.180196	0.56185685	NA	NA

Olea	PRKAA1	-	-	-	-	0.32569348	0.34861841	0.37780463	0.39576615	NA	NA	0.03030473	0.97520009	NA	NA
	PRKAA2	-	-	-	-	0.17848726	0.77735126	0.45581174	0.46821779	NA	NA	0.54496368	0.10388739	NA	NA
	PRKAB1	-	-	-	-	0.32241473	0.51031823	0.43129954	0.37670528	NA	NA	0.15639583	0.7529501	NA	NA
	PRKAB2	-	-	-	-	0.06003248	0.93225636	0.16124752	0.80076281	NA	NA	0.00917674	1	NA	NA
	PRKAG1	-	-	-	-	0.13660779	0.78184741	0.03896643	0.97872608	NA	NA	-0.0865219	0.88817857	NA	NA
	PRKAG2	-	-	-	-	0.17587764	0.71744822	0.01995543	1	NA	NA	-0.1714283	0.72407064	NA	NA
	STK11	-	-	-	-	0.88139477	0.02770717	0.44391202	0.32461142	NA	NA	0.32564019	0.3695127	NA	NA
	CAMKK1	-	-	-	-	0.72662135	0.08340932	0.25429222	0.63543234	NA	NA	0.02867542	0.97768089	NA	NA
	CAMKK2	-	-	-	-	0.49081404	0.26657269	0.16062838	0.81382779	NA	NA	0.07865222	0.91035231	NA	NA
	ACACA	-	-	-	-	0.50269274	0.13976161	0.14886988	0.79322239	NA	NA	0.05543691	0.93701432	NA	NA
	MTOR	-	-	-	-	0.13766349	0.7830213	0.30203638	0.54495562	NA	NA	0.16464596	0.73001695	NA	NA
	RPTOR	-	-	-	-	0.46255718	0.33943575	0.29400434	0.58303673	NA	NA	0.10637019	0.85271251	NA	NA
	ABCC8	-	-	-	-	0.53719553	0.06208706	0.06227236	0.9320819	NA	NA	0.89177749	0.00094198	NA	NA
	KCNJ11	-	-	-	-	0.98962818	0.00290719	0.00863735	1	NA	NA	0.19200731	0.65739058	NA	NA
	PKM	-	-	-	-	0.20150029	0.67026294	0.05208687	0.94618475	NA	NA	0.32786165	0.35226336	NA	NA
Palm	PRKAA1	-	-	-	-	0.22411603	0.58390952	0.02173497	0.93657663	NA	NA	NA	NA	NA	NA
	PRKAA2	-	-	-	-	0.03401781	0.99742847	0.32298732	0.35195577	NA	NA	NA	NA	NA	NA
	PRKAB1	-	-	-	-	0.59393194	0.15700488	0.1441175	0.63897398	NA	NA	NA	NA	NA	NA
	PRKAB2	-	-	-	-	0.19041438	0.7064662	-0.1397653	0.61051808	NA	NA	NA	NA	NA	NA

	PRKAG1	0.16805774	0.74484738	-0.0240054	0.94066866	NA	NA	NA	NA	NA	NA
		-		-							
	PRKAG2	0.01850741	1	0.27781931	0.29634841	NA	NA	NA	NA	NA	NA
	STK11	0.86339405	0.0373708	0.09581526	1	NA	NA	NA	NA	NA	NA
		-		-							
	CAMKK1	0.69843509	0.10096924	0.11217296	1	NA	NA	NA	NA	NA	NA
		-		-							
	CAMKK2	0.07247567	0.95978383	-0.5089681	1	NA	NA	NA	NA	NA	NA
	ACACA	0.01495999	1	0.01050823	1	NA	NA	NA	NA	NA	NA
		-		-							
	MTOR	0.23767433	0.62774477	0.01613237	1	NA	NA	NA	NA	NA	NA
	RPTOR	0.19252387	0.8005774	0.53849852	1	NA	NA	NA	NA	NA	NA
	ABCC8	0.39951189	0.20869012	0.0349248	1	NA	NA	NA	NA	NA	NA
		-		-							
	KCNJ11	1.17995919	0.00035816	0.00912754	1	NA	NA	NA	NA	NA	NA
	PKM	0.12153147	0.79519556	0.00989905	1	NA	NA	NA	NA	NA	NA
		-		-							
	PRKAA1	NA	NA	NA	NA	0.26369083	0.53113507	0.01388004	0.98206745	0.10910477	0.92609992
		-		-							
	PRKAA2	NA	NA	NA	NA	0.03378675	0.98748397	0.94968973	0.00019985	0.0707493	0.96566766
	PRKAB1	NA	NA	NA	NA	0.19694752	0.68514387	0.65670676	0.01013924	-0.0613248	0.97062965
	PRKAB2	NA	NA	NA	NA	0.03506251	0.97983967	0.42123461	0.11498708	0.36185827	0.46227793
		-		-							
G25/Olea	PRKAG1	NA	NA	NA	NA	0.16609006	0.75155842	0.57335126	0.0282347	0.03619949	0.99429187
		-		-							
	PRKAG2	NA	NA	NA	NA	0.15911301	0.78349281	0.46465217	0.08976175	0.07645001	0.95945937
	STK11	NA	NA	NA	NA	0.0029682	1	0.21903831	0.44322328	0.38295686	0.53459537
		-		-							
	CAMKK1	NA	NA	NA	NA	0.81327663	0.01332054	0.03561137	0.92831622	0.48548432	0.24809036
		-		-							
	CAMKK2	NA	NA	NA	NA	0.41677359	0.27481412	0.19705954	0.55049352	0.00083108	1

	ACACA	NA	NA	NA	NA	0.10081007	0.8864525	0.22031836	0.44322328	0.29660849	0.61196914
	MTOR	NA	NA	NA	NA	0.47297213	0.1814148	0.27644242	0.32786497	0.00502049	1
	RPTOR	NA	NA	NA	NA	0.10355898	0.91799668	0.82405229	0.00089794	0.5691141	0.29607134
	ABCC8	NA	NA	NA	NA	0.77224418	0.00366912	0.57068411	0.02052841	0.77224418	0.00366912
	KCNJ11	NA	NA	NA	NA	0.71880581	0.03147494	0.63019533	0.01102382	0.44057531	0.34329796
	PKM	NA	NA	NA	NA	0.02205608	1	0.13098159	0.66671808	0.02205608	1
G25/Palm	PRKAA1	NA	NA	NA	NA	0.19584549	0.64405476	NA	NA	0.27533951	0.61758763
	PRKAA2	NA	NA	NA	NA	0.08467402	0.89321619	NA	NA	0.07738671	0.96875907
	PRKAB1	NA	NA	NA	NA	0.12174617	0.81742555	NA	NA	0.04203216	0.99024952
	PRKAB2	NA	NA	NA	NA	0.22945029	0.58486287	NA	NA	0.13712045	0.89305629
	PRKAG1	NA	NA	NA	NA	0.31230448	0.38740765	NA	NA	-0.0057927	1
	PRKAG2	NA	NA	NA	NA	0.19903085	0.67037095	NA	NA	0.18771672	0.80981201
	STK11	NA	NA	NA	NA	0.23887905	0.62503253	NA	NA	0.7315416	0.04744368
	CAMKK1	NA	NA	NA	NA	1.19476563	4.28E-05	NA	NA	1.16802015	7.52E-05
	CAMKK2	NA	NA	NA	NA	0.3818638	0.28455947	NA	NA	0.35998198	0.59882575
	ACACA	NA	NA	NA	NA	0.38368521	0.2855764	NA	NA	0.21175025	0.77572071
	MTOR	NA	NA	NA	NA	0.10355069	0.86082733	NA	NA	0.02077685	1

RPTOR	NA	NA	NA	NA	0.10015328	-	0.90237167	NA	NA	0.26931846	0.79490556
ABCC8	NA	NA	NA	NA	2.05512599	-	4.22E-19	NA	NA	0.32989688	0.45086671
KCNJ11	NA	NA	NA	NA	0.97936027	-	0.00098898	NA	NA	0.17099569	0.85140359
PKM	NA	NA	NA	NA	0.05875529	-	0.92378936	NA	NA	0.24258699	0.66454872

Supplementary Table S2: Clinical Data related to human islets

Donor	Gender	Age (years)	BMI (kg/m ²)	Cause of death	Culture (day)	Viability (%)	Purity (%)
#1	M	56	28.6	Crania trauma	3	90	50
#2	M	59	27.2	Trauma	2	90	60
#3	F	41	22.4	Cerebral haemorrhage	2	90	80
#4	M	46	27.2	Cerebral haemorrhage	2	90	75
#5	F	59	23.7	Cerebral trauma	4	90	84
#6	M	49	26.2	Cerebral haemorrhage	5	90	80
#7	M	39	22.9	Cerebral haemorrhage	4	90	80
#8	M	56	22.5	Cerebral haemorrhage	3	85	87

#9	M	60	29.1	Cerebral haemorrhage	2	85	80
#10	M	34	24.7	Trauma	1	85	65
#11	M	50	22.2	Cerebral trauma	1	90	90
#12	F	53	26.0	Cerebral haemorrhage	3	80	80
M (9)	%	49.9 ±9.0	25.6 ± 2.6		2.6 ±1.3	88.3 ±2.5	74.1 ±13.2
F (3)	%	51.0 ±9.2	24.0 ± 1.8		3.0 ±1.0	86.7 ± 5.8	81.3 ±2.3
(12)	100%	50.2 ±8.6	25.2 ± 2.5		2.7 ±1.2	87.9 ±3.3	75.9 ±11.7

Supplementary Table S3: Rat and human primers used for quantitative RT-PCR analysis

Species	Primer name	Sequence
Rat	<i>Ampk (Prkaa1)</i>	Fwd: 5'-AGT CAA AGC CGA CCC AAT GAC-3'
		Rev: 5'-CTT CCT TCG CAC ACG CAA AT-3'
Rat	<i>Ampk (Prkaa2)</i>	Fwd: 5'-GAA GAT CGG ACA CTA CGT GCT-3'
		Rev: 5'-TGC CAC TTT ATG GCC TGT CAA T-3'
Rat	<i>Ppia</i> (cyclophilin)	Fwd: 5'-ATC TGC ACT GCC AAG ACT GA-3'
		Rev: 5'-TCT TGC TGG TCT TGC CAT TC-3'
Human	<i>AMPK (PRKAA1)</i>	Fwd: 5' -GGT GTA AGG AAA GCA AAA TGG C-3'
		Rev: 5'-AGG ATT CTT CCT TCG TAC ACG-3'
Human	<i>AMPK (PRKAA2)</i>	Fwd: 5'- CAC ATG AAT GCC AAG ATA GCC G-3'
		Rev: 5'-CTG CCT GAG ATG ACT TCA GGT GC-3'
Human	<i>PPIA</i> (cyclophilin)	Fwd: 5'- ATC TGC ACT GCC AAG ACT GA -3'
		Rev: 5'-TCT TGC TGG TCT TGC CAT TC -3'