

Supplementary Table 12: Biological pathways including genes that exhibit differential DNA methylation ($P < 0.05$) after palmitate treatment in human pancreatic islets. Includes only pathways which also displayed enrichment for genes with differential expression after palmitate treatment in human pancreatic islets.

Pathway (total number of genes in the pathway)	Observed number of genes	Expected number of genes	Ratio Observed/ expected	Raw <i>P</i> -value	Adjusted <i>P</i> -value
Pathways in cancer (326)	63	16.61	3.79	5.09×10^{-20}	9.37×10^{-18}
Adherens junction (73)	28	3.72	7.53	6.96×10^{-18}	6.40×10^{-16}
Regulation of actin cytoskeleton (213)	41	10.85	3.78	1.77×10^{-13}	1.09×10^{-11}
Gap junction (90)	21	4.58	4.58	3.67×10^{-09}	6.75×10^{-08}
Axon guidance (129)	25	6.57	3.80	7.55×10^{-09}	1.26×10^{-07}
ECM-receptor interaction (85)	18	4.33	4.16	2.28×10^{-07}	2.62×10^{-06}
Metabolic pathways (1,130)	97	57.57	1.69	4.36×10^{-07}	4.72×10^{-06}
Insulin signaling pathway (138)	19	7.03	2.70	7.74×10^{-05}	0.0003
Antigen processing and presentation (76)	12	3.87	3.10	0.0004	0.0013
Notch signaling pathway (47)	8	2.39	3.34	0.0024	0.0063
Ribosome (92)	12	4.69	2.56	0.0025	0.0065
Cell cycle (124)	14	6.32	2.22	0.0044	0.0105
ErbB signaling pathway (87)	11	4.43	2.48	0.0046	0.0107
PPAR signaling pathway (70)	9	3.57	2.52	0.0090	0.0180
Pancreatic cancer (70)	9	3.57	2.52	0.0090	0.0180
One carbon pool by folate (18)	4	0.92	4.36	0.0116	0.0222
beta-Alanine metabolism (22)	4	1.12	3.57	0.0235	0.0393
Pathway (total number of genes in the pathway)	Observed genes				
Pathways in cancer	<i>CDKN2B, GLI2, FNI, COL4A2, FOXO1, FGF13, EPAS1, CTNNA3, CTNNA1, ITGA6, RAC1, CTBP2, PRKCA, PDGFRA, TGFBR2, ETS1, GSTP1, FGF19, FZD6, CTNNA2, MECOM, DAPK2, CREBBP, RB1, CDC42, IGF1R, CTNNA1, PTEN, PIK3R2, CDKN1B, BCL2, COL4A1, ARNT2, MET, CASP8, RHOA, TPM3, LAMC1, DCC, PIK3R1, FGF12, MMP1, LAMA2, MAP2K2, EGFR, FZD7, TCF7L2, RXRB, GRB2, FGF1, PIAS3, TCF7L1, JAK1, WNT5B, MSH3, PML, WNT3, RUNX1, FZD5, TRAF5, ARNT, CTBP1, EGLN1</i>				
Adherens junction	<i>LMO7, WASF2, SORBS1, RHOA, CTNNA3, CTNNA1, SNAI1, RAC1, NLK, CSNK2A1, TJP1, TGFBR2, EGFR, CTNNA2, TCF7L2, CREBBP, PTPRF,</i>				

	<i>MLLT4, TCF7L1, FYN, PTPRJ, CDC42, PTPRB, CTNNA1, IGF1R, MET, VCL, PARD3</i>
Regulation of actin cytoskeleton	<i>WASF2, SSH2, PPP1R12A, FN1, FGF13, ITGA6, RAC1, MYH9, PDGFRA, MYH10, FGF19, PIP5K1C, IQGAP2, CDC42, PIK3R2, RDX, MYH14, ITGA9, VCL, CHRM3, LIMK2, CYFIP1, PDGFC, RHOA, PIK3R1, FGF12, MYL10, ARPC1A, MAP2K2, EGFR, ARPC3, FGF1, GNA12, ARHGEF6, CHRM5, ITGAD, PDGFD, GNA13, CHRM2, PIP5K1B, FGD1</i>
Gap junction	<i>PDGFC, HTR2C, TJPI, TUBA1C, PRKCA, PDGFRA, MAP2K2, CDK1, EGFR, GRB2, LPAR1, ADCY5, ADCY2, ITPR1, ADRB1, PRKG1, PDGFD, TUBB2B, TUBB8, CSNK1D, ADCY7</i>
Axon guidance	<i>UNC5C, PPP3CA, LRRC4C, RHOA, DCC, RAC1, PLXNA2, EFNA3, ROBO1, SLIT3, SEMA6D, SEMA3E, PLXNB2, SEMA6A, CDK5, ABLIM1, FYN, CDC42, SEMA4A, NCK2, NTN4, MET, NTN1, LIMK2, UNC5D</i>
ECM-receptor interaction	<i>SV2B, FN1, COL4A2, LAMC1, COL11A2, ITGA6, TNXB, SDC2, RELN, LAMA2, CD36, COL3A1, GP5, VWF, GP6, COL4A1, CD44, ITGA9</i>
Metabolic pathways	<i>ARG2, PPT2, NDUFA5, ACACB, PCYT1B, AASS, LPCAT2, POLR1A, GALNT12, GALNT6, AGPAT1, PNLIPRP1, IDH2, TPO, EXT1, ST6GALNAC5, PIGL, CDS1, NDUFB3, FLAD1, ITPK1, ST3GAL4, GALNT9, PGAM4, DUT, ALDH1A3, GOT1, NDUFV3, HIBCH, GALNTL4, MGLL, MTHFD2L, ALLC, SEPHS1, TAT, GALNT5, SAT1, MTHFD1L, GALK2, HPSE2, PNLIPRP3, TPK1, AGPAT6, HLCS, AKR1D1, INPP4B, UQCRH, COX7B2, ITPKB, PIGN, PLCD3, PIP5K1C, CIGALT1, SMPD3, AMY2B, INPP5A, QDPR, FUT8, ALPL, CTPS2, PCK1, SHMT2, UGT1A8, STT3B, SYNJ2, GMDS, DBT, NOS3, HMGCR, NT5E, SMS, SUCLA2, GFPT1, GUK1, AK5, PRIM2, BPGM, GALC, UPBI, TRIT1, TBXAS1, CIGALTIC1, POLD3, SPTLC2, LIPC, GK2, PFKM, GCNT4, IDS, GAD2, ACSS3, GALNT2, PC, NME7, POLR1C, SPTLC3, PIP5K1B</i>
Insulin signaling pathway	<i>ACACB, SORBS1, RHOQ, RAPGEF1, FOXO1, INPP5D, PIK3R1, PRKAR1B, MAP2K2, PDE3A, GRB2, PTPRF, IRS2, RPTOR, PIK3R2, PRKCZ, PCK1, RPS6, MKNK2</i>
Antigen processing and presentation	<i>HSPA1L, IFNG, HLA-DPA1, CD8A, HLA-DQA2, HLA-DQA1, HLA-E, HLA-DMB, TAP2, HLA-C, HLA-DOB, HLA-DRB5</i>
Notch signaling pathway	<i>CREBBP, NCOR2, NOTCH4, CTBP2, MAML2, CTBP1, NCSTN, NUMB</i>
Ribosome	<i>RPL32, RPL17, RPL39, RPL14, RPS6, RPL30, RPL18A, RPL4, RPL24, RPS18, MRPL13, RPL23A</i>
Cell cycle	<i>CDKN2B, CREBBP, ANAPC5, RB1, CDC14B, PRKDC, TFDPI, MAD1L1, ATM, CDKN1B, YWHAQ, YWHAZ, CDK1, RAD21</i>

ErbB signaling pathway	<i>GRB2, ABL2, NRG3, PIK3R2, PIK3R1, NCK2, CDKN1B, PRKCA, ERBB4, MAP2K2, EGFR</i>
PPAR signaling pathway	<i>SORBS1, PCK1, FABP2, MMP1, APOA5, CD36, GK2, PLTP, RXRB</i>
Pancreatic cancer	<i>RBI, CDC42, JAK1, ARHGEF6, RAC1, PIK3R2, PIK3R1, TGFBR2, EGFR</i>
One carbon pool by folate	<i>SHMT2, MTHFD1L, MTHFD2L, ALDH1L1</i>
beta-Alanine metabolism	<i>GAD2, HIBCH, UPBI, SMS</i>