

Supplementary Table 3: Biological pathways including all genes that exhibit differential mRNA expression ($q < 0.05$) in human pancreatic islets due to palmitate treatment.

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
Ribosome (81)	35	7.59	4.61	1.03×10^{-15}	1.85×10^{-13}
Metabolic pathways (1,026)	150	96.10	1.56	1.70×10^{-08}	1.53×10^{-06}
Complement and coagulation cascades (67)	21	6.28	3.35	4.24×10^{-07}	1.53×10^{-05}
Glycolysis / Gluconeogenesis (60)	20	5.62	3.56	2.59×10^{-07}	1.53×10^{-05}
Pathways in cancer (323)	56	30.25	1.85	4.54×10^{-06}	0.0001
Focal adhesion (196)	39	18.36	2.12	4.75×10^{-06}	0.0001
Lysosome (115)	26	10.77	2.41	1.77×10^{-05}	0.0004
Arginine and proline metabolism (51)	15	4.78	3.14	4.35×10^{-05}	0.0007
ECM-receptor interaction (82)	20	7.68	2.60	5.13×10^{-05}	0.0008
One carbon pool by folate (15)	7	1.40	4.98	0.0002	0.0024
Regulation of actin cytoskeleton (204)	35	19.11	1.83	0.0003	0.0032
Cell cycle (121)	24	11.33	2.12	0.0003	0.0032
p53 signaling pathway (67)	16	6.28	2.55	0.0004	0.0040
Methane metabolism (6)	4	0.56	7.12	0.0010	0.0078
Glutathione metabolism (47)	12	4.40	2.73	0.0010	0.0078
Retinol metabolism (47)	12	4.40	2.73	0.0010	0.0078
Pancreatic cancer (71)	15	6.65	2.26	0.0021	0.0151
Tryptophan metabolism (38)	10	3.56	2.81	0.0021	0.0151
Fructose and mannose metabolism (33)	9	3.09	2.91	0.0026	0.0180
Insulin signaling pathway (134)	23	12.55	1.83	0.0032	0.0198
Adherens junction (74)	15	6.93	2.16	0.0032	0.0198
Biosynthesis of unsaturated fatty acids (22)	7	2.06	3.40	0.0030	0.0198
Fatty acid metabolism (41)	10	3.84	2.60	0.0038	0.0221
Antigen processing and presentation (55)	12	5.15	2.33	0.0043	0.0242
O-Glycan biosynthesis (30)	8	2.81	2.85	0.0052	0.0253
ErbB signaling pathway (85)	16	7.96	2.01	0.0051	0.0253
Gap junction (85)	16	7.96	2.01	0.0051	0.0253
Maturity onset diabetes of the young (24)	7	2.25	3.11	0.0052	0.0253
Ascorbate and aldarate metabolism (13)	5	1.22	4.11	0.0049	0.0253
Propanoate metabolism (32)	8	3.00	2.67	0.0079	0.0374

Neurotrophin signaling pathway (122)	20	11.43	1.75	0.0094	0.0411
Arachidonic acid metabolism (54)	11	5.06	2.17	0.0104	0.0435
Pathway	Observed genes				
Ribosome	<i>RPS20, RPS8, RPS2, RPS5, RPL30, RPS17, RPS17, RPL11, RPL18, RPL10, RPL10, RPL17, RPL17, RPS11, RPL27, RPS18, RPS18, RPS18, RPS23, RPL29, RPL35, RPL36AL, RPS25, RPL41, RPS10, RPL38, RPL8, RPS27, RPL18A, RPL10A, RPL27A, RPS9, RPLP0, RPL35A, RPL12, RPL12, RPS15A, RPS7, RPS19, RPL24, FAU</i>				
Metabolic pathways	<i>ARG2, ACSL1, UQCRB, MCCC1, ASS1, NANS, CDIPT, GLUL, CHPF, ACSS2, PNLIPRP2, PAPSS1, ALDH1A3, DPYD, DLD, NDUFS2, DNMT1, UGT2B10, PDHA1, LAP3, GALNT5, UPP1, HSD17B2, RRM2, GALNT7, ODC1, IDH1, PLA2G10, CYP4F3, PRIM1, PYCRI, MAN2A2, P4HA2, FBP1, NNT, CYP3A5, BDH2, TYMS, PIK3C2B, ATP6V0E1, PFKP, CYP2J2, DHCR24, ASAH1, , DHRS3, GALNT1, CTPS, PCK1, ST6GALNAC1, AGL, ALDH3A2, PIGS, FDFT1, ADH1A, HSD17B8, HSD17B8, HSD17B8, ALG6, RDH10, AMD1, TBXAS1, FASN, SCP2, HGSNAT, ADH1C, CAT, IDS, COX17, COX17, MTHFD2, HGD, HGD, PAH, CYP4F2, PPAP2B, GCHI, P4HA3, SGMS2, UGT2A3, PLD1, HEXA, ACSS1, PTDSS1, PHPT1, ACSM3, HIBADH, GALNT12, NDUFB5, ATP5I, SDHA, PPAP2A, ATP6V0B, ADII, ASNS, KMO, CMPK1, AMACR, AHCYLI, MMAB, GATM, PLA2G7, POLR2G, MVD, ACO1, ANPEP, PON2, TCIRG1, DDOST, MAOA, GMPPB, HSD3B1, B4GALT3, ST3GAL1, LTA4H, ALDOB, NDUFS1, PGM2, ENO2, DGKZ, SORD, RPE, PMM2, ST6GALNAC4, ADH5, MAT2B, POLR3D, GART, FUT2, HSD11B1, PNLIP, CHST4, SHMT2, ALDH7A1, ADH6, PCCB, CPS1, SHMT1, B3GNT2, ALDH2, GUK1, AKR1B10, GCNT3, POLD3, CYP3A4, CYP2C18, B3GALT5, ACSS3, ACOX1, DHFR, HK1, ACADM, AFMID, PIP5K1B</i>				
Complement and coagulation cascades	<i>C3, CFH, KLKB1, C6, TFPI, CFI, PLAT, F11, C1QB, SERPINA5, CD59, F10, SERPING1, PLAUI, C1QC, CFB, CFB, CFB, F2R, C4BPA, BDKRB2, THBD, C3AR1</i>				
Glycolysis / Gluconeogenesis	<i>PDHA1, ADH1A, ADH6, ALDH2, PGM2, ENO2, GALM, ADH1C, ADH5, ACSS2, FBP1, ALDH1A3, PCK1, ALDH7A1, HK1, ALDOB, ACSS1, DLD, ALDH3A2, PFKP</i>				
Pathways in cancer	<i>HSP90B1, FNI, FGF13, MTOR, EGF, RASSF1, ERBB2, TGFBRI, STAT5B, CDKN1A, PDGFRA, TGFBRI, FGF19, CCNE1, WNT5A, LAMB3, PIAS1, LAMA3, IGF1R, IGF1R, CDH1, CTNNA1, MITF, COL4A1, NFKB2, PDGFRB, LAMA4, LAMC1, ACVR1B, CDK4, AKT2, PIK3R1, SKP2, KRAS, LAMA2, FOS, TCF7L2, SMAD3, JAK1, FGFR2, NCOA4, HIF1A, CCDC6, IL8, LAMB1, STAT1, HDAC1, KITLG, HGF, ITGAV, DVLI, PLD1, MAPK1, HRAS, ARNT, CDKN2A, HDAC2</i>				
Focal adhesion	<i>SHC4, FNI, DOCK1, KDR, EGF, ERBB2, PDGFRA, PPP1CC, COL6A3, LAMB3, SPPI, LAMA3, SHC1, CTNNA1, IGF1R, IGF1R, ITGB3, COL4A1, TNN, ITGB6, CAV2, PDGFRB, LAMA4, COL5A2, LAMC1, ITGA4, AKT2, COL1A1, PIK3R1, ITGA5, LAMA2, PAK3, LAMB1,</i>				

	<i>PDGFD, ACTN4, HGF, COL1A2, ITGAV, MAPK1, HRAS</i>
Lysosome	<i>LAMP1, CTSE, ASAH1, GGA2, HGSNAT, LIPA, AP3S1, NEU1, NEU1, NEU1, IDS, CD68, ATP6V0B, AP1M2, ENTPD4, CTSS, TCIRG1, CTSC, CTSO, GNPTAB, LAPT M5, LAPT M4B, CTSA, CTSD, HEXA, CTSH, ACP5, LAMP3</i>
Arginine and proline metabolism	<i>ARG2, ALDH2, CPS1, LAP3, P4HA2, P4HA3, AMD1, MAOA, ASS1, ALDH7A1, ODC1, GATM, GLUL, ALDH3A2, PYCRI</i>
ECM-receptor interaction	<i>LAMA4, COL5A2, FN1, LAMC1, COL1A1, ITGA4, ITGA5, LAMA2, SDC1, COL6A3, LAMB3, SPP1, LAMA3, LAMB1, ITGB3, COL4A1, ITGAV, COL1A2, TNN, ITGB6</i>
One carbon pool by folate	<i>DHFR, TYMS, SHMT2, GART, SHMT1, MTHFD2, MTFMT</i>
Regulation of actin cytoskeleton	<i>FN1, FGF13, DOCK1, EGF, ENAH, NCKAP1, DIAPH3, PDGFRA, FGF19, PPP1CC, IQGAP2, ITGB3, F2R, ITGB6, PDGFRB, CFL1, LIMK2, CYFIP1, ITGA4, PIK3R1, EZR, ITGA5, KRAS, ARHGEF12, ITGB2, PAK3, CSK, FGFR2, PDGFD, ACTN4, ITGAV, MAPK1, HRAS, BDKRB2, PIP5K1B</i>
Cell cycle	<i>CDKN1C, PRKDC, CDK4, SKP2, CHEK1, CDKN1A, CCNB1, MCM7, CDC26, CCNE1, CDC2, SMAD3, WEE1, CCNA2, PCNA, TTK, HDAC1, ATR, TFDP2, CCNB2, YWHAB, CDKN2A, HDAC2, SFN</i>
p53 signaling pathway	<i>SESN2, SESN3, PMAIP1, CDK4, TNFRSF10B, RRM2, CHEK1, ATR, CDKN1A, CCNB1, CCNB2, TP53I3, CCNE1, CDC2, CDKN2A, SFN</i>
Methane metabolism	<i>CAT, ADH5, SHMT2, SHMT1</i>
Glutathione metabolism	<i>GSTK1, GPX3, GSTM2, LAP3, GPX2, RRM2, IDH1, ODC1, MGST1, ANPEP, GSTA1, GPX4</i>
Retinol metabolism	<i>ADH5, ADH1A, ADH6, CYP1A1, RDH10, CYP3A5, UGT2A3, DHRS3, CYP3A4, CYP2C18, UGT2B10, ADH1C</i>
Pancreatic cancer	<i>SMAD3, JAK1, ACVR1B, AKT2, CDK4, EGF, PIK3R1, STAT1, ERBB2, TGFBRI, KRAS, PLD1, MAPK1, TGFBR2, CDKN2A</i>
Tryptophan metabolism	<i>CAT, ALDH2, CYP1A1, KMO, MAOA, ALDH7A1, AFMID, ALDH3A2, WARS, CYP1B1</i>
Fructose and mannose metabolism	<i>SORD, FBP1, AKR1B10, GMPPB, HK1, PMM2, ALDOB, PHPT1, PFKP</i>
Insulin signaling pathway	<i>SHC4, MTOR, AKT2, PRKAA1, PIK3R1, FASN, KRAS, PRKAR2B, PPP1CC, IRS4, PRKAG3, IRS2, INSR, SOCS1, SHC1, FBP1, PCK1, MKNK2, HK1, PPARGC1A, MAPK1, HRAS, PRKARIA</i>
Adherens junction	<i>SMAD3, INSR, IGF1R, IGF1R, CTNNB1, CDH1, ACVR1B, ACTN4, ERBB2, TGFBRI, CTNND1, MAPK1, TGFBR2, TCF7L2, SNAI2, FARP2</i>
Biosynthesis of unsaturated fatty acids	<i>FADS1, SCD, SCD, FADS2, PECCR, PTPLB, SCD5, ACOX1</i>
Fatty acid metabolism	<i>ADH5, ADH1A, ADH6, ACSLI, ALDH2, ACOX1, ALDH7A1, ACADM, ALDH3A2, ADH1C</i>

Antigen processing and presentation	<i>HLA-DRA, HLA-DRA, HLA-DMA, HLA-DMA, HLA-DMA, CTSS, HSPA5, HLA-DMB, HLA-DMB, IFI30, B2M, RFX5, CREB1, HLA-DPB1, CD74, HSPA6</i>
O-Glycan biosynthesis	<i>GALNT1, B4GALT5, GALNT5, GALNT12, GCNT3, ST6GALNAC1, GALNT7, ST3GAL1</i>
ErbB signaling pathway	<i>SHC4, MTOR, AKT2, EGF, PIK3R1, ERBB2, STAT5B, KRAS, CDKN1A, PAK3, SHC1, NCK2, ERBB3, MAPK1, GAB1, HRAS</i>
Gap junction	<i>EGF, TUBA1C, KRAS, TUBB6, ITPR2, PDGFRA, CDC2, ADCY2, TUBA8, TUBB2B, PDGFD, GNAQ, MAPK1, HRAS, PDGFRB, TUBA4A</i>
Maturity onset diabetes of the young	<i>HHEX, FOXA2, NKX2-2, HNF4G, NR5A2, HNF1B, NEUROD1</i>
Ascorbate and aldarate metabolism	<i>ALDH7A1, UGT2A3, ALDH2, ALDH3A2, UGT2B10</i>
Propanoate metabolism	<i>PCCB, ALDH2, ACSS3, ACSS2, ALDH7A1, ACADM, ACSS1, ALDH3A2</i>
Neurotrophin signalling pathway	<i>SHC4, RPS6KA1, AKT2, PIK3R1, KRAS, PSEN1, IRS4, IRS2, IRAK1, KIDINS220, SHC1, CSK, PRKCD, ARHGDI, NFKBIB, MAPK1, HRAS, GAB1, YWHAB, MAP3K1</i>
Arachidonic acid metabolism	<i>GPX3, CYP4F2, CYP2J2, GPX2, TBXAS1, AKR1C3, LTA4H, CYP4F3, PLA2G10, CYP2C18, GPX4</i>