

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes
Normal > Tumor							
1	04510	2.425E-07	2.599	36.387	63	125	Focal adhesion ACTN4, ACTN1, BIRC2, BRAF, CAV1, CAV2, CCND2, CCND3, COL4A1, COL6A1, COL6A2, CRK, CTNNB1, EGF, FLNA, FLNB, FLNC, FLT4, ARHGAP35, GSK3B, IGF1, IGFIR, ILK, ITGA2, ITGA9, ITGB1, ITGB4, ITGB8, JUN, KDR, LAMA3, LAMA4, LAMB1, LAMB3, LAMC1, LAMC2, MET, MYLK, PPP1R12A, PDGFRA, PDGFRB, PIK3R1, PPP1CA, PPP1CC, MAPK10, PTEN, PXN, RAC1, RAC2, SOS1, THBS3, THBS4, TLN1, VCL, VEGFC, ROCK2, AKT3, MYL9, SHC2, PDGFC, TNN, PDGFD, TLN2
2	04360	8.701E-06	2.708	24.161	43	83	Axon guidance ABL1, CFL2, DPYSL2, EFNA5, EFNB2, EFNB3, EPHA4, EPHB1, EPHB3, EPHB4, FES, GNAI2, GSK3B, ITGB1, ABLIM1, LIMK2, MET, NCK1, NFATC3, NFATC4, PLXNB1, PPP3CA, PPP3CB, RAC1, RAC2, RGS3, CXCL12, SLIT3, NCK2, SEMA5A, SLIT2, NTN1, ROCK2, SRGAP3, SEMA4D, SEMA4B, NFAT5, ARHGEF12, PLXNB2, NTN4, ROBO3, SEMA6D, SEMA3D
3	04520	2.378E-05	3.545	13.391	27	46	Adherens junction ACTN4, ACTN1, CSNK2A1, CTNNB1, CTNND1, EP300, FGFR1, IGFIR, INSR, SMAD2, MET, MLLT4, PTPRF, PTPRM, PVRL1, RAC1, RAC2, SNAI2, TCF7, TCF7L2, TGFBR2, TJPI, VCL, IQGAP1, SORBS1, PARD3, PVRL4
4	04310	8.783E-05	2.231	29.110	47	100	Wnt signaling pathway APC, CAMK2B, CAMK2G, CCND2, CCND3, CSNK1A1, CSNK1E, CSNK2A1, CTBP1, CTNNB1, DVL1, DVL3, EP300, FZD2, GSK3B, JUN, LRP6, LRP5, SMAD2, MYC, NFATC3, NFATC4, PPAR, PPP2R1B, PPP2R5C, PPP3CA, PPP3CB, PRKACB, MAPK10, PSEN1, RAC1, RAC2, SFRP1, TCF7, TCF7L2, TP53, FZD5, AXIN2, FZD4, FZD7, BTRC, ROCK2, APC2, NFAT5, DAAM2, WNT5B, PRICKLE2

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes
5	1.994E-04	1.705	63.168	87	217	Pathways in cancer	ABL1, APC, BIRC2, FAS, ARNT, BRAF, CASP9, RUNX1, RUNX1T1, CBL, CBLB, CDK6, CEBPA, COL4A1, CRK, CTBP1, CTNNB1, DVL1, DVL3, EGF, EP300, EPAS1, ETS1, FGF1, FGF2, FGFR1, FGFR2, FOXO1, FOS, MTOR, FZD2, GLI3, GSK3B, IGF1, IGF1R, IKKKB, ITGA2, ITGB1, JUN, JUP, KIT, LAMA3, LAMA4, LAMB1, LAMB3, LAMC1, LAMC2, SMAD2, MET, MYC, PDGFRA, PDGFRB, PIK3R1, PLCG1, PLD1, PPARG, PPARG, MAPK10, PTCH1, PTEN, RAC1, RAC2, RXRB, RXRG, SMO, SOS1, STAT3, STAT5B, TCF7, TCF7L2, TGFBR2, TP53, VEGFC, ZBTB16, FZD5, AXIN2, FZD4, FZD7, PIAS2, AKT3, APC2, PIAS3, DAPK2, APPL1, SUFU, EGLN1, WNT5B
6	0.4810	2.539E-04	35.805	54	123	Regulation of actin cytoskeleton	ACTN4, ACTN1, APC, BDKRB2, BRAF, CFL2, CRK, DIAPH2, EGF, FGF1, FGF2, FGFR1, FGFR2, FGFR4, ARHGAP35, GSN, ITGA2, ITGA9, ITGB1, ITGB4, ITGB8, LIMK2, MSN, MYH9, MYH10, MYLK, PPP1R12A, PDGFRA, PDGFRB, PIK3R1, PPP1CA, PPP1CC, PXN, RAC1, RAC2, RRAS, SOS1, TMSB4X, VCL, PIP4K2B, IQGAP1, ARHGEF7, ARHGEF6, ROCK2, ARPC4, ABI2, APC2, MYL9, MRAS, CYFIP1, ARHGEF12, SSH1, PDGFC, PDGFD
7	0.5217	5.569E-04	9.606	19	33	Basal cell carcinoma	APC, CTNNB1, DVL1, DVL3, FZD2, GLI3, GSK3B, PTCH1, SMO, TCF7, TCF7L2, TP53, FZD5, AXIN2, FZD4, FZD7, APC2, SUFU, WNT5B
8	0.00310	1.135E-03	9.315	18	32	Lysine degradation	ACAT1, ALDH2, ALDH7A1, GCDH, HADHA, OGDH, SETMAR, BBOX1, PLOD3, SETDB1, EHMT2, SETD2, SUV420H1, WHSC1L1, ASH1L, NSD1, EHMT1, SETD7
9	0.03040	1.698E-03	20.959	33	72	Spliceosome	HNRNPK, NHP2L1, PCBP1, PLRGI, SRSF1, SRSF2, SRSF3, SRSF4, SRSF5, TRA2B, SNRNP70, DDX39B, DHX16, SART1, SNRNP40, DHX38, SF3A1, CHERP, SLU7, PRPF8, TCERG1, DDX42, U2AF2, NCBP2, ACIN1, U2SURP, SF3B1, SYF2, RBMX, PRPF38B, XAB2, RBM25, PRPF38A

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes	
10	03320	5.359E-03	2.621	9.606	17	33	PPAR signaling pathway	CPT1A, ILK, LPL, PLIN1, PLTP, PPARA, PPARC, PPARL, PPARG, RXRB, RXRG, SCD, UBC, ADIPOQ, NRIH3, SORBS1, ANGPTL4, SLC27A1
11	04530	5.779E-03	1.923	20.668	31	71	Tight junction	ACTN4, ACTN1, CSNK2A1, CTNNB1, EPB41L1, EPB41L2, GNAI2, MLLT4, MYH9, MYH10, MYH11, CLDN11, PPP2R1B, PRKCH, PTEN, RRAS, SPTAN1, TJPI, CLDN5, VAPA, MAGI1, TJP2, AKT3, MYL9, EXOC3, MRAS, PPP2R2D, ASH1L, PARD3, JAM3, AMOTL1
12	05213	1.567E-02	2.204	10.480	17	36	Endometrial cancer	APC, BRAF, CASP9, CTNNB1, EGF, GSK3B, ILK, MYC, PIK3R1, PTEN, SOS1, TCF7, TCF7L2, TP53, AXIN2, AKT3, APC2
13	05215	1.578E-02	1.836	17.757	26	61	Prostate cancer	BRAF, CASP9, CTNNB1, EGF, EP300, FGFR1, FGFR2, FOXO1, MTOR, GSK3B, IGF1, IGF1R, IKBKB, PDGFRA, PDGFRB, PIK3R1, PTEN, SOS1, TCF7, TCF7L2, TP53, CREB5, AKT3, PDGFC, CREB3L2, PDGFD
14	04920	2.134E-02	2.093	10.771	17	37	Adipocytokine signaling pathway	CPT1A, MTOR, IKBKB, IRS1, PPARA, PRKAB1, MAPK10, RXRB, RXRG, STAT3, IRS2, SOCS3, ADIPOQ, AKT3, CAMKK2, ADIPOR2, CAMKK1
15	05221	3.009E-02	1.926	11.935	18	41	Acute myeloid leukemia	BRAF, RUNX1, RUNX1T1, CEBPA, MTOR, IKBKB, JUP, KIT, MYC, PIK3R1, PPARG, SOS1, STAT3, STAT5B, TCF7, TCF7L2, ZBTB16, AKT3
16	05210	3.386E-02	1.784	14.555	21	50	Colorectal cancer	APC, BRAF, CASP9, CTNNB1, FOS, GSK3B, JUN, SMAD2, MYC, PIK3R1, MAPK10, RAC1, RAC2, TCF7, TCF7L2, TGFBR2, TP53, AXIN2, AKT3, APC2, APPL1
17	04010	3.486E-02	1.388	46.285	57	159	MAPK signaling pathway	FAS, BRAF, CRK, DUSP1, DUSP3, DUSP6, EGF, ELK4, FGF1, FGF2, FGFR1, FGFR2, FGFR4, FLNA, FLNB, FLNC, FOS, NR4A1, IKBKB, JUN, JUND, MEF2C, MAP3K4, MYC, NFATC4, NTF3, NTRK2, PDGFRA, PDGFRB, PPM1A, PPM1B, PPP3CA, PPP3CB, PRKACB, MAPK10, MAP2K7, RAC1, RAC2, RASA2, RRAS, SOS1, SRF, TGFBR2, TP53, MAPKAPK5, JMJD7-PLA2G4B, RPS6KA4, TAOK2, AKT3, RASGRP2, MRAS, TAB2, MAPK8IP3, TAOK3, DUSP22, TAOK1, CACNG7

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes
18	04340	3.828E-02	2.129	8.151	13	28	Hedgehog signaling pathway BMP6, CSNK1A1, CSNK1D, CSNK1E, GAS1, GLI3, GSK3B, PRKACB, PTCHI, SMO, BTRC, SUFU, WNT5B
19	04512	4.230E-02	1.723	14.846	21	51	ECM-receptor interaction CD47, COL4A1, COL6A1, COL6A2, DAG1, ITGA2, ITGA9, ITGB1, ITGB4, ITGB8, LAMA3, LAMA4, LAMBI, LAMB3, LAMC1, LAMC2, THBS3, THBS4, SDC3, TNN, AGRN
20	04722	4.506E-02	1.509	25.326	33	87	Neurotrophin signaling pathway ABL1, BRAF, CALM1, CAMK2B, CAMK2G, CRK, GAB1, GSK3B, IKKB, IRS1, JUN, NGFR, NTF3, NTRK2, PIK3R1, PLCG1, MAPK10, MAP2K7, PSEN1, RAC1, SOS1, TP53, YWHAB, YWHAG, IRS2, RPS6KA4, AKT3, SH2B3, ZNF274, PRDM4, SHC2, SH2B1, KIDINS220
21	04630	4.524E-02	1.585	20.086	27	69	Jak-STAT signaling pathway CBL, CBLB, CCND2, CCND3, EP300, EPOR, GHR, IFNARI, IFNGR1, LIFR, MYC, PIK3R1, SOS1, STAT2, STAT3, STAT5B, STAT6, TYK2, SOCS2, SOCS3, PIAS2, AKT3, SPRY1, SPRY2, PIAS3, IL20RA, SOCS4
22	04144	4.834E-02	1.423	33.476	42	115	Endocytosis ADRBK2, AP2A2, CAV1, CAV2, CBL, CBLB, DAB2, DNMI, DNMI2, EGF, EPS15, FGFR2, FGFR4, FOLR1, FOLR2, IGF1R, KDR, KIT, SMAD2, MET, PDGFRA, PLD1, TGFB2, GIT2, IQSEC1, VPS45, RAB11FIP2, NEDD4L, PSD4, VPS4A, CHMP2A, SH3KBP1, EHD4, ASAPI, VPS36, ARFGAP1, PAR3, SH3GLB2, VPS37B, RUFY1, FAM125B, ARAPI
23	05412	4.915E-02	1.770	12.517	18	43	Arrhythmogenic right ventricular cardiomyopathy (ARVC) ACTN4, ACTN1, CTNNB1, DAG1, DMD, DSG2, ITGA2, ITGA9, ITGB1, ITGB4, ITGB8, JUP, LMNA, SGCB, SGCD, TCF7, TCF7L2, CACNG7

Normal < Tumor

1	05322	5.945E-07	3.376	15.964	35	75	Systemic lupus erythematosus C2, HIST1H2AE, H2AFX, H2AFX, HIST1H2BB, HLA-DQB1, HIST1H2AK, HIST1H2AL, HIST1H2AC, HIST1H2AB, HIST1H2AM, HIST1H2BG, HIST1H2BL, HIST1H2BM, HIST1H2BH, HIST1H2BI, HIST1H2BC, HIST1H2BO, HIST1H3A, HIST1H3D, HIST1H3C, HIST1H3E, HIST1H3I, HIST1H3G, HIST1H3J, HIST1H3H, HIST1H3B, HIST1H4A, HIST1H4F, HIST1H4L, HIST1H3F, HIST1H2AG, HIST1H2BJ, H2AFJ, HIST3H2A
---	-------	-----------	-------	--------	----	----	---

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes
2	04260	3.025E-05	8.301	20	39	Cardiac muscle contraction	ACTC1, ATP1A1, ATP1B2, CACNA1C, CACNA1S, CACNB1, COX6B1, COX6C, COX7A2, COX7B, COX8A, MYH6, TNNC1, TNNT3, COX7A2L, CACNA2D2, UQCRCQ, CACNG4, UQCRI0, CACNG7
3	04110	2.044E-04	17.667	32	83	Cell cycle	BUB1B, CCNA2, CCNB1, CCNE1, CDK1, CDC6, CDC25A, CDC25B, CDC25C, CDK2, CDKN1A, CDKN2A, E2F1, E2F5, GSK3B, MAD2L1, MCM2, MCM3, MCM4, MDM2, PCNA, PLK1, PRKDC, TTK, YWHAG, SMC1A, PKMYT1, CCNB2, CCNE2, BUB3, ORC6, CCNB3
4	00190	6.830E-04	12.771	24	60	Oxidative phosphorylation	ATP5G3, ATP6V1A, ATP6V1E1, ATP5O, COX6B1, COX6C, COX7A2, COX7B, COX8A, NDUFA2, NDUFA6, NDUFB2, NDUFB9, NDUFS1, NDUFS8, COX7A2L, ATP5L, UQCRCQ, UQCRI0, ATP6V1H, NDUFB11, NDUFA12, ATP6V1C2, NDUFS7
5	05012	4.765E-03	12.132	21	57	Parkinson's disease	ATP5G3, ATP5O, CASP3, COX6B1, COX6C, COX7A2, COX7B, COX8A, NDUFA2, NDUFA6, NDUFB2, NDUFB9, NDUFS1, NDUFS8, TH, COX7A2L, UQCRCQ, UQCRI0, NDUFB11, NDUFA12, NDUFS7
6	04914	2.145E-02	11.281	18	53	Progesterone-mediated oocyte maturation	ARAF, CCNA2, CCNB1, CDK1, CDC25A, CDC25B, CDC25C, CDK2, GNAI2, IGF1, MAD2L1, PLK1, MAPK13, RPS6KA2, PKMYT1, CCNB2, PIK3R5, CCNB3
7	05010	2.682E-02	19.795	28	93	Alzheimer's disease	ATP5G3, ATP5O, CACNA1C, CACNA1S, CALM2, CASP3, COX6B1, COX6C, COX7A2, COX7B, COX8A, GSK3B, LRP1, NDUFA2, NDUFA6, NDUFB2, NDUFB9, NDUFS1, NDUFS8, NOS1, COX7A2L, NCSTN, UQCRCQ, UQCRI0, NDUFB11, PSENEN, NDUFA12, NDUFS7
8	05016	2.682E-02	19.795	28	93	Huntington's disease	ATP5G3, ATP5O, BDNF, CASP3, CLTC, COX6B1, COX6C, COX7A2, COX7B, COX8A, NDUFA2, NDUFA6, NDUFB2, NDUFB9, NDUFS1, NDUFS8, POLR2K, TAF4, TGM2, COX7A2L, DCTN2, RCOR1, UQCRCQ, UQCRI0, NDUFB11, NDUFA12, CREB3L4, NDUFS7

ID	P-value	Odds ratio	Exp. count	Count	Size	Pathway Name	Genes	
9	04114	3.423E-02	1.686	15.112	22	71	Oocyte meiosis	AR, CALM2, CCNB1, CCNE1, CDK1, CDC25C, CDK2, IGF1, MAD2L1, PLK1, PPP2CA, PPP2R5B, PPP2R5D, RPS6KA2, AURKA, YWHAG, SMC1A, PKMYT1, CCNB2, CCNE2, FBXO5, SGOL1
10	04080	3.994E-02	1.549	20.434	28	96	Neuroactive ligand-receptor inter-action	TSPO, C5ARI, CHRM1, CHRM2, CHRNE, LTB4R, DRD1, DRD2, DRD3, GABRA1, NPBWR1, GRIA1, GRIK5, GRM2, GRM7, OPRL1, PPYR1, PRSS3, SSTR1, TACR2, THRA, TRHR, TSHB, CYSLTR1, HRH3, NTSR2, GRIN3A, GPR156