

Supplementary Table 2A: Ingenuity Pathway Analysis (IPA) results of genes significantly modulated by perifosine/sorafenib combined treatment (per+sor treatment) in the HD-MyZ cell line. These genes belong to the subsets identified by the lower right circles (red or green) of the Venn diagrams shown in Figure 4.13. The gene symbols highlighted in bold red (upregulated genes) or in bold green (downregulated genes) identify the most modulated genes, i.e. the genes indicated with red/green symbols in the Volcano plots of Figure 4.14. The Table lists IPA results according to top networks, top functions and top canonical pathways.

GENES UPREGULATED BY PER+SOR TREATMENT				
TOP NETWORKS				
ID	Molecules in Network	Score	Focus Molecules	Top Functions
1	ALDH3A2, ALDH3B1, ALDH6A1, ALDH7A1, ANXA4, APIG2, AXL, BBS2 , BBS9, BRE, CLIP2, FUCA1, GGT7, GSTM1, IRF7, IRF9, OPTN, SCNN1B, SCNN1G, SHMT2, SLC3A2 , SLC7A5, STAT2, TLR5, TNFSF4, TSC22D3 , WWP2	38	27	Amino Acid Metabolism, Cardiovascular Disease, Genetic Disorder
2	ACTA2 , ALDH2 , CDH11 , COL1A1, COL1A2, CTSB, DAPK1, DCN, GRN, GSN , HEY1 , ITGB5, LAMA5 , LIMS1, MAP2K6, MATN2 , MFG8, MST1 , NR2F2, PLCE1, PSAT1 , PTP4A3 , SRPX2 , THBS4, THY1, TIMP2	36	26	Cellular Movement, Connective Tissue Disorders, Dermatological Diseases and Conditions
3	AARS , AKR1C4, ASNS , ATF3, ATF4 , BTG1, CAT, DDIT4 , GOT1, HTRA1, ID2, INPP5E, JUND, LITBP4, MSC, PAPP, PCK2 , PHLDB1, PLAT, SARS, SMAD6, TGFB3, TPM1 , TRIB3 , TRO, WARS	36	26	RNA Post-Transcriptional Modification, Amino Acid Metabolism, Small Molecule Biochemistry
4	ANK2, ARHGEP2, CTLA4, CTS, DAAMI, DKK3, GBA, GBP2 , GCNT1, GLB1, GRIN3B , MAPK8IP3, MVP, MX1 , PHGDH , PIMI, PPP2R3B, PSAP, RHOB, SCARB2, SNAI2 , SPTAN1	28	22	Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry
5	CBS, CCDC92, CD24, CDKN1B, COL12A1, COL6A3, COL8A1, EFEMP2, FBXO32, FLNB, KLF4 , MAP3K4, MKNK2, MLF1, PDCD4, PDCD6IP, PLSCR3, SERPINB7, SMOX, TERF1	24	20	Cell Death, Connective Tissue Disorders, Genetic Disorder
6	AHNAK2, AHS2, ASNS , C14orf45, DUS4L, ECM2, ENOSF1, FANCA, GANAB, GPT2, HENMT1, ISYNA1, KCNS3, LONRF1, NIPSNAP1, PRRT2 , PSG4, PSG5 , WARS, WSB1, YPEL5	24	20	Antigen Presentation, Inflammatory Response, Cellular Assembly and Organization
7	ABCC3, AFF3, ANK RD29, BEX4, EIF2S3, GRN, GRK5, GSTA4, LMO4, LPP, MAGED1, MAGED2, MSH5, NUCB2, RPS6KA2, SLC6A9 , VAMP1	21	18	Amino Acid Metabolism, Cell Cycle, Molecular Transport
8	AMT, C11orf71, CLCN6, CRYZL1, E2F4, ETFDH, FIG4, IL11RA, PARP9, PSAT1 , RBMS1, RSPH3, SESN2 , SNX17, SPATA6, USP36, ZSCAN12	17	16	Carbohydrate Metabolism, Cellular Compromise, Drug Metabolism
9	ACSM3, CARS , CLIP3 , DACT1, DFNA5 , H2AFY, HMG20B, KLF4 , NKX3-2, PARP3, PCDH18, PHE21A, RBMS3, RHOB, SNAI2 , WNT2B	17	16	Gene Expression, Cell-To-Cell Signaling and Interaction, Cellular Function and Maintenance
10	AKNA, AKR1B10, BTG1, EFHD1, FOS, GCNT1, IQCC, LARP6 , LETMD1, MST1 , NPIP, PQLC3, SLC4A8, SNAI2 , TCF25, TLN2, ZNF467	17	16	Cellular Growth and Proliferation, Hematological System Development and Function, Cellular Development
11	ACAD10, ACADVL, ADAM8, BCKDHB, CDK20, FBXO32, IFT52, INPP5B, JUP, PLD3, SLC1A4, SLC27A1 , SPSB3, VCP1P1	14	14	Genetic Disorder, Metabolic Disease, Lipid Metabolism
12	APBB3, ASAP3, BAIAP2L1, CAT, CTLA4, FBXO15, FRS3, JUP, KCNG1, KRT86, OLFM12A , PTGES, TMCO3, TPM1	14	14	Cellular Movement, Cell Death, Inflammatory Response
13	ANKRD33, ASC1, CIQTNP6, CMBL, HEY1 , LOXL4, MTA3, NISCH, NPAS1, SCARA3, SCN9A, SNAI2 , TRIB3 , TSPAN6	14	14	Gene Expression, Behavior, Nervous System Development and Function
14	BTN3A1, BTN3A2, CELSR3, CORO2A, ELL3, GLIPR2, GPR56 , GPRC5B, MANBA, MRPS10, SCUBE3, STX16, TP53BP1	13	13	Gastrointestinal Disease, Hematological Disease, Immunological Disease
15	ANKRD36B, BFPSP1, ETV4, FAMI34B, IGSF5, KLF4 , LETM2, NAV1, PYGB, SEPT6, SLC16A5, SNAI2 , SPOCK1 , SRPX	13	13	Cell Morphology, Cellular Assembly and Organization, Cellular Development
16	CBLN3, CDH11 , CDK15, CNTNAP1, CPXCR1, DOCK11 , FNDCL, FZD2, KIFC2, RALGPS1, RPL37, TPPI, ZFP90	13	13	Cell Morphology, Cell-To-Cell Signaling and Interaction, Nervous System Development and Function
17	ABCC3 , ADM, AFF3, ANKRD29, BEX4, EIF2S3, GRN, MAN1B1, OCIAD1, PKD1L2, PNPLA7, TMEM8B, TNS3	11	12	Organismal Functions, Cell Morphology, Inflammatory Response
18	APPBP2, ARMCX2, CDH11 , CTSD, DNASE2 , FGF20, OSBPL7, PLEKHF1 , SRA1, SUMF2, SYT11, TCEA3 , ZSCAN2	11	12	Cellular Movement, Connective Tissue Development and Function, Skeletal and Muscular System Development and Function
19	ATF5, CASCT, CCDC24, DCAF4, HIST1H2BN, MYRIP, PRUNE2, PSG3, SUSD1, SYT13 , TUBG2, WDR19, WWP2	11	12	Cancer, Reproductive System Disease, Cardiac Inflammation
20	ATP2B4, ATXN1 , CAMK1D, LRSAMI, MX1 , PBX1, SMARCD3, SUGP2, THRA, TUBB2B	9	10	Cell Signaling, Molecular Transport, Vitamin and Mineral Metabolism
21	ADM2, CPA4, CTBS, CTSD, DIS3L, GNL3, MARS, MTMR11 , PALM, RNASE4 , RRAGB	9	10	Cellular Growth and Proliferation, Respiratory System Development and Function, RNA Post-Transcriptional Modification
22	SPG11	1	1	Cell Death, Developmental Disorder, Respiratory System Development and Function
23	RIMS3	1	1	Molecular Transport, Small Molecule Biochemistry, Cell Morphology
24	IRF2BPL	1	1	
25	LMTK3	1	1	Cell Cycle, Reproductive System Development and Function, Cellular Function and Maintenance

TOP FUNCTIONS			
ID	Molecules	p-value	Category
1	ATXN1 , COL8A1, CTSD, RHOB, GLB1, ALDH3A2, GABRB1, BTN3A1, GOT1, JUND, CNTNAP1, JUP, SPOCK1 , TIMP2, RIMS3, LMO4, SCN9A, DCN, GRK5, GSN , IRF7, SCNN1G, COL6A3, PSORS1C1, TGFB3, CTSB, LEMD2, ALDH3B1, SPTAN1, TUBG2, FLNB, SLC1A4, IDUA, ACTA2 , HIST1H2BN, CTLA4, PARP9, EVC, COL1A2, GBA, BEX4, PHGDH , CD24, GBP2 , PLAT, PSAT1 , GSTM1, LAMA5 , GRIN3B , COL12A1, MX1 , MANBA, AXL, GRN, PTGES, COL1A1, GPR56 , ACADVL, TLR5, H2AFY, ANK2, CLCN6, PSAP, TPPI, SCNN1B, CDKN1B	1.35E-05-2.28E-02	Genetic Disorder
2	TNFSF4, IDUA, CTLA4, COL1A2, CTSD, GBA, GLB1, ALDH3A2, PHGDH , PSAT1 , ATF3, GRK5, TRIB3 , THRA, MANBA, GSN , COL1A1, SCNN1G, CBS, ACADVL, CLCN6, TPPI, PSAP, SCNN1B, SLC27A1 , CDKN1B	1.35E-05-2.28E-02	Metabolic Disease
3	SLC1A4, SLC6A9 , CCDC92, THRA, PCYOX1, ASNS , BCKDHB, SLC3A2 , CBS, PHGDH , SLC7A5, ATF4 , GOT1, CDKN1B, ALDH6A1, SHMT2	2.67E-05-2.95E-02	Amino Acid Metabolism

4	SLC1A4, SLC6A9 , ASNS , BCKDHB, ALDH2 , CTSD, GBA, GLB1, INPP5B, PHGDH , ATF4 , SLC7A5, GOT1, PDCD6IP, ALDH6A1, MVP, IL11RA, INPP5E, CCDC92, MX1 , THRA, FIG4, PCYOX1, GSN , SLC3A2 , PTGES, PHLDB1, CBS, CAT, PSAP, STX16, ALDH3B1, SLC27A1 , CDKN1B, AARS , AKR1C4, ABCC3 , SHMT2	2.67E-05-2.95E-02	Small Molecule Biochemistry
5	NR2F2, MST1 , CTSD, RHOB, SRPX2 , PIMI, FBLN1, CASCI, JUND, JUP, ITGB5, TIMP2, PAPP, ATF3, PTP4A3 , DCN, THY1, GSN , MAPK8IP3, KLF4 , SLC3A2 , GCNT1, CD99L2, SNAI2 , CTSB, TGFB3, TPM1 , FLNB, ID2, TNFSF4, MFGES, PARP9, CTLA4, CDH11 , PDCD4, TUBB2B , DKK3, NAV1, CD24, LPP, SARS, HEY1 , PLAT, THBS4, LAMA5 , MX1 , AXL, GRN, COL1A1, WARS, CAT, STX16, CDKN1B, SEPT6, NISCH	5.45E-05-3.07E-02	Cellular Movement
6	PRUNEZ, MAGED1, PPP2R3B, MST1 , ADAM8, DOCK11 , FBLN1, GABRB1, ITGB5, ALDH7A1, TIMP2, DAPK1, PLD3, DDIT4 , SCN9A, DCN, PTP4A3 , THY1, SYT13 , SNAI2 , SLC16A5, CTSB, TRO, EIF2S3, MAP2K6, MSC, MFGES, CDH11 , TUBB2B , GBA, BEX4, CD24, LETM2, LPP, PDCD6IP, HEY1 , PLAT, C14orf159, GSTM1, GRIN3B , COL12A1, ANXA4, MLF1, AXL, ECM2, GRN, PTGES, TP53BP1, ABCC3 , WDR19, LOXL4, TTL1, SIDT2, PBX1, CTSD, PLCE1, RHOB, PIMI, SLC7A5, GOT1, JUND, JUP, FUCA1, PAPP, ATF3, LMO4, MAGED2, THRA, PGAP3, GSN , MAPK8IP3, KLF4 , SMARCD3, SLC3A2 , YPEL5, KCNG1, COL6A3, BBS2 , AKR1B10, TGFB3, STAT2, HTRA1, TUBG2, TPM1 , ID2, SLC1A4, LETMD1, SRPX, ACTA2 , KIFC2, C1orf63, CTLA4, PDCD4, SCARB2, COL1A2, ALDH2 , PHGDH , ARHGEF2, LTBPA, GBP2 , TERF1 , THBS4, LAMA5 , PSAT1 , ARNTL, EFEMP2, FAM134B, AQP11, MX1 , MKNK2, CPA4, AKNA, COL1A1, GPR56 , WARS, TLR5, CAT, FGF20, CDKN1B	8.61E-05-2.96E-02	Cancer
7	INPP5E, MX1 , FIG4, GSN , SLC3A2 , PTGES, CTSD, GBA, CBS, GLB1, INPP5B, CAT, PHGDH , PSAP, SLC27A1 , PDCD6IP, AKR1C4, ABCC3	1.14E-04-2.78E-02	Lipid Metabolism
8	SLC1A4, SLC6A9 , CTSD, GBA, GLB1, INPP5B, PHGDH , SLC7A5, CLIP3 , PDCD6IP, MVP, IL11RA, INPP5E, GSTA4, AQP11, CCDC92, SLC45A1, TRIB3 , FIG4, GSN , SLC3A2 , PTGES, PHLDB1, SCNN1G, CBS, CAT, SCNN1B, STX16, PSAP, AKR1C4, ABCC3	1.14E-04-2.78E-02	Molecular Transport
9	LAMA5 , FLNB, EFEMP2, DCN, BTG1, PTGES, PLCE1, GBA, PIMI, CTSB, TGFB3, CDKN1B, JUP, PLAT, HEY1 , TIMP2	5.2E-04-2.28E-02	Cardiovascular System Development and Function
10	PRUNE2, CAMK1D, ATXN1 , PKD1L2, SAMD9L, PBX1, COL8A1, IGSF5, ADAM8, BCKDHB, MYRIP, GABRB1, SPOCK1 , TIMP2, ALDH7A1, DAPK1, PAPP, DNASE2 , SCN9A, HCG27, GRK5, GPT2, GSN , NKX3-2, TLN2, COL6A3, MATN2 , PSORS1C1, CD99L2, CTSB, LEMD2, MSH5, HTRA1, TUBG2, MAP2K6, FLNB, TNFSF4, SLC1A4, GALNTL1, ACTA2 , CTLA4, CDH11 , COL1A2, EVC, KCNS3, OLFML2A , CD24, GBP2 , LPP, FUK, RIMKLB, IL11RA, PLAT, ARNTL, EFEMP2, COL12A1, WNT2B, SMAD6, LRSAM1, MANBA, GRN, COL1A1, GLIPR2, AFF3, TLR5, DOPEY2, CLCN6, TPP1, CORO2A, TP53BP1, CDKN1B, ADAMTSL1	5.2E-04-2.28E-02	Connective Tissue Disorders
11	SLC1A4, ACTA2 , COL8A1, CTLA4, PARP9, CDH11 , COL1A2, PLCE1, GBA, ALDH3A2, PHGDH , CD24, GOT1, JUND, JUP, GBP2 , IL11RA, TIMP2, PLAT, LAMA5 , GSTM1, GRIN3B , OPTN, EFEMP2, COL12A1, SCN9A, THY1, MX1 , GSN , KRT86, GRN, COL1A1, IRF7, ACADVL, COL6A3, TLR5, H2AFY, SNAI2 , PSORS1C1, AKR1B10, CAT, CTSB, PSAP, TP53BP1, CDKN1B, SPTAN1, TUBG2	5.2E-04-2.28E-02	Dermatological Diseases and Conditions
12	MAP2K6, TPM1 , FLNB, ID2, SLC1A4, NR2F2, PBX1, MST1 , MAP3K4, COL1A2, EVC, CTSD, SRPX2 , PIMI, FBLN1, PHGDH , ATF4 , JUP, FBXO32, GRIN3B , ATF3, LMO4, SCN9A, SMAD6, MAPK8IP3, GSN , NKX3-2, GPR56 , COL1A1, PTGES, ANK2, BBS2 , SNAI2 , CAT, TGFB3, CTSB, BBS9, CDKN1B	5.2E-04-3.26E-02	Developmental Disorder
13	PRUNE2, ATXN1 , SAMD9L, ADAM8, BCKDHB, MYRIP, GLB1, GABRB1, BTN3A1, SPOCK1 , ALDH6A1, ALDH7A1, DAPK1, SCN9A, THY1, GRK5, GPT2, NKX3-2, CTSB, MSH5, LEMD2, SLC27A1 , FBXO15, BRE, MAP2K6, FLNB, TNFSF4, VAMP1, ASNS , CDH11 , TUBB2B , GBA, BEX4, CD24, LPP, FUK, PLAT, IL11RA, GRIN3B , OPTN, LRSAM1, MLF1, AXL, GRN, GLIPR2, AFF3, ANK2, DOPEY2, CORO2A, TPP1, TP53BP1, ADAMTSL1, CAMK1D, NR2F2, PKD1L2, PBX1, IGSF5, TSC22D3 , CASCI, PAPP, DNASE2 , USP36, HCG27, THRA, GSN , MAPK8IP3, TLN2, COL6A3, MATN2 , CD99L2, PSORS1C1, HTRA1, MRPS10, TUBG2, SLC1A4, SRPX, GALNTL1, ACTA2 , CTLA4, EVC, COL1A2, SCARB2, KCNS3, ALDH2 , OLFML2A , DKK3, GBP2 , RIMKLB, PSAT1 , ARNTL, EFEMP2, WNT2B, SMAD6, COL1A1, TLR5, CAT, CLCN6, RBMS1, FGF20, CDKN1B, ARMCX2, SEPT6	5.2E-04-2.95E-02	Skeletal and Muscular Disorders
14	MAP2K6, TPM1 , MAGED1, ID2, PPP2R3B, CTLA4, PIMI, CASCI, RPS6KA2, TERF1 , TIMP2, ATF3, DCN, BTG1, MLF1, IRF9, AXL, KLF4 , GRN, COL1A1, IRF7, HMG20B, CAT, PSAP, MSH5, STX16, TP53BP1, CDKN1B, SPTAN1, SEPT6	8.95E-04-3.44E-02	Cell Cycle
15	GSTM1, PTGES, CTSD, GLB1, CTSB, TPP1, SCNN1B, LTBPA, MANBA, AXL, CTLA4, PLAT	1.44E-03-2.95E-02	Gastrointestinal Disease
16	COL1A1, PTGES, SCNN1G, EFEMP2, ANK2, SCN9A, TGFB3, SCNN1B, SLC27A1 , JUP, PLAT	1.54E-03-2.5E-02	Cardiovascular Disease
17	PRUNE2, MAGED1, CAMK1D, ATXN1 , MST1 , MAP3K4, CTSD, PLCE1, RHOB, PIMI, FBLN1, ATF4 , JUND, JUP, FBXO32, ITGB5, MVP, TIMP2, DAPK1, DNASE2 , ATF3, DDIT4 , PLSCR3, DCN, BTG1, THY1, IRF9, THRA, GSN , KLF4 , NKX3-2, WWP2, RPL37, PLEKHF1 , BBS2 , SNAI2 , TGFB3, CTSB, MSH5, STAT2, AARS , BRE, MAP2K6, FLNB, TPM1 , ID2, SRPX, LIMS1, MFGES, ASNS , CTLA4, PDCD4, DKK3, CD24, SMOX, ARHGEF2, RPS6KA2, PDCD6IP, TERF1 , PLAT, HEY1 , LAMA5 , OPTN, INPP5E, APBB3, SMAD6, TRIB3 , MX1 , AXL, GRN, PTGES, CAT, PSAP, CDKN1B, ABCC3 , ATP2B4	1.54E-03-3.43E-02	Cell Death

18	MAP2K6, TPM1 , FLNB, ID2, MAGED1, IDUA, MST1 , CDH11 , CTSD, PLCE1, RHOB, SRPX2 , PIMI, SERPINB7, ATF4 , JUND, ARHGFE2, GBP2 , LPP, PDCD6IP, ITGB5, TIMP2, LAMA5 , ATF3, LMO4, OPTN, PTP4A3 , DCN, BTG1, TRIB3 , AXL, GSN , KLF4 , COL1A1, SNAI2 , TGFβ3, CTSE, LEMD2, CDKN1B, SEPT6	1.54E-03-2.95E-02	Cellular Development
19	MAP2K6, TPM1 , MAGED1, ID2, TNFSF4, PBX1, COL8A1, MST1 , MFGES8, CTLA4, CTSD, PLCE1, RHOB, PIMI, SERPINB7, JUND, LTBP4, JUP, TERF1 , ITGB5, TIMP2, LAMA5 , ATF3, DCN, BTG1, SMAD6, CCDC92, THRA, KLF4 , GRN, PTGES, SNAI2 , TGFβ3, CDKN1B, SEPT6	1.54E-03-2.28E-02	Cellular Growth and Proliferation
20	PTGES, CBS, SLC7A5, ABCC3 , MVP, SLC3A2	1.54E-03-2.28E-02	Drug Metabolism
21	PRUNE2, ATXN1 , SAMD9L, SEMA4F, SUSP1, ADAM8, BCKDHB, MYRIP, FBLN1, GABRB1, SERPINB7, SPOCK1 , TIMP2, ALDH7A1, DAPK1, SCN9A, THY1, GRK5, GPT2, CTSE, LEMD2, MSH5, BRE, MAP2K6, TNFSF4, MFGES8, CDH11 , CD24, LPP, FUK, IL11RA, PLAT, GSTM1, GRIN3B , OPTN, LRSAM1, AXL, AMT, GRN, GLIPR2, AFF3, RBMS3, ANK2, DOPEY2, PSAP, CORO2A, TPP1, TP53BP1, ADAMTSL1, ABCC3 , CAMK1D, PKD1L2, PBX1, IGF5F5, CTSD, PLCE1, GOT1, JUP, TCMO3, PAPPA, DNASE2 , GSDMB, HCG27, PGAP3, FIG4, GSN , TLN2, MATN2 , CD99L2, PSORS1C1, AKR1B10, TGFβ3, HTRA1, TUBG2, SLC1A4, GALNTL1, ACTA2 , CTLA4, EVC, ALDH2 , KCNS3, OLFML2A , DKK3, PHGDH , LTBP4, GBP2 , ASAP3, RIMKLB, LAMA5 , ARNTL, EFEMP2, WNT2B, MX1 , COL1A1, TLR5, ACADVL, CAT, CLCN6, RBMS1, CDKN1B	1.54E-03-2.28E-02	Inflammatory Disease
22	SLCIA4, ATXN1 , ACTA2 , HIST1H2BN, CTLA4, CTSD, GBA, RHOB, GLB1, BEX4, PHGDH , GABRB1, CD24, BTN3A1, GOT1, CNTNAP1, SPOCK1 , PLAT, GSTM1, RIMS3, GRIN3B , LMO4, SCN9A, THRA, IRF9, GRK5, GSN , GRN, PTGES, GPR56 , TLR5, ANK2, CLCN6, CTSE, TPP1, LEMD2, PSAP, ALDH3B1, CDKN1B, TUBG2	1.54E-03-2.86E-02	Neurological Disease
23	LAMA5 , ID2, DCN, WNT2B, PBX1, THY1, COL8A1, THRA, MAPK8IP3, SMARCD3, COL1A2, COL1A1, PLCE1, ANK2, BBS2 , TGFβ3, IFT52, SERPINB7, PSAP, JUP, CDKN1B, HEY1	1.54E-03-2.28E-02	Organ Morphology
24	SCNN1G, TLR5, SCNN1B, AXL	1.54E-03-2.28E-02	Respiratory Disease
25	MAP2K6, TPM1 , ACTA2 , PBX1, CDH11 , CTSD, PLCE1, RHOB, ATF4 , LTBP4, JUND, LPP, TIMP2, ATF3, LMO4, SMAD6, THRA, GSN , NKX3-2, GRN, PTGES, COL1A1, CBS, CDKN1B, SEPT6	2.46E-03-2.54E-02	Connective Tissue Development and Function

TOP CANONICAL PATHWAYS				
ID	Molecules	-log(p-value)	Ratio	Ingenuity Canonical Pathways
1	PSAT1 , PLCE1, CBS, PHGDH , GOT1, SMOX, SARS, SHMT2, AMT	4.7E00	1.34E-01	Glycine, Serine and Threonine Metabolism
2	ALDH2 , ALDH3A2, ALDH7A1, BCKDHB	3.41E00	2.5E-01	Ascorbate and Aldarate Metabolism
3	ALDH2 , ACADVL, ALDH3A2, ACAD10, ALDH6A1, ALDH7A1, BCKDHB	3.38E00	1.17E-01	Valine, Leucine and Isoleucine Degradation
4	ALDH2 , PCK2 , ALDH3A2, ME3, ACOT12, ALDH7A1, BCKDHB	3.34E00	1.15E-01	Pyruvate Metabolism
5	ALDH2 , ACADVL, ALDH3A2, ACAD10, ALDH6A1, ALDH7A1	3.23E00	1.3E-01	β-alanine Metabolism
6	CARS , WARS, AARS , SARS, MARS	2.95E00	1.43E-01	Aminoacyl-tRNA Biosynthesis
7	ALDH2 , ACADVL, ALDH3A2, ACAD10, ALDH6A1, ALDH7A1	2.77E00	1.07E-01	Propanoate Metabolism
8	MAP2K6, GSTM1, CAMK1D, GSTA4, PPP2R3B, MAP3K4, PNPLA7, ALDH3A2, CAT, SMOX, ALDH3B1, ABCC3 , ALDH6A1, ALDH7A1	2.7E00	5.41E-02	Xenobiotic Metabolism Signaling
9	FUCA1, GLB1, MAN1B1, MANBA	2.64E00	1.6E-01	N-Glycan Degradation
10	CTSD, GSTM1, ALDH3A2, GSTA4, TGFβ3, ALDH3B1, CDKN1B, ALDH6A1, ALDH7A1	2.46E00	6.38E-02	Aryl Hydrocarbon Receptor Signaling
11	ALDH2 , ALDH3A2, ALDH3B1, SMOX, ALDH7A1	2.34E00	1.04E-01	Histidine Metabolism
12	ALDH2 , ALDH3A2, GOT1, SMOX, ALDH7A1, BCKDHB	2.28E00	8.57E-02	Arginine and Proline Metabolism
13	GBA, SHMT2, GGT7	2.2E00	1.67E-01	Cyanoamino Acid Metabolism
14	GOT1, AARS , GPT2, ASNS	2.05E00	1.08E-01	Alanine and Aspartate Metabolism
15	MAP2K6, ISYNA1, DAPK1, PLCE1, PIMI, INPP5E, INPP5B, GRK5	1.96E00	5.93E-02	Inositol Phosphate Metabolism
16	ALDH2 , WARS, ALDH3A2, CAT, SMOX, ALDH7A1, BCKDHB	1.95E00	6.48E-02	Tryptophan Metabolism
17	GSTM1, ALDH3A2, GSTA4, CAT, ALDH3B1, SLC27A1 , SMOX, ABCC3 , ALDH6A1, ALDH7A1	1.93E00	4.98E-02	LPS/IL-1 Mediated Inhibition of RXR Function
18	ALDH2 , ALDH3A2, AKR1C4, ALDH7A1	1.6E00	8.16E-02	Bile Acid Biosynthesis
19	MAP2K6, RHOB, ACTA2 , TGFβ3, JUP, MAP3K4, GSN , TUBB2B	1.59E00	5.03E-02	Germ Cell-Sertoli Cell Junction Signaling
20	ALDH2 , ACADVL, ALDH3A2, SLC27A1 , ACAD10, ALDH7A1	1.57E00	5.88E-02	Fatty Acid Metabolism
21	CBS, MARS, GGT7	1.52E00	1E-01	Selenoamino Acid Metabolism
22	GRIN3B , ARNTL, ATF4	1.48E00	9.09E-02	Circadian Rhythm Signaling
23	MX1 , STAT2, IRF9	1.44E00	8.82E-02	Interferon Signaling
24	CCDC92, ASNS , AMT	1.38E00	8.57E-02	Nitrogen Metabolism
25	CCDC92, GOT1, GPT2	1.38E00	8.57E-02	Glutamate Metabolism

GENES DOWNREGULATED BY PER+SOR TREATMENT				
TOP NETWORKS				
ID	Molecules in Network	Score	Focus Molecules	Top Functions
1	ADAMTS1 , BCL7B, CARD8, CCL3L1/CCL3L3 , CCNE2 , CXCL5, DOK5, DUSP5 , ESM1 , GAD1, HAS2, HAS3 , HK2, IL13RA2, IL1RL1, IL4R, MARCH3, PFKFB3, PKIA, PPAP2B, SCLY, SLC2A6, STC1 , TFP12, TIPIN, TNFRSF10D, VEGFC, ATRIP, CDC45, CDC25A , CDCA4, CDT1, CHKA, DLEU2, E2F2, E2F3, E2F4, ERCC1, FANCA, FANCB, GRWD1, MCM3, MCM10 , NASP, ORC1, PGAM5, RPA2, SAFB2, SKP2, TGFβ1, TJP2, TOP3A, ZNF665	40	27	Carbohydrate Metabolism, Drug Metabolism, Small Molecule Biochemistry
2		38	26	DNA Replication, Recombination, and Repair, Cell Cycle, Connective Tissue Development and Function

3	ATF5, BCCIP, BMP2, BUB3, CCRN4L, CDKN1A, CHAF1B, DDX56, DHX37, FEN1 , FOS, HNRNPAB, KCNJ2 , PHC2, PKNOX2, RRP12, SGTa, SLC19A1, SP1, SPP1, SPSB1, THBS1 , TMEM70, UFD1L, ZNF622	36	25	Organismal Injury and Abnormalities, Gene Expression, Cellular Development
4	ABHD5, APLN , BRIX1, CBX2, CCND3, DDX54, EGR1 , FOXO1, GNL3, HOXB4, LETM1, LPXN , LYAR, NR2F6, PEA15, PLIN2, PUS1, RBM14, RGS16, SLBP, SRA1, TBX2 , TDG, UBE2J2	34	24	Gene Expression, Cell Cycle, Genetic Disorder
5	ATP2A2, CDC42EP2, DIAPH1, DUSP7, ELL, FOXO1 , GABPB2, HSPA14, NOP2, PDXP, PKMYT1, PSMD3, RGS20, SRF, SRFBP1, STIP1, STS, TBC1D8	22	18	Cardiovascular System Development and Function, Cell Cycle, Cell Morphology
6	AK4, ALG13, CLK3, CSTF2, DIS3L, EXOSC6, EXOSC9, FBLN1, MOBKL2B, NEU4, NPTX1, PITPNCL1, SLC16A10, TFP12, TIMM17A, TIMM8A, TOMM40, URB2, ZNF598, ZNF707	22	18	Cellular Growth and Proliferation, Hair and Skin Development and Function, Cell Cycle
7	BCAR1, DUSP6, IER2, MCM7, NCOA5, ABHD3, RIT1, SLC2A1, SPHK1 , SPRY4, TAOK2, TEAD4, THBD, TIMM17A	20	17	Drug Metabolism, Lipid Metabolism, Small Molecule Biochemistry
8	AEN, ALDH1A1, C12orf5, CHORDC1, DPH2, DUSP5 , GPC5, HNRNPAB, METTL1, OSR1, PREB, RBM38, SDCCAG3, SLC16A3, UTP14A, ZMIZ2	19	16	Cancer, Cell Death, Dermatological Diseases and Conditions
9	BCAP29, BEND3, COL1A1, ENTDP7, GBAP1, IER2, LHX2, METTL9, MPP4, MTERFD1, PNP, RAB36, RCL1, SLC46A1, STX11, TGFBI	17	15	Cell Death, Cell-mediated Immune Response, Inflammatory Response
10	ADM, AKAP12, BAK1, BCL2L1, CCNE1 , CTSC, CYP1B1 , DUSP1, ETV4, KIAA1967, MSR1, PHLDA2 , PRDM1, PTGS2	15	14	DNA Replication, Recombination, and Repair, Cell Morphology, Cellular Compromise
11	ABHD6, ATG4A, C18orf8, C20orf4, CHERP, COX4NB, ECE2 , GINS3, LCMT2, RBM18, RNMTL1, RPA2, SLC5A3, TFB2M	15	14	Genetic Disorder, Metabolic Disease, Cellular Assembly and Organization
12	AK2, C1GALT1C1, CLEC2B, CXCL5, DCHS1, EVI2A, FOXF2, GXYLT1, KLHL18, PAFAH1B2, RRP9, RRP15, SOX3	14	13	Carbohydrate Metabolism, Lipid Metabolism, Molecular Transport
13	GABBR2, GPR3, GRB2, HBEGF, ISG20L2, LRAT, PNO1, POLR2D, RBM33, SEMA6A, TCEB3, WWCI	12	12	Cellular Assembly and Organization, Lipid Metabolism, Small Molecule Biochemistry
14	ATAD3A/ATAD3B, BRI3BP, DDX24, LRRC8A, NIP7, NOL6, RDH10, SLC25A19, ST3GAL1, THBS1 , TMEM22, UTP15	12	12	Cellular Function and Maintenance, Cell-To-Cell Signaling and Interaction, Inflammatory Response
15	ABCF2, BYSL, CHD7, FRAT2, FXR2, GCFC1, HN1L, NKX3-2, PDSS1, RPIA, SOX8, SURF6, XRC3	12	12	Tissue Development, Cancer, Organismal Injury and Abnormalities
16	C18orf19, DDX39A, DHX30, DNACJ3, IDH3A, KCTD5, MEIS2, PGAM1, TIPARP, ZIC2	9	10	Genetic Disorder, Neurological Disease, Skeletal and Muscular Disorders
17	CCDC9, GEMIN5, NOP56, PRPF4, RQCD1, SNRPD3, WDR77, YRDC	7	8	RNA Post-Transcriptional Modification, Genetic Disorder, Ophthalmic Disease
18	ABHD3	1	1	Gene Expression, Cancer, Dermatological Diseases and Conditions
19	NETO1	1	1	Cell-To-Cell Signaling and Interaction, Cellular Development, Genetic Disorder
20	ALG10B	1	1	Skeletal and Muscular System Development and Function, Cardiovascular Disease, Genetic Disorder
21	EFHD2	1	1	Cell Cycle, DNA Replication, Recombination, and Repair, Cellular Assembly and Organization
22	ARMC4	1	1	Cellular Growth and Proliferation, Cardiac Arteriopathy, Cardiovascular Disease
23	LTV1	1	1	Cellular Development, DNA Replication, Recombination, and Repair
24	UBQLN3	1	1	Cellular Development, Reproductive System Development and Function, Organismal Development
25	LY6K	1	1	Cell Cycle, Cellular Development, Cellular Growth and Proliferation

TOP FUNCTIONS				
ID	Molecules	p-value		Category
1	TOP3A, ATRIP, SRF, XRC3, TCEB3, E2F2, CDC25A , E2F4, IL4R, CCNE2 , SPP1, THBS1 , HBEGF, VEGFC, TIPIN, SKP2, BCL2L1, NASP, CCND3, ERCC1, DUSP1, CHKA, PKMYT1, HAS2, SOX8, GNL3, FANCA, BUB3, ADM, AKAP12, PHC2, ATF5, CDT1, BMP2, PRPF4, E2F3, BCAR1, SLBP, GPR3, SP1, PDGFRA, SPHK1 , UBIAD1, MCM10 , CDC45, ABHD5, GRB2, EGR1 , CBX2, CYP1B1 , BAK1, FOS, CCNE1 , FOXO1, CDKN1A, PEA15, HOXB4, PTGS2 , MCM7	5.79E-10-1.29E-02	Cell Cycle	
2	ADM, MSR1, CDT1, BMP2, SRF, ATRIP, E2F3, BCAR1, SP1, SPHK1 , PDGFRA, MCM10 , E2F2, CDC25A , ORC1, CDC45, CCNE2 , SPP1, GRB2, HBEGF, TIPIN, TFP12, CDCA4, BAK1, SKP2, RPA2, MCM3, BCL2L1, FOS, CCNE1 , NASP, CCND3, ERCC1, DUSP1, TDG, CDKN1A, PEA15, FEN1 , PTGS2 , BUB3, MCM7	3.07E-09-1.14E-02	DNA Replication, Recombination, and Repair	
3	IL13RA2, SRF, XRC3, TCEB3, PRDM1, FOXF2, CCNE2 , IL4R, SLC2A1, HBEGF, THBD, TFP12, CDCA4, SKP2, CCND3, CHKA, HAS2, FANCA, HNRNPAB, AKAP12, ADM, IL1RL1, PHLDA2 , CDT1, DUSP6, SEMA6A, NEU4, CXCL5, BYSL, DUSP5 , HK2, PLIN2, PDGFRA, TBX2 , SLC19A1, BCCIP, CDC45, SRA1, TGFBI, GRB2, EGR1 , DDX56, ELL, RGS16, BAK1, CYP1B1 , MCM3, FOS, PLA2G4A , CCNE1 , NOP2, TBC1D8, CDKN1A, PEA15, AK4, HOXB4, PTGS2 , ALDH1A1, OSR1, WDR77, E2F2, CDC25A , PFKFB3, E2F4, SPP1, TJP2, ADAMTS1 , THBS1 , GABPB2, VEGFC, TIPIN, DCHS1, HAS3 , STC1 , BCL2L1, NASP, ERCC1, DUSP1, APLN , GAD1, PNP, CCL3L1/CCL3L3 , GNL3, SOX8, AK2, TEAD4, MSR1, ATF5, BMP2, E2F3, BCAR1, DIAPH1, SP1, SPHK1 , UBIAD1, PREB, RBM38, SURF6, CHERP, CBX2, STS, FOXO1, ESM1 , CTSC, MCM7	6.96E-07-1.2E-02	Cellular Growth and Proliferation	
4	KCNJ2 , LHX2, RDH10, LPXN , IL13RA2, SRF, TIPARP, SPRY4, ALDH1A1, OSR1, TCEB3, PRDM1, TAOK2, E2F2, FOXF2, CDC25A , IL4R, E2F4, SPP1, THBS1 , ZIC2, HBEGF, VEGFC, THBD, HAS3 , CDCA4, SKP2, STC1 , BCL2L1, ERCC1, CCND3, DUSP1, APLN , ETV4, ST3GAL1, STIP1, CHKA, PNP, CCL3L1/CCL3L3 , HAS2, GNL3, SOX8, HNRNPAB, FANCA, AKAP12, DOK5, TEAD4, ADM, PAFAH1B2, MSR1, CDT1, ATF5, IL1RL1, BMP2, E2F3, BCAR1, BYSL, DUSP5 , DIAPH1, SP1, SOX3, SPHK1 , TBX2 , SLC19A1, BCCIP, NR2F6, SRA1, TGFBI, RBM38, GRB2, EGR1 , RGS16, CBX2, RQCD1, BAK1, PLA2G4A , FOS, CCNE1 , FOXO1, CDKN1A, HOXB4, PTGS2 , CHD7	2.28E-06-1.34E-02	Cellular Development	
5	ADM, LHX2, RDH10, PHLDA2 , BMP2, SRF, MEIS2, TIPARP, ALDH1A1, SP1, ECE2 , SOX3, OSR1, SPHK1 , PDGFRA, TBX2 , PRDM1, FOXF2, E2F4, ADAMTS1 , THBS1 , ZIC2, EGR1 , RQCD1, VEGFC, BAK1, BCL2L1, CCND3, ERCC1, FOXO1, HAS2, HOXB4, SOX8, PTGS2 , CHD7, FANCA	4.27E-06-1.21E-02	Organ Development	

6	TEAD4, SPP1, ADAMTS1 , RDH10, EGRI , HBEGF, THBD, TIPARP, BAK1, BYSL, PLA2G4A , BCL2L1, CCNE1 , ERCC1, DUSP1, OSR1, CDKN1A, SPHK1 , PDGFRA, SOX8, PTGS2 , CHD7, FOXF2, FANCA	4.27E-06-1.29E-02	Reproductive System Development and Function
7	AKAP12, PHC2, MSR1, BMP2, E2F3, BCAR1, PDGFRA, SPHK1 , E2F2, CDC25A , E2F4, CCNE2 , SPP1, EGRI , HBEGF, CBX2, HAS3 , AEN, SKP2, STC1 , PLA2G4A , BCL2L1, FOS, CCNE1 , CCND3, FOXO1, DUSP1, APLN , CDKN1A, CCL3L1/CCL3L3 , HAS2, SOX8, PTGS2 , FANCA	7.84E-06-1.14E-02	Connective Tissue Development and Function
8	AKAP12, E2F4, RGS20, BMP2, EGRI , IL13RA2, SRF, E2F3, CDCA4, SP5B1, PLA2G4A , NCOA5, FOS, FOXO1, SP1, ETV4, CDKN1A, PDGFRA, E2F2	7.84E-06-1.22E-02	Gene Expression
9	KCNJ2 , IL13RA2, DNAJC3, SLC35C1, XRCC3, NPTX1, ATP2A2, ECE2 , PRDM1, PKIA, FOXF2, EXOSC9, CCNE2 , IL4R, SLC2A1, ZIC2, HBEGF, GINS3, THBD, TFP12, SKP2, CCND3, STIPI1, CHKA, HAS2, AKAP12, ADM, PHLDA2 , DUSP6, SAFB2, BYSL, DUSP5 , SLC16A3, HK2, PLIN2, PPAP2B, PDGFRA, SLC19A1, TBX2 , MCM10 , BCCIP, SNRPD3, ORC1, LETM1, GRB2, EGRI , DDX24, RRP12, CYP1B1 , BAK1, MCM3, FOS, PLA2G4A , CCNE1 , DLEU2, CDKN1A, PEA15, HOXB4, FEN1 , PTGS2 , RIT1, DPYSL4, FRMD3, ALDH1A1, C18orf8, WDR77, E2F2, CDC25A , E2F4, SPP1, ADAMTS1 , THBS1 , IER2, VEGFC, TNFRSF10D, STC1 , BCL2L1, BTNL8, ERCC1, DUSP1, ETV4, GAD1, PNP, AK2, BUB3, TEAD4, DDX39A, MSR1, ATF5, BMP2, E2F3, BCAR1, SP5B1, DIAPH1, SOX3, SPHK1 , IDH3A, NR2F6, CBX2, STS, SLC5A3, LYAR, GABBR2, FOXO1, CTSC, MCM7	1.26E-05-1.25E-02	Cancer
10	ADM, TEAD4, LHX2, RDH10, BMP2, SRF, E2F3, BYSL, SPRY4, LRAT, SP1, TCEB3, PDGFRA, PRDM1, CDC25A , CCNE2 , SPP1, GRB2, ELL, HBEGF, THBD, BAK1, FOS, BCL2L1, CCNE1 , NASP, CCND3, FOXO1, APLN , CDKN1A, PEA15, SOX8, PTGS2 , CHD7	2.51E-05-1.34E-02	Embryonic Development
11	ADM, BMP2, IL13RA2, CXCL5, NPTX1, BCAR1, DIAPH1, SP1, PDGFRA, SPHK1 , SPP1, SLC2A1, THBS1 , VEGFC, HBEGF, TFP12, HAS3 , CYP1B1 , SKP2, FOXO1, DUSP1, ETV4, CDKN1A, ESM1 , HAS2, PTGS2	2.79E-05-1.14E-02	Cellular Movement
12	AKAP12, IL4R, SPP1, TGFBI, IL1RL1, ZIC2, EGRI , IL13RA2, VEGFC, PLA2G4A , ERCC1, SOX3, CDKN1A, PDGFRA, SPHK1 , SLC19A1, CCL3L1/CCL3L3 , HAS2, PTGS2	4.76E-05-1.29E-02	Respiratory Disease
13	PAFAH1B2, TEAD4, PHC2, RDH10, ATF5, BMP2, TOP3A, IL13RA2, SRF, SLC35C1, CXCL5, E2F3, NPTX1, TIPARP, BYSL, SPRY4, LRAT, SP1, PPAP2B, PDGFRA, SPHK1 , PRDM1, E2F2, E2F4, TJP2, SPP1, ADAMTS1 , THBS1 , ELL, CBX2, VEGFC, HBEGF, THBD, BAK1, CYP1B1 , STC1 , FOS, BCL2L1, NASP, CCND3, ERCC1, FOXO1, SOX8, HOXB4, PTGS2 , CHD7, BUB3	5.23E-05-1.27E-02	Organismal Development
14	TEAD4, DDX39A, BMP2, ATP2A2, BYSL, FANCB, DIAPH1, DUSP5 , SOX3, PDGFRA, SLC19A1, MCM10 , E2F2, ORC1, EXOSC9, CCNE2 , SPP1, LETM1, ADAMTS1 , THBS1 , ZIC2, EGRI , VEGFC, HBEGF, GINS3, THBD, BAK1, LYAR, MCM3, BCL2L1, CCNE1 , ERCC1, CCND3, GAD1, STIPI1, CDKN1A, FEN1 , PTGS2 , FANCA	1.01E-04-1.09E-02	Genetic Disorder
15	IL4R, SPP1, THBS1 , EGRI , IL13RA2, SRF, VEGFC, THBD, BAK1, FANCB, BCL2L1, PDGFRA, CCL3L1/CCL3L3 , PTGS2 , FANCA	1.18E-04-8.96E-03	Hematological Disease
16	ADM, SPP1, MSR1, THBS1 , EGRI , BMP2, CBX2, HBEGF, E2F3, THBD, TFP12, SKP2, STC1 , PLA2G4A , FOS, CCNE1 , FOXO1, DUSP1, APLN , CDKN1A, PDGFRA, CCL3L1/CCL3L3 , SOX8, PTGS2	1.34E-04-9.59E-03	Skeletal and Muscular System Development and Function
17	E2F4, SPP1, MSR1, PHC2, THBS1 , BMP2, BAK1, HAS3 , SKP2, BCL2L1, FOS, CCNE1 , FOXO1, CDKN1A, SPHK1 , PDGFRA, TBX2 , HAS2, HOXB4, PTGS2 , FANCA, FOXF2, CDC25A	1.48E-04-1.14E-02	Tissue Morphology
18	TEAD4, KCNJ2 , DDX39A, DUSP6, BMP2, FRMD3, ATP2A2, BYSL, SLC16A3, DIAPH1, DUSP5 , PPAP2B, PDGFRA, MCM10 , FOXF2, ORC1, EXOSC9, SPP1, LETM1, SLC2A1, ADAMTS1 , VEGFC, HBEGF, GINS3, SLC5A3, CYP1B1 , BAK1, LYAR, SKP2, MCM3, PLA2G4A , CCNE1 , ERCC1, STIPI1, GAD1, CDKN1A, FEN1 , PTGS2	1.61E-04-1.04E-02	Gastrointestinal Disease
19	ADM, MSR1, IL1RL1, IL13RA2, SRF, TIPARP, DUSP5 , SPHK1 , SLC19A1, PRDM1, E2F2, IL4R, E2F4, SPP1, THBS1 , GRB2, EGRI , VEGFC, THBD, BAK1, FOS, BCL2L1, CCND3, FOXO1, DUSP1, TBC1D8, ST3GALL1, CDKN1A, PNP, CCL3L1/CCL3L3 , HOXB4, PTGS2 , CHD7, FANCA	1.66E-04-1.2E-02	Hematological System Development and Function
20	ADM, MSR1, IL1RL1, BMP2, IL13RA2, SRF, TIPARP, DUSP5 , SPHK1 , SLC19A1, PRDM1, E2F2, IL4R, E2F4, SPP1, THBS1 , GRB2, EGRI , VEGFC, BAK1, FOS, BCL2L1, CCND3, FOXO1, ST3GALL1, CDKN1A, PNP, CCL3L1/CCL3L3 , HOXB4, PTGS2 , CHD7, FANCA	1.66E-04-1.2E-02	Hematopoiesis
21	TEAD4, ADM, IL1RL1, BMP2, IL13RA2, SRF, CXCL5, NPTX1, TIPARP, SPRY4, ECE2 , PPAP2B, PDGFRA, SPHK1 , E2F2, SPP1, SLC2A1, ADAMTS1 , THBS1 , HBEGF, VEGFC, HAS3 , BAK1, CYP1B1 , STC1 , PLA2G4A , FOXO1, DUSP1, APLN , PTGS2 , CHD7	2.11E-04-1.21E-02	Cardiovascular System Development and Function
22	ADM, MSR1, LPXN , BMP2, SRF, BCAR1, PDXP, DIAPH1, SPHK1 , TAOK2, SPP1, TGFBI, THBS1 , EGRI , THBD, BAK1, HAS3 , FOS, BCL2L1, CCNE1 , ERCC1, FOXO1, CDKN1A, SOX8, PTGS2 , HNRNPAB	2.45E-04-1.14E-02	Cell Morphology
23	ADM, FOS, BCL2L1, CCNE1 , ERCC1, SPP1, FOXO1, BMP2, CDKN1A, SRF, BAK1, PDXP	2.45E-04-8.96E-03	Cellular Compromise
24	FOS, CCNE1 , E2F2, SKP2	3.33E-04-4.22E-03	Hepatic System Development and Function
25	PFKFB3, SPP1, SLC2A1, GRB2, BMP2, DUSP6, ETNKL1, HAS3 , PLA2G4A , HK2, CCND3, FOXO1, PGAM1, CHKA, HAS2	3.45E-04-1.05E-02	Carbohydrate Metabolism

TOP CANONICAL PATHWAYS				
ID	Molecules	-log(p-value)	Ratio	Ingenuity Canonical Pathways
1	CCNE2 , E2F4, CCNE1 , CCND3, CDKN1A, E2F3, E2F2, SKP2, CDC25A	6.23E00	1.53E-01	Cell Cycle: G1/S Checkpoint Regulation
2	MCM3, CDC45, CDT1, MCM7, ORC1, RPA2	5.08E00	2E-01	Cell Cycle Control of Chromosomal Replication
3	CCNE2 , E2F4, CCNE1 , CCND3, CDKN1A, E2F3, E2F2, SKP2, CDC25A	4.91E00	1.03E-01	Cyclins and Cell Cycle Regulation
4	BCL2L1, E2F4, CCNE1 , GRB2, CDKN1A, VEGFC, HBEGF, PTGS2 , E2F3, E2F2	4.59E00	8.77E-02	Pancreatic Adenocarcinoma Signaling

5	E2F4, CDKN1A, SLC19A1, E2F3, E2F2, CDC25A	4.55E00	1.71E-01	Role of CHK Proteins in Cell Cycle Checkpoint Control
6	CCNE2 , E2F4, CCNE1 , E2F3, CCRN4L, E2F2	4.39E00	1.67E-01	Cell Cycle Regulation by BTG Family Proteins
7	FANCB, E2F4, CDKN1A, SLC19A1, E2F3, FANCA, E2F2	4.17E00	1.19E-01	Role of BRCA1 in DNA Damage Response
8	FOS, CCNE2 , CCNE1 , ALDH1A1, CCND3, SP1, CDKN1A, CYP1B1 , MCM7	3.07E00	6.38E-02	Aryl Hydrocarbon Receptor Signaling
9	SPP1, SP1, FOXO1, IL1RL1, CDKN1A, THBD	2.48E00	7.59E-02	VDR/RXR Activation
10	CCNE2 , E2F4, GRB2, BMP2, E2F3, BAK1, BCL2L1, FOS, CCNE1 , CCND3, FOXO1, CDKN1A, E2F2, CDC25A	2.42E00	3.9E-02	Molecular Mechanisms of Cancer
11	E2F4, CCNE1 , FOXO1, GRB2, CDKN1A, PDGFRA, E2F3, E2F2	2.26E00	5.1E-02	Glioblastoma Multifforme Signaling
12	FOS, SRA1, GRB2, IL1RL1, PDGFRA, PTGS2	2.16E00	5.94E-02	PPAR Signaling
13	BCL2L1, E2F4, GRB2, CDKN1A, E2F3, E2F2	2.13E00	5.88E-02	Chronic Myeloid Leukemia Signaling
14	E2F4, GRB2, CDKN1A, PDGFRA, E2F3, E2F2	2.09E00	5.66E-02	Glioma Signaling
15	BCL2L1, CCNE2 , CCNE1 , PTGS2 , SKP2	1.99E00	5.95E-02	Small Cell Lung Cancer Signaling
16	FOS, GRB2, SRF, PDGFRA, SPHK1	1.99E00	6.85E-02	PDGF Signaling
17	CCNE2 , CCNE1 , SKP2	1.92E00	1.15E-01	Antiproliferative Role of TOB in T Cell Signaling
18	FOS, SRA1, LRAT, ALDH1A1, RDH10, DUSP1, BMP2, NR2F6	1.92E00	4.68E-02	RAR Activation
19	CCNE2 , CCNE1 , FOXO1, GRB2, CDKN1A	1.89E00	6.33E-02	HER-2 Signaling in Breast Cancer
20	BCL2L1, FOXO1, GRB2, CDKN1A, PDGFRA, BCAR1	1.88E00	5E-02	PTEN Signaling
21	CCNE2 , CCNE1 , FOXO1, GRB2, CDKN1A	1.8E00	5.56E-02	Prostate Cancer Signaling
22	ERCC1, POLR2D, RPA2	1.6E00	8.57E-02	Nucleotide Excision Repair Pathway
23	BCL2L1, THBS1 , CDKN1A, C12orf5, GNL3	1.53E00	5.26E-02	p53 Signaling
24	ALDH1A1, RDH10, BMP2	1.48E00	7.89E-02	Retinol Metabolism
25	SLC19A1, FEN1	1.46E00	1E-01	Mismatch Repair in Eukaryotes