

Table S9. The genes identified as belonging to the 8 pathways, selected using the 10 genes from the validation set.

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|---------|---------|---------|----------|--------|----------|---------|---------|--------|----------|---------|-----------|
| ACP1 | BCL2L11 | CDKN1B | EIF4E1B | GLS2 | JUN | MSH3 | PDHB | PMAIP1 | RALBP1 | SIRT3 | TGFB2 |
| ACTB | BID | CDKN2A | EIF4E2 | GORAB | KDR | MSH6 | PKD1 | PPM1D | RALGDS | SIRT6 | TGFB3 |
| ACTG1 | BIRC5 | CHEK1 | EIF4EBP1 | GRB2 | KIT | MTOR | DPK1 | PPP3CA | RB1 | SLC16A3 | TGFBR1 |
| ACTN1 | BRAF | CHEK2 | ELK1 | GSK3B | KRAS | MYC | PERP | PPP3CB | RCHY1 | SLC1A5 | TGFBR2 |
| ACTN4 | BRCA2 | CHUK | EP300 | GTSE1 | LDHA | NECTIN1 | PFKL | PPP3CC | RELA | SLC2A1 | THBS1 |
| ADGRB1 | CASP3 | COP1 | ERBB2 | HGF | LEF1 | NECTIN2 | PFKM | PPP3R1 | RET | SLC2A2 | TIGAR |
| AFDN | CASP8 | CREB1 | ERBB3 | HIF1A | LMO7 | NECTIN3 | PFKP | PPP3R2 | RHOA | SLC7A5 | TJP1 |
| AKT1 | CASP9 | CREBBP | FARP2 | HK1 | MAP2K1 | NECTIN4 | PGAM1 | PRKCA | RPRM | SMAD2 | TLR2 |
| AKT2 | CCNA1 | CSNK2A1 | FAS | HK2 | MAP2K2 | NF1 | PGAM2 | PRKCB | RPS6 | SMAD3 | TNFRSF10B |
| AKT3 | CCNB1 | CSNK2A2 | FER | HK3 | MAP3K7 | NFATC2 | PGAM4 | PRKCG | RPS6KB1 | SMAD4 | TP53 |
| APAF1 | CCNB2 | CSNK2A3 | FGF2 | HKDC1 | MAPK1 | NFKB1 | PIDD1 | PTEN | RPS6KB2 | SNAI1 | TP53AIP1 |
| APC | CCNB3 | CSNK2B | FGFR1 | HRAS | MAPK10 | NLK | PIK3CA | PTGS2 | RRM2 | SNAI2 | TP53I3 |
| APC2 | CCND1 | CTNNA1 | FGFR2 | HSPB1 | MAPK11 | NOS3 | PIK3CB | PTK2 | RRM2B | SORBS1 | TP73 |
| APPL1 | CCND2 | CTNNA2 | FGFR3 | IDH1 | MAPK12 | NRAS | PIK3CD | PTPN1 | SCO2 | SOS1 | TSC2 |
| ARAF | CCND3 | CTNNA3 | FLT3 | IGF1 | MAPK13 | NRG1 | PIK3R1 | PTPN6 | SERPINE5 | SOS2 | VCL |
| ARHGEF6 | CCNE1 | CTNNB1 | FN1 | IGF1R | MAPK14 | NRG2 | PIK3R2 | PTPRB | SERPINE1 | SPHK1 | VEGFA |
| ATM | CCNE2 | CTNND1 | FOS | IGFBP3 | MAPK3 | NTRK1 | PIK3R3 | PTPRF | SESN1 | SPHK2 | VEGFC |
| ATR | CCNG1 | CYCS | FOXO3 | IKKB | MAPK8 | NTRK3 | PKM | PTPRJ | SESN2 | SRC | WAS |
| AXIN1 | CCNG2 | DCC | FYN | IKBK | MAPK9 | PARD3 | PLA2G4A | PTPRM | SESN3 | SSX2IP | WASF1 |
| AXIN2 | CD82 | DDB2 | G6PD | IL6 | MAPKAPK2 | PDGFA | PLA2G4B | PXN | SFN | STAT1 | WASF2 |
| AXL | CDC42 | E2F1 | GAB1 | IL6R | MAPKAPK3 | PDGFB | PLA2G4C | RAC1 | SH2D2A | STAT3 | WASF3 |
| BAD | CDH1 | E2F2 | GADD45A | ILK | MDM2 | PDGFC | PLA2G4D | RAC2 | SHC1 | STEAP3 | WASL |
| BAIAP2 | CDK1 | E2F3 | GADD45B | INSR | MDM4 | PDGFD | PLA2G4E | RAC3 | SHC2 | TCF7 | YES1 |
| BAX | CDK2 | EGF | GADD45G | IQGAP1 | MET | PDGFRA | PLA2G4F | RAD51 | SHC3 | TCF7L1 | ZMAT3 |
| BBC3 | CDK4 | EGFR | GAS6 | IRS2 | MLH1 | PDGFRB | PLCG1 | RAF1 | SHC4 | TCF7L2 | JMJD7- |
| BCL2 | CDK6 | E124 | GCK | JAK1 | MMP2 | PDHA1 | PLCG2 | RALA | SHISA5 | TGFA | PLA2G4B |
| BCL2L1 | CDKN1A | EIF4E | GLS | JAK2 | MSH2 | PDHA2 | PLD1 | RALB | SHAH1 | TGFB1 | |