**Supplementary Table 7. Association of the gene expression of 200 SGGs with OS in the TCGA–HCC cohort**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Gene** | ***p*-value** | | **Effects of high gene expression on OS of HCC patients** | **Gene** | ***p*-value** | **Effects of high gene expression on OS of HCC patients** | | |
| CHP1 | 0.000733 | advantageous | | RBM26 | 0.010234 | | adverse |
| TPT1 | 0.012367 | advantageous | | ATXN2L | 0.01058 | | adverse |
| CIRBP | 0.029935 | advantageous | | SUGP2 | 0.0111 | | adverse |
| FBP2 | 0.044273 | advantageous | | CDC73 | 0.011157 | | adverse |
| YBX1 | 1.18E-06 | adverse | | NTMT1 | 0.011631 | | adverse |
| YARS | 2.58E-05 | adverse | | APEX1 | 0.012327 | | adverse |
| HSP90AA1 | 4.66E-05 | adverse | | UBAP2 | 0.012514 | | adverse |
| NOP58 | 4.89E-05 | adverse | | HNRNPA2B1 | 0.012664 | | adverse |
| CALML5 | 5.63E-05 | adverse | | RBM12B | 0.014105 | | adverse |
| PTGES3 | 6.86E-05 | adverse | | DYNC1I2 | 0.014494 | | adverse |
| YWHAB | 7.05E-05 | adverse | | PURB | 0.014628 | | adverse |
| KPNA2 | 7.18E-05 | adverse | | PRDX6 | 0.015396 | | adverse |
| CIT | 7.65E-05 | adverse | | PABPC4 | 0.015707 | | adverse |
| PA2G4 | 7.86E-05 | adverse | | NUP98 | 0.015908 | | adverse |
| TUBA1C | 0.000108 | adverse | | SRSF4 | 0.016276 | | adverse |
| SFPQ | 0.00011 | adverse | | MAEL | 0.016389 | | adverse |
| CDK1 | 0.000136 | adverse | | FAM98A | 0.016567 | | adverse |
| FTSJ3 | 0.000137 | adverse | | YWHAQ | 0.016619 | | adverse |
| RANBP1 | 0.000159 | adverse | | NUDC | 0.016659 | | adverse |
| EIF3B | 0.000231 | adverse | | MCM5 | 0.016842 | | adverse |
| PCBP2 | 0.000232 | adverse | | CFL1 | 0.017007 | | adverse |
| PGAM5 | 0.000293 | adverse | | EIF3F | 0.01717 | | adverse |
| DCP1A | 0.000344 | adverse | | SRSF1 | 0.017632 | | adverse |
| CCT3 | 0.000446 | adverse | | PABPC3 | 0.017845 | | adverse |
| CHORDC1 | 0.000471 | adverse | | KHDRBS1 | 0.018336 | | adverse |
| STIP1 | 0.00051 | adverse | | ATAD3A | 0.018537 | | adverse |
| SRRT | 0.000561 | adverse | | RCC2 | 0.01887 | | adverse |
| EIF2S2 | 0.000577 | adverse | | RCC1 | 0.018894 | | adverse |
| DNAJC8 | 0.000585 | adverse | | DAZAP1 | 0.019053 | | adverse |
| YTHDF1 | 0.000622 | adverse | | CRYAB | 0.019255 | | adverse |
| CSE1L | 0.000709 | adverse | | PFN1 | 0.019396 | | adverse |
| MCM7 | 0.000714 | adverse | | UBA1 | 0.019882 | | adverse |
| DDX1 | 0.000759 | adverse | | IGF2BP3 | 0.020253 | | adverse |
| HMGA1 | 0.000785 | adverse | | ANP32E | 0.020594 | | adverse |
| EWSR1 | 0.000818 | adverse | | ZC3H14 | 0.021082 | | adverse |
| TNPO1 | 0.000855 | adverse | | RACK1 | 0.021192 | | adverse |
| EIF4G2 | 0.000856 | adverse | | DHX30 | 0.02177 | | adverse |
| MAGEA4 | 0.000891 | adverse | | MKI67 | 0.022146 | | adverse |
| NUP205 | 0.000916 | adverse | | RFC4 | 0.022237 | | adverse |
| CBFB | 0.001303 | adverse | | NONO | 0.022277 | | adverse |
| MARS | 0.001343 | adverse | | PABPC1 | 0.022407 | | adverse |
| RACGAP1 | 0.001445 | adverse | | PUM1 | 0.022444 | | adverse |
| ETF1 | 0.001488 | adverse | | KIF23 | 0.022889 | | adverse |
| CAP1 | 0.001495 | adverse | | DHX36 | 0.022945 | | adverse |
| CAPZA2 | 0.001563 | adverse | | PRRC2A | 0.023413 | | adverse |
| RSL1D1 | 0.001566 | adverse | | CDK2 | 0.023584 | | adverse |
| EIF4E | 0.00158 | adverse | | LSM14B | 0.024023 | | adverse |
| PFN2 | 0.001631 | adverse | | ZNF638 | 0.024466 | | adverse |
| WDR62 | 0.001718 | adverse | | PTBP3 | 0.024638 | | adverse |
| EIF3M | 0.001766 | adverse | | NCOA3 | 0.024864 | | adverse |
| ZC3HAV1 | 0.001813 | adverse | | BAG3 | 0.025109 | | adverse |
| TOMM34 | 0.001918 | adverse | | LUZP1 | 0.025824 | | adverse |
| STRAP | 0.002005 | adverse | | RAB1A | 0.026074 | | adverse |
| CCAR1 | 0.002016 | adverse | | HNRNPAB | 0.026232 | | adverse |
| POLR2B | 0.002022 | adverse | | PRMT1 | 0.026472 | | adverse |
| HSPD1 | 0.002099 | adverse | | CAPRIN1 | 0.027057 | | adverse |
| SFN | 0.002251 | adverse | | FBL | 0.027613 | | adverse |
| FNDC3B | 0.002257 | adverse | | RNH1 | 0.028079 | | adverse |
| SYNCRIP | 0.002495 | adverse | | SERBP1 | 0.028168 | | adverse |
| TARDBP | 0.002569 | adverse | | PRKRA | 0.029236 | | adverse |
| PRDX1 | 0.002708 | adverse | | CNBP | 0.029957 | | adverse |
| SRSF3 | 0.002741 | adverse | | DDX3X | 0.030393 | | adverse |
| PPP2R1A | 0.002777 | adverse | | PPME1 | 0.031006 | | adverse |
| SPAG5 | 0.002786 | adverse | | RBFOX1 | 0.031688 | | adverse |
| MEX3C | 0.002901 | adverse | | CCT6A | 0.031957 | | adverse |
| LBR | 0.003097 | adverse | | HMGN1 | 0.031999 | | adverse |
| ARPC1B | 0.003214 | adverse | | EIF4G1 | 0.032393 | | adverse |
| MAP4 | 0.003333 | adverse | | TRDMT1 | 0.032555 | | adverse |
| LPP | 0.003435 | adverse | | KPNA6 | 0.03352 | | adverse |
| VASP | 0.003629 | adverse | | PUM2 | 0.033827 | | adverse |
| EIF3H | 0.003959 | adverse | | FXR1 | 0.034076 | | adverse |
| OGG1 | 0.003982 | adverse | | MAPRE1 | 0.034086 | | adverse |
| CBX1 | 0.004159 | adverse | | EIF2A | 0.034397 | | adverse |
| PFDN4 | 0.004222 | adverse | | CSDE1 | 0.034673 | | adverse |
| YWHAH | 0.00427 | adverse | | TMOD3 | 0.035428 | | adverse |
| TRIM21 | 0.004282 | adverse | | ITGB1 | 0.036963 | | adverse |
| ATXN2 | 0.004335 | adverse | | IPO7 | 0.036975 | | adverse |
| MOV10 | 0.004515 | adverse | | BRAT1 | 0.03725 | | adverse |
| TCP1 | 0.005118 | adverse | | DYRK3 | 0.038084 | | adverse |
| MEX3A | 0.005446 | adverse | | EDC4 | 0.038739 | | adverse |
| CHCHD3 | 0.005782 | adverse | | BRF1 | 0.038769 | | adverse |
| CPSF6 | 0.006485 | adverse | | DCTN1 | 0.039839 | | adverse |
| MFAP1 | 0.006691 | adverse | | MBNL1 | 0.041153 | | adverse |
| DDX19A | 0.006908 | adverse | | CPSF3 | 0.041192 | | adverse |
| HSF1 | 0.00691 | adverse | | DKC1 | 0.0414 | | adverse |
| LEMD3 | 0.006943 | adverse | | CLIC4 | 0.041669 | | adverse |
| PARG | 0.007379 | adverse | | ACTR1A | 0.041773 | | adverse |
| EIF3D | 0.007803 | adverse | | RPTOR | 0.042567 | | adverse |
| DYNC1H1 | 0.007861 | adverse | | NXF1 | 0.042663 | | adverse |
| PSMD2 | 0.008371 | adverse | | EIF2AK1 | 0.042838 | | adverse |
| NUFIP2 | 0.008453 | adverse | | SRI | 0.043903 | | adverse |
| HSPA4 | 0.008697 | adverse | | HNRNPK | 0.044404 | | adverse |
| TIA1 | 0.008778 | adverse | | QKI | 0.04501 | | adverse |
| YTHDF2 | 0.008811 | adverse | | PARP12 | 0.045133 | | adverse |
| EIF3I | 0.008915 | adverse | | DSTN | 0.046274 | | adverse |
| ATP2C1 | 0.009103 | adverse | | TRIM25 | 0.046351 | | adverse |
| KPNB1 | 0.009171 | adverse | | TRAF2 | 0.048213 | | adverse |
| OGFOD1 | 0.009325 | adverse | | SRP9 | 0.048562 | | adverse |
| RHOA | 0.00934 | adverse | | TCEA1 | 0.048606 | | adverse |
| RBBP4 | 0.009842 | adverse | | UBAP2L | 0.049341 | | adverse |