**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  |