**Supplementary materials**

**Figure S1** Risk score analysis of seven-genes prognostic model in the GEO cohort (GSE 84437). (A) Survival curve for low- and high-risk subgroups. (B) ROC curves for forecasting OS based on risk score. (C) Survival status. (D) Risk score. (E) Expression heat map. (F) Univariate and multivariate COX regression analysis of different clinical parameters in GEO cohort.



**Figure S2** Validation the prognostic value of seven hub RBPs in STAD by Kaplan Meier-plotter online tool.



|  |  |  |
| --- | --- | --- |
| **Table S1** 362 differentially expressed RBPs in STAD | | |
| RBPs | Fold Change | p |
| OAS3 | 2.892 | 1.5E-81 |
| OAS1 | 2.883 | 1.86E-47 |
| OAS2 | 2.63 | 1.29E-56 |
| GNL3L | 2.604 | 1.7E-121 |
| PTBP3 | 2.49 | 2.26E-92 |
| EXO1 | 2.367 | 5.7E-101 |
| PABPC1 | 2.316 | 1E-84 |
| IGF2BP3 | 2.313 | 6.26E-45 |
| CNOT7 | 2.247 | 9.4E-101 |
| SNRPD1 | 2.073 | 2.55E-94 |
| EIF2AK2 | 2.067 | 2.3E-80 |
| PAPD7 | 2.063 | 6.58E-39 |
| HELZ2 | 1.95 | 8.27E-65 |
| RNASEH2A | 1.938 | 4.75E-80 |
| EIF2AK1 | 1.916 | 1.19E-96 |
| EZH2 | 1.884 | 3.28E-72 |
| BRCA1 | 1.867 | 5.5E-81 |
| MBNL3 | 1.826 | 1.11E-50 |
| WDR43 | 1.822 | 2.23E-77 |
| SF3B4 | 1.805 | 3.83E-89 |
| DARS2 | 1.794 | 1.04E-81 |
| RPL28 | 1.791 | 1.07E-56 |
| RAVER1 | 1.781 | 9.78E-67 |
| G3BP1 | 1.78 | 2.44E-81 |
| IGF2BP2 | 1.77 | 2.26E-41 |
| INTS7 | 1.762 | 3.4E-106 |
| IFIT3 | 1.758 | 1.93E-38 |
| DEK | 1.75 | 4.87E-74 |
| IPO9 | 1.742 | 4.1E-102 |
| IFIT1 | 1.727 | 1.13E-18 |
| SNRPB | 1.724 | 2.78E-75 |
| PRPF40A | 1.699 | 2.5E-101 |
| MAGOHB | 1.697 | 8.87E-94 |
| MRPL3 | 1.695 | 3.35E-98 |
| HENMT1 | 1.694 | 5.38E-56 |
| SNRPF | 1.693 | 2.43E-84 |
| DCAF13 | 1.689 | 1.68E-75 |
| SF3A1 | 1.683 | 4.17E-38 |
| SNRPA | 1.678 | 4.36E-94 |
| MEX3D | 1.677 | 3.88E-64 |
| ZC3H13 | 1.67 | 2.46E-61 |
| YBX2 | 1.667 | 5.25E-19 |
| ISG20L2 | 1.654 | 3.36E-66 |
| NXT2 | 1.65 | 3.78E-74 |
| CALR | 1.617 | 1.41E-56 |
| WDR3 | 1.617 | 9.69E-56 |
| DKC1 | 1.609 | 1.77E-83 |
| ZNFX1 | 1.608 | 2.27E-68 |
| GAPDH | 1.604 | 2.16E-44 |
| NOLC1 | 1.592 | 1.02E-56 |
| R3HDM1 | 1.591 | 2.09E-68 |
| SPATS2L | 1.589 | 6.59E-55 |
| FAM120A | 1.584 | 3.33E-74 |
| SNRPB2 | 1.583 | 3.17E-76 |
| GARS | 1.57 | 6.49E-67 |
| CCRN4L | 1.559 | 2.25E-56 |
| FYTTD1 | 1.558 | 2.29E-31 |
| SF3B3 | 1.554 | 8.71E-71 |
| DDX21 | 1.553 | 5.9E-59 |
| EIF6 | 1.546 | 4.67E-65 |
| RPP25 | 1.546 | 8.17E-66 |
| IPO7 | 1.543 | 1.46E-48 |
| RBM12 | 1.53 | 2.08E-51 |
| NUTF2 | 1.529 | 1.23E-68 |
| TCOF1 | 1.528 | 6.11E-77 |
| LSM12 | 1.524 | 8.73E-84 |
| RAN | 1.523 | 1.18E-59 |
| TNRC6B | 1.518 | 2.09E-70 |
| RSRC1 | 1.516 | 2.04E-80 |
| NUDT21 | 1.512 | 5.71E-60 |
| SNRPG | 1.506 | 1.45E-61 |
| PUM1 | 1.504 | 4.67E-61 |
| UTP23 | 1.503 | 1.06E-79 |
| TROVE2 | 1.501 | 7.98E-63 |
| NIFK | 1.495 | 7.78E-84 |
| ESF1 | 1.491 | 3.83E-62 |
| ABCE1 | 1.484 | 4.74E-66 |
| CAPRIN1 | 1.483 | 1.72E-70 |
| TSN | 1.482 | 6.94E-68 |
| PTBP1 | 1.48 | 6.91E-66 |
| BRIX1 | 1.477 | 6.78E-65 |
| MBNL1 | 1.476 | 9.42E-23 |
| PUS7 | 1.472 | 3.5E-58 |
| PRIM1 | 1.472 | 4.37E-65 |
| UPF2 | 1.467 | 1.48E-57 |
| BZW1 | 1.466 | 4.18E-41 |
| AGO2 | 1.465 | 6.63E-45 |
| RBM38 | 1.459 | 1.62E-19 |
| MBNL2 | 1.456 | 7.3E-32 |
| POLR2K | 1.446 | 1.08E-65 |
| RPL38 | 1.442 | 6.36E-38 |
| TTF2 | 1.438 | 1.18E-48 |
| MRPL13 | 1.437 | 1.41E-67 |
| AIMP2 | 1.435 | 3E-64 |
| RSL1D1 | 1.434 | 6.93E-62 |
| TOP1 | 1.429 | 1.83E-71 |
| CSTF2 | 1.425 | 7.09E-68 |
| RUVBL2 | 1.419 | 9.34E-65 |
| PATL1 | 1.418 | 9.71E-78 |
| RAE1 | 1.415 | 1E-61 |
| ZC3HAV1L | 1.415 | 1.66E-52 |
| TRUB1 | 1.415 | 2.64E-84 |
| SUB1 | 1.413 | 3.43E-60 |
| THOC3 | 1.41 | 3.91E-52 |
| SYNCRIP | 1.41 | 3.7E-53 |
| MRPL17 | 1.41 | 7.72E-80 |
| CD3EAP | 1.409 | 2.47E-56 |
| POLR2D | 1.407 | 1.03E-62 |
| RNASE6 | 1.403 | 3.21E-30 |
| ZFP36L2 | 1.402 | 6.03E-41 |
| HNRNPAB | 1.402 | 8.79E-72 |
| IFIT2 | 1.4 | 1.17E-30 |
| DDX18 | 1.392 | 2.83E-76 |
| DDX6 | 1.386 | 7.87E-41 |
| YTHDF3 | 1.383 | 8.61E-50 |
| RPP40 | 1.381 | 2.48E-60 |
| GATC | 1.381 | 4.92E-71 |
| MRPL42 | 1.378 | 5.19E-65 |
| MRPL47 | 1.372 | 8.81E-71 |
| WARS | 1.364 | 1.74E-33 |
| GPATCH4 | 1.363 | 3.61E-66 |
| PARP1 | 1.357 | 2.16E-62 |
| MRPS35 | 1.354 | 2.35E-52 |
| SRP72 | 1.352 | 5.47E-67 |
| ZMAT3 | 1.351 | 5.55E-41 |
| MRPL30 | 1.35 | 5.89E-86 |
| AGO1 | 1.345 | 6.95E-45 |
| NOL9 | 1.343 | 2.47E-55 |
| SRP9 | 1.342 | 3.93E-54 |
| EXOSC5 | 1.34 | 1.42E-66 |
| USP10 | 1.34 | 1.55E-72 |
| UHMK1 | 1.336 | 1.63E-59 |
| ESRP1 | 1.335 | 2.45E-35 |
| RPL22L1 | 1.331 | 1.63E-31 |
| SMAD1 | 1.33 | 2.98E-44 |
| PNO1 | 1.328 | 2.56E-60 |
| ADAR | 1.326 | 8.22E-48 |
| RBM41 | 1.321 | 1.21E-53 |
| DCP1A | 1.32 | 8.13E-58 |
| EIF4G2 | 1.313 | 8.51E-36 |
| PARP4 | 1.312 | 2.25E-45 |
| SCAF11 | 1.305 | 3.92E-66 |
| PTGES3 | 1.303 | 1.12E-49 |
| RBMS2 | 1.301 | 2.78E-34 |
| HEATR1 | 1.301 | 5.91E-60 |
| EIF5 | 1.3 | 1.41E-58 |
| ZNF385A | 1.299 | 6.18E-21 |
| NOP58 | 1.297 | 1.44E-59 |
| IFIH1 | 1.294 | 3.72E-35 |
| APOBEC1 | 1.292 | 1.82E-05 |
| NXT1 | 1.292 | 2.61E-55 |
| FCF1 | 1.289 | 6.65E-61 |
| GTF3A | 1.285 | 1.15E-48 |
| WDR12 | 1.285 | 8.53E-48 |
| SERBP1 | 1.281 | 7.82E-51 |
| TLR3 | 1.281 | 3.46E-14 |
| ZC3HAV1 | 1.28 | 6.44E-67 |
| BOP1 | 1.272 | 2.12E-42 |
| GTPBP10 | 1.271 | 2.28E-56 |
| CSTF1 | 1.27 | 5.38E-65 |
| OASL | 1.27 | 8.13E-12 |
| PPIH | 1.269 | 1.61E-72 |
| BYSL | 1.268 | 2.46E-45 |
| SNRPE | 1.268 | 4.77E-57 |
| ERI1 | 1.266 | 9.31E-64 |
| EIF1AX | 1.259 | 3.14E-57 |
| TNPO1 | 1.258 | 2.13E-41 |
| NUP153 | 1.253 | 6.75E-40 |
| XRN2 | 1.252 | 7.38E-51 |
| TGS1 | 1.252 | 9.18E-67 |
| G3BP2 | 1.252 | 9.89E-34 |
| ENOX2 | 1.251 | 9.4E-53 |
| APOBEC3G | 1.248 | 4.22E-26 |
| DARS | 1.248 | 4.07E-50 |
| SMAD5 | 1.246 | 2.5E-33 |
| EFTUD2 | 1.244 | 2.05E-57 |
| RRBP1 | 1.244 | 8.52E-40 |
| PTRH2 | 1.243 | 2.3E-73 |
| MSI2 | 1.243 | 1.93E-60 |
| XRN1 | 1.242 | 2.43E-30 |
| XPOT | 1.242 | 8.48E-32 |
| CNOT6L | 1.24 | 9.95E-38 |
| CPSF2 | 1.239 | 1.89E-43 |
| RUVBL1 | 1.239 | 2.51E-55 |
| RNPS1 | 1.237 | 1.52E-49 |
| C1QBP | 1.236 | 6E-48 |
| MRPS30 | 1.235 | 2.34E-67 |
| RPF2 | 1.235 | 3.18E-59 |
| SLBP | 1.233 | 9.54E-54 |
| CANX | 1.231 | 8.81E-46 |
| LSM7 | 1.231 | 7.87E-59 |
| RBM18 | 1.23 | 2.43E-57 |
| RBM47 | 1.23 | 1.8E-37 |
| BCLAF1 | 1.228 | 2.74E-54 |
| SMAD3 | 1.222 | 4.57E-25 |
| CCDC86 | 1.22 | 2.24E-52 |
| STAU2 | 1.22 | 4.39E-34 |
| EIF5A | 1.21 | 5.82E-42 |
| EIF3H | 1.204 | 4.79E-44 |
| RBM15 | 1.2 | 6.58E-66 |
| AGO3 | 1.198 | 1.65E-47 |
| STAU1 | 1.193 | 1.55E-54 |
| HNRNPF | 1.193 | 2.53E-50 |
| PDE12 | 1.192 | 7.3E-46 |
| A1CF | 1.191 | 1.83E-16 |
| URB2 | 1.191 | 3.7E-57 |
| EBNA1BP2 | 1.19 | 5.28E-52 |
| MRPL14 | 1.19 | 3.25E-46 |
| MRPS10 | 1.189 | 6.1E-48 |
| U2SURP | 1.184 | 1.58E-42 |
| PA2G4 | 1.184 | 1.13E-44 |
| KRR1 | 1.182 | 1.92E-53 |
| NIP7 | 1.18 | 4.89E-67 |
| CNOT6 | 1.177 | 1.31E-56 |
| SCAF1 | 1.177 | 2.8E-35 |
| TRMT6 | 1.17 | 1.36E-55 |
| NAF1 | 1.164 | 1.79E-42 |
| ALYREF | 1.163 | 8.23E-51 |
| CTU1 | 1.158 | 7.89E-52 |
| API5 | 1.156 | 6.01E-44 |
| GRWD1 | 1.156 | 4.89E-42 |
| LRPPRC | 1.156 | 2.21E-59 |
| BZW2 | 1.154 | 8.29E-41 |
| GAR1 | 1.153 | 3.41E-61 |
| REPIN1 | 1.153 | 9.06E-39 |
| AGFG1 | 1.152 | 7.11E-40 |
| UBAP2 | 1.15 | 9.72E-71 |
| NSRP1 | 1.149 | 2.04E-33 |
| XPO4 | 1.147 | 6.7E-45 |
| RRP1B | 1.147 | 1.64E-60 |
| MRPL48 | 1.146 | 4.13E-37 |
| RBMX2 | 1.145 | 6.54E-71 |
| ADAT1 | 1.143 | 5.61E-66 |
| HNRNPR | 1.138 | 3.28E-50 |
| YARS2 | 1.138 | 1.72E-57 |
| SMG7 | 1.134 | 5.62E-49 |
| ZC3H4 | 1.134 | 9.86E-60 |
| METTL2B | 1.134 | 5.5E-63 |
| EPRS | 1.131 | 1.6E-56 |
| USB1 | 1.128 | 1.02E-43 |
| SUZ12 | 1.126 | 1.98E-51 |
| MRPL19 | 1.124 | 3.77E-48 |
| PRKDC | 1.121 | 9.73E-32 |
| WDR36 | 1.119 | 5.55E-52 |
| DIS3 | 1.116 | 3.8E-41 |
| RNGTT | 1.116 | 3.88E-42 |
| HNRNPUL1 | 1.115 | 9.7E-43 |
| SNRPD3 | 1.114 | 4.8E-55 |
| C2orf15 | 1.11 | 2.43E-50 |
| AQR | 1.109 | 6.61E-70 |
| CNOT2 | 1.109 | 1.68E-60 |
| TFAM | 1.108 | 4.71E-54 |
| ELAVL1 | 1.107 | 8.66E-57 |
| SF3A2 | 1.105 | 2.59E-43 |
| KHDRBS1 | 1.104 | 2.91E-56 |
| NOP56 | 1.1 | 1.4E-35 |
| MRPS17 | 1.1 | 9.68E-53 |
| RDM1 | 1.1 | 1.87E-44 |
| XPO1 | 1.099 | 1.66E-40 |
| GSPT1 | 1.099 | 5.17E-48 |
| RTF1 | 1.099 | 1.62E-47 |
| YBX1 | 1.098 | 4.99E-27 |
| FAM98A | 1.098 | 4.11E-34 |
| RPL7L1 | 1.098 | 2.66E-41 |
| TSEN15 | 1.098 | 1.17E-47 |
| MARS2 | 1.098 | 1.08E-59 |
| LSM14A | 1.095 | 1.74E-32 |
| PARP12 | 1.091 | 3.65E-36 |
| UTP14C | 1.091 | 1.09E-51 |
| EIF2S1 | 1.086 | 2.69E-24 |
| EIF3J | 1.081 | 3.44E-53 |
| DENR | 1.079 | 4.53E-65 |
| EIF2S2 | 1.077 | 1.55E-48 |
| CNOT4 | 1.076 | 2.95E-43 |
| PUS7L | 1.076 | 6.57E-59 |
| FTSJ1 | 1.074 | 1.71E-60 |
| PNPT1 | 1.072 | 5.13E-35 |
| QTRTD1 | 1.068 | 7.1E-48 |
| UBAP2L | 1.067 | 6.12E-46 |
| DDX27 | 1.061 | 6.28E-39 |
| RPS15 | 1.059 | 5.78E-29 |
| ZFR | 1.056 | 6.61E-25 |
| DAZAP1 | 1.055 | 1.08E-41 |
| CPSF3 | 1.054 | 2.82E-65 |
| SRFBP1 | 1.054 | 1.59E-58 |
| GUF1 | 1.054 | 4.94E-56 |
| RPLP2 | 1.054 | 7.02E-31 |
| PAPOLA | 1.053 | 7.08E-45 |
| PAPOLG | 1.053 | 7.8E-50 |
| FTO | 1.053 | 9.88E-20 |
| GEMIN5 | 1.052 | 2.12E-42 |
| ZC3H3 | 1.051 | 2.96E-52 |
| ZFP36L1 | 1.051 | 2.39E-08 |
| UBA1 | 1.05 | 3.75E-51 |
| RPL27 | 1.048 | 3.34E-20 |
| SF3A3 | 1.048 | 3.95E-38 |
| BARD1 | 1.047 | 6.07E-49 |
| NCL | 1.046 | 7.8E-28 |
| ILF2 | 1.046 | 7.21E-50 |
| SETD1A | 1.044 | 1.03E-35 |
| PTRHD1 | 1.037 | 6.69E-46 |
| EIF4A3 | 1.036 | 9.85E-41 |
| ZC3H12D | 1.036 | 2.26E-32 |
| CDC5L | 1.034 | 1.13E-41 |
| IFIT5 | 1.034 | 2.59E-29 |
| MRPL15 | 1.033 | 3.56E-49 |
| WDR4 | 1.033 | 1.23E-46 |
| DYNLL1 | 1.03 | 4.05E-38 |
| EIF4E | 1.029 | 8.83E-28 |
| RPL39L | 1.029 | 8.72E-10 |
| METTL1 | 1.027 | 3.66E-52 |
| TSNAX | 1.026 | 1.99E-44 |
| PRPF4 | 1.026 | 2.76E-47 |
| LSM3 | 1.023 | 1.69E-55 |
| TARS | 1.021 | 5.7E-40 |
| FAM98B | 1.021 | 7.33E-39 |
| DCPS | 1.02 | 4.4E-49 |
| MAK16 | 1.02 | 2.51E-45 |
| VARS | 1.02 | 1.13E-41 |
| ADAT3 | 1.017 | 3.44E-28 |
| GTPBP4 | 1.017 | 7.74E-38 |
| NOL10 | 1.016 | 1.02E-56 |
| DDX52 | 1.015 | 3.44E-44 |
| DDX58 | 1.011 | 1.69E-24 |
| NOL11 | 1.01 | 6.73E-52 |
| EXOSC3 | 1.008 | 9.88E-48 |
| BICC1 | 1.004 | 6.11E-15 |
| ZCRB1 | 1.004 | 7.49E-45 |
| SAMD4B | 1.004 | 2.62E-27 |
| PHAX | 1.001 | 3.05E-32 |
| RBM12B | 1.001 | 1.55E-39 |
| RPS4Y1 | -2.58 | 8.04E-13 |
| EEF1A2 | -2.53 | 7.02E-16 |
| AZGP1 | -2.436 | 6.68E-09 |
| APOBEC2 | -2.239 | 6.4E-51 |
| MYEF2 | -1.74 | 2.32E-26 |
| CIRBP | -1.738 | 4.08E-49 |
| POLR2J2 | -1.732 | 4.1E-17 |
| PAN2 | -1.705 | 2.22E-31 |
| RBPMS2 | -1.629 | 1.03E-21 |
| SNRPN | -1.547 | 1.77E-32 |
| PAIP2B | -1.517 | 4.96E-67 |
| DDX3Y | -1.476 | 1.86E-14 |
| LUC7L | -1.33 | 4.22E-29 |
| CLASRP | -1.321 | 1.95E-29 |
| SRSF5 | -1.314 | 8.96E-48 |
| AFF3 | -1.295 | 5.53E-22 |
| RBM6 | -1.279 | 2.23E-27 |
| SIDT2 | -1.274 | 6.96E-34 |
| ARHGEF28 | -1.27 | 3.53E-15 |
| PRPF40B | -1.255 | 5.28E-30 |
| EIF1AY | -1.229 | 9.73E-05 |
| SNRNP70 | -1.165 | 1.71E-19 |
| PDCD4 | -1.159 | 9.08E-20 |
| CELF3 | -1.147 | 1.66E-11 |
| RBM5 | -1.131 | 1.17E-24 |
| U2AF1L4 | -1.1 | 3.4E-38 |
| SRRM2 | -1.055 | 2.98E-11 |
| LARP6 | -1.046 | 5.96E-14 |
| CLK1 | -1.045 | 4.2E-21 |
| AKAP8L | -1.026 | 3.38E-23 |
| TRMT2A | -1.003 | 4.37E-16 |