**SUPPLEMENTARY MATERIAL**

**Supplementary Table 1. Pearson Correlation analysis between splicing factor-related AS events and top survival-associated AS events.**

|  |  |  |  |
| --- | --- | --- | --- |
| Splicing factor-related AS event | Top significant survival-assocaited AS events | P value | r |
| HNRNPA1\_AA\_22145 | FBXL19\_AD\_36205 | 0.009699289 | -0.120872411 |
| SAT2\_AD\_39030 | 2.63E-12 | -0.304650253 |
| TRO\_AD\_89255 | 6.10E-06 | 0.201511246 |
| ZC3H11A\_AP\_9456 | 0.049513772 | -0.088421716 |
| ESR1\_AP\_78161 | 1.07E-05 | -0.212774966 |
| MAGI3\_AT\_4271 | 0.013368917 | 0.109911733 |
| TPM1\_AT\_30982 | 2.38E-07 | -0.227234781 |
| ATP8B3\_AT\_46544 | 0.003216382 | 0.138449647 |
| OLFM1\_AT\_88103 | 0.003583272 | -0.137038472 |
| GTF2H3\_ME\_306194 | 6.16E-04 | -0.162808767 |
| C11orf49\_RI\_15609 | 0.004428813 | -0.129017431 |
| ZNF276\_RI\_38138 | 7.78E-08 | -0.237404071 |
| NAPRT1\_RI\_85430 | 0.012015834 | -0.112589268 |
| SRSF2\_AD\_43667 | GRB2\_AP\_43439 | 0.0001 | 0.319 |
| ESR1\_AP\_78161 | 0.005 | -0.137 |
| TPM1\_AT\_30982 | 0.0001 | -0.173 |
| NUDT18\_RI\_82937 | 0.031 | -0.103 |
| HNRNPH1\_AD\_74906  www.aging-us.com 1 AGING  www.aging-us.com 1 AGING | FBXL19\_AD\_36205 | 0.0001 | 0.234 |
| SAT2\_AD\_39030 | 0.001 | 0.15 |
| TRO\_AD\_89255 | 0.0001 | -0.165 |
| ZC3H11A\_AP\_9456 | 0.003 | 0.132 |
| STK32C\_AP\_13483 | 0.002 | 0.139 |
| GRB2\_AP\_43439 | 0.001 | -0.151 |
| C11orf49\_RI\_15609 | 0.007 | 0.121 |
| HNRNPH1\_AD\_74915 | ERCC1\_AP\_50440 | 0.014 | -0.118 |
| USP36\_RI\_43917 | 0.001 | 0.156 |
| HNRNPF\_AP\_11322 | ATP8B3\_AT\_46544 | 0.0001 | 0.168 |
| C11orf49\_RI\_15609 | 0.0001 | -0.17 |
| ZNF276\_RI\_38138 | 0.01 | -0.117 |
| NUDT18\_RI\_82937 | 0.022 | -0.109 |
| NAPRT1\_RI\_85430 | 0.031 | -0.098 |
| RBM4\_AT\_17095 | TRO\_AD\_89255 | 0.045 | 0.09 |
| STK32C\_AP\_13483 | 0.044 | -0.09 |
| GRB2\_AP\_43439 | 0.038 | -0.097 |
| ESR1\_AP\_78161 | 0.043 | -0.098 |
| ATP8B3\_AT\_46544 | 0.011 | 0.119 |
| CBWD5\_AT\_86498 | 0.0001 | -0.197 |
| ZNF276\_RI\_38138 | 0.011 | -0.114 |
| NAPRT1\_RI\_85430 | 0.009 | -0.116 |
| HNRNPH3\_ES\_11929 | SPAG16\_AT\_57327 | 0.0001 | -0.228 |
| NUDT18\_RI\_82937 | 0.048 | -0.093 |
| NAPRT1\_RI\_85430 | 0.028 | -0.099 |
| ESRP1\_ES\_97999 | TRO\_AD\_89255 | 0.0001 | 0.194 |
| ESR1\_AP\_78161 | 0.02 | 0.121 |
| TPM1\_AT\_30982 | 0.0001 | -0.291 |
| HNRNPC\_ES\_26558 | FBXL19\_AD\_36205 | 0.048 | 0.093 |
| SAT2\_AD\_39030 | 0.006 | 0.123 |
| TRO\_AD\_89255 | 0.0001 | -0.169 |
| STK32C\_AP\_13483 | 0.021 | 0.104 |
| ESR1\_AP\_78161 | 0.009 | 0.128 |
| MAGI3\_AT\_4271 | 0.019 | -0.105 |
| TPM1\_AT\_30982 | 0.0001 | 0.16 |
| ATP8B3\_AT\_46544 | 0.002 | -0.145 |
| SPAG16\_AT\_57327 | 0.049 | -0.091 |
| CBWD5\_AT\_86498 | 0.02 | 0.103 |
| GTF2H3\_ME\_306194 | 0.007 | 0.129 |
| C11orf49\_RI\_15609 | 0.015 | 0.11 |
| ZNF276\_RI\_38138 | 0.001 | 0.154 |
| HNRNPA1\_ES\_22149 | SHPRH\_AA\_78032 | 0.007 | 0.133 |
| FBXL19\_AD\_36205 | 0.041 | -0.096 |
| SAT2\_AD\_39030 | 0.0001 | -0.439 |
| TRO\_AD\_89255 | 0.004 | 0.13 |
| ESR1\_AP\_78161 | 0.0001 | -0.214 |
| MAGI3\_AT\_4271 | 0.011 | 0.114 |
| ATP8B3\_AT\_46544 | 0.0001 | 0.235 |
| MAST1\_AT\_47878 | 0.002 | -0.142 |
| CBWD5\_AT\_86498 | 0.0001 | -0.189 |
| OLFM1\_AT\_88103 | 0.0001 | -0.179 |
| GTF2H3\_ME\_306194 | 0.0001 | -0.174 |
| C11orf49\_RI\_15609 | 0.0001 | -0.219 |
| ZNF276\_RI\_38138 | 0.0001 | -0.387 |
| NAPRT1\_RI\_85430 | 0.0001 | -0.303 |
| HNRNPC\_ES\_26552 | FBXL19\_AD\_36205 | 0.0001 | 0.169 |
| SAT2\_AD\_39030 | 0.0001 | 0.355 |
| TRO\_AD\_89255 | 0.0001 | -0.172 |
| GRB2\_AP\_43439 | 0.001 | -0.151 |
| ESR1\_AP\_78161 | 0.0001 | 0.194 |
| MAGI3\_AT\_4271 | 0.001 | -0.154 |
| TPM1\_AT\_30982 | 0.0001 | 0.221 |
| ATP8B3\_AT\_46544 | 0.0001 | -0.238 |
| MAST1\_AT\_47878 | 0.033 | 0.101 |
| CBWD5\_AT\_86498 | 0.0001 | 0.16 |
| GTF2H3\_ME\_306194 | 0.007 | 0.13 |
| C11orf49\_RI\_15609 | 0.0001 | 0.319 |
| ZNF276\_RI\_38138 | 0.0001 | 0.256 |
| NAPRT1\_RI\_85430 | 0.011 | 0.114 |
| RBM25\_ES\_28259 | SAT2\_AD\_39030 | 0.003 | 0.151 |
| OLFM1\_AT\_88103 | 0.023 | 0.124 |
| ZNF276\_RI\_38138 | 0.037 | 0.108 |
| HNRNPA2B1\_ES\_79039 | CASK\_AA\_88861 | 0.021 | -0.119 |
| SAT2\_AD\_39030 | 0.001 | 0.151 |
| TRO\_AD\_89255 | 0.0001 | -0.192 |
| CSTF2\_AD\_89611 | 0.0001 | -0.204 |
| ZC3H11A\_AP\_9456 | 0.022 | -0.103 |
| ATP8B3\_AT\_46544 | 0.0001 | -0.179 |
| MAST1\_AT\_47878 | 0.025 | 0.106 |
| SPAG16\_AT\_57327 | 0.005 | -0.129 |
| CBWD5\_AT\_86498 | 0.023 | 0.101 |
| OLFM1\_AT\_88103 | 0.003 | 0.139 |
| GTF2H3\_ME\_306194 | 0.038 | 0.099 |
| C11orf49\_RI\_15609 | 0.002 | 0.144 |
| ZNF276\_RI\_38138 | 0.0001 | 0.209 |
| NAPRT1\_RI\_85430 | 0.001 | 0.144 |
| TRA2B\_ES\_68039 | FBXL19\_AD\_36205 | 0.033 | 0.1 |
| SAT2\_AD\_39030 | 0.0001 | 0.327 |
| TRO\_AD\_89255 | 0.0001 | -0.159 |
| ZC3H11A\_AP\_9456 | 0.0001 | 0.276 |
| STK32C\_AP\_13483 | 0.013 | -0.112 |
| GRB2\_AP\_43439 | 0.0001 | -0.245 |
| ESR1\_AP\_78161 | 0.0001 | 0.198 |
| MAGI3\_AT\_4271 | 0.001 | -0.155 |
| TPM1\_AT\_30982 | 0.0001 | 0.254 |
| ATP8B3\_AT\_46544 | 0.0001 | -0.19 |
| GTF2H3\_ME\_306194 | 0.0001 | 0.202 |
| C11orf49\_RI\_15609 | 0.0001 | 0.344 |
| ZNF276\_RI\_38138 | 0.0001 | 0.283 |
| NUDT18\_RI\_82937 | 0.003 | 0.138 |
| NAPRT1\_RI\_85430 | 0.004 | 0.129 |
| HNRNPH3\_ES\_11931 | SPAG16\_AT\_57327 | 0.015 | -0.113 |
| HNRNPL\_ES\_49699 | FBXL19\_AD\_36205 | 0.01 | 0.12 |
| SAT2\_AD\_39030 | 0.0001 | 0.352 |
| TRO\_AD\_89255 | 0.0001 | -0.235 |
| STK32C\_AP\_13483 | 0.019 | 0.105 |
| GRB2\_AP\_43439 | 0.0001 | -0.175 |
| ESR1\_AP\_78161 | 0.017 | 0.117 |
| MAGI3\_AT\_4271 | 0.0001 | -0.194 |
| TPM1\_AT\_30982 | 0.003 | 0.131 |
| ATP8B3\_AT\_46544 | 0.003 | -0.139 |
| GTF2H3\_ME\_306194 | 0.0001 | 0.217 |
| C11orf49\_RI\_15609 | 0.0001 | 0.238 |
| ZNF276\_RI\_38138 | 0.001 | 0.152 |