|  |  |  |  |
| --- | --- | --- | --- |
| **Gene** | **Clinical significance** | **Gene essentiality** | **Combined score** |
|  TUBA1B | 0.9887 | 0.9977 | 0.9932 |
|  TUBA1C | 0.9982 | 0.9831 | 0.99065 |
|  NUP93 | 0.9943 | 0.9802 | 0.98725 |
|  SF3B5 | 0.9774 | 0.9884 | 0.9829 |
|  NUDT21 | 0.9892 | 0.9543 | 0.97175 |
|  NACAP1 | 0.9979 | 0.9396 | 0.96875 |
|  DDX41 | 0.9739 | 0.9268 | 0.96835 |
|  RPL35A | 0.9730 | 0.9561 | 0.96455 |
|  PSMD7 | 0.9817 | 0.9473 | 0.9645 |
|  RPS12 | 0.9763 | 0.9444 | 0.96035 |
|  RPL30 | 0.9974 | 0.8982 | 0.9478 |
|  SLC22A3 | 0.9778 | 0.9069 | 0.94235 |
|  ACAT2 | 0.9965 | 0.8789 | 0.9377 |
|  AZIN1 | 0.9927 | 0.8823 | 0.9375 |
|  TRIP13 | 0.9939 | 0.8793 | 0.9366 |
|  LY96 | 0.9743 | 0.8960 | 0.93515 |
|  TAF2 | 0.9977 | 0.8680 | 0.93285 |
|  CCT5 | 0.9774 | 0.8883 | 0.93285 |
|  NDUFA4L2 | 0.9928 | 0.8727 | 0.93275 |
|  DDX23 | 0.9796 | 0.8707 | 0.92515 |

**Supplementary Table 1: Top 20 genes that are clinically relevant and essential for survival of breast cancer cell lines.** Genes were prioritized on the basis of three assays: (i) Screening of two clinical fatasets, TCGA (1098 patients) and Metabric (1981 patients). for genes correlating with worse prognosis of patients with breast cancer, (ii) genes whose somatic copy number alterations (SCNA) associate with poor prognosis, and (iii) an essentiality score based on genome-wide RNAi screens aimed at systematically identifying essential genes across human breast cancer cell lines (see depmap portal; https://depmap.org/portal/depmap/).