**Suppl 3:** 23 genes closely involved in distant RFS in HR+ HER2− patients extracted from 155 signature genes using the Cox‑PH model.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Covariate** | **Coef** | **Exp (coef)** | **Se (coef)** | **coef lower 95%** | **coef upper 95%** | **Exp (coef) lower 95%** | **Exp (coef) upper 95%** | **z** | **P** | **-log2(p)** |
| AGL | 0.359  | 1.432  | 0.121  | 0.122  | 0.597  | 1.129  | 1.817  | 2.961  | 0.003  | 8.351  |
| BIRC5 | 0.613  | 1.846  | 0.227  | 0.168  | 1.058  | 1.183  | 2.880  | 2.701  | 0.007  | 7.175  |
| C1orf64 | -0.211  | 0.810  | 0.073  | -0.353  | -0.068  | 0.702  | 0.934  | -2.900  | 0.004  | 8.067  |
| CDCA3 | 0.847  | 2.333  | 0.368  | 0.125  | 1.569  | 1.134  | 4.803  | 2.300  | 0.021  | 5.544  |
| CENPF | 0.561  | 1.753  | 0.283  | 0.006  | 1.117  | 1.006  | 3.055  | 1.982  | 0.047  | 4.396  |
| CEP55 | -0.993  | 0.371  | 0.396  | -1.768  | -0.217  | 0.171  | 0.805  | -2.508  | 0.012  | 6.364  |
| CIDEC | -0.317  | 0.728  | 0.154  | -0.618  | -0.016  | 0.539  | 0.984  | -2.062  | 0.039  | 4.673  |
| CKAP2L | 1.230  | 3.422  | 0.499  | 0.252  | 2.209  | 1.286  | 9.104  | 2.464  | 0.014  | 6.184  |
| CRTAP | -0.705  | 0.494  | 0.298  | -1.290  | -0.121  | 0.275  | 0.886  | -2.367  | 0.018  | 5.802  |
| CYP4F22 | -0.284  | 0.753  | 0.101  | -0.482  | -0.086  | 0.617  | 0.917  | -2.815  | 0.005  | 7.679  |
| E2F2 | -0.757  | 0.469  | 0.301  | -1.347  | -0.168  | 0.260  | 0.846  | -2.518  | 0.012  | 6.404  |
| FHL2 | 0.250  | 1.284  | 0.115  | 0.026  | 0.475  | 1.026  | 1.607  | 2.183  | 0.029  | 5.107  |
| FOS | 0.381  | 1.464  | 0.184  | 0.020  | 0.742  | 1.020  | 2.101  | 2.070  | 0.038  | 4.701  |
| GSTM2 | -0.189  | 0.828  | 0.081  | -0.348  | -0.031  | 0.706  | 0.970  | -2.340  | 0.019  | 5.696  |
| HNMT | -0.685  | 0.504  | 0.255  | -1.184  | -0.186  | 0.306  | 0.830  | -2.689  | 0.007  | 7.124  |
| KIF20A | 0.936  | 2.550  | 0.385  | 0.181  | 1.692  | 1.198  | 5.428  | 2.429  | 0.015  | 6.046  |
| LAD1 | 0.216  | 1.241  | 0.110  | 0.000  | 0.432  | 1.000  | 1.541  | 1.962  | 0.050  | 4.330  |
| PIP | 0.118  | 1.125  | 0.055  | 0.010  | 0.226  | 1.010  | 1.253  | 2.137  | 0.033  | 4.939  |
| PRC1 | -1.138  | 0.321  | 0.328  | -1.781  | -0.494  | 0.168  | 0.610  | -3.464  | 0.001  | 10.874  |
| S100P | 0.140  | 1.150  | 0.055  | 0.032  | 0.247  | 1.033  | 1.281  | 2.547  | 0.011  | 6.526  |
| SEPP1 | 0.462  | 1.587  | 0.161  | 0.146  | 0.778  | 1.157  | 2.176  | 2.866  | 0.004  | 7.909  |
| STAT1 | -0.710  | 0.492  | 0.202  | -1.105  | -0.314  | 0.331  | 0.730  | -3.516  | 0.000  | 11.158  |
| TUBA3D | -0.197  | 0.822  | 0.086  | -0.365  | -0.028  | 0.694  | 0.973  | -2.281  | 0.023  | 5.471  |

**Abbreviations:** RFS, recurrence free survival; HR+, hormone receptor positive; HER2, human epidermal growth receptor 2; Cox-PH, Cox Proportional-Hazards.