Supplementary Table 1: Relapse free survival and overall survival analyses for the *Perilipin 1* using mRNA-gene chip data with subtype boundaries, hazard ratio with 95% confidence intervals, log rank *p*-value, Benjamini-Hochberg based adjusted significance level and decision-making based on the *p*-value

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Survival analysis with subtype boundaries | HR | | CI | | Log rank *p*-value | | Rank | | Adjusted significance level: (rank/m)\*α(0.05) | | Decision# | |
|  | **RFS** | **OS** | **RFS** | **OS** | **RFS** | **OS** | **RFS** | **OS** | **RFS** | **OS** | **RFS** | **OS** |
| HER2 status: array negative | 0.73 | 0.7 | 0.65-0.82 | 0.56-0.87 | 0.000000047 | 0.0015 | 1 | 1 | 0.003 | 0.003 | S | S |
| ER Status: array- ER positive | 0.8 | 0.62 | 0.71-0.9 | 0.45-0.86 | 0.0001 | 0.0036 | 2 | 2 | 0.005 | 0.005 | S | S |
| Subtype: StGallen luminal A | 0.77 | 4.68 | 0.65-0.9 | 1.41-15.53 | 0.0014 | 0.0064 | 3 | 3 | 0.008 | 0.008 | S | S |
| Lymph node status: positive | 0.78 | 0.65 | 0.66-0.93 | 0.47-0.89 | 0.0042 | 0.0073 | 4 | 4 | 0.01 | 0.01 | S | S |
| ER Status: IHC-ER positive | 0.83 | 0.73 | 0.72-0.97 | 0.58 -0.93 | 0.017 | 0.0089 | 5 | 5 | 0.013 | 0.013 | I | S |
| Lymph node status: negative | 0.83 | 0.68 | 0.71-0.98 | 0.48-0.96 | 0.0261 | 0.029 | 6 | 6 | 0.015 | 0.015 | I | I |
| Subtype - StGallen HER2+ | 1.4 | 1.3 | 0.98-2.01 | 0.95 -1.78 | 0.0629 | 0.1055 | 7 | 7 | 0.018 | 0.018 | I | I |
| HER2 status: array positive | 1.2 | 0.75 | 0.96-1.49 | 0.53-1.07 | 0.103 | 0.1119 | 8 | 8 | 0.02 | 0.02 | I | I |
| Pietenpol subtype: basal-like 1 | 1.4 | 1.53 | 0.91-2.15 | 0.86-2.72 | 0.1246 | 0.1494 | 9 | 9 | 0.023 | 0.023 | I | I |
| Pietenpol subtype: mesenchymal | 1.32 | 1.6 | 0.89-1.96 | 0.83-3.12 | 0.1701 | 0.1588 | 10 | 10 | 0.025 | 0.025 | I | I |
| Subtype: StGallen luminal B | 0.9 | 1.72 | 0.75-1.07 | 0.79-3.75 | 0.224 | 0.1683 | 11 | 11 | 0.028 | 0.028 | I | I |
| ER Status: array-ER negative | 1.09 | 1.2 | 0.9 -1.32 | 0.82-1.75 | 0.3586 | 0.3524 | 12 | 12 | 0.03 | 0.03 | I | I |
| ER Status: IHC-ER negative | 1.06 | 1.18 | 0.88-1.29 | 0.82-1.7 | 0.543 | 0.3621 | 13 | 13 | 0.033 | 0.033 | I | I |
| Subtype: StGallen\_basal | 1.06 | 1.1 | 0.85-1.33 | 0.79-1.54 | 0.5811 | 0.5733 | 14 | 14 | 0.035 | 0.035 | I | I |
| PR status: IHC-PR positive | 1.06 | 1.11 | 0.79-1.41 | 0.68-1.81 | 0.7113 | 0.6642 | 15 | 15 | 0.038 | 0.038 | I | I |
| Pietenpol subtype: basal-like 2 | 0.91 | 1.24 | 0.5-1.67 | 0.46-3.33 | 0.7663 | 0.6749 | 16 | 16 | 0.04 | 0.04 | I | I |
| Pietenpol subtype: mesenchymal stem-like | 0.94 | 0.93 | 0.46-1.9 | 0.67-1.3 | 0.8597 | 0.6839 | 17 | 17 | 0.043 | 0.043 | I | I |
| Pietenpol subtype: immunomodulatory | 1.04 | 0.89 | 0.66-1.64 | 0.49-1.62 | 0.8607 | 0.7011 | 18 | 18 | 0.045 | 0.045 | I | I |
| PR status: IHC-PR negative | 0.99 | 0.91 | 0.79-1.25 | 0.44-1.92 | 0.9261 | 0.8126 | 19 | 19 | 0.048 | 0.048 | I | I |
| Pietenpol subtype: luminal androgen receptor | 1.01 | 0.91 | 0.69-1.48 | 0.42-2.01 | 0.9528 | 0.8244 | 20 | 20 | 0.05 | 0.05 | I | I |

# Decision based on log rank p value less than adjusted significance level; S = Significant; I = Insignificant

Supplementary Table 2: Relapse free survival and overall survival analyses for the *Perilipin 1* using mRNA-gene chip for independent GEO series with the hazard ratio, 95% confidence intervals, log rank *p* value, Benjamini-Hochberg based adjusted significance level and the decision based on *p* value

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Relapse Free Survival | | | | | | | |
| GEO Series: Accession No. | Sample Size | HR | CI | Log rank p value | Rank | Adjusted significance level (rank/m)\*α(0.05) | Decision |
| GSE61304 | 62 | 0.14 | 0.04-0.50 | 0 | 1 | 0.0016 | Significant |
| GSE3494 | 251 | 0.51 | 0.33-0.79 | 0.002 | 2 | 0.0032 | Significant |
| GSE5327 | 58 | 0.18 | 0.04-0.84 | 0.014 | 3 | 0.0048 | Insignificant |
| GSE12093 | 136 | 0.32 | 0.12-0.86 | 0.018 | 4 | 0.0065 | Insignificant |
| GSE17907 | 54 | 3.66 | 1.15-11.63 | 0.019 | 5 | 0.0081 | Insignificant |
| GSE1456 | 159 | 0.51 | 0.27-0.98 | 0.038 | 6 | 0.0097 | Insignificant |
| GSE48390 | 81 | 3.17 | 0.86-11.75 | 0.068 | 7 | 0.0113 | Insignificant |
| GSE42568 | 121 | 0.62 | 0.35-1.1 | 0.099 | 8 | 0.0129 | Insignificant |
| GSE17705 | 196 | 0.64 | 0.37-1.11 | 0.111 | 9 | 0.0145 | Insignificant |
| GSE20685 | 327 | 0.74 | 0.48-1.14 | 0.175 | 10 | 0.0161 | Insignificant |
| GSE25066 | 507 | 0.78 | 0.54-1.14 | 0.195 | 11 | 0.0177 | Insignificant |
| GSE20711 | 90 | 1.46 | 0.77-2.76 | 0.239 | 12 | 0.0194 | Insignificant |
| GSE2990 | 102 | 0.69 | 0.36-1.31 | 0.252 | 13 | 0.021 | Insignificant |
| GSE4611 | 153 | 1.5 | 0.72-3.12 | 0.272 | 14 | 0.0226 | Insignificant |
| GSE19615 | 115 | 0.55 | 0.18-1.64 | 0.275 | 15 | 0.0242 | Insignificant |
| GSE2034 | 286 | 0.83 | 0.57-1.21 | 0.336 | 16 | 0.0258 | Insignificant |
| GSE16446 | 120 | 0.69 | 0.31-1.55 | 0.367 | 17 | 0.0274 | Insignificant |
| GSE46184 | 74 | 1.42 | 0.62-3.23 | 0.405 | 18 | 0.029 | Insignificant |
| GSE45255 | 139 | 0.7 | 0.29-1.7 | 0.432 | 19 | 0.0306 | Insignificant |
| GSE6532 | 82 | 1.39 | 0.55-3.55 | 0.486 | 20 | 0.0323 | Insignificant |
| GSE12276 | 204 | 0.91 | 0.69-1.2 | 0.502 | 21 | 0.0339 | Insignificant |
| GSE26971 | 276 | 0.78 | 0.37-1.63 | 0.504 | 22 | 0.0355 | Insignificant |
| GSE2603 | 99 | 0.78 | 0.37-1.67 | 0.527 | 23 | 0.0371 | Insignificant |
| GSE16391 | 55 | 0.76 | 0.21-2.72 | 0.676 | 24 | 0.0387 | Insignificant |
| GSE7390 | 198 | 1.08 | 0.71-1.64 | 0.704 | 25 | 0.0403 | Insignificant |
| GSE69031 | 129 | 1.13 | 0.6-2.12 | 0.705 | 26 | 0.0419 | Insignificant |
| GSE11121 | 200 | 1.1 | 0.62-1.97 | 0.742 | 27 | 0.0435 | Insignificant |
| GSE31519 | 67 | 0.88 | 0.38-2.05 | 0.771 | 28 | 0.0452 | Insignificant |
| GSE21653 | 240 | 1.06 | 0.67-1.68 | 0.794 | 29 | 0.0468 | Insignificant |
| GSE65194 | 164 | 0.84 | 0.19-3.78 | 0.825 | 30 | 0.0484 | Insignificant |
| GSE9195 | 77 | 1.08 | 0.36-3.22 | 0.886 | 31 | 0.05 | Insignificant |
| Overall Survival | | | | | | | |
| GSE3494 | 251 | 0.35 | 0.2-0.63 | 0.0002 | 1 | 0.0036 | Significant |
| GSE42568 | 121 | 0.49 | 0.25-0.97 | 3.60E-02 | 2 | 0.0071 | Insignificant |
| GSE48390 | 81 | 4.39 | 0.93-20.68 | 0.0412 | 3 | 0.0107 | Insignificant |
| GSE37946 | 41 | 3.97 | 0.8-19.74 | 0.0692 | 4 | 0.0143 | Insignificant |
| GSE69031 | 130 | 1.91 | 0.89-4.1 | 0.093 | 5 | 0.0179 | Insignificant |
| GSE20685 | 327 | 0.74 | 0.48-1.15 | 0.18 | 6 | 0.0214 | Insignificant |
| GSE58812 | 107 | 0.63 | 0.3-1.32 | 0.2156 | 7 | 0.025 | Insignificant |
| GSE22093 | 68 | 1.85 | 0.61-5.67 | 0.272 | 8 | 0.0286 | Insignificant |
| GSE45255 | 139 | 0.69 | 0.27-1.76 | 0.4373 | 9 | 0.0321 | Insignificant |
| GSE16446 | 107 | 0.7 | 0.25-1.97 | 0.4963 | 10 | 0.0357 | Insignificant |
| GSE1456 | 159 | 0.83 | 0.45-1.55 | 0.5582 | 11 | 0.0393 | Insignificant |
| GSE7390 | 198 | 0.89 | 0.53-1.5 | 0.6618 | 12 | 0.0429 | Insignificant |
| GSE65194 | 130 | 1.15 | 0.45-2.91 | 0.7721 | 13 | 0.0464 | Insignificant |
| GSE20711 | 90 | 1.12 | 0.51-2.46 | 0.7749 | 14 | 0.05 | Insignificant |

# Decision based on log rank p value less than adjusted significance level

Supplementary Table 3: Overall survival analysis using mRNA-RNA-seq with subtype boundaries for the *PLIN1* gene along with the hazard ratio with 95% confidence intervals, log rank *p* value and the decision based on *p* value and adjusted significance level through Benjamini-Hochberg method

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Survival Analysis with subtype boundaries | HR | CI | Log rank *p* value | Rank | Adjusted significance level(rank/m)\*α(0.05) | Decision |
| Lymph node status positive | 2.02 | 1.41-2.88 | 8.00E-05 | 1 | 0.0038 | Significant |
| HER2 status: HER2 negative | 1.5 | 1.18-1.93 | 0.0011 | 2 | 0.0077 | Significant |
| No restriction to subtype | 1.41 | 1.13-1.77 | 0.0026 | 3 | 0.0115 | Significant |
| ER Status: ER negative | 3.19 | 1.43-7.11 | 0.0027 | 4 | 0.0154 | Significant |
| PAM50 subtype: Her2 | 1.63 | 0.92-2.90 | 0.0907 | 5 | 0.0192 | Insignificant |
| ER Status: ER positive | 1.14 | 0.88-1.47 | 0.3184 | 6 | 0.0231 | Insignificant |
| PGR status: PGR positive | 1.11 | 0.84-1.46 | 0.4684 | 7 | 0.0269 | Insignificant |
| PGR status: PGR negative | 1.2 | 0.7-2.03 | 0.5086 | 8 | 0.0308 | Insignificant |
| Lymph node status negative | 1.11 | 0.81-1.51 | 0.5271 | 9 | 0.0346 | Insignificant |
| PAM50 subtype: Basal | 1.16 | 0.71-1.88 | 0.5535 | 10 | 0.0385 | Insignificant |
| PAM50 subtype: Luminal B | 1.07 | 0.68-1.68 | 0.7823 | 11 | 0.0423 | Insignificant |
| HER2 status: HER2 positive | 1.04 | 0.58-1.85 | 0.8976 | 12 | 0.0462 | Insignificant |
| PAM50 subtype: Luminal A | 0.98 | 0.67-1.43 | 0.913 | 13 | 0.0500 | Insignificant |