

Supplementary table 1. Up-expression differentially expressed genes (DEGs) in paclitaxel resistant MDA-MB-468 and SUM149 from analyzing expression data of GSE90564.

| Gene ID | MDA-MB-468 (logFC) | SUM-149 (logFC) |
|----------------|---------------------------|------------------------|
| SERPINB2 | 6.59435124 | 3.79917612 |
| ABCB1 | 7.65692508 | 10.62457819 |
| PRSS12 | 4.96911212 | 1.5051214 |
| SERPINB8 | 5.17488109 | 1.1527134 |
| FAM171A1 | 3.56878183 | 1.33321409 |
| MSX1 | 6.30427204 | 1.37241372 |
| LOC728392 | 3.83423801 | 2.68497498 |
| RYR2 | 4.01531378 | 3.21490947 |
| STEAP1 | 3.00678615 | 2.2393608 |
| CCDC3 | 4.17115951 | 1.46008096 |
| KLK1 | 4.55614974 | 2.09289326 |
| KCNG1 | 3.1532211 | 1.5237624 |
| SERPINE2 | 3.54256713 | 1.20776762 |
| DFNA5 | 2.95591583 | 1.28630132 |
| CROT | 2.60517102 | 1.94403633 |
| VWA5A | 3.23768455 | 1.13546624 |
| CYP24A1 | 4.99812523 | 2.83884528 |
| TEX15 | 2.35095698 | 1.00493828 |
| C19orf51 | 2.7317467 | 1.45674104 |
| KCNG1 | 3.1532211 | 1.5237624 |
| SLCO4A1 | 3.3146991 | 1.17918092 |
| KIAA1462 | 3.45062201 | 1.94005383 |
| ALDH1A1 | 5.98099075 | 1.33122179 |
| NCAM1 | 5.68822596 | 1.40480745 |
| NKAIN1 | 2.62842987 | 1.25211691 |
| IGF2BP1 | 2.81697537 | 1.30817216 |
| INHBA | 3.18307355 | 1.54179653 |
| ABCB4 | 2.34024674 | 3.12721387 |
| SPRR2A | 3.92193559 | 1.82330734 |
| TGM2 | 2.41239135 | 1.12206523 |
| SRPX | 2.88555796 | 1.52431657 |
| HOXB9 | 2.49981422 | 2.84030054 |
| RRAGD | 3.01309192 | 1.82948467 |

| | | |
|----------|------------|------------|
| NAT8L | 3.3282139 | 2.0467167 |
| SALL4 | 1.91349705 | 1.4872668 |
| IL20 | 2.24388821 | 1.98644946 |
| LAMB3 | 2.62368225 | 1.08433056 |
| APOBEC3C | 1.78426237 | 1.36125995 |
| KCNJ12 | 2.08182696 | 1.86774994 |
| FYB | 1.85304731 | 1.75650501 |
| SSTR2 | 3.79369433 | 1.38234365 |
| APOBEC3F | 1.7538556 | 1.31762012 |
| CD22 | 3.14205459 | 1.34072024 |
| HS3ST3B1 | 2.65632103 | 1.26542837 |
| CLDN1 | 2.40275104 | 2.00377268 |
| RGMA | 1.91850179 | 1.06192543 |
| RASGRP1 | 1.75607739 | 2.17714041 |
| HERC6 | 2.29318812 | 1.17364571 |
| CTHRC1 | 2.56580353 | 1.71631786 |
| WIPF1 | 1.66392242 | 1.05532665 |
| HOXB6 | 1.9301132 | 2.34268893 |
| SOBP | 2.2728673 | 1.36745799 |
| SLC7A2 | 2.27540327 | 1.38107068 |
| LPAR1 | 1.98245809 | 2.8882123 |
| IL18R1 | 1.47771931 | 2.32407878 |
| ZBED2 | 3.85060232 | 1.06830609 |
| PDGFA | 1.44389895 | 1.08243718 |
| GBX2 | 1.95180886 | 1.57508779 |
| PIWIL4 | 1.83217019 | 1.31211316 |
| RAB3B | 2.26320599 | 1.12321262 |
| OLFML2A | 1.79440695 | 1.47693924 |
| ANKRD29 | 1.17807402 | 1.36307952 |
| GFPT2 | 1.20644649 | 1.62286417 |
| AGPAT9 | 1.54900402 | 2.38169087 |
| DPP4 | 2.65838079 | 1.76056947 |
| SEMA3A | 1.97186181 | 4.11351805 |
| IL6 | 1.97070095 | 2.98037819 |
| PDGFRL | 1.2861555 | 1.29692031 |
| KBTBD11 | 1.97095834 | 1.54060436 |
| APOBEC3B | 1.30148122 | 1.33817593 |
| HOXA11AS | 2.31297568 | 1.22432624 |

Supplementary table 2. Down-expression differentially expressed genes (DEGs) in paclitaxel resistant MDA-MB-468 and SUM149 from analyzing expression data of GSE90564.

| Gene ID | MDA-MB-468 (logFC) | SUM-149 (logFC) |
|----------------|---------------------------|------------------------|
| CFI | -2.19929599 | -3.99565753 |
| CXXC4 | -2.93068844 | -2.36415485 |
| COL4A5 | -1.91104575 | -1.62059115 |
| OPHN1 | -1.82406385 | -1.45386335 |
| ARSD | -2.68428442 | -1.49096035 |
| FRY | -2.72767195 | 3.93374879 |
| COL4A6 | -2.40328617 | -1.08699208 |
| FOXO4 | -4.45304922 | -1.06082997 |
| ANKS1B | -2.26105986 | -1.02427889 |
| FBP1 | -1.8160282 | -1.48112138 |
| RNASET2 | -1.32233312 | -1.00323545 |

Supplementary table 3. Protein-protein interaction (PPI) analysis to construct the network and predict the degree, betweenness and closeness of protein connection.

| Gene ID | Degree | Betweenness | Closeness |
|----------|--------|-------------|--------------|
| PDGFA | 1.0 | 0.0 | 0.05108055 |
| GFPT2 | 1.0 | 0.0 | 0.050128534 |
| NAT8L | 1.0 | 0.0 | 0.050128534 |
| NEO1 | 1.0 | 0.0 | 0.013497145 |
| NCAM1 | 1.0 | 0.0 | 0.012984851 |
| ADH1A | 1.0 | 0.0 | 0.012984851 |
| ADH4 | 1.0 | 0.0 | 0.012984851 |
| COL4A6 | 1.0 | 0.0 | 0.012984851 |
| SKAP2 | 1.0 | 0.0 | 0.048118446 |
| PIWIL4 | 1.0 | 0.0 | 0.012820513 |
| TDRD9 | 1.0 | 0.0 | 0.012820513 |
| GPAM | 1.0 | 0.0 | 0.012820513 |
| AGPAT9 | 1.0 | 0.0 | 0.012820513 |
| RGMA | 2.0 | 8.0 | 0.0135064935 |
| ALDH1A1 | 2.0 | 2.0 | 0.012987013 |
| COL4A5 | 2.0 | 2.0 | 0.012987013 |
| FYB | 2.0 | 122.0 | 0.05 |
| SERPINE2 | 2.0 | 0.0 | 0.053133514 |
| HERC6 | 2.0 | 0.0 | 0.052489907 |
| SERPINB2 | 2.0 | 0.0 | 0.052173913 |
| SERPINB8 | 2.0 | 0.0 | 0.052173913 |
| GIP | 2.0 | 0.0 | 0.052525252 |
| CFI | 2.0 | 0.0 | 0.050518136 |
| CFH | 2.0 | 0.0 | 0.050518136 |
| WASL | 3.0 | 66.62857 | 0.052953158 |
| DPP4 | 3.0 | 464.0 | 0.05266712 |
| CAD | 3.0 | 242.0 | 0.052173913 |
| LCP2 | 3.0 | 240.0 | 0.051965356 |
| WIPF1 | 3.0 | 19.0 | 0.052139036 |
| PDGFRA | 3.0 | 122.0 | 0.053206004 |
| IL20RB | 3.0 | 11.292135 | 0.053315107 |
| IL20RA | 3.0 | 11.292135 | 0.053315107 |
| FOXO4 | 3.0 | 1.1666666 | 0.054054055 |
| IL18RAP | 3.0 | 0.0 | 0.05338809 |

| | | | |
|--------|------|-----------|--------------|
| SALL4 | 3.0 | 0.0 | 0.053133514 |
| NANOG | 3.0 | 0.0 | 0.053133514 |
| SSTR2 | 3.0 | 0.0 | 0.052489907 |
| TRDN | 3.0 | 0.0 | 0.051349573 |
| FKBP1B | 3.0 | 0.0 | 0.051349573 |
| ACVR2A | 3.0 | 0.0 | 0.0135064935 |
| INHBA | 3.0 | 0.0 | 0.0135064935 |
| ACVR2B | 3.0 | 0.0 | 0.0135064935 |
| NRP1 | 3.0 | 0.0 | 0.04890282 |
| SEMA3A | 3.0 | 0.0 | 0.04890282 |
| PLXNA1 | 3.0 | 0.0 | 0.04890282 |
| IL18R1 | 4.0 | 6.2788463 | 0.053608246 |
| RYR2 | 4.0 | 48.666668 | 0.05227882 |
| WAS | 4.0 | 461.1476 | 0.05397924 |
| IL20 | 4.0 | 4.0 | 0.05193076 |
| PLXNA4 | 4.0 | 354.0 | 0.05078125 |
| POU5F1 | 4.0 | 32.91111 | 0.05397924 |
| ASPH | 4.0 | 210.27953 | 0.05338809 |
| CALM1 | 4.0 | 138.88715 | 0.054204307 |
| FST | 4.0 | 12.0 | 0.0135111725 |
| RRAGB | 4.0 | 0.0 | 0.05357143 |
| RRAGD | 4.0 | 0.0 | 0.05357143 |
| RRAGA | 4.0 | 0.0 | 0.05357143 |
| SST | 5.0 | 99.18315 | 0.05394191 |
| C3 | 5.0 | 240.0 | 0.052560646 |
| RPTOR | 5.0 | 12.933333 | 0.053793103 |
| UBA52 | 6.0 | 491.1461 | 0.054242004 |
| IL6ST | 6.0 | 36.070213 | 0.053682037 |
| IL17A | 6.0 | 1.6799145 | 0.05397924 |
| GCG | 7.0 | 713.4315 | 0.054583624 |
| IL6R | 7.0 | 61.035667 | 0.05394191 |
| IL18 | 7.0 | 25.443657 | 0.05401662 |
| LPAR1 | 8.0 | 407.51294 | 0.054583624 |
| PLAU | 8.0 | 272.7635 | 0.0543554 |
| F2 | 8.0 | 224.07857 | 0.055123676 |
| SOCS3 | 8.0 | 101.34484 | 0.05394191 |
| IL1B | 9.0 | 43.321095 | 0.054890923 |
| JUN | 12.0 | 461.75378 | 0.0554371 |

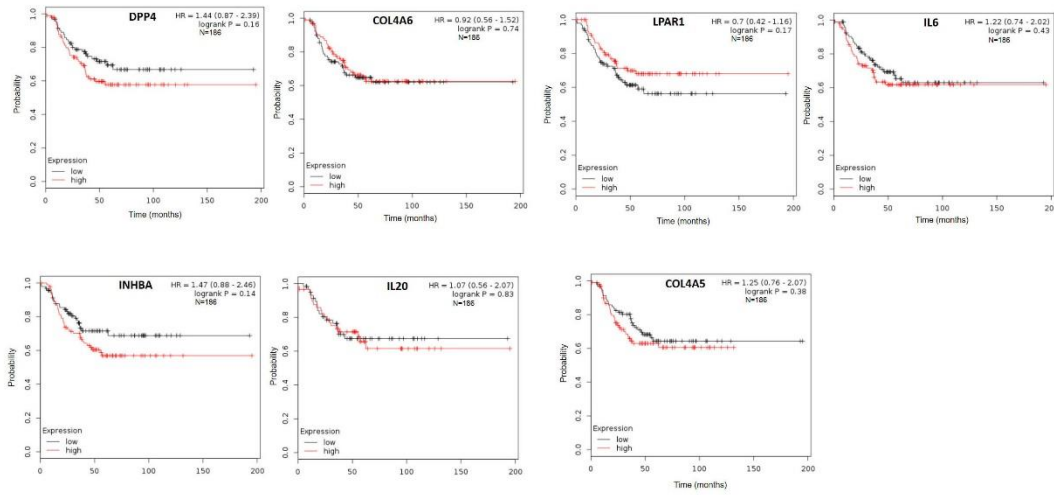
| | | | |
|-------|------|-----------|-------------|
| STAT1 | 12.0 | 181.58154 | 0.055123676 |
| MAPK1 | 12.0 | 175.49641 | 0.055045873 |
| FOS | 13.0 | 458.59244 | 0.055634808 |
| NFKB1 | 15.0 | 558.9963 | 0.055634808 |
| IL6 | 17.0 | 554.8925 | 0.055516016 |
| STAT3 | 17.0 | 504.69122 | 0.05535841 |
| AKT1 | 17.0 | 1184.501 | 0.05575411 |

Supplementary Table 4. The connected proteins (28 hub nodes) identified from differentially expressed genes (DEGs) analysis and Protein–protein interaction (PPI) network construction.

| Gene ID | MDA-MB-468 (logFC) | SUM-149 (logFC) |
|----------------------------|---------------------------|------------------------|
| up-regulated DEGs | | |
| RGMA | 1.91850179 | 1.06192543 |
| IL18R1 | 1.47771931 | 2.32407878 |
| IL6 | 1.97070095 | 2.98037819 |
| RYR2 | 4.01531378 | 3.21490947 |
| DPP4 | 2.65838079 | 1.76056947 |
| LPAR1 | 1.98245809 | 2.8882123 |
| IL20 | 2.24388821 | 1.98644946 |
| ALDH1A1 | 5.98099075 | 1.33122179 |
| FYB | 1.85304731 | 1.75650501 |
| RRAGD | 3.01309192 | 1.82948467 |
| SALL4 | 1.91349705 | 1.4872668 |
| SERPINE2 | 3.54256713 | 1.20776762 |
| HERC6 | 2.29318812 | 1.17364571 |
| SSTR2 | 3.79369433 | 1.38234365 |
| SERPINB2 | 6.00647273 | 3.79917612 |
| SERPINB8 | 5.17488109 | 1.1527134 |
| INHBA | 3.18307355 | 1.54179653 |
| SEMA3A | 1.97186181 | 4.11351805 |
| PDGFA | 1.44389895 | 1.08243718 |
| GFPT2 | 1.20644649 | 1.62286417 |
| NAT8L | 3.3282139 | 2.0467167 |
| NCAM1 | 5.68822596 | 1.40480745 |
| PIWIL4 | 1.83217019 | 1.31211316 |
| AGPAT9 | 1.54900402 | 2.38169087 |
| down-regulated DEGs | | |
| COL4A5 | -1.91104575 | -1.62059115 |
| FOXO4 | -4.45304922 | -1.06082997 |
| CFI | -2.19929599 | -3.99565753 |
| COL4A6 | -2.40328617 | -1.08699208 |

Supplementary table 5. Predict the signaling pathway of 28 candidate genes with protein-protein interaction network analysis by DAVID.

| KEGG Pathway | Genes | P-value | Adjusted p-value |
|---|-----------------------------------|----------------|-------------------------|
| Cytokine-cytokine receptor interaction (hsa04060) | IL6, PDGFA, IL20, IL18R1, INHBA | 3.011E-05 | 2.259E-03 |
| PI3K-Akt signaling pathway (hsa04151) | COL4A6, COL4A5, IL6, PDGFA, LPAR1 | 9.959E-05 | 3.3735E-03 |
| Pathways in cancer (hsa05200) | COL4A6, COL4A5, IL6, PDGFA, LPAR1 | 2.027E-04 | 4.67E-03 |
| AGE-RAGE signaling pathway in diabetic complication (hsa04933) | COL4A6, COL4A5, IL6 | 3.376E-04 | 4.67E-03 |
| Amoebiasis (hsa05146) | COL4A6, COL4A5, IL6 | 3.363E-04 | 4.67E-03 |
| Protein digestion and absorption (hsa04974) | COL4A6, COL4A5 | 2.661E-03 | 4.67E-03 |
| Focal adhesion (hsa04510) | COL4A6, COL4A5, PDGFA | 0.002761 | 0.02301 |
| Rap1 signaling pathway (hsa04015) | PDGFA, LPAR1, FYB | 0.003122 | 0.02342 |



Supplemental Fig1. Kaplan-Meier recurrence-free survival curves presenting the prognosis associated with expression levels of specific genes involved in paclitaxel resistance. DPP4, COL4A6, LPAR1, IL6, INHBA, IL20, and COL4A5 (n=186) didn't show significance in patient's survival.