

## Supporting information

**S1 Table. List of genes which were significantly up-regulated in Group A<sup>a</sup> compared with Group B<sup>b</sup>.**

| Gene name      | Average of<br>RPKM value |          | Fold_change<br>(log2) | p_value | q_value |
|----------------|--------------------------|----------|-----------------------|---------|---------|
|                | Group A                  | Group B  |                       |         |         |
| <i>CDK15</i>   | 0.319                    | 13.115   | 5.363                 | 0.000   | 0.006   |
| <i>COL11A1</i> | 2.094                    | 73.762   | 5.139                 | 0.000   | 0.006   |
| <i>UCA1</i>    | 0.979                    | 30.578   | 4.966                 | 0.000   | 0.006   |
| <i>LAMB3</i>   | 6.521                    | 170.957  | 4.712                 | 0.000   | 0.006   |
| <i>ZNF365</i>  | 1.384                    | 26.539   | 4.262                 | 0.000   | 0.006   |
| <i>ADAM12</i>  | 2.409                    | 36.712   | 3.930                 | 0.000   | 0.006   |
| <i>F3</i>      | 15.031                   | 196.847  | 3.711                 | 0.000   | 0.006   |
| <i>WNT5A</i>   | 2.716                    | 34.733   | 3.677                 | 0.000   | 0.006   |
| <i>ANLN</i>    | 23.887                   | 299.825  | 3.650                 | 0.000   | 0.006   |
| <i>FN1</i>     | 602.536                  | 7506.890 | 3.639                 | 0.000   | 0.006   |
| <i>TGFB2</i>   | 7.479                    | 92.218   | 3.624                 | 0.000   | 0.006   |
| <i>STAC</i>    | 2.673                    | 30.711   | 3.522                 | 0.000   | 0.006   |
| <i>LAMC2</i>   | 7.227                    | 74.615   | 3.368                 | 0.000   | 0.006   |
| <i>GFRA1</i>   | 8.526                    | 84.740   | 3.313                 | 0.000   | 0.006   |
| <i>CKAP2L</i>  | 3.074                    | 29.651   | 3.270                 | 0.000   | 0.006   |
| <i>CADMI</i>   | 14.642                   | 125.591  | 3.101                 | 0.000   | 0.006   |
| <i>NCAM1</i>   | 5.243                    | 42.428   | 3.017                 | 0.000   | 0.006   |
| <i>CLEC4E</i>  | 19.262                   | 145.796  | 2.920                 | 0.000   | 0.006   |
| <i>CD274</i>   | 4.549                    | 34.013   | 2.903                 | 0.000   | 0.006   |
| <i>TTK</i>     | 3.913                    | 27.852   | 2.831                 | 0.000   | 0.006   |
| <i>CCDC80</i>  | 49.642                   | 334.115  | 2.751                 | 0.000   | 0.006   |
| <i>UBE2C</i>   | 27.786                   | 183.929  | 2.727                 | 0.000   | 0.006   |

|                                  |         |          |       |       |       |
|----------------------------------|---------|----------|-------|-------|-------|
| <i>CENPE</i>                     | 2.239   | 14.732   | 2.718 | 0.000 | 0.006 |
| <i>COL5A1</i>                    | 21.419  | 135.575  | 2.662 | 0.000 | 0.006 |
| <i>DEPDC5</i>                    | 20.025  | 124.902  | 2.641 | 0.000 | 0.006 |
| <i>HJURP</i>                     | 12.448  | 76.817   | 2.626 | 0.000 | 0.006 |
| <i>IGF2BP2</i>                   | 11.338  | 68.555   | 2.596 | 0.000 | 0.006 |
| <i>HMMR</i>                      | 8.282   | 49.467   | 2.578 | 0.000 | 0.006 |
| <i>IL6</i>                       | 28.797  | 170.836  | 2.569 | 0.000 | 0.006 |
| <i>CENPI</i>                     | 2.038   | 11.886   | 2.544 | 0.000 | 0.006 |
| <i>KIF6</i>                      | 0.635   | 3.548    | 2.483 | 0.000 | 0.006 |
| <i>TP53BP2</i>                   | 30.956  | 167.668  | 2.437 | 0.000 | 0.006 |
| <i>DEPDC1</i>                    | 4.872   | 25.715   | 2.400 | 0.000 | 0.006 |
| <i>LINC00511</i>                 | 4.227   | 22.193   | 2.392 | 0.000 | 0.006 |
| <i>BUB1</i>                      | 9.888   | 51.206   | 2.373 | 0.000 | 0.006 |
| <i>AURKA</i>                     | 10.966  | 56.249   | 2.359 | 0.000 | 0.006 |
| <i>GALNT7</i>                    | 15.589  | 78.593   | 2.334 | 0.000 | 0.006 |
| <i>COL1A1</i>                    | 89.404  | 450.260  | 2.332 | 0.000 | 0.006 |
| <i>MICAL2</i>                    | 27.256  | 126.108  | 2.210 | 0.000 | 0.006 |
| <i>PLK4</i>                      | 5.483   | 24.800   | 2.177 | 0.000 | 0.006 |
| <i>NCAPH</i>                     | 6.819   | 30.679   | 2.170 | 0.000 | 0.006 |
| <i>DCBLD2</i>                    | 67.897  | 298.010  | 2.134 | 0.000 | 0.006 |
| <i>ECT2</i>                      | 17.585  | 75.053   | 2.094 | 0.000 | 0.006 |
| <i>LAMC1</i>                     | 81.835  | 347.108  | 2.085 | 0.000 | 0.006 |
| <i>CD44</i>                      | 199.643 | 833.067  | 2.061 | 0.000 | 0.006 |
| <i>ENAH</i>                      | 36.594  | 148.814  | 2.024 | 0.000 | 0.006 |
| <i>ENTPD4, LOXL2</i>             | 77.670  | 313.973  | 2.015 | 0.000 | 0.006 |
| <i>SMC4</i>                      | 47.542  | 189.172  | 1.992 | 0.000 | 0.006 |
| <i>ITGB1</i>                     | 391.835 | 1549.430 | 1.983 | 0.000 | 0.006 |
| <i>PARPBP</i>                    | 3.932   | 15.375   | 1.967 | 0.000 | 0.006 |
| <i>BUB1B, PAK6, RP11-133K1.2</i> | 11.525  | 44.758   | 1.957 | 0.000 | 0.006 |
| <i>PARD3</i>                     | 33.453  | 128.857  | 1.946 | 0.000 | 0.006 |
| <i>MLPH</i>                      | 12.750  | 48.779   | 1.936 | 0.000 | 0.006 |
| <i>PRC1</i>                      | 45.070  | 172.288  | 1.935 | 0.000 | 0.006 |

|                        |         |          |       |       |       |
|------------------------|---------|----------|-------|-------|-------|
| <i>ORC6</i>            | 6.889   | 25.314   | 1.877 | 0.000 | 0.006 |
| <i>OXCT1</i>           | 36.669  | 133.729  | 1.867 | 0.000 | 0.006 |
| <i>CPD</i>             | 52.116  | 188.664  | 1.856 | 0.000 | 0.006 |
| <i>CEP70</i>           | 17.365  | 61.519   | 1.825 | 0.000 | 0.006 |
| <i>TPM4</i>            | 363.701 | 1238.660 | 1.768 | 0.000 | 0.006 |
| <i>ITGA3</i>           | 150.477 | 501.149  | 1.736 | 0.000 | 0.006 |
| <i>RAD51API</i>        | 9.058   | 28.299   | 1.643 | 0.000 | 0.006 |
| <i>NFKBIZ, NXPE3</i>   | 50.281  | 153.408  | 1.609 | 0.000 | 0.006 |
| <i>BRCA1</i>           | 7.012   | 20.634   | 1.557 | 0.000 | 0.006 |
| <i>PSMD2</i>           | 150.409 | 442.466  | 1.557 | 0.000 | 0.006 |
| <i>NPC1</i>            | 54.110  | 155.659  | 1.524 | 0.000 | 0.006 |
| <i>CDC42EP2, POLA2</i> | 15.684  | 44.244   | 1.496 | 0.000 | 0.006 |
| <i>CHEK1, STT3A</i>    | 134.334 | 375.310  | 1.482 | 0.000 | 0.006 |
| <i>APCDD1L-AS1</i>     | 0.916   | 13.855   | 3.918 | 0.000 | 0.010 |
| <i>TENM3</i>           | 3.461   | 31.038   | 3.165 | 0.000 | 0.010 |
| <i>OSBPL6</i>          | 0.982   | 6.325    | 2.687 | 0.000 | 0.010 |
| <i>SCG5</i>            | 8.093   | 46.914   | 2.535 | 0.000 | 0.010 |
| <i>NEK2</i>            | 6.690   | 30.733   | 2.200 | 0.000 | 0.010 |
| <i>ZWINT</i>           | 19.139  | 72.542   | 1.922 | 0.000 | 0.010 |
| <i>MELK</i>            | 8.445   | 30.694   | 1.862 | 0.000 | 0.010 |
| <i>FRMD6</i>           | 12.118  | 37.360   | 1.624 | 0.000 | 0.010 |
| <i>R3HDM1</i>          | 26.706  | 77.986   | 1.546 | 0.000 | 0.010 |
| <i>ARHGAP11A</i>       | 9.489   | 26.360   | 1.474 | 0.000 | 0.010 |
| <i>HDLBP</i>           | 463.031 | 1128.930 | 1.286 | 0.000 | 0.010 |
| <i>TPM1</i>            | 623.919 | 1477.030 | 1.243 | 0.000 | 0.010 |
| <i>ABCB5</i>           | 0.670   | 17.890   | 4.738 | 0.000 | 0.014 |
| -                      | 0.412   | 4.147    | 3.330 | 0.000 | 0.014 |
| <i>HSF2BP</i>          | 0.758   | 5.265    | 2.797 | 0.000 | 0.014 |
| <i>CENPF</i>           | 10.032  | 67.154   | 2.743 | 0.000 | 0.014 |
| <i>S100A2</i>          | 10.587  | 62.949   | 2.572 | 0.000 | 0.014 |
| <i>ADAMTS6</i>         | 1.322   | 5.496    | 2.056 | 0.000 | 0.014 |
| <i>DTL</i>             | 6.357   | 24.909   | 1.970 | 0.000 | 0.014 |

|   |         |          |       |       |       |
|---|---------|----------|-------|-------|-------|
| <i>TGFBI</i>                                      | 748.034 | 2661.470 | 1.831 | 0.000 | 0.014 |
| <i>GPX8</i>                                       | 35.212  | 124.090  | 1.817 | 0.000 | 0.014 |
| <i>MBOAT2</i>                                     | 14.180  | 42.720   | 1.591 | 0.000 | 0.014 |
| <i>NUSAP1</i>                                     | 40.485  | 114.347  | 1.498 | 0.000 | 0.014 |
| <i>MCM4</i>                                       | 94.154  | 264.509  | 1.490 | 0.000 | 0.014 |
| <i>LINC00607</i>                                  | 0.478   | 2.870    | 2.585 | 0.000 | 0.017 |
| <i>CREB3L1</i>                                    | 2.517   | 12.487   | 2.311 | 0.000 | 0.017 |
| <i>SGOL1</i>                                      | 3.150   | 11.195   | 1.829 | 0.000 | 0.017 |
| <i>RBFOX3</i>                                     | 0.316   | 1.100    | 1.798 | 0.000 | 0.017 |
| <i>ITGB6</i>                                      | 15.506  | 52.717   | 1.765 | 0.000 | 0.017 |
| <i>ACACA</i>                                      | 19.391  | 43.550   | 1.167 | 0.000 | 0.017 |
| <i>HS3ST3A1</i>                                   | 0.677   | 7.067    | 3.383 | 0.000 | 0.020 |
| <i>AC108142.1</i>                                 | 1.041   | 9.673    | 3.216 | 0.000 | 0.020 |
| <i>MEGF11</i>                                     | 3.794   | 27.216   | 2.843 | 0.000 | 0.020 |
| <i>CYP11B1</i>                                    | 15.007  | 91.173   | 2.603 | 0.000 | 0.020 |
| <i>PROM2</i>                                      | 1.520   | 8.215    | 2.434 | 0.000 | 0.020 |
| <i>KIF23</i>                                      | 9.386   | 42.164   | 2.167 | 0.000 | 0.020 |
| <i>DIAPH3</i>                                     | 5.013   | 20.374   | 2.023 | 0.000 | 0.020 |
| <i>CENPU</i>                                      | 12.146  | 44.880   | 1.886 | 0.000 | 0.020 |
| <i>CTD-2510F5.6, PRR11,<br/>SMG8</i>              | 28.257  | 85.458   | 1.597 | 0.000 | 0.020 |
| <i>CENPL</i>                                      | 4.938   | 14.704   | 1.574 | 0.000 | 0.020 |
| <i>SSR3</i>                                       | 141.367 | 400.978  | 1.504 | 0.000 | 0.020 |
| <i>HSPA8</i>                                      | 641.313 | 1700.070 | 1.407 | 0.000 | 0.020 |
| <i>KPNA2</i>                                      | 60.528  | 263.156  | 2.120 | 0.000 | 0.022 |
| <i>C1orf204, CCDC19,<br/>RP11-190A12.7, VSIG8</i> | 8.272   | 32.673   | 1.982 | 0.000 | 0.022 |
| <i>CALU</i>                                       | 119.785 | 466.839  | 1.962 | 0.000 | 0.022 |
| <i>SPDL1</i>                                      | 18.479  | 63.549   | 1.782 | 0.000 | 0.022 |
| <i>HSPA5</i>                                      | 123.808 | 399.273  | 1.689 | 0.000 | 0.022 |
| <i>PSD3</i>                                       | 3.639   | 11.111   | 1.611 | 0.000 | 0.022 |
| <i>GULP1</i>                                      | 33.820  | 99.070   | 1.551 | 0.000 | 0.022 |
| <i>AURKB</i>                                      | 13.809  | 34.366   | 1.315 | 0.000 | 0.022 |

|  |         |         |       |       |       |
|--|---------|---------|-------|-------|-------|
| <i>KIFC1</i>   | 7.799   | 44.403  | 2.509 | 0.000 | 0.024 |
| <i>RRM2</i>  | 23.251  | 111.439 | 2.261 | 0.000 | 0.024 |
| <i>CDC45</i>   | 6.236   | 25.317  | 2.022 | 0.000 | 0.024 |
| <i>CPNE7</i>   | 6.646   | 26.488  | 1.995 | 0.000 | 0.024 |
| <i>AMACR, C1QTNF3,<br/>RP11-1084J3.4</i>                     | 61.280  | 183.514 | 1.582 | 0.000 | 0.024 |
| <i>MCM10</i>   | 2.325   | 14.636  | 2.654 | 0.000 | 0.026 |
| <i>C3orf55</i>   | 3.235   | 19.909  | 2.621 | 0.000 | 0.026 |
| <i>GPNMB</i>   | 174.159 | 760.166 | 2.126 | 0.000 | 0.028 |
| <i>FADS1</i>   | 25.736  | 110.470 | 2.102 | 0.000 | 0.028 |
| <i>GPM6A</i>   | 3.661   | 17.972  | 2.295 | 0.001 | 0.030 |
| <i>RUNX2</i>   | 6.008   | 23.580  | 1.973 | 0.001 | 0.030 |
| <i>PLOD2</i>   | 162.796 | 517.553 | 1.669 | 0.001 | 0.030 |
| <i>FADS2, FEN1</i>   | 31.876  | 99.014  | 1.635 | 0.001 | 0.030 |
| <i>CHRD1</i>   | 3.159   | 49.421  | 3.968 | 0.001 | 0.032 |
| <i>RP11-150O12.1, RP11-<br/>150O12.6, RP11-<br/>527N22.2</i> | 1.097   | 8.804   | 3.005 | 0.001 | 0.032 |
| <i>DNMT1, SIPR2</i>  | 63.500  | 190.927 | 1.588 | 0.001 | 0.032 |
| <i>WHSC1</i>   | 21.446  | 60.497  | 1.496 | 0.001 | 0.032 |
| <i>EPB41L2</i>   | 77.991  | 180.967 | 1.214 | 0.001 | 0.032 |
| <i>ZNF474</i>  | 0.427   | 2.738   | 2.681 | 0.001 | 0.034 |
| <i>CDC6</i>  | 7.856   | 33.396  | 2.088 | 0.001 | 0.034 |
| <i>HOMER2</i>  | 4.197   | 32.027  | 2.932 | 0.001 | 0.036 |
| <i>SKA2</i>  | 44.101  | 158.295 | 1.844 | 0.001 | 0.036 |
| <i>CDC27</i>   | 45.234  | 131.769 | 1.543 | 0.001 | 0.036 |
| <i>TTF2</i>  | 14.559  | 35.721  | 1.295 | 0.001 | 0.036 |
| <i>EPHB1</i>   | 1.309   | 7.234   | 2.466 | 0.001 | 0.039 |
| <i>SKA3</i>  | 4.429   | 31.875  | 2.847 | 0.001 | 0.041 |
| <i>SGOL2</i>   | 2.992   | 16.017  | 2.420 | 0.001 | 0.041 |
| <i>PEG10</i>   | 27.375  | 140.731 | 2.362 | 0.001 | 0.041 |
| <i>HNRNPR</i>  | 68.438  | 181.881 | 1.410 | 0.001 | 0.041 |
| <i>SH3GL3</i>  | 0.187   | 1.511   | 3.011 | 0.001 | 0.042 |

|                 |         |          |       |       |       |
|-----------------|---------|----------|-------|-------|-------|
| <i>TFPI2</i>    | 48.416  | 373.012  | 2.946 | 0.001 | 0.042 |
| <i>CALR</i>     | 503.066 | 1362.270 | 1.437 | 0.001 | 0.042 |
| <i>PCDH9</i>    | 0.211   | 2.011    | 3.255 | 0.001 | 0.044 |
| <i>NEIL3</i>    | 2.871   | 15.454   | 2.428 | 0.001 | 0.044 |
| <i>ESCO2</i>    | 2.406   | 12.781   | 2.409 | 0.001 | 0.044 |
| <i>P2RY6</i>    | 3.334   | 10.784   | 1.694 | 0.001 | 0.044 |
| <i>SERPINE1</i> | 83.455  | 518.890  | 2.636 | 0.001 | 0.046 |
| <i>BDH1</i>     | 5.568   | 16.207   | 1.541 | 0.001 | 0.046 |
| <i>TOP2A</i>    | 24.510  | 142.940  | 2.544 | 0.001 | 0.047 |
| <i>ZNF385D</i>  | 3.558   | 14.168   | 1.994 | 0.001 | 0.047 |
| <i>XRCC5</i>    | 173.447 | 461.388  | 1.411 | 0.001 | 0.047 |
| <i>CAP1</i>     | 217.941 | 506.033  | 1.215 | 0.001 | 0.047 |
| <i>ABI3BP</i>   | 73.637  | 163.607  | 1.152 | 0.001 | 0.047 |
| <i>CACNAIG</i>  | 0.090   | 0.591    | 2.713 | 0.001 | 0.048 |
| <i>PBK</i>      | 7.796   | 50.704   | 2.701 | 0.001 | 0.048 |
| <i>MCM8</i>     | 4.780   | 16.542   | 1.791 | 0.001 | 0.048 |

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<sup>a</sup>Three poor prognosis tissues (q3\_4, 5, 6) and SW839 and KMRC-1.

<sup>b</sup>The other 45 samples.