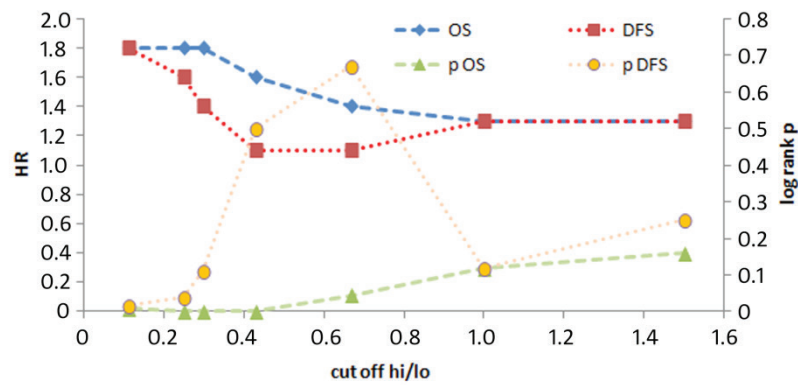
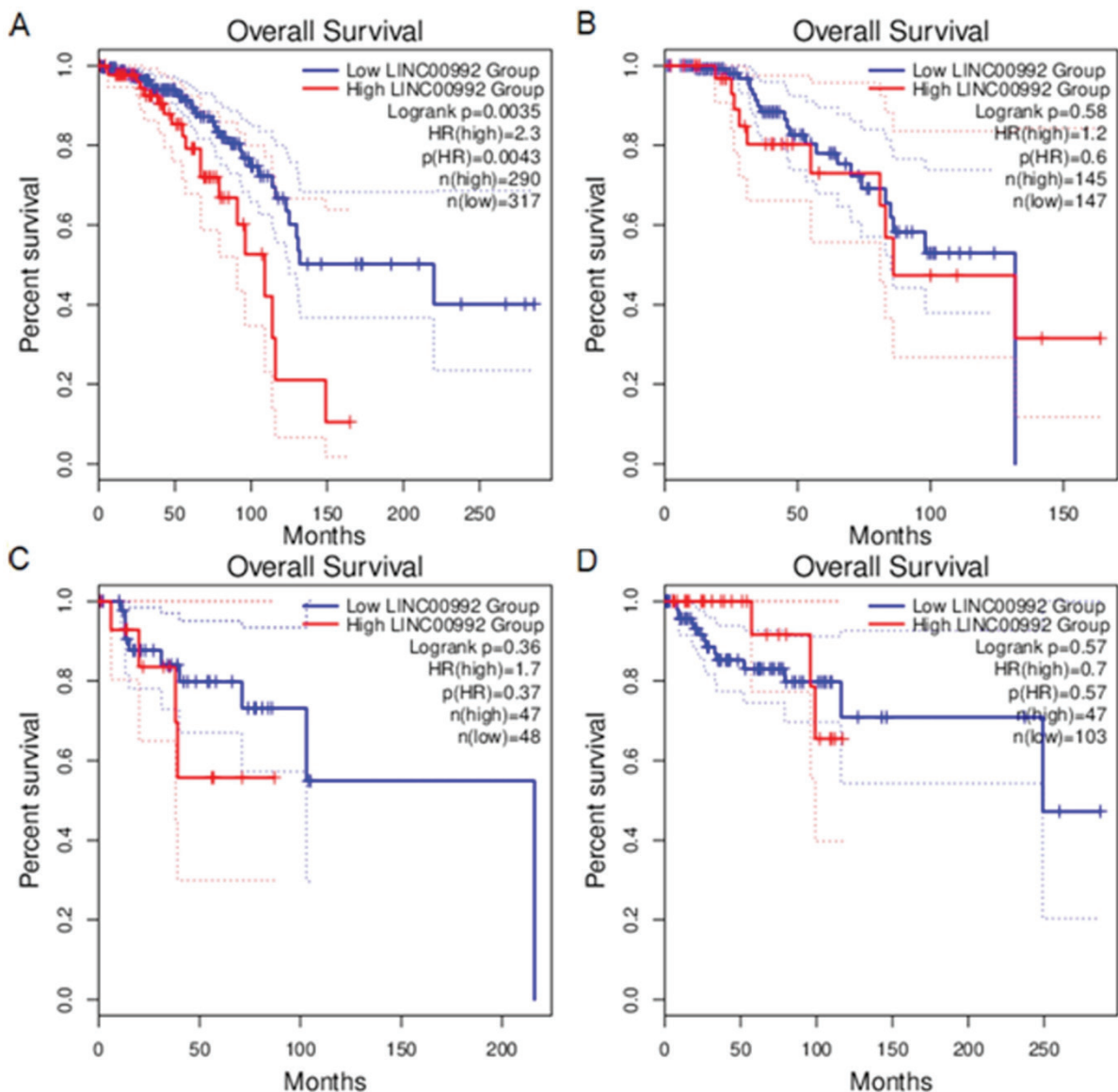


Supplementary. The tamoxifen-regulated, long non-coding RNA LINC00992 affects proliferation, migration, and expression of tamoxifen resistance-associated genes in MCF-7 breast cancer cells



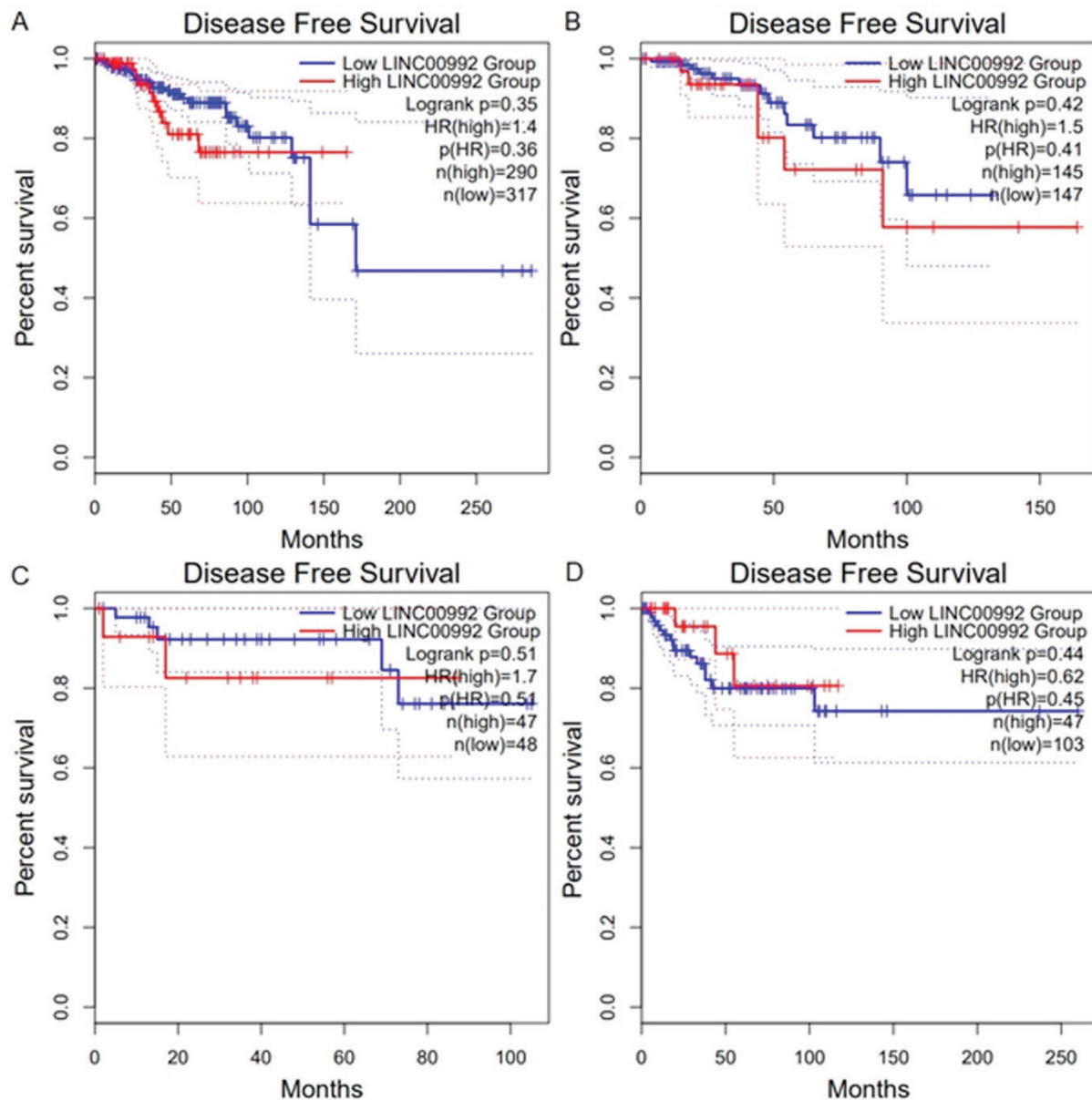
| cutoff | | | | | | | |
|------------|--------|---------|---------|--------|-------|------|------|
| high | 10 | 20 | 23 | 30 | 40 | 50 | 60 |
| low | 90 | 80 | 77 | 70 | 60 | 50 | 40 |
| OS | | | | | | | |
| HR | 1.8 | 1.8 | 1.8 | 1.6 | 1.4 | 1.3 | 1.3 |
| log rank p | 0.0096 | 0.00087 | 0.00081 | 0.0027 | 0.045 | 0.12 | 0.16 |
| DFS | | | | | | | |
| HR | 1.8 | 1.6 | 1.4 | 1.1 | 1.1 | 1.3 | 1.3 |
| log rank p | 0.018 | 0.04 | 0.11 | 0.5 | 0.67 | 0.12 | 0.25 |

Suppl. Fig 1. Relationship of hazard ratio and statistical significance (log-rank p) to the cut-off values in Kaplan-Meier analysis for overall survival and disease-free survival using GEPIA2



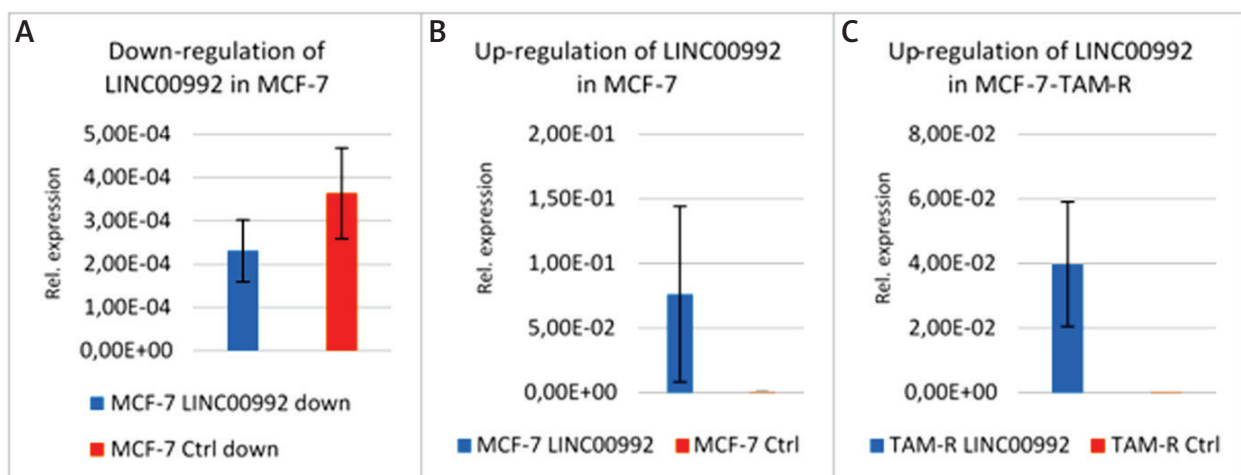
Suppl. Fig 2. Overall survival analysis comparing LINC00992 high and low expressing cases of the 4 intrinsic subtypes of breast cancer. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0). Cut-off was set to 23% high and 77% low (nc-sa/4.0/)

A – luminal A-subtype, B – luminal B-subtype, C – Her2-subtype, D – basal subtype



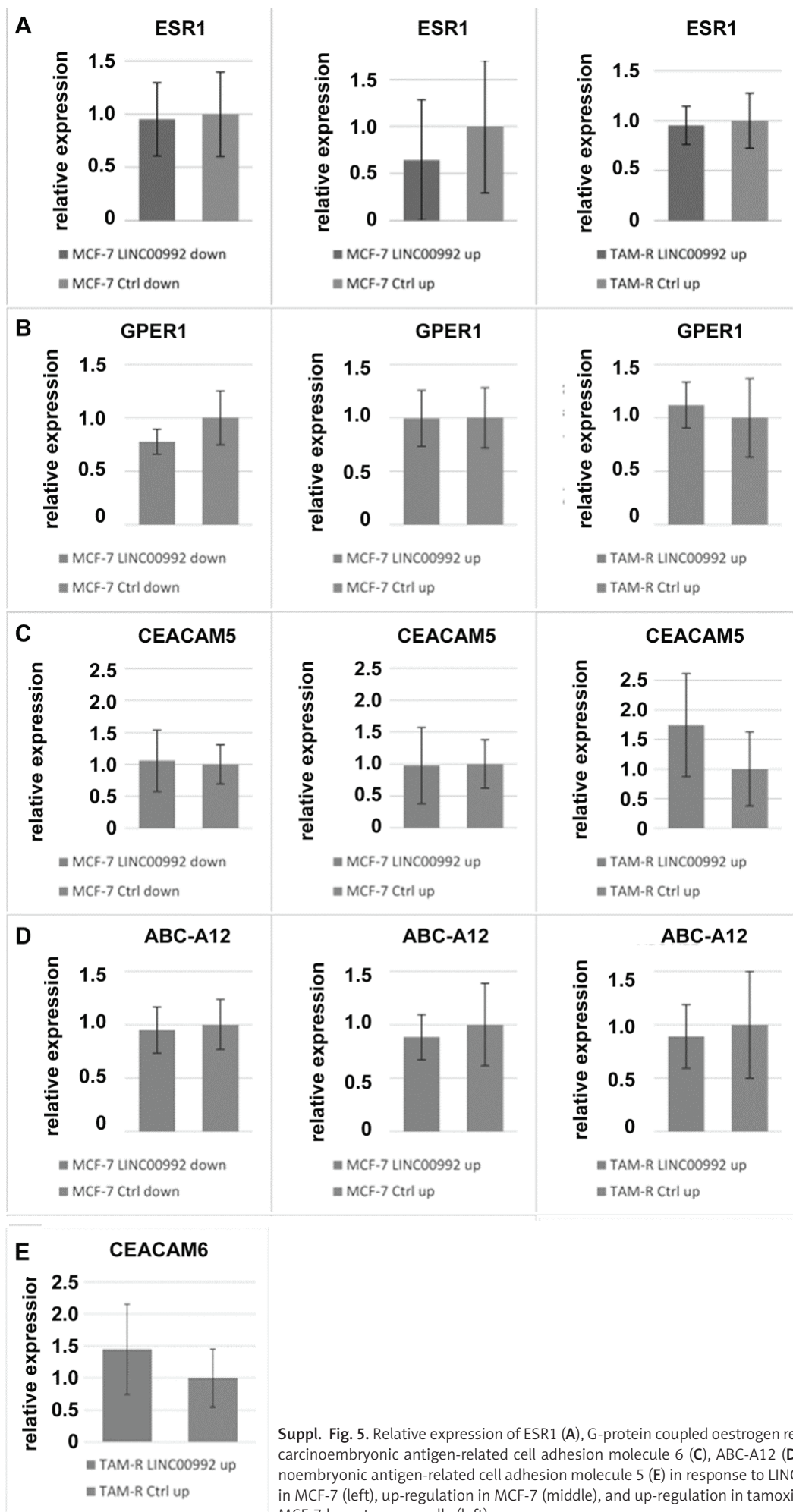
Suppl. Fig. 3. Disease-free survival analysis comparing LINC00992 high and low expressing cases of the 4 intrinsic subtypes of breast cancer. Cut-off was set to 23% high and 77% low

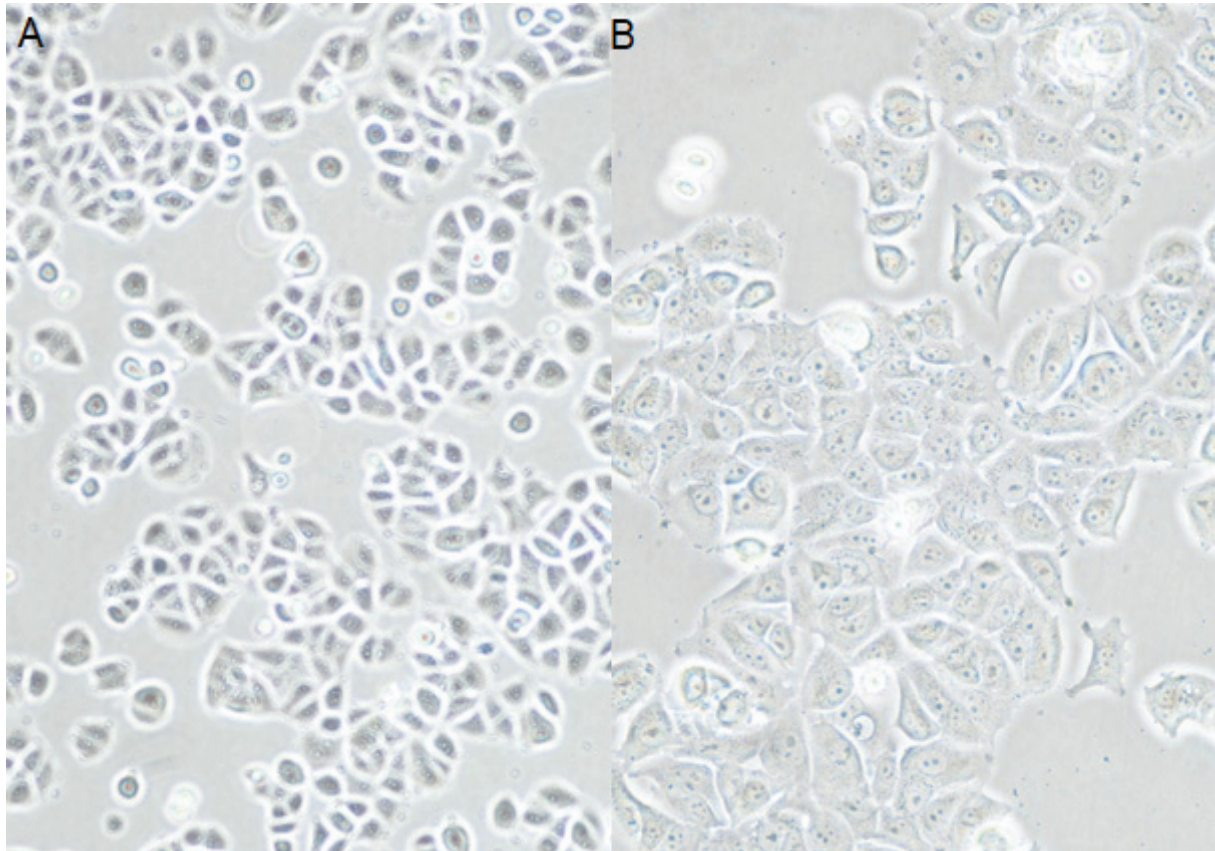
A – luminal A-subtype, B – luminal B-subtype, C – Her2-subtype, D – basal subtype



Suppl. Fig. 4. Relative expression of LINC00992 determined by quantitative real-time polymerase chain reaction relative to RPL13 using the $2^{-\Delta Ct}$ method. Error bars represent the first standard deviation. MCF-7 cells after transfection with the LINC00992 siRNA (down) and the control siRNA (Ctrl). (A), overexpression of LINC00992 by transient plasmid transfection in MCF-7 cells (B), and overexpression of LINC00992 by transient plasmid transfection tamoxifen-adapted MCF-7 breast cancer cells (C)

Expression of LINC00992 was significantly altered ($p < 0.05$) in all 3 experimental groups compared to controls.

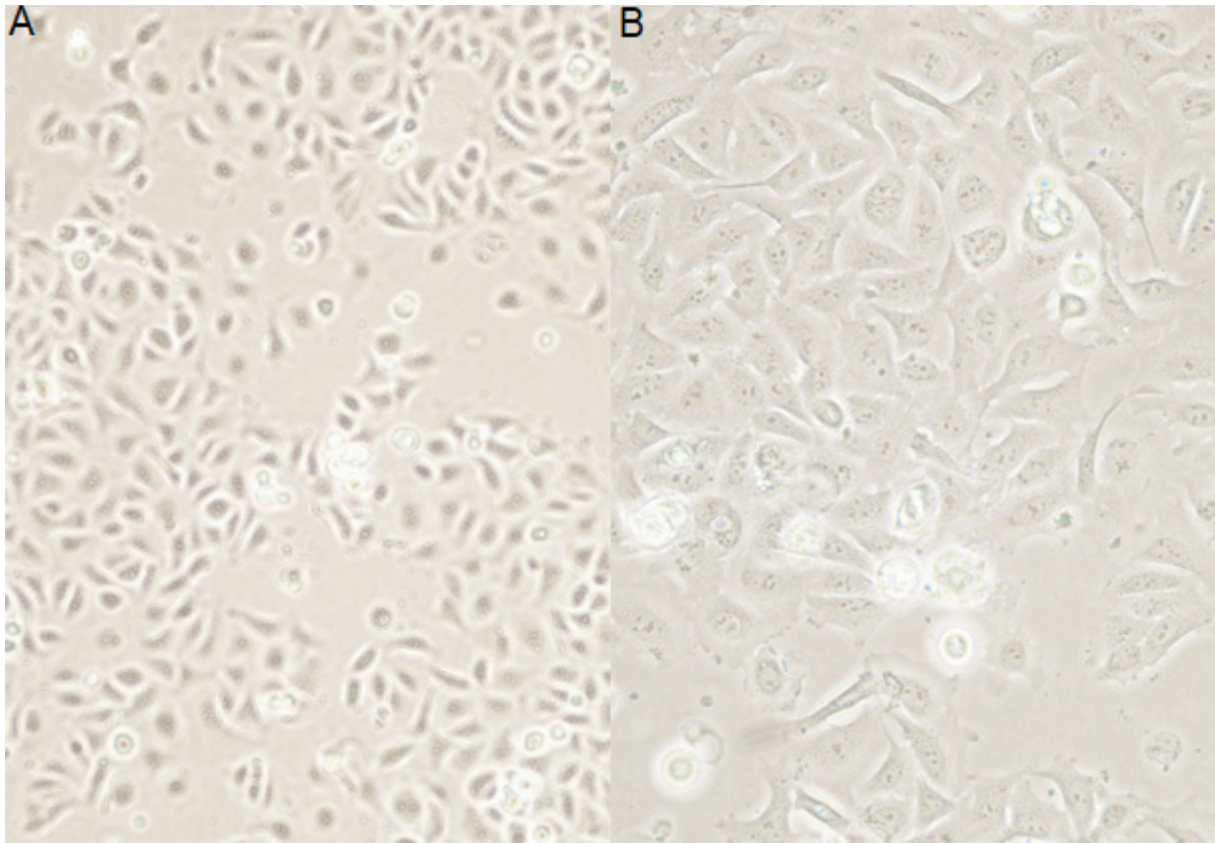




App. 14: A) Tenfold magnification of untreated MCF-7 cells in a culture flask. Grouped, cohesive, cylindrical and prismatic cells with formation of ductal or tubular duct structures in cross-section can be seen. B) Twenty-fold magnification of untreated MCF-7 cells in a culture flask. Ravenous growing, moderately pleomorphic cells with clear adhesion of the cell membranes and shadowy formation of organoid, partly lobular structures can be seen.

Control cells are set to one (right column each).

Suppl. Fig 6. Morphology of MCF-7. Cells are untreated and photographed using phase contrast and 10× objective (A) and 20× for MCF-7 (B)



App 15: A) Tenfold magnification of untreated TAM-R cells in a culture flask. Clearly pleomorphic, dissolutely growing cells without formation of cell assemblies or organoid structures, as well as clearly pleomorphic cells can be seen. B) Twenty-fold magnification of untreated TAM-R cells in a culture flask. To be seen are poorly adherent, pleomorphic, polygonal to spindle-shaped cells with distinctly anisomorphic nuclei.

Suppl. Fig 7. Morphology of tamoxifen-adapted MCF-7 breast cancer cells. Cells are untreated and photographed using phase contrast and 10× objective (A) and 20× for MCF-7 (B)

Suppl. Table 1. Down- and up-regulation of LINC00992 in MCF-7 and up-regulation in tamoxifen-adapted MCF-7 breast cancer cells

| LINC00992 | MCF-7 LINC00-992 siRNA | MCF-7 LINC00-992 Ctrl siRNA | MCF-7 LINC00-992 up | MCF-7 Ctrl (up) | TAM-R LINC00-992 up | TAM-R Ctrl (up) |
|---------------------|------------------------|-----------------------------|---------------------|-----------------|---------------------|-----------------|
| Average | 2.31E-04 | 3.64E-04 | 7.61E-02 | 1.54E-04 | 3.98E-02 | 6.44E-06 |
| Standard deviation | 7.17E-05 | 1.05E-04 | 6.78E-02 | 8.34E-05 | 1.93E-02 | 3.20E-06 |
| Samples | 7 | 7 | 8 | 8 | 9 | 9 |
| p (T ≥ t) (2-sided) | *0.018 | | *0.016 | | *0.0002 | |

Ctrl – control group

*p < 0.05

Suppl. Table 2. Results of gene expression analysis using NanoString nCounter® for down-regulation of LINC00992 in MCF-7 (relative gene expression to RPL13) with statistical testing

| LINC00992 down | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|----------------|---------|---------|---------|---------|---------------------|------|---------------------|
| | | | Average | s.d. | Average | s.d. | |
| LINC00992 | 5.82 | 3.37 | 5.01 | 1.11 | 0.03 | 1.10 | 0.723 |
| ABC-A12 | 293.68 | 75.59 | 345.57 | 58.33 | -0.25 | 0.15 | 0.057 |
| ADAMTS9 | 38.67 | 3.50 | 37.11 | 7.61 | 0.08 | 0.26 | 0.738 |
| AMIGO2 | 3145.14 | 1098.57 | 3484.05 | 1150.35 | -0.15 | 0.03 | *0.014 |
| AR | 91.85 | 12.78 | 87.00 | 12.60 | 0.08 | 0.19 | 0.566 |
| ARHGAP26 | 93.93 | 18.77 | 91.31 | 15.42 | 0.03 | 0.07 | 0.422 |
| BAMBI | 3155.44 | 1182.23 | 2746.24 | 1061.84 | 0.21 | 0.17 | 0.149 |
| BDKRB2 | 58.69 | 4.30 | 66.36 | 20.13 | -0.14 | 0.32 | 0.501 |
| BMP5 | 646.07 | 340.85 | 699.79 | 330.20 | -0.16 | 0.14 | 0.103 |
| BPIFB1 | 90.64 | 64.54 | 113.86 | 85.50 | -0.35 | 0.21 | 0.237 |
| C1orf226 | 260.23 | 84.59 | 268.68 | 104.39 | -0.02 | 0.22 | 0.710 |
| CA2 | 6287.32 | 1516.66 | 6127.02 | 1358.14 | 0.03 | 0.10 | 0.586 |
| CEACAM6 | 274.56 | 205.45 | 235.72 | 143.89 | -0.05 | 0.59 | 0.389 |
| DEFB1 | 13.14 | 5.26 | 11.63 | 4.02 | 0.14 | 0.16 | 0.217 |
| DHRS3 | 564.05 | 367.52 | 482.55 | 353.74 | 0.26 | 0.25 | 0.140 |
| EPAS1 | 799.84 | 524.86 | 583.60 | 370.93 | 0.42 | 0.12 | 0.139 |
| FAXDC2 | 169.76 | 109.70 | 206.13 | 99.29 | -0.36 | 0.29 | 0.218 |
| FOLH1 | 13.17 | 5.05 | 10.90 | 5.07 | 0.31 | 0.53 | 0.522 |
| GPER1 | 199.87 | 151.21 | 189.14 | 141.73 | 0.07 | 0.01 | 0.189 |
| GPR68 | 336.63 | 203.57 | 384.79 | 178.19 | -0.26 | 0.20 | 0.142 |
| GPX2 | 94.42 | 46.47 | 79.06 | 35.37 | 0.22 | 0.14 | 0.154 |
| GREB1 | 1038.97 | 692.21 | 1152.56 | 670.80 | -0.19 | 0.17 | 0.184 |
| KLK11 | 602.92 | 418.30 | 688.49 | 334.96 | -0.30 | 0.34 | 0.301 |
| KRT4 | 17.63 | 13.10 | 21.70 | 15.62 | -0.44 | 0.45 | 0.381 |
| LINC00632 | 7.89 | 2.55 | 7.14 | 2.06 | 0.14 | 0.68 | 0.763 |
| LINC00683 | 60.32 | 5.29 | 54.19 | 8.08 | 0.16 | 0.10 | 0.072 |
| LINC01213 | 69.53 | 18.69 | 59.97 | 7.92 | 0.19 | 0.20 | 0.265 |
| LOC101929547 | 120.98 | 49.90 | 133.75 | 39.64 | -0.18 | 0.16 | 0.212 |
| PIP | 16.61 | 8.55 | 17.75 | 5.52 | -0.18 | 0.55 | 0.815 |
| PTGER4 | 61.51 | 9.77 | 60.52 | 6.93 | 0.02 | 0.08 | 0.643 |
| RAMP3 | 877.69 | 267.02 | 1062.80 | 256.18 | -0.29 | 0.33 | 0.315 |
| RGS22 | 19.16 | 7.12 | 22.73 | 11.47 | -0.20 | 0.26 | 0.344 |
| SEMA5A | 134.30 | 77.62 | 120.54 | 65.65 | 0.12 | 0.15 | 0.340 |
| SIM1 | 66.15 | 39.83 | 85.19 | 26.14 | -0.48 | 0.59 | 0.307 |
| SOX3 | 496.64 | 141.43 | 570.90 | 108.04 | -0.23 | 0.18 | 0.098 |
| SPINK4 | 52.06 | 20.69 | 54.32 | 15.59 | -0.09 | 0.25 | 0.670 |

| LINC00992 down | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|-------------------|-----------|----------|-----------|----------|---------------------|------|------------------------|
| | | | Average | s.d | Average | s.d. | |
| TARP | 27.77 | 14.25 | 25.63 | 13.27 | 0.11 | 0.13 | 0.216 |
| TFF3 | 1513.86 | 774.85 | 1740.42 | 932.56 | -0.20 | 0.14 | 0.189 |
| UBD | 17.84 | 11.23 | 13.45 | 13.31 | 0.60 | 0.96 | 0.407 |
| VAV3 | 1244.45 | 269.09 | 1390.30 | 253.20 | -0.17 | 0.09 | 0.078 |
| XR_133213 | 23.49 | 4.01 | 14.44 | 6.07 | 0.80 | 0.72 | 0.127 |
| ZNF462 | 27.10 | 14.85 | 28.39 | 17.53 | -0.05 | 0.22 | 0.650 |
| ACTB | 176504.02 | 63580.86 | 164397.88 | 46247.71 | 0.07 | 0.17 | 0.390 |
| CLTC | 15536.62 | 4978.70 | 14900.99 | 4396.86 | 0.05 | 0.05 | 0.202 |
| GUSB | 1312.16 | 19.57 | 1279.49 | 49.28 | 0.04 | 0.06 | 0.406 |
| HPRT1 | 4039.63 | 592.60 | 3749.45 | 514.14 | 0.11 | 0.08 | 0.140 |
| PGK1 | 13937.78 | 6943.68 | 13319.77 | 7485.90 | 0.10 | 0.12 | 0.277 |
| RPL13 | 8013.89 | 0.00 | 8013.89 | 0.00 | 0.00 | 0.00 | 0.423 |

CEACAM – carcinoembryonic antigen-related cell adhesion molecule, Ctrl – control group, GPER1 – G-protein coupled oestrogen receptor 1, SIM1 – single-minded homologue 1, UBD – ubiquitin D, ZNF462 – zinc finger protein 462
 Orange background – LINC00992, blue – housekeeping genes

Suppl. Table 3. Results of gene expression analysis using NanoString nCounter® for up-regulation of LINC00992 (relative gene expression to RPL13) in MCF-7 with statistical testing

| LINC00992 up | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|--------------|---------|---------|---------|---------|---------------------|------|------------------------|
| | | | Average | s.d | Average | s.d. | |
| LINC00992 | 4776.51 | 1984.62 | 4.82 | 3.61 | 10.10 | 1.66 | 0.053 |
| ABC-A12 | 506.62 | 153.87 | 475.86 | 170.88 | 0.12 | 0.15 | 0.238 |
| ADAMTS9 | 51.11 | 7.79 | 46.81 | 12.93 | 0.15 | 0.21 | 0.364 |
| AMIGO2 | 4634.55 | 3061.14 | 4531.56 | 2985.96 | -0.01 | 0.16 | 0.741 |
| AR | 144.73 | 12.35 | 129.04 | 5.40 | 0.16 | 0.12 | 0.149 |
| ARHGAP26 | 212.68 | 72.90 | 232.56 | 102.21 | -0.09 | 0.24 | 0.438 |
| BAMBI | 6474.20 | 2158.32 | 5812.28 | 1321.95 | 0.12 | 0.18 | 0.304 |
| BDKRB2 | 202.69 | 14.53 | 199.44 | 41.35 | 0.04 | 0.19 | 0.855 |
| BMP5 | 899.03 | 342.55 | 912.34 | 373.55 | -0.01 | 0.05 | 0.581 |
| BPIFB1 | 217.66 | 76.54 | 194.02 | 67.10 | 0.16 | 0.09 | 0.155 |
| C1orf226 | 364.21 | 108.16 | 368.43 | 100.70 | -0.03 | 0.20 | 0.893 |
| CA2 | 7521.95 | 2254.10 | 7556.45 | 1498.11 | -0.04 | 0.28 | 0.966 |
| CEACAM6 | 462.20 | 395.25 | 396.40 | 314.45 | 0.14 | 0.27 | 0.317 |
| DEFB1 | 12.90 | 10.04 | 11.93 | 0.78 | -0.17 | 1.20 | 0.890 |
| DHRS3 | 439.32 | 255.79 | 457.51 | 211.12 | -0.16 | 0.43 | 0.724 |
| EPAS1 | 786.36 | 634.19 | 633.93 | 331.44 | 0.13 | 0.43 | 0.503 |
| FAXDC2 | 134.34 | 58.59 | 135.45 | 42.45 | -0.08 | 0.39 | 0.951 |
| FOLH1 | 21.21 | 1.80 | 16.70 | 10.41 | 0.56 | 1.08 | 0.549 |
| GPER1 | 301.23 | 183.09 | 273.94 | 169.27 | 0.15 | 0.04 | 0.087 |
| GPR68 | 241.22 | 109.40 | 257.32 | 58.00 | -0.20 | 0.47 | 0.655 |
| GPX2 | 126.64 | 37.24 | 115.55 | 27.42 | 0.12 | 0.08 | 0.202 |
| GREB1 | 670.79 | 586.88 | 627.01 | 560.46 | -0.07 | 0.38 | 0.390 |
| KLK11 | 649.05 | 261.46 | 772.42 | 72.10 | -0.35 | 0.72 | 0.517 |
| KRT4 | 26.70 | 15.72 | 18.30 | 1.14 | 0.37 | 0.81 | 0.432 |
| LINC00632 | 16.42 | 4.37 | 12.26 | 2.40 | 0.40 | 0.45 | 0.230 |
| LINC00683 | 50.43 | 21.36 | 53.15 | 13.66 | -0.15 | 0.36 | 0.675 |
| LINC01213 | 68.80 | 19.31 | 57.19 | 10.76 | 0.25 | 0.17 | 0.191 |
| LOC101929547 | 163.69 | 84.73 | 182.11 | 69.77 | -0.24 | 0.37 | 0.290 |

| LINC00992 up | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|--------------|-----------|----------|-----------|---------|---------------------|------|------------------------|
| | | | Average | s.d | Average | s.d. | |
| PIP | 18.62 | 2.83 | 18.77 | 5.75 | 0.03 | 0.38 | 0.958 |
| PTGER4 | 171.11 | 36.93 | 158.98 | 26.80 | 0.10 | 0.13 | 0.339 |
| RAMP3 | 573.56 | 398.73 | 630.34 | 253.61 | -0.42 | 0.91 | 0.651 |
| RGS22 | 24.08 | 4.66 | 17.41 | 5.48 | 0.51 | 0.44 | 0.159 |
| SEMA5A | 104.95 | 52.35 | 88.66 | 36.12 | 0.21 | 0.29 | 0.318 |
| SIM1 | 42.44 | 21.18 | 50.76 | 19.86 | -0.35 | 0.52 | 0.353 |
| SOX3 | 533.26 | 263.65 | 548.72 | 230.17 | -0.08 | 0.16 | 0.676 |
| SPINK4 | 49.78 | 9.44 | 66.22 | 19.77 | -0.39 | 0.53 | 0.351 |
| TARP | 83.62 | 52.61 | 57.46 | 36.34 | 0.50 | 0.27 | 0.138 |
| TFF3 | 2400.58 | 1463.37 | 2418.07 | 1317.54 | -0.09 | 0.21 | 0.859 |
| UBD | 72.02 | 45.86 | 155.81 | 63.79 | -1.19 | 0.76 | 0.127 |
| VAV3 | 1207.84 | 285.06 | 1195.92 | 310.19 | 0.02 | 0.06 | 0.748 |
| XR_133213 | 21.94 | 4.52 | 23.50 | 4.16 | -0.10 | 0.34 | 0.669 |
| ZNF462 | 43.21 | 6.36 | 58.52 | 28.13 | -0.29 | 0.67 | 0.353 |
| ACTB | 228537.07 | 31032.86 | 217941.68 | 5434.70 | 0.06 | 0.16 | 0.548 |
| CLTC | 21673.34 | 1366.71 | 19750.48 | 794.40 | 0.13 | 0.15 | 0.258 |
| GUSB | 1680.11 | 273.95 | 1625.74 | 253.92 | 0.05 | 0.12 | 0.582 |
| HPRT1 | 4338.31 | 355.54 | 4147.21 | 275.34 | 0.06 | 0.09 | 0.358 |
| PGK1 | 9781.71 | 187.28 | 9543.43 | 518.37 | 0.04 | 0.10 | 0.612 |
| RPL13 | 8013.89 | 0.00 | 8013.89 | 0.00 | 0.00 | 0.00 | 0.667 |

CEACAM – carcinoembryonic antigen-related cell adhesion molecule, Ctrl – control group, GPER1 – G-protein coupled oestrogen receptor 1, SIM1 – single-minded homologue 1, UBD – ubiquitin D, ZNF462 – zinc finger protein 462
Orange background – LINC00992, blue – housekeeping genes

Suppl. Table 4. Results of PAM50 gene expression analysis using NanoString nCounter® for down-regulation of LINC00992 in MCF-7 (relative gene expression to RPL13) with statistical testing

| LINC00992 down | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|----------------|----------|---------|----------|---------|---------------------|------|------------------------|
| | | | Average | s.d | Average | s.d. | |
| ACTR3B | 1300.00 | 40.50 | 1370.00 | 66.00 | -0.07 | 0.04 | 0.24 |
| ANLN | 3590.00 | 161.00 | 3630.00 | 134.00 | -0.01 | 0.01 | 0.80 |
| BAG1 | 4910.00 | 698.00 | 4730.00 | 775.00 | 0.06 | 0.03 | 0.78 |
| BCL2 | 6.20 | 8.97 | 6.71 | 9.82 | -0.06 | 0.04 | 0.95 |
| BIRC5 | 5920.00 | 304.00 | 6070.00 | 247.00 | -0.04 | 0.04 | 0.55 |
| BLVRA | 3140.00 | 386.00 | 3040.00 | 260.00 | 0.04 | 0.03 | 0.73 |
| CCNB1 | 22200.00 | 2220.00 | 22700.00 | 195.00 | -0.04 | 0.09 | 0.73 |
| CCNE1 | 1200.00 | 191.00 | 1160.00 | 73.00 | 0.04 | 0.11 | 0.76 |
| CDC20 | 2910.00 | 163.00 | 2930.00 | 267.00 | -0.01 | 0.05 | 0.93 |
| CDC6 | 1830.00 | 121.00 | 1890.00 | 143.00 | -0.05 | 0.01 | 0.60 |
| CDCA1 | 243.00 | 17.70 | 271.00 | 39.90 | -0.15 | 0.07 | 0.35 |
| CDH3 | 778.00 | 217.00 | 759.00 | 159.00 | 0.01 | 0.11 | 0.91 |
| CENPF | 1060.00 | 103.00 | 1050.00 | 102.00 | 0.01 | 0.09 | 0.95 |
| CEP55 | 2100.00 | 252.00 | 2230.00 | 74.90 | -0.09 | 0.12 | 0.46 |
| CXXC5 | 8350.00 | 1300.00 | 9030.00 | 1000.00 | -0.12 | 0.07 | 0.52 |
| EGFR | 72.70 | 8.63 | 67.70 | 10.80 | 0.11 | 0.23 | 0.57 |
| ERBB2 | 691.00 | 86.40 | 686.00 | 32.40 | 0.00 | 0.10 | 0.93 |
| ESR1 | 4500.00 | 1160.00 | 4610.00 | 1050.00 | -0.04 | 0.05 | 0.91 |
| EXO1 | 1430.00 | 113.00 | 1480.00 | 126.00 | -0.04 | 0.01 | 0.67 |
| FGFR4 | 422.00 | 77.00 | 455.00 | 72.70 | -0.11 | 0.05 | 0.63 |

| LINC00992 down | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|-------------------|-----------|-----------|-----------|----------|---------------------|------|------------------------|
| | | | Average | s.d. | Average | s.d. | |
| FOXA1 | 10800.00 | 384.00 | 11100.00 | 1420.00 | -0.03 | 0.13 | 0.75 |
| FOXC1 | 444.00 | 9.37 | 434.00 | 18.70 | 0.03 | 0.04 | 0.48 |
| GPR160 | 3410.00 | 293.00 | 3660.00 | 431.00 | -0.10 | 0.05 | 0.45 |
| GRB7 | 248.00 | 41.40 | 270.00 | 24.60 | -0.13 | 0.06 | 0.48 |
| KIF2C | 1490.00 | 150.00 | 1540.00 | 260.00 | -0.03 | 0.15 | 0.83 |
| KNTC2 | 2700.00 | 361.00 | 2930.00 | 357.00 | -0.12 | 0.01 | 0.48 |
| KRT14 | 57.70 | 4.59 | 60.10 | 11.10 | -0.04 | 0.21 | 0.76 |
| KRT17 | 1.06 | 0.06 | 1.11 | 0.13 | -0.07 | 0.05 | 0.56 |
| KRT5 | 1.06 | 0.06 | 1.11 | 0.13 | -0.07 | 0.05 | 0.56 |
| MAPT | 579.00 | 79.70 | 643.00 | 88.00 | -0.15 | 0.16 | 0.40 |
| MDM2 | 11600.00 | 535.00 | 12000.00 | 421.00 | -0.06 | 0.06 | 0.31 |
| MELK | 2190.00 | 99.50 | 2310.00 | 157.00 | -0.08 | 0.02 | 0.34 |
| MIA | 1.06 | 0.06 | 1.11 | 0.13 | -0.07 | 0.05 | 0.56 |
| MKI67 | 3770.00 | 262.00 | 3830.00 | 291.00 | -0.02 | 0.05 | 0.78 |
| MLPH | 2390.00 | 246.00 | 2630.00 | 373.00 | -0.13 | 0.03 | 0.42 |
| MMP11 | 20.60 | 20.60 | 25.70 | 17.20 | -1.11 | 0.37 | 0.76 |
| MYBL2 | 2490.00 | 335.00 | 2620.00 | 107.00 | -0.08 | 0.10 | 0.57 |
| MYC | 7210.00 | 520.00 | 6780.00 | 86.50 | 0.09 | 0.06 | 0.29 |
| NAT1 | 202.00 | 16.90 | 224.00 | 8.13 | -0.15 | 0.04 | 0.14 |
| ORC6L | 2020.00 | 154.00 | 1990.00 | 294.00 | 0.03 | 0.08 | 0.91 |
| PGR | 179.00 | 170.00 | 254.00 | 138.00 | -0.85 | 0.42 | 0.59 |
| PHGDH | 1410.00 | 269.00 | 1470.00 | 138.00 | -0.07 | 0.09 | 0.77 |
| PTTG1 | 7520.00 | 356.00 | 7930.00 | 283.00 | -0.08 | 0.05 | 0.20 |
| RRM2 | 24200.00 | 1360.00 | 24000.00 | 1900.00 | 0.02 | 0.04 | 0.88 |
| SFRP1 | 1.06 | 0.06 | 1.11 | 0.13 | -0.07 | 0.05 | 0.56 |
| SLC39A6 | 78700.00 | 25000.00 | 80600.00 | 27400.00 | -0.02 | 0.04 | 0.93 |
| TMEM45B | 511.00 | 283.00 | 409.00 | 120.00 | 0.23 | 0.28 | 0.61 |
| TYMS | 5320.00 | 980.00 | 5710.00 | 991.00 | -0.10 | 0.01 | 0.65 |
| UBE2C | 8120.00 | 614.00 | 8380.00 | 783.00 | -0.05 | 0.05 | 0.67 |
| UBE2T | 1180.00 | 169.00 | 1130.00 | 74.20 | 0.05 | 0.15 | 0.68 |
| ACTB | 792000.00 | 132000.00 | 783000.00 | 87600.00 | 0.01 | 0.04 | 0.93 |
| GUSB | 1430.00 | 217.00 | 1460.00 | 148.00 | -0.04 | 0.05 | 0.85 |
| MRPL19 | 4610.00 | 382.00 | 4720.00 | 113.00 | -0.04 | 0.08 | 0.67 |
| PSMC4 | 5890.00 | 405.00 | 5670.00 | 197.00 | 0.05 | 0.03 | 0.46 |
| PUM1 | 1990.00 | 199.00 | 1960.00 | 62.80 | 0.02 | 0.06 | 0.84 |
| RPLP0 | 110000.00 | 16900.00 | 114000.00 | 27300.00 | -0.03 | 0.07 | 0.87 |
| SF3A1 | 2130.00 | 98.90 | 2170.00 | 132.00 | -0.03 | 0.01 | 0.66 |
| TFRC | 7940.00 | 326.00 | 7610.00 | 385.00 | 0.06 | 0.08 | 0.32 |

Ctrl – control group

Suppl. Table 5. Results of PAM50 gene expression analysis using NanoString nCounter® for up-regulation of LINC00992 (relative gene expression to RPL13) with statistical testing

| LINC00992 up | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|--------------|----------|----------|----------|----------|---------------------|------|------------------------|
| | | | Average | s.d | Average | s.d. | |
| ACTR3B | 1400.00 | 72.50 | 1420.00 | 76.30 | -0.02 | 0.06 | 0.73 |
| ANLN | 4490.00 | 460.00 | 4670.00 | 239.00 | -0.06 | 0.04 | 0.58 |
| BAG1 | 4740.00 | 911.00 | 4630.00 | 761.00 | 0.03 | 0.05 | 0.89 |
| BCL2 | 7.91 | 11.80 | 5.09 | 7.08 | 0.33 | 0.26 | 0.74 |
| BIRC5 | 6320.00 | 93.60 | 6650.00 | 510.00 | -0.07 | 0.07 | 0.38 |
| BLVRA | 3350.00 | 696.00 | 3580.00 | 750.00 | -0.10 | 0.01 | 0.71 |
| CCNB1 | 19700.00 | 2180.00 | 20300.00 | 540.00 | -0.05 | 0.08 | 0.71 |
| CCNE1 | 1390.00 | 370.00 | 1380.00 | 279.00 | -0.01 | 0.06 | 0.98 |
| CDC20 | 2430.00 | 477.00 | 2680.00 | 524.00 | -0.14 | 0.04 | 0.58 |
| CDC6 | 1770.00 | 277.00 | 1980.00 | 218.00 | -0.17 | 0.03 | 0.36 |
| CDCA1 | 273.00 | 39.10 | 296.00 | 40.20 | -0.12 | 0.01 | 0.52 |
| CDH3 | 993.00 | 239.00 | 915.00 | 164.00 | 0.11 | 0.05 | 0.67 |
| CENPF | 1150.00 | 196.00 | 1290.00 | 184.00 | -0.17 | 0.08 | 0.41 |
| CEP55 | 2250.00 | 365.00 | 2310.00 | 170.00 | -0.05 | 0.07 | 0.81 |
| CXXC5 | 10600.00 | 3600.00 | 10700.00 | 3120.00 | -0.03 | 0.05 | 0.97 |
| EGFR | 23.40 | 21.20 | 22.70 | 11.70 | -1.00 | 0.87 | 0.96 |
| ERBB2 | 702.00 | 120.00 | 673.00 | 50.60 | 0.05 | 0.09 | 0.73 |
| ESR1 | 5300.00 | 1010.00 | 5430.00 | 836.00 | -0.04 | 0.04 | 0.87 |
| EXO1 | 1520.00 | 68.30 | 1640.00 | 76.70 | -0.11 | 0.01 | 0.12 |
| FGFR4 | 469.00 | 13.50 | 491.00 | 45.20 | -0.06 | 0.07 | 0.49 |
| FOXA1 | 9800.00 | 1160.00 | 10500.00 | 2690.00 | -0.08 | 0.10 | 0.71 |
| FOXC1 | 343.00 | 17.30 | 338.00 | 5.79 | 0.02 | 0.05 | 0.70 |
| GPR160 | 5150.00 | 2500.00 | 5040.00 | 2400.00 | 0.02 | 0.04 | 0.96 |
| GRB7 | 281.00 | 121.00 | 300.00 | 69.50 | -0.15 | 0.18 | 0.83 |
| KIF2C | 1310.00 | 187.00 | 1410.00 | 189.00 | -0.11 | 0.08 | 0.55 |
| KNTC2 | 2840.00 | 520.00 | 3230.00 | 542.00 | -0.19 | 0.03 | 0.41 |
| KRT14 | 42.20 | 28.80 | 45.10 | 30.70 | 0.02 | 0.28 | 0.91 |
| KRT17 | 1.11 | 0.11 | 1.13 | 0.23 | -0.01 | 0.16 | 0.92 |
| KRT5 | 1.11 | 0.11 | 1.13 | 0.23 | -0.01 | 0.16 | 0.92 |
| MAPT | 644.00 | 275.00 | 655.00 | 252.00 | -0.04 | 0.03 | 0.96 |
| MDM2 | 9020.00 | 724.00 | 8790.00 | 916.00 | 0.04 | 0.02 | 0.75 |
| MELK | 2190.00 | 240.00 | 2250.00 | 110.00 | -0.04 | 0.05 | 0.71 |
| MIA | 1.11 | 0.11 | 1.13 | 0.23 | -0.01 | 0.16 | 0.92 |
| MKI67 | 4140.00 | 397.00 | 4460.00 | 555.00 | -0.11 | 0.02 | 0.46 |
| MLPH | 2320.00 | 827.00 | 2540.00 | 1060.00 | -0.11 | 0.07 | 0.79 |
| MMP11 | 20.90 | 5.06 | 32.30 | 2.92 | -0.65 | 0.08 | *0.04 |
| MYBL2 | 2680.00 | 328.00 | 2770.00 | 231.00 | -0.05 | 0.09 | 0.75 |
| MYC | 6420.00 | 1540.00 | 6080.00 | 1500.00 | 0.08 | 0.02 | 0.80 |
| NAT1 | 226.00 | 29.10 | 220.00 | 38.40 | 0.04 | 0.13 | 0.85 |
| ORC6L | 2000.00 | 435.00 | 1960.00 | 356.00 | 0.02 | 0.04 | 0.90 |
| PGR | 382.00 | 288.00 | 435.00 | 287.00 | -0.21 | 0.16 | 0.83 |
| PHGDH | 1840.00 | 376.00 | 2040.00 | 238.00 | -0.17 | 0.09 | 0.47 |
| PTTG1 | 7460.00 | 862.00 | 7780.00 | 1220.00 | -0.06 | 0.03 | 0.73 |
| RRM2 | 23600.00 | 3610.00 | 23100.00 | 3460.00 | 0.03 | 0.03 | 0.87 |
| SFRP1 | 1.11 | 0.11 | 1.13 | 0.23 | -0.01 | 0.16 | 0.92 |
| SLC39A6 | 71600.00 | 10900.00 | 79300.00 | 10600.00 | -0.15 | 0.02 | 0.43 |

| LINC00992 up | Average | s.d. | Ctrl | | Log ₂ Fc | | p (T ≥ t) (2-sided) |
|--------------|-----------|-----------|-----------|-----------|---------------------|------|------------------------|
| | | | Average | s.d. | Average | s.d. | |
| TMEM45B | 395.00 | 189.00 | 289.00 | 59.80 | 0.34 | 0.35 | 0.44 |
| TYMS | 5740.00 | 316.00 | 6090.00 | 213.00 | -0.09 | 0.02 | 0.20 |
| UBE2C | 8400.00 | 254.00 | 8710.00 | 837.00 | -0.05 | 0.06 | 0.60 |
| UBE2T | 1240.00 | 158.00 | 1240.00 | 176.00 | 0.00 | 0.05 | 0.99 |
| ACTB | 731000.00 | 194000.00 | 711000.00 | 133000.00 | 0.02 | 0.09 | 0.89 |
| GUSB | 1400.00 | 329.00 | 1450.00 | 222.00 | -0.06 | 0.06 | 0.84 |
| MRPL19 | 4570.00 | 637.00 | 4630.00 | 253.00 | -0.03 | 0.09 | 0.89 |
| PSMC4 | 4700.00 | 1120.00 | 4600.00 | 1030.00 | 0.03 | 0.02 | 0.92 |
| PUM1 | 1790.00 | 225.00 | 1800.00 | 171.00 | -0.01 | 0.08 | 0.99 |
| RPLP0 | 161000.00 | 30700.00 | 156000.00 | 27200.00 | 0.04 | 0.02 | 0.84 |
| SF3A1 | 2020.00 | 143.00 | 2000.00 | 100.00 | 0.01 | 0.02 | 0.90 |
| TFRC | 8590.00 | 366.00 | 8480.00 | 383.00 | 0.02 | 0.04 | 0.73 |

Ctrl – control group

Suppl. Table 6. Primers used for quantitative real-time polymerase chain reaction

| Gene | Primer | Sequence | Producer |
|-----------|---------|---|---|
| ABC-A12 | Forward | 5'-TGC-TGG-AGA-GTG-TTT-TGG-GC-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-TTC-CCT-ATC-AAG-GCC-AGT-GC-3' | |
| CEACAM5 | Forward | 5'-GGA-CCA-CAG-TCA-CGA-CGA-3' | biomers.net GmbH, Ulm, Germany |
| | Reverse | 5'-ACC-CCT-GGA-CGG-TAA-TAG-GT-3' | |
| CEACAM6 | Forward | 5'-TCA-GCG-TCA-AAA-GAA-ACG-ATG-C-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-TCA-GAT-TTT-CCC-CTG-GAC-GG-3' | |
| ESR1 | Forward | 5'-TGG-GAA-AAG-GCT-CAA-ATG-CC-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-GCA-AAG-CTG-CGA-CAA-AAC-CG-3' | |
| GPER1 | Forward | 5'-TGG-TGC-TGG-TCT-TCT-TCG-TC-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-GCT-TGT-CCC-TGA-AGG-TCT-CC-3' | |
| LINC00992 | Forward | 5'-GGT-GGA-AGA-CAG-GTC-CAT-GA-3' | biomers.net GmbH, Ulm, Germany |
| | Reverse | 5'-AGG-TGC-AAG-ATG-AGA-TAT-GTT-G-3' | |
| RPL13 | Forward | 5'-CCT-GGA-GGA-GAA-GAG-GAA-AGA-GA-3' | biomers.net GmbH, Ulm, Germany |
| | Reverse | 5'-TTG-AGG-ACC-TCT-GTG-TAT-TTG-TCA-A-3' | |
| UBD/FAT10 | Forward | 5'-CAT-AGA-TGG-CTC-CCA-ATG-C-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-CCT-GAC-TCC-ACA-AGA-AAC-AAG-G-3' | |
| ZNF462 | Forward | 5'-TTC-TCC-TCC-GGC-TAC-ATC-CA-3' | Integrated DNA technologies, B-3001 Leuven, Belgium |
| | Reverse | 5'-TTA-ACC-CGT-CCA-ACC-AGC-TC-3' | |

CEACAM – carcinoembryonic antigen-related cell adhesion molecule, GPER1 – G-protein coupled oestrogen receptor 1, UBD – ubiquitin D, ZNF462 – zinc finger 462
The primers for FOLH1 and single-minded homologue 1 were ordered as RealTime Ready Custom Single Assay (product number: 05532957001) from Roche Molecular Systems (Basel, Switzerland). Therefore, sequences cannot be provided.