Supplementary Information

EMT-induced cell mechanical changes enhance mitotic rounding strength

Kamran Hosseini[1], Anna Taubenberger[1], Carsten Werner[2], Elisabeth Fischer-Friedrich[1,*]

[1] Biotechnology Center, Technische Universität Dresden, Tatzberg 47-49, 01307 Dresden, Germany
[2] Leibniz Institute of Polymer Research Dresden, Max Bergmann Center, Hohe Str. 6, 01069 Dresden, Germany
* Corresponding author

Correspondence to: Elisabeth Fischer-Friedrich, Biotechnology Center, Technische Universität Dresden, Mailto: elisabeth.fischer-friedrich@tu-dresden.de. Phone: ++49 351 463 40235. Fax: ++49 351 463 40342.

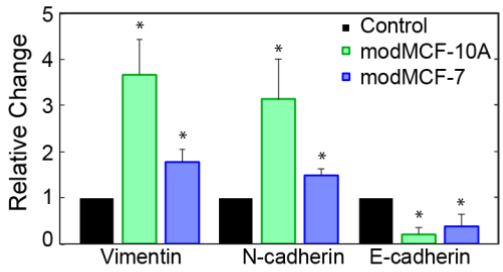

*Figure S2: Relative change of protein levels of epithelial marker E-cadherin and mesenchymal markers N-cadherin and Vimentin in breast epithelial cells before and after EMT from Western blot assays (Fig.2,Main Text). (E-Cadherin n=3, N-Cadherin n=3 and Vimentin n=4, all independent samples). Post-EMT cells are referred to as modMCF-7 and mod-MCF-10A, respectively. Error bars indicate standard error of the mean. $^{ns}p > 0.05$, *p < 0.05, **p < 0.01, ***p < 0.001).*

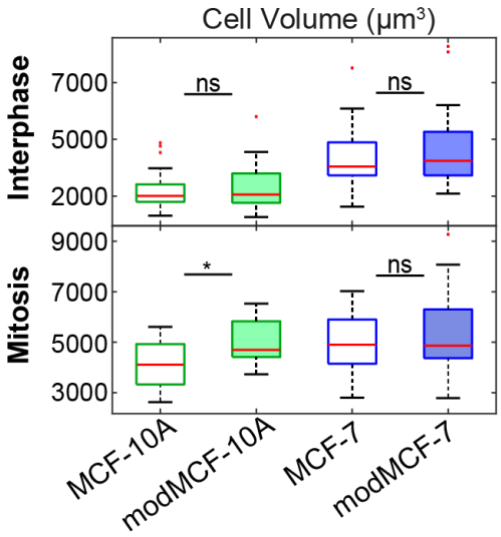

*Figure S3: **a,b,** Cell volumes of MCF-7 and MCF-10A cells before and after EMT corresponding to measurements presented in Fig. 3, main for suspended interphase cells (**a**) and cells in mitotic arrest (**b**) before and after EMT. (Post-EMT cells are referred to as modMCF-7 and mod-MCF-10A, respectively. Number of cells measured: Interphase: MCF-7 n=27, modMCF-7 n=28, MCF-10A n=27. Mitosis: MCF-7 n=34, modMCF-7 n=45, MCF-10A n=12, modMCF-10A n=12. $^{ns}p > 0.05$, *p < 0.05, **p < 0.01, ***p < 0.001).*

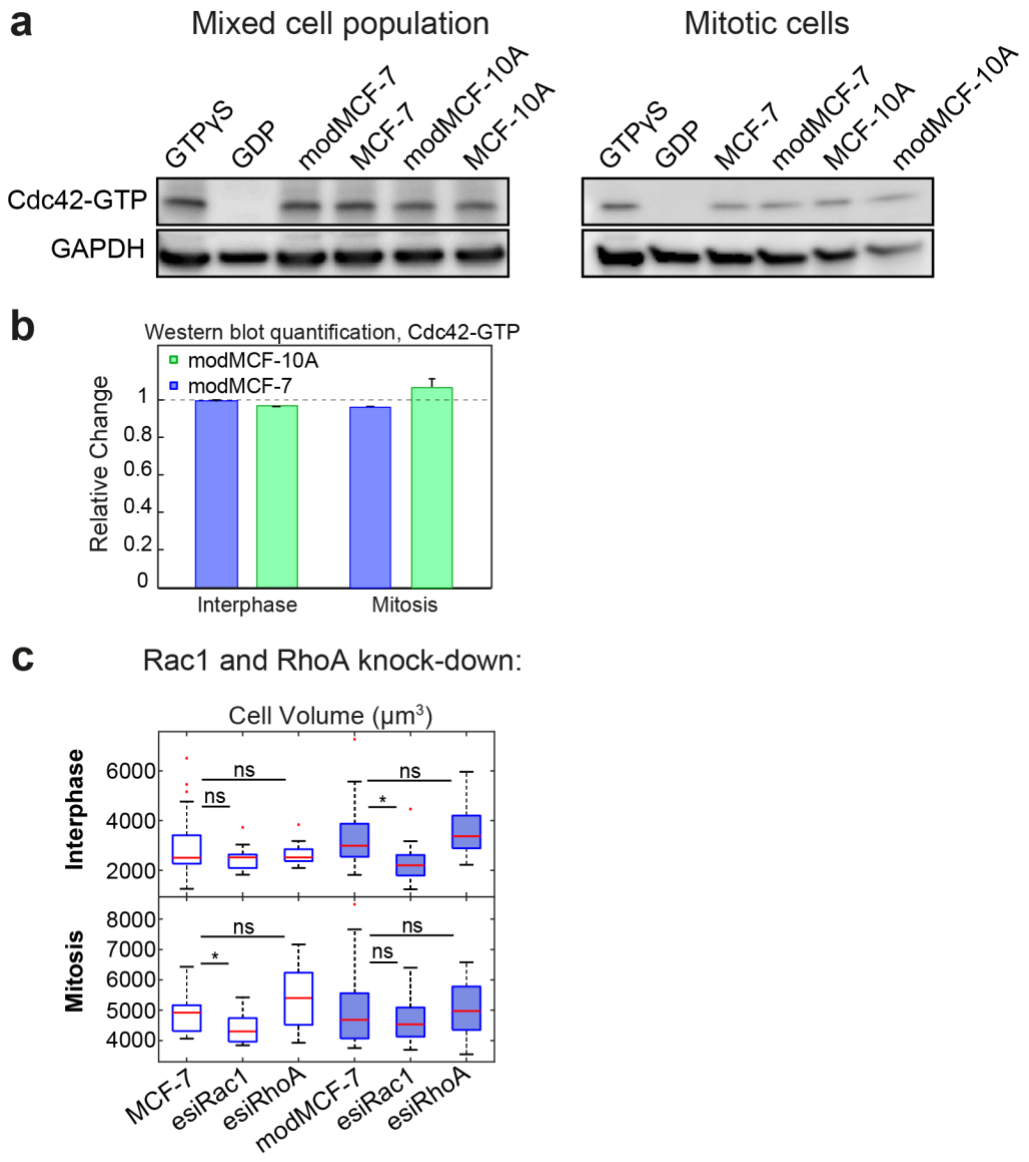

Figure S4: ***a-c,*** *Relative changes of active Cdc42 upon EMT. GTP-bound Cdc42 was pulled down using beads from cell lysates in pre and post-EMT conditions.* ***a,*** *Western blots showing active Cdc42 from cell lysates before and after EMT.* ***b,*** *Quantification of GTP-Cdc42 for n=2 (independent samples). (Error bars indicate standard error of the mean. Post-EMT cells are referred to as modMCF-7 and mod-MCF-10A, respectively).* ***c,*** *Cell volumes in control conditions and after knock-down of Rac1 or RhoA corresponding to measurements presented in Fig. 4c-h, main text. (Post-EMT cells are referred to as modMCF-7 and mod-MCF-10A, respectively. Number of cells measured: Interphase: MCF-7 n=24, esiRac1 n=24, esiRhoA n=17, modMCF-7 n=26, esiRac1 n=10 and esiRhoA n=13. Mitosis: MCF-7 n=11, esiRac1 n=12, esiRhoA n=13, modMCF-7 n=14, esiRac1 n=14 and esiRhoA n=14.* $^{ns}p > 0.05$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$*).*

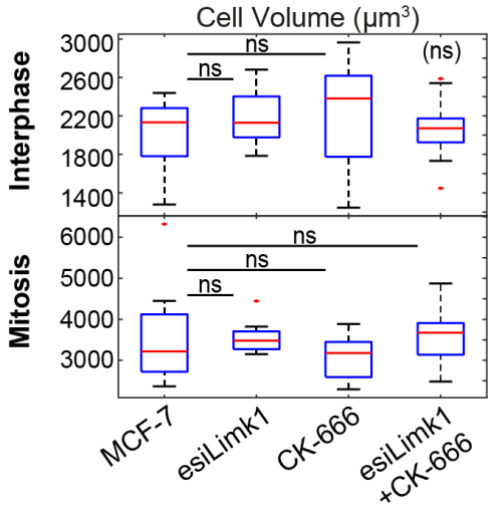

Figure S5: Corresponding cell volumes for measurements presented in Fig. 5a-c, main text. Four different condition were sampled: i) control MCF-7, ii) Limk1 knock-down, iii) Arp2/3 inhibition by the cytoskeletal drug CK666 (50 µM) and iv) combined Limk1 knock-down and Arp2/3 inhibition through CK666 (50 µM). Top row: suspended interphase MCF-7, Bottom row: MCF-7 in mitotic arrest. (Number of cells measured: Interphase: MCF-7 n=11, esiLIMK1 n=12, CK-666 n=12 and esiLIMK1 + CK-666 n=12. Mitosis: MCF-7 n=13, esiLIMK1 n=12, CK-666 n=11 and esiLIMK1 + CK-666 n=13). ($^{ns}p > 0.05$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$)