**Legends to Supplementary Figures**

***Supplementary Figure 1.* RT followed by palbociclib mediates robust cytostatic effects against human TNBC cells.**

**a.** Experimental setting. P, palbociclib; RT, radiation therapy.

**b,c.** MDA-MB-231 cells were cultured in control conditions or exposed to palbociclib or a single RT fraction in the indicated doses, as schematized in **a**, followed by the flow-cytometry assisted quantification of residual cell number, mitochondrial depolarization and plasma membrane rupture. Representative dot plots (**b**) and quantitative data (**c**) are reported. In **b**, total number of cells and percentage of cells in each quadrant are indicated. Results are means ± SEM plus individual data points from n = 6-11 independent biological samples from 3-5 independent experiments. Statistical significance was assessed with paired one-way ANOVA plus Fisher LSD test. \*\*\**p*<0.001, as compared to MDA-MB-231 cells maintained in control conditions; #*p*<0.05, ###*p*<0.001, as compared to MDA-MB-231 cells treated with the same P dose; †n.s., not significant, ††*p*<0.01, †††*p*<0.001, as compared to MDA-MB-231 cells treated the same RT dose; ‡‡*p*<0.01, ‡‡‡*p*<0.001, as compared to MDA-MB-231 cells treated with the same doses of P🡪RT.

***Supplementary Figure 2.* Superior short- and long-term cell cycle control by RT followed palbociclib in human TNBC cells.**

**a-d.** MDA-MB-231 cells were cultured in control conditions or exposed to palbociclib (P) or a single radiation therapy (RT) fraction in the indicated doses and sequential combinations, as depicted in **Suppl.** **Fig. 1a**, followed by the flow-cytometry assisted quantification of cell cycle distribution. Representative dot plots (**a,c**) and quantitative data (**b,d**) are reported. In **a,c**, the percentage of cells in each quadrant is indicated. Results are mean cumulative cell cycle distribution as well as means ± SEM plus individual data points for each cell cycle phase from n = 8 independent biological samples collected over 4 independent experiments. Statistical significance was assessed with paired one-way ANOVA plus Fisher LSD test. \*n.s., not significant, \**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001, as compared to MDA-MB-231 cells maintained in control conditions; #n.s., not significant, #*p*<0.05, ##*p*<0.01, ###*p*<0.001, as compared to MDA-MB-231 cells treated with P alone; †n.s., not significant, †*p*<0.01, ††*p*<0.01, †††*p*<0.001, as compared to MDA-MB-231 cells treated with RT alone; ‡n.s., not significant, ‡*p*<0.05, ‡‡*p*<0.01, ‡‡‡*p*<0.001, as compared to MDA-MB-231 cells treated with the same doses of P🡪RT. Please note that control samples in **b** and **d** are the same.

**e-g.** Residual clonogenic potential of MDA-MB-231 cells optionally treated with the indicated RT dose alone or in sequential combination with 100 nM P and then allowed to form colonies for 14 days. Representative images (**e**) and quantitative data (**f,g**) are reported. In **e** and **f**, number of colonies and sensitizer enhancement ratios (SERs) for 50% and 80% efficacy are indicated, respectively. Results are means ± SEM normalized to untreated MDA-MB-231 cells (**f**, RT; **g**) or MDA-MB-231 cells treated with P alone (**f**, P🡪RT, RT🡪P) optionally fitted to the linear-quadratic model (**f**) from n = 12-18 independent biological samples collected over 2-3 independent experiments. Statistical significance was assessed with unpaired one-way ANOVA plus Fisher LSD test. \*\*\**p*<0.001, as compared to MDA-MB-231 cells maintained in control conditions; ###*p*<0.001, as compared to MDA-MB-231 cells treated with P alone; †*p*<0.01, †††*p*<0.001, as compared to MDA-MB-231 cells treated with RT alone; ‡‡‡*p*<0.001, as compared to MDA-MB-231 cells treated with the same doses of P🡪RT.