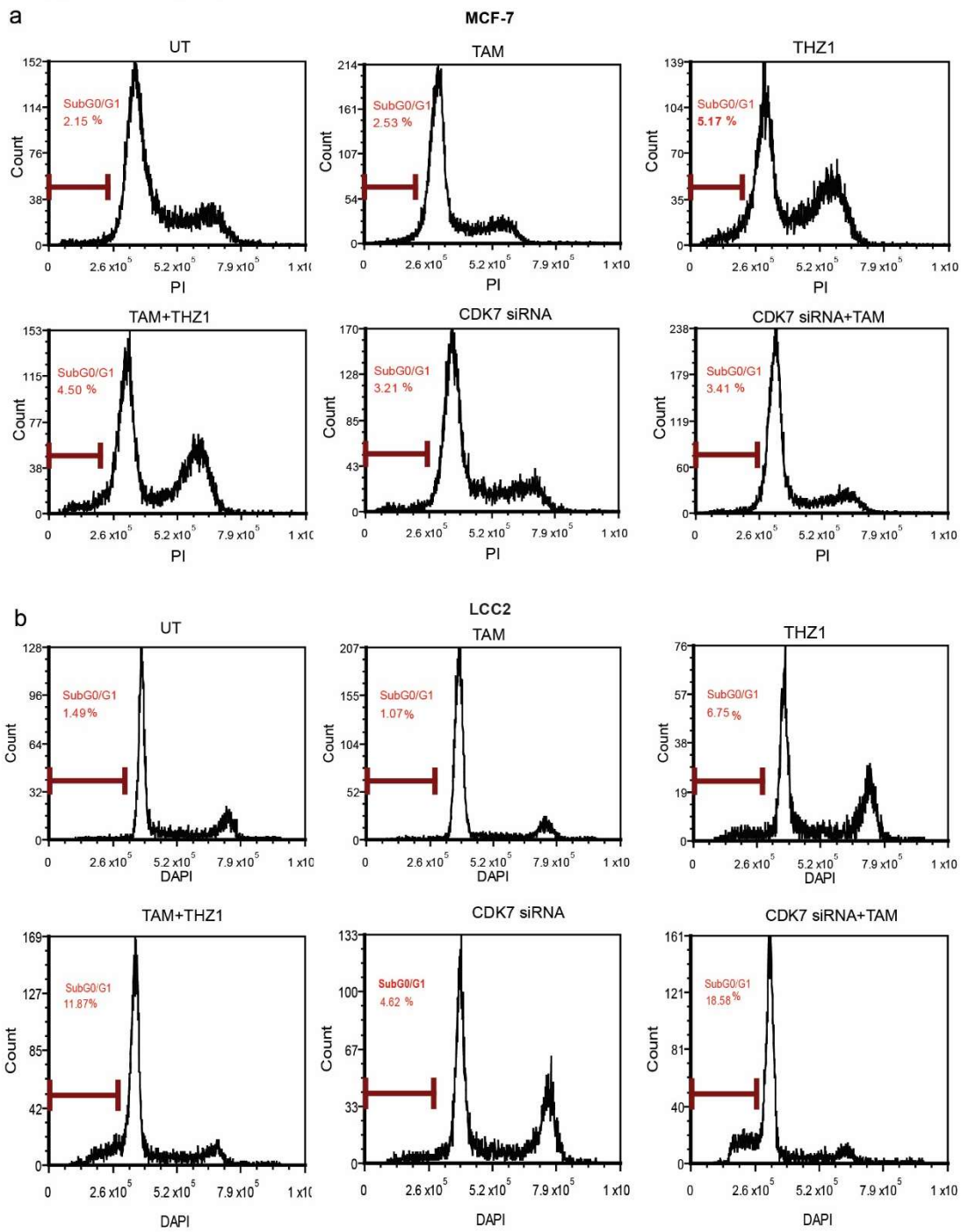
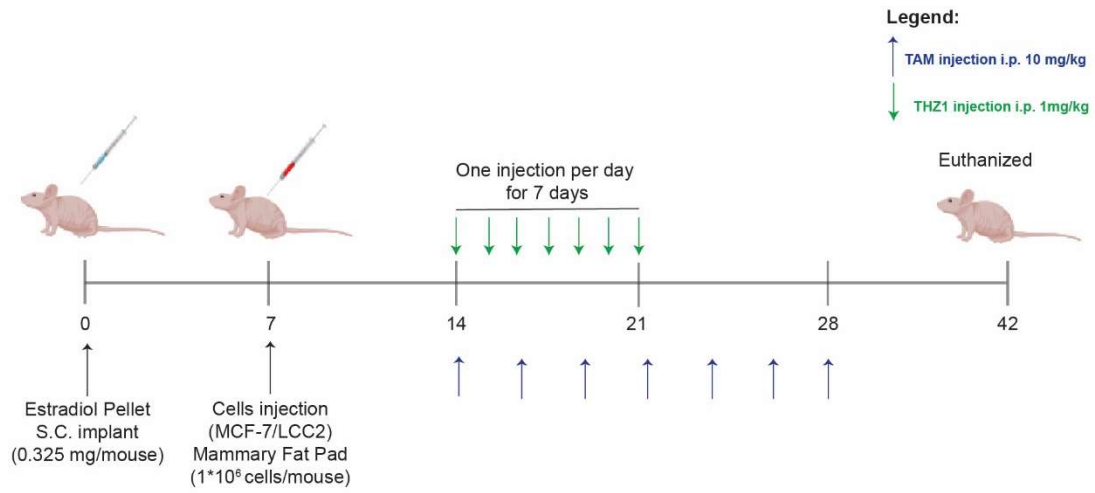


**Supplementary Figure S1.** Cytotoxicity after treatment of breast cancer cells with CDK7-targeting treatments. **(A)** Viability of MCF-7 and LCC2 cells treated with the indicated concentrations of siRNA-CDK7-1 (25-100 nM). **(B)** Viability of MCF-7 and LCC2 cells treated with the indicated concentrations of siRNA-CDK7-2 (25-100 nM). **(C)** Viability of MCF-7 and LCC2 cells treated with THZ1 (1-8 nM) and 1 or 17  $\mu$ M tamoxifen (TAM), respectively, after the indicated incubation times. **(D)** Lactate dehydrogenase release levels in MCF-7 and LCC2 cells after treatment with 1 and 17  $\mu$ M tamoxifen, respectively, and 1 nM THZ1. UT, untreated, CT, control. \*\*P < 0.01; \*\*\*P < 0.001; \*\*\*\*P < 0.0001.



**Supplementary Figure S2.** Cell cycle analysis of MCF-7 and LCC2 cells. **(A)** Flow cytometry analysis using propidium iodide, MCF-7 cells untreated (UT), CT siRNA 1  $\mu$ M tamoxifen (TAM) or/and 1 nM THZ1 or transfected with 50 nM CDK7 siRNA or/and tamoxifen. **(B)** Cell cycle analysis using DAPI of LCC2 cells untreated, CT siRNA, 17  $\mu$ M tamoxifen or/and 1 nM THZ1 or transfected with 50 nM CDK7 siRNA or/and tamoxifen.

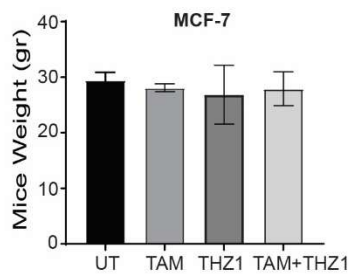
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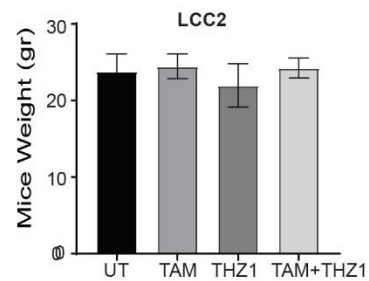
b

| Scheme of Treatment |                |  |
|---------------------|----------------|--|
| Group               | Number of mice | Treatment                                    |
| 1                   | 10             | Untreated                                    |
| 2                   | 10             | Tamoxifen (1 mg/100 $\mu$ l)                 |
| 3                   | 10             | THZ1 (10 mg/Kg)                              |
| 4                   | 10             | Tamoxifen (1mg/100 $\mu$ l) + THZ1 (10mg/Kg) |

c



d



**Supplementary Figure S3.** In vivo experiments. **(A)** Design of the mouse models of MCF-7 and LCC2 and the treatment plan. **(B)** The treatment scheme for the four groups. **(C and D)** Mouse weight (10 per group) in control untreated (UT), tamoxifen (TAM)-treated, THZ1-treated, and combination-treated groups in mouse models of MCF-7 **(C)** and LCC2 **(D)**.