

## Supplementary Information

### **Barium titanate nanoparticles sensitise treatment-resistant breast cancer cells to the antitumor action of tumour-treating fields**

Yi Na Yoon<sup>a,b,§</sup>, Dae-Sik Lee<sup>c,§</sup>, Hyung Ju Park<sup>c,\*</sup>, and Jae-Sung Kim<sup>a,b,\*</sup>

<sup>a</sup>Division of Radiation Biomedical Research, Korea Institute of Radiological and Medical Sciences, Seoul 01812, South Korea

<sup>b</sup>Radiological and Medico-Oncological Sciences, University of Science and Technology, Daejeon 34113, South Korea

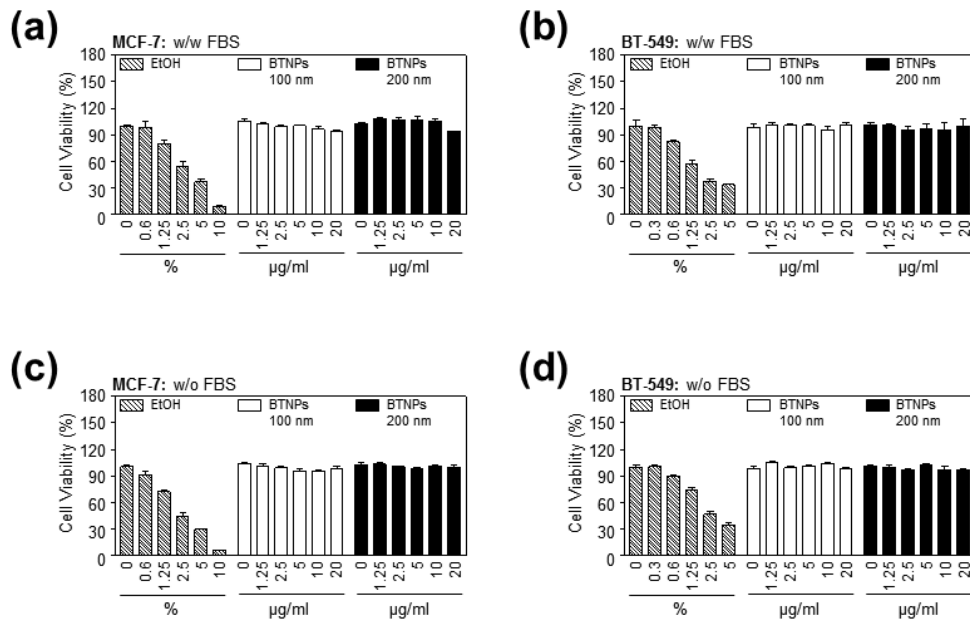
<sup>c</sup>Electronics and Telecommunications Research Institute, Daejeon 34129, South Korea

<sup>§</sup>Y.N.Y. and D.-S.L. contributed equally to the work

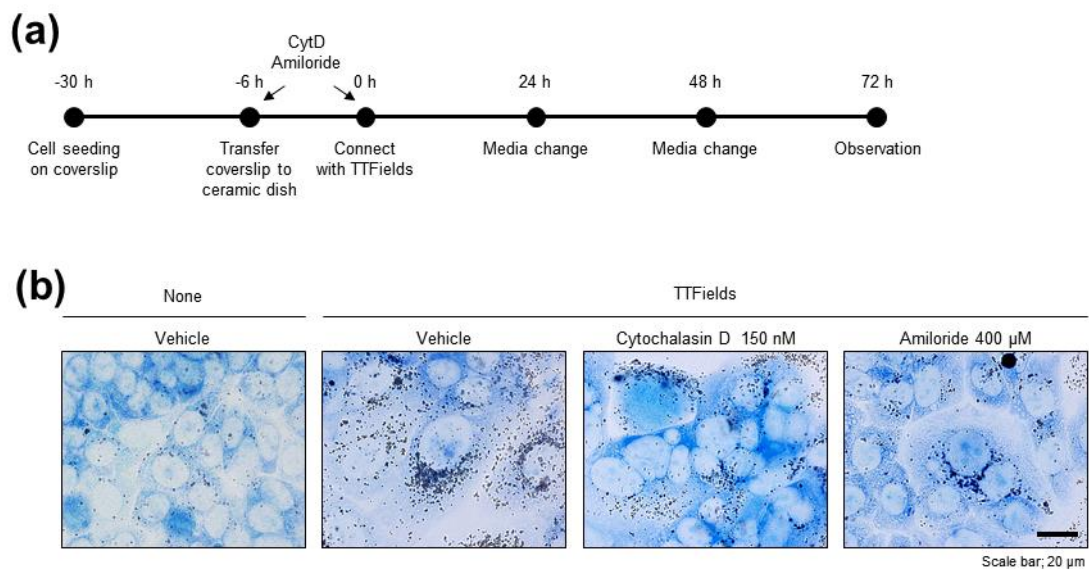
**\*Corresponding author:** Jae-Sung Kim, Division of Radiation Biomedical Research, Korea Institute of Radiological and Medical Sciences, 75, Nowon-ro, Nowon-Ku, Seoul 01812, South Korea. Phone: +82-2-970-1669, Fax: +82-2-970-2417, E-mail: [jaesung@kirams.re.kr](mailto:jaesung@kirams.re.kr) or Hyung Ju Park, Welfare & Medical ICT Research Department, Electronics and Telecommunications Research Institute (ETRI), 218 Gajeong-ro, Yuseong-gu, Daejeon, 34129, South Korea. Phone: +82-42-860-1474, Fax: +82-42-860-6594, E-mail: [park77@etri.re.kr](mailto:park77@etri.re.kr)

## Supplementary Figure

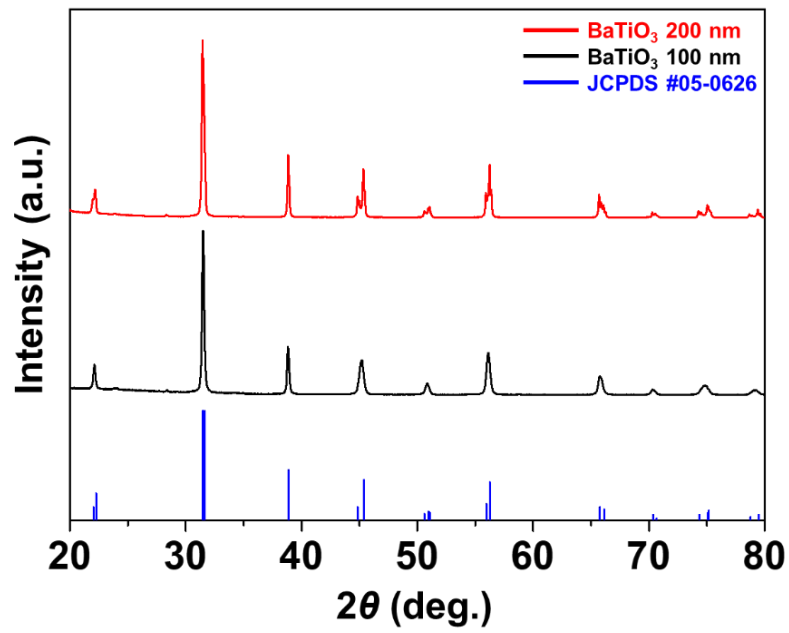
**Supplementary figure S1. Cytocompatibility of BTNPs in breast cancer cells.** (a-d) Cell proliferation in MCF-7 and BT549 cells upon BTNP treatment with or without FBS-coating. Data represent mean  $\pm$  standard deviation of three independent experiments; \*\* $P < 0.01$ , and \* $P < 0.05$ . N.S. not significant.



**Supplementary figure S2. Cytoplasmic accumulation of BTNPs with inhibitors in MCF-7 cells in response to TTFields.** (a) Schematic summary of the experiment. (b) Representative images showing cytosolic localisation of BTNPs in MCF-7 cells treated with TTFields or TTFields plus BTNPs without or with cytochalasin D and amiloride. Data is representative of three independent experiments.



Supplementary figure S3. XRD spectral changes of BaTiO<sub>3</sub> nanoparticles. (a) Schematic summary of the experiment.



**Supplementary figure S4.** Original blots used for Figure 6 (b).

