

**Fig. S7 Posterior prediction of effective drug model parameters.** (A) - (D) In each panel, the y-axis represents the density of the model parameter given by 3000 samples from the posterior distributions, and the x-axis represents the values of G1/S-TR50 in the unit of nM. (A) fulvestrant for -DOX cells (B) palbociclib for -DOX cells (D)fulvestrant for -DOX cells (E) palbociclib for +DOX cells. (E) and (F) are the densities for the interaction parameter  $a_{FP}$ . The vertical lines indicate the zero value of the parameter and the area of the black region is 12.9% of the total area for both (E) and (F).

