Supplemental Figures legends and Tables

Supplemental figure 1. Torin2 on PC-3 wide type cell line, the IB was made after 30 min treatment of drug at indicated concentrations.

Supplemental figure 2. Torin1, Torin2, AZD8055 and BEZ235 on HeLa and HCT-116 cell line at different time point with a dose responsive drug treatment.

Supplemental figure 3. PET-CT experiment of short term treatment of drugs. Representative images from the in vivo FDG-PET/CT study demonstrated the differences in tumor hypermetabolic activity changes shortly after the onset of respective treatment regimen. The images shown were trans-axial slices containing the FDG-avid tumors, with CT (gray scale) providing anatomic references and PET (pseudo-color scale) showing the location and intensity of high tumor glucose utilization, where the SUV_{max} was also recorded (e.g., SUV=0.9, and etc.). As compared to the baseline (images in the top row), the combo (combined dual-agent) treatments resulted in marked reduction of SUV_{max} (to background levels), indicating significantly lowered post-treatment tumor hypermetabolic activities, whereas little changes were evident from the images of single-agent treated mice. These early treatment response observations from FDG-PET imaging correlated very well with other efficacy data.

Supplemental figure 4. PDG-PET determination of drug treatment response with statistics

Supplemental table 2. Quantification of cell cycle analysis in Figure 3F

	%G1	%S	%G2/M	%Debris
DMSO	51.72	29.92	18.36	1.35
Torin2 250 nM	45.8	37.64	16.56	5.39
Torin2 1000 nM	23.9	40.67	35.43	23.51

Supplemental table 3. GI50 for indicated cell lines when treated with both compounds at a ratio of Torin2:AZD6244 of 1:50 which is graphically

Cell line	Torin2 (GI50)	AZD6244 (GI50)
H226	42 nM	2 μM
H358	12 nM	594 nM
Calu-1	73 nM	3.7 μM