Figure S1

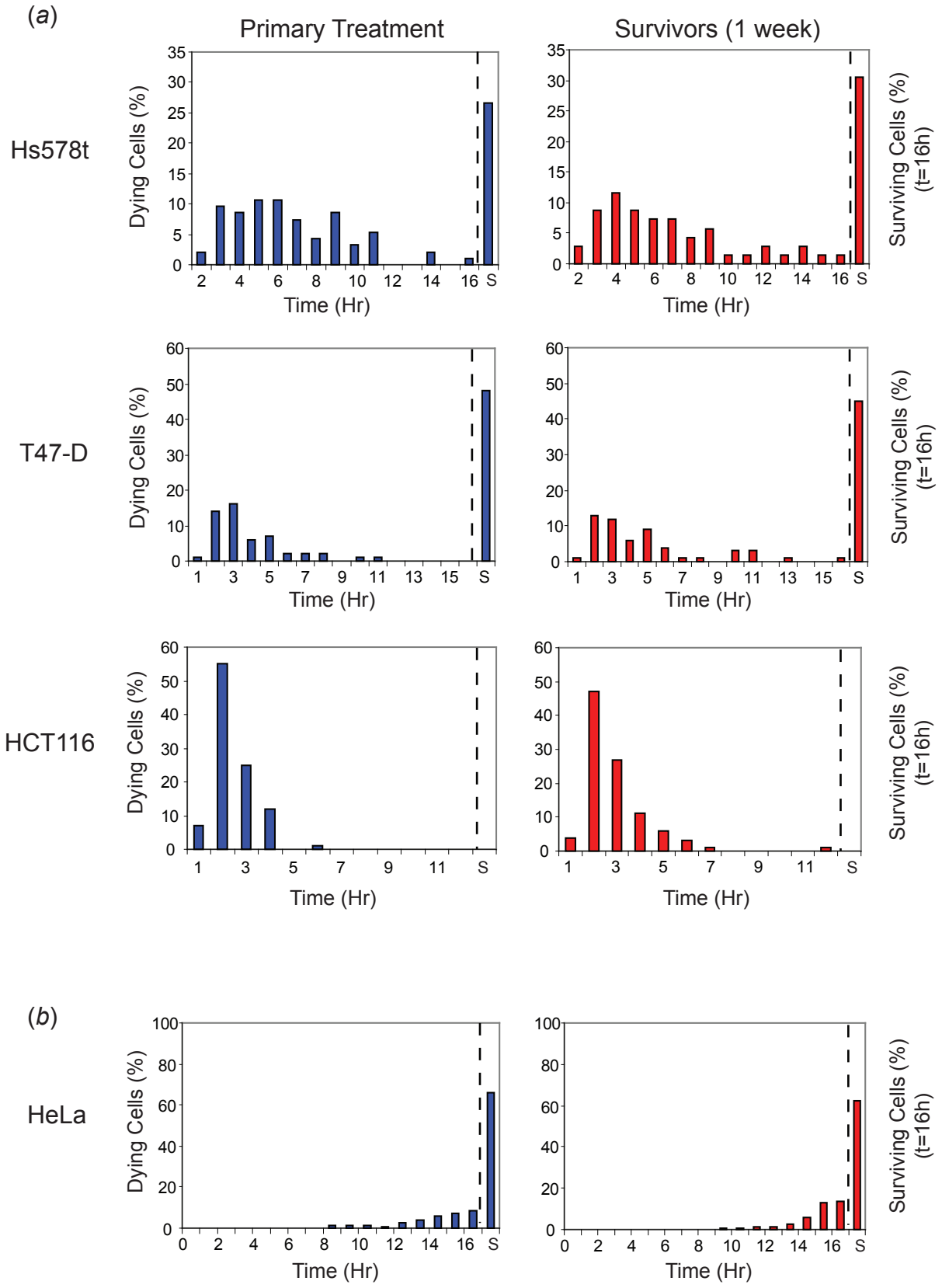
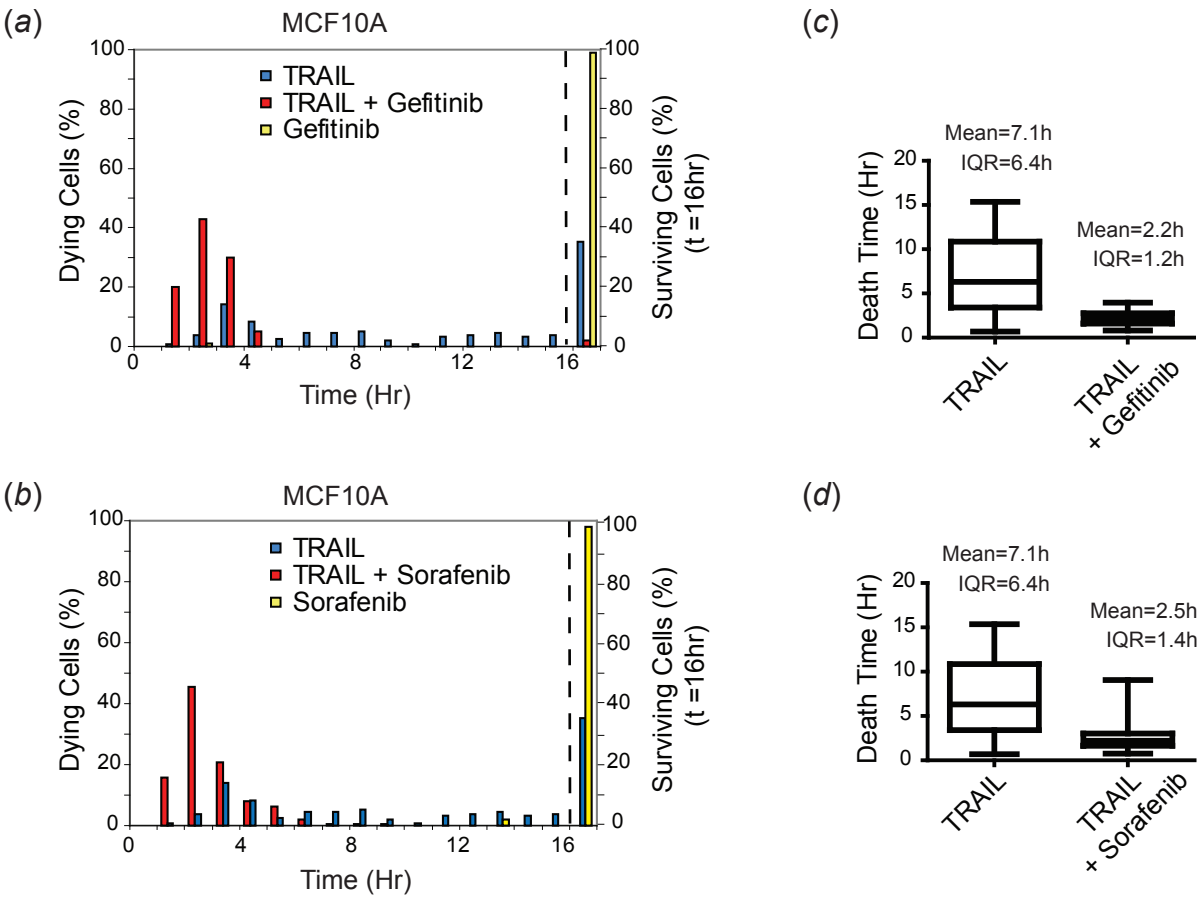

(a)
Primary Treatment
Survivors (1 week)
Hs578t
T47-D
HCT116
(b)
HeLa
Dying Cells (%)
Surviving Cells (%) (t=16h)
Time (Hr)
S

Figure S2


(a)
MCF10A
TRAIL
TRAIL + Gefitinib
Gefitinib
Dying Cells (%)
Surviving Cells (%)
(t =16hr)
Time (Hr)
(b)
MCF10A
TRAIL
TRAIL + Sorafenib
Sorafenib
Dying Cells (%)
Surviving Cells (%)
(t =16hr)
Time (Hr)
(c)
Mean=7.1h
IQR=6.4h
Mean=2.2h
IQR=1.2h
Death Time (Hr)
TRAIL
TRAIL + Gefitinib
(d)
Mean=7.1h
IQR=6.4h
Mean=2.5h
IQR=1.4h
Death Time (Hr)
TRAIL
TRAIL + Sorafenib

Supplementary Figure Legends

Figure S1. Cells surviving treatment with TRAIL or staurosporine exhibit regeneration of the starting population sensitivity profile in multiple cell types. (*a*) Death-time distributions for clonal populations of Hs578T, T47-D, and HCT116 control and survivor cells (following one week of outgrowth in the absence of TRAIL) treated with 50ng/ml TRAIL and imaged by live-cell microscopy for 16h. **(*b*)** Death-time distributions for a clonal population of HeLa control or staurosporine-survivor cells, (after treatment with 2μM staurosporine followed by two weeks of outgrowth in the absence of staurosporine), treated with 2μM staurosporine and imaged by live-cell microscopy for 16h. Percentage of surviving cells at the end of the movies is plotted to the right of the dotted line.

Figure S2. Co-drugging reduces mean death time and variability in death times in multiple cell types. (*a*) Time of death distributions and percentage of surviving MCF10A cells treated with TRAIL (50ng/ml), gefitinib (10μM), or a combination of the two and imaged by live cell microscopy for 16 hours as described above. **(*b*)** Time of death distributions and percentage of surviving MCF10A cells treated with TRAIL (50ng/ml), sorafenib (10μM), or a combination of the two and imaged by live cell microscopy for 16 hours. **(*c-d*)** Quantitation of death times for dying cells only in **(*a-b*)**. Median, IQR, and range of death times for each treatment appear in the box and whisker plots; mean death time and IQR are indicated above each plot. 50-100 cells were analyzed per condition.