SUPPLEMENTAL FIGURE LEGENDS

Supplemental Figure 1. SSX exon expression in 3 synovial sarcoma cell lines.

Supplemental Figure 2. Multi-plate, multi-day validation assays run for the sacroma cell line screen.

Supplemental Figure 3. IC_{50} heat map of the 236 compounds with an IC_{50} range of at least 1 log tested in the sarcoma lines.

Supplemental Figure 4. Mean graph for expression of the miRs which correlate positively and negatively with response to the IGF1R kinase inhibitor linsitinib.

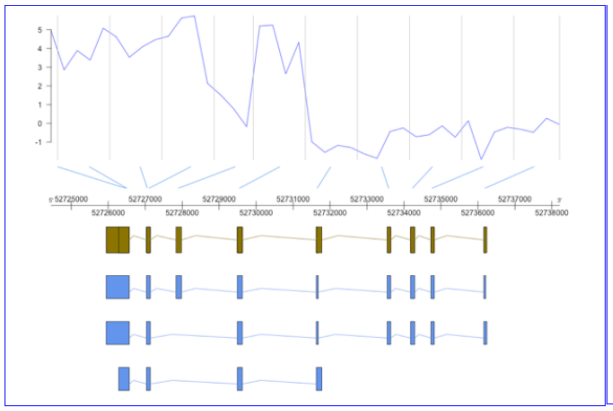
Supplemental Figure 5. Heat maps for six PI3K kinase inhibitors, five Akt kinase inhibitors and five mTOR kinase inhibitors showing the IC_{50} response of the sarcoma lines, arranged by disease panel. Green indicates IC_{50} >/= 10^{-5}; yellow indicates IC_{50} >/= 10^{-7}; red indicates IC_{50} >/= 10^{-9}; black indicates not tested.

Supplemental Figure 6. Mean graph for expression of the miRs which correlate positively and negatively with response to the PARP1 inhibitor BMN673.

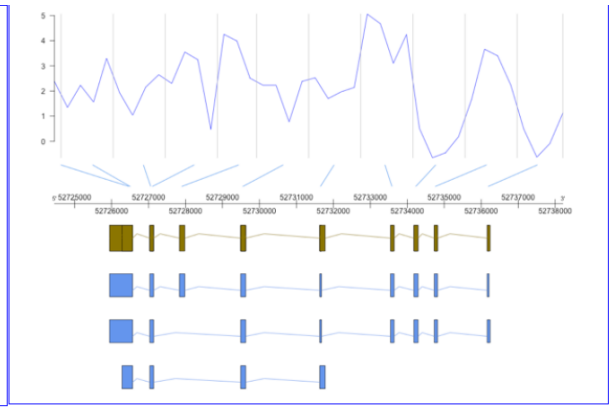
Supplemental Figure 7. A. Chemical structure of the IAP inhibitor birinapant. **B.** Heat map showing the IC_{50} response of the sarcoma lines, arranged by disease panel, for the IAP inhibitor birinapant. Green indicates IC_{50} >/= 10^{-5}; yellow indicates IC_{50} >/= 10^{-7}; red indicates IC_{50} >/= 10^{-9}. Heat map showing the microRNA expression from counts for miR-204-5p. Red indicates low expression and Green indicates high expression. The expression values are: miR-204-5p mean 3.1 (12.39-0).

Supplemental Figure 8. Chart showing the birinapant log10 IC50s versus miR-204-5p expression illustrating that A-204 rhabdoid tumor line sensitivity to birinapant correlates positively with miR-204-5p expression.

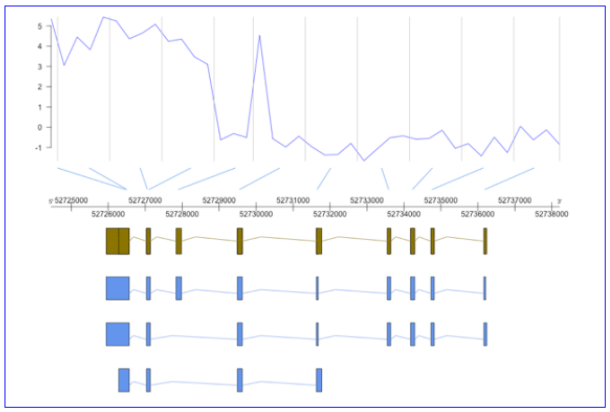
Supplemental Figure 9. A. Chemical structures of the kinase inhibitors WZ-4002, ZM-336372 and saracatinib. **D**. Heat map showing the IC_{50} response of the sarcoma lines, arranged by disease panel, for the kinase inhibitors WZ-4002, ZM-336372 and saracatinib. Green indicates IC_{50} >/= 10^{-5}; yellow indicates IC_{50} >/= 10^{-7}; red indicates IC_{50} >/= 10^{-9}; black indicates not tested. Heat map showing the $\log_2$ gene expression of FRG2 by the sarcoma lines, arranged by disease panel. Green indicates relatively high expression; yellow indicates mean expression; red indicates relatively low expression. The expression values are: FRG2 mean 5.66 (10.71-5.01).



HSSY-II synovial sarcoma line
SSX exon expression



SW982 synovial sarcoma line
SSX exon expression



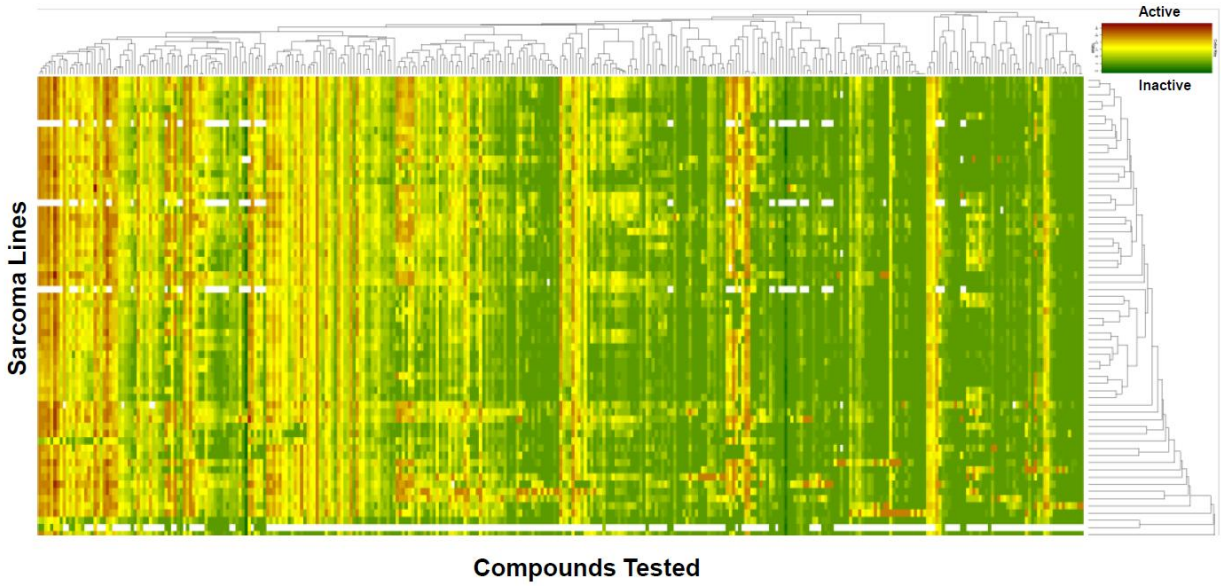
SYO-1 synovial sarcoma line
SSX exon expression

Supplemental
Figure 1

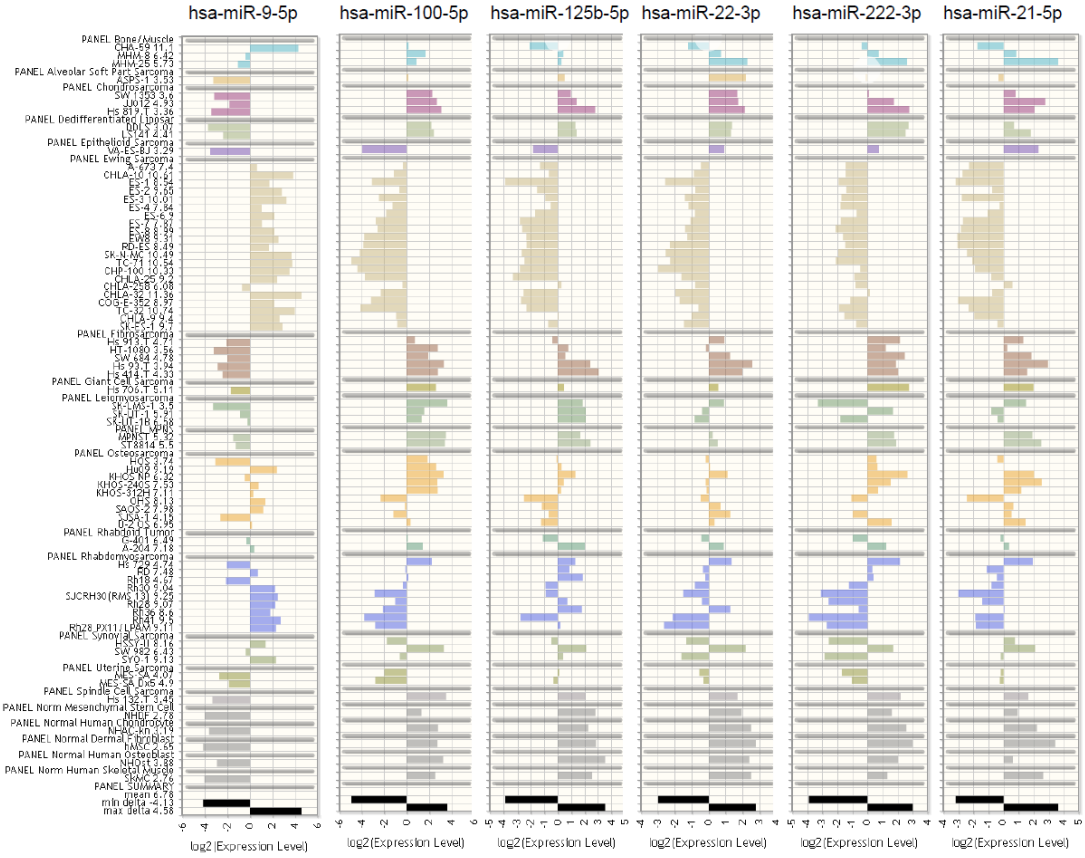
Multi-plate, Multi-day Validation

	Day 1	Day 2
Avg. Z' Vehicle Plates (6)	0.89	0.86
Avg. Z' Compound Plates (3)	0.85	0.81
Avg. S:B (all)	15.7	16.0
EC50 Topotecan (N=6)	0.011 ± .002 µM	0.011 ± .003 µM
EC50 Doxorubicin (N=6)	0.058 ± .014 µM	0.044 ± .011 µM
Ec50 Tamoxifen (N=6)	9.28 ± 0.71 µM	11.49 ± 4.39 µM

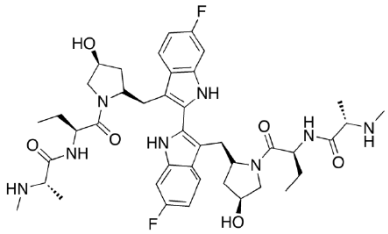
Supplemental Figure 2



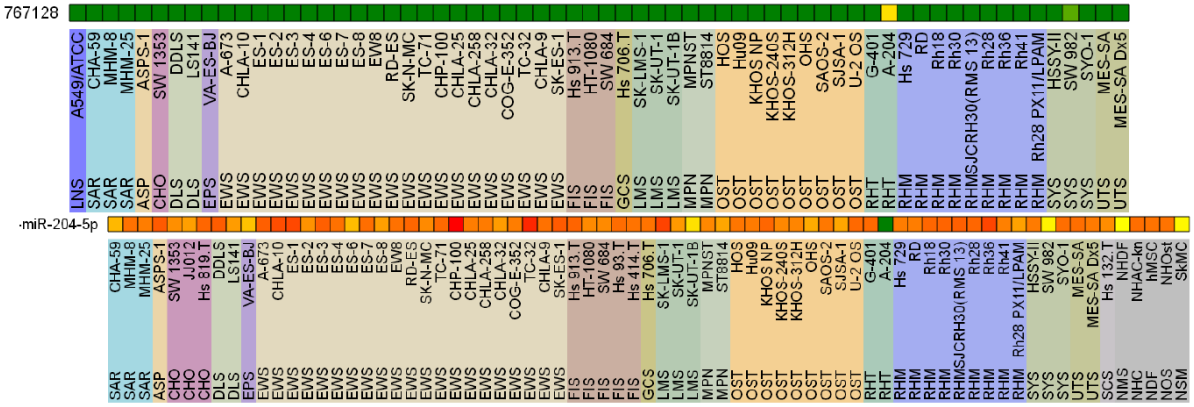
Supplemental Figure 3



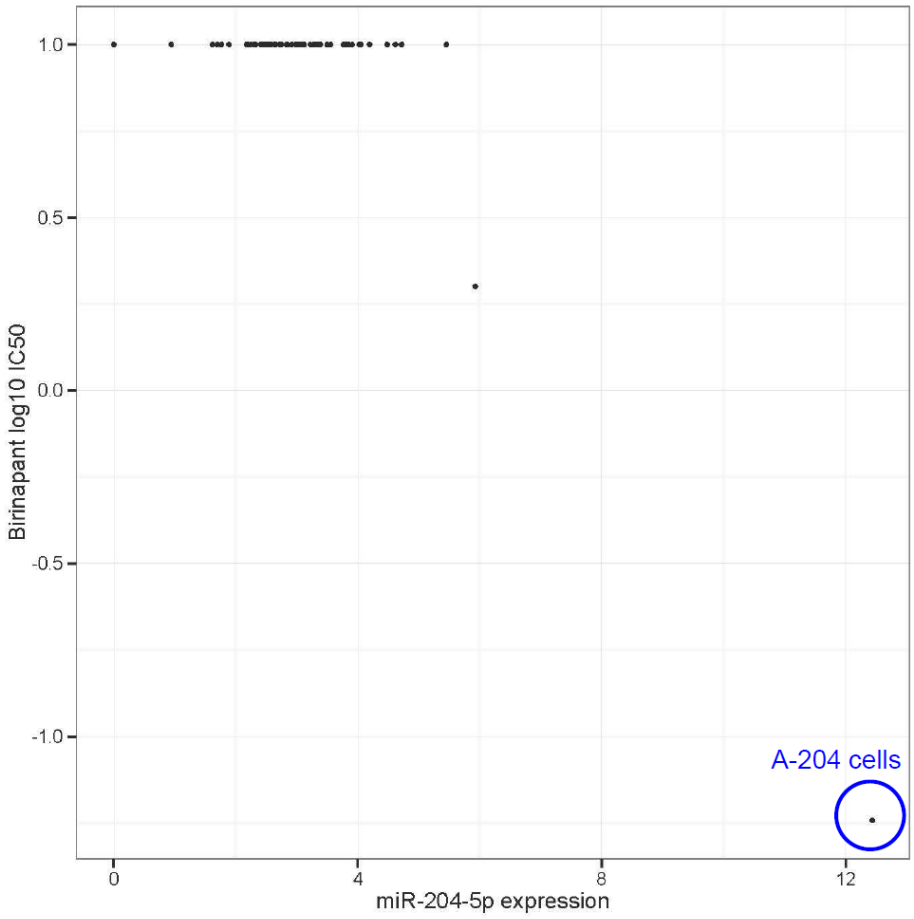
Supplemental Figure 4



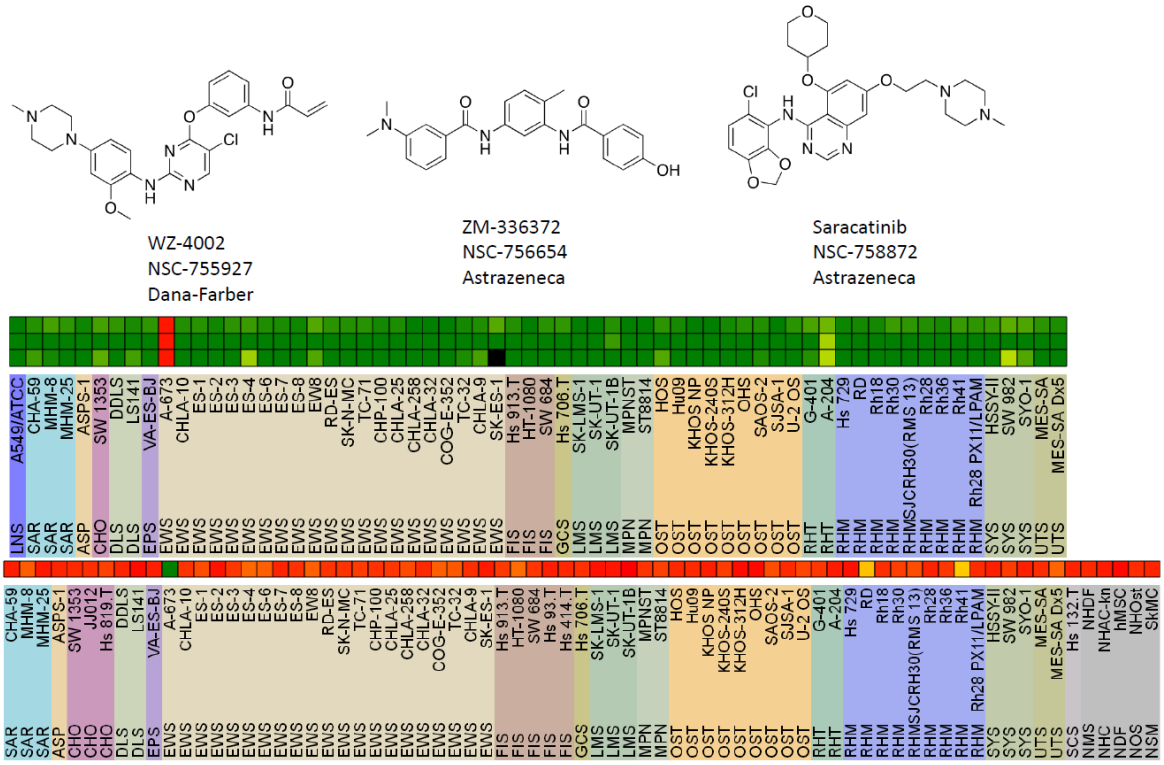
NSC767128
Birinapant



Supplemental
Figure 7



Supplemental Figure 8



Supplemental Figure 9