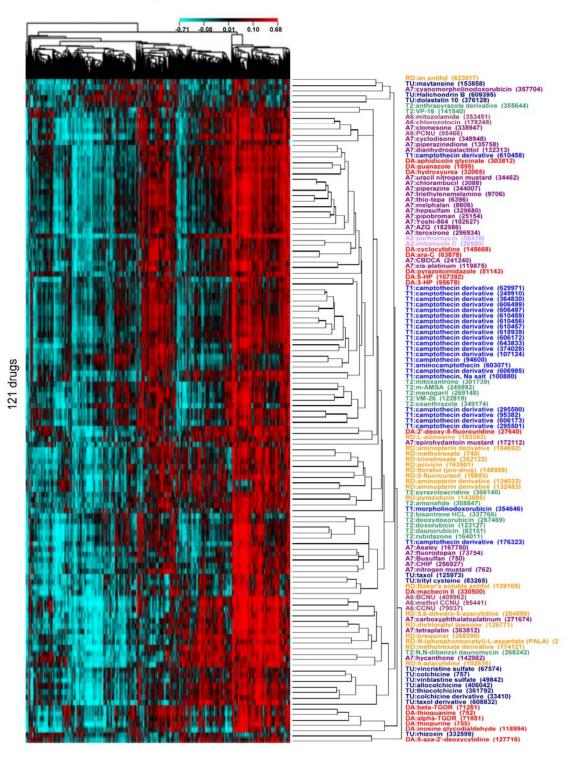
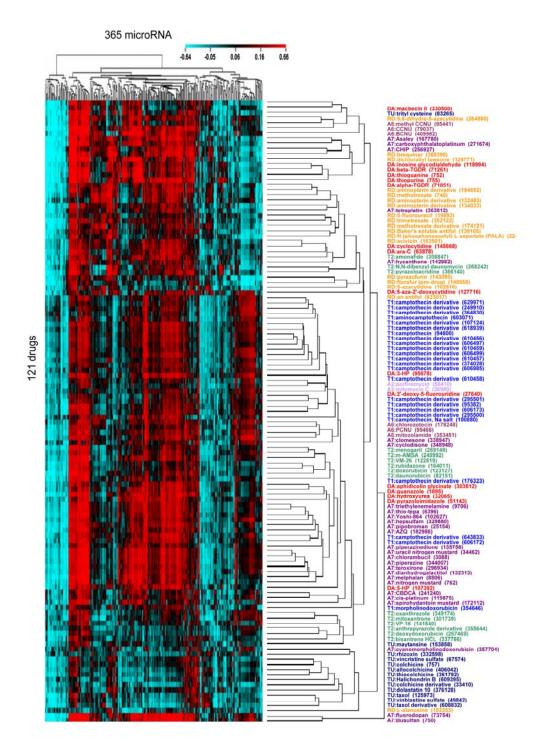


**Supplemental Figure 1.** Histograms of the distribution of all 41,000 mRNA probes (A) and 365 microRNAs (B) with respect to the directionality of their significant correlations with drug activities of 1,429 drugs in the NCI-60.

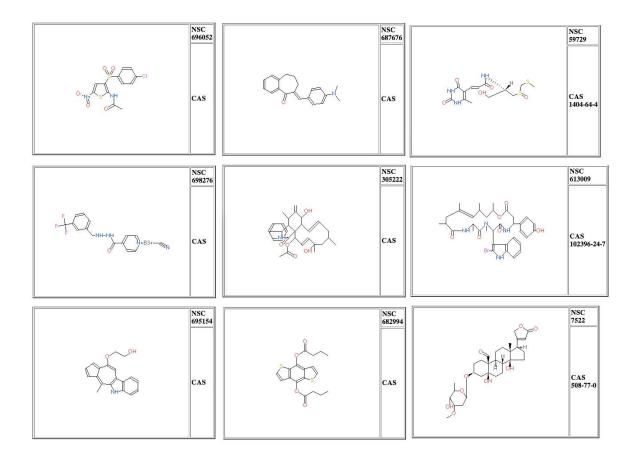
2,564 mRNA probes



**Supplemental Figure 2.** Clustered image map based on correlations of 2,564 mRNA probes (X-axis) and 121 drugs with known mechanism of action (Y-axis) using mRNA expression level and drug activities. Red color indicates high positive correlation and blue color indicates high negative correlation.



**Supplemental Figure 3.** Clustered image map based on correlations of 365 microRNAs (X-axis) and 121 drugs with known mechanism of action (Y-axis) using microRNA expression level and drug activities. Red color indicates high positive correlation and blue color indicates high negative correlation.



**Supplemental Figure 4.** Structures and NSC's for ten out of 93 "inverse" drugs, found in the bracketed sections I in Figures 4.