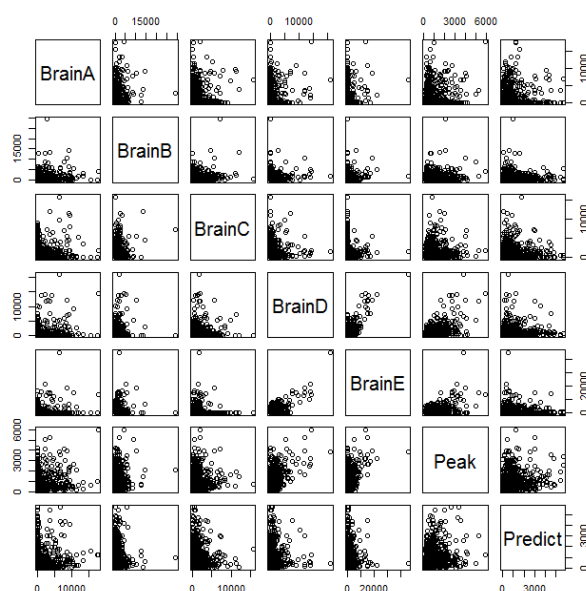
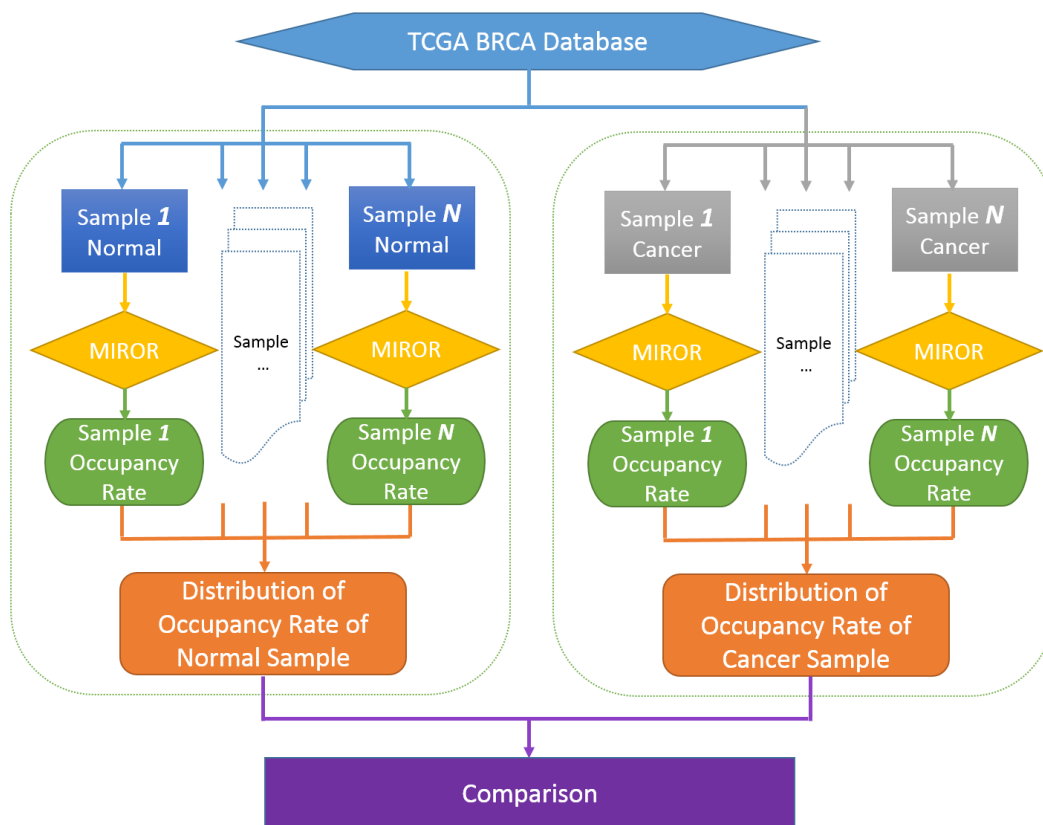


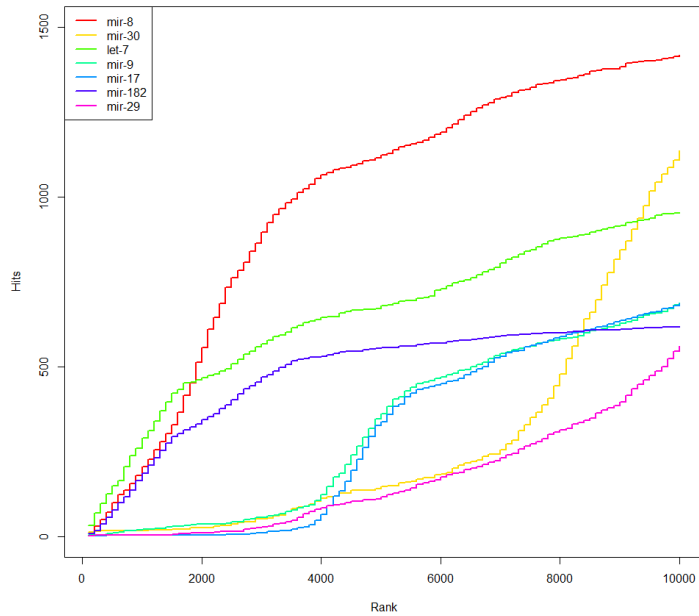
**Fig S1a.** Sliding window SCC between predicted miRNA occupancy rates and HITS-CLIP result. We collected the HITS-CLIP peak heights provided by Chi, Zang et al, which was an integrated result from five experimental replicates (Brain A-E). Predicted miRNA occupancy rates were compared with HITS-CLIP peak heights and the SCC curve is shown in red. Comparisons were also done by comparing each replicate with the average result of the other replicates.



**Fig S1b.** Scatter plots of HITS-CLIP replicates (“Brain A-E”), integrated HITS-CLIP peak heights (“Peak”) and model prediction (“Predict”). Brain A-C were biological replicates that used the same antibody for Ago protein immunoprecipitation. Brain D and E were technical replicates.



**Fig S2.** Pipeline of using MIROR to infer cancer related miRNA-mRNA interaction pairs.



**Fig S3.** miRNA families that were enriched in the top 10000 miRNA-mRNA pairs with significant occupancy rate changes between normal and breast cancer samples. Mir-8 (including miR-141, miR-200a/b/c and miR-429), let-7 and mir-182 families took up about 3000 pairs in the top 4000. These three families were extensively studied tumor suppressors of breast cancer.