



**Supplementary fig. 1** Drug-gene-phenotype network for breast cancer

Blue diamond is a phenotype, red squares are known drugs, green squares are predicted drugs, and yellow circles are genes. The arrow-headed line denotes a relationship of activation, and the bar-headed line denotes inhibition. We showed a network that was constructed based on known drugs in CTD, predicted drugs using our method, genes, and breast cancer. We used only significant drugs ( $p$ -value<0.05) when we constructed the network.