



**Fig. S2.** The complementary cumulative distribution ( $C$ ) of the gene-gene gravitation score ( $G$ ) for five different gene sets: cancer driver gene (Driver), Cancer Gene Census (CGC), chromatin regulation factors (CRF), essential genes, and DNA repair genes in breast invasive carcinoma (BRCA). The number of gene-gene pairs for blue line is equal to red line by random sampling 100 times. The shadow of blue line represent the standard deviation.