



**Fig. S23.** The performance of the gene gravity model after removing 31 ultramutated tumor samples in colon adenocarcinoma (COAD). **(A)** Box plots of gene-gene gravitation score ( $G$ ) distribution for five gene sets in COAD. Red: Cancer driver genes (driver) versus non-cancer driver genes (non-driver); purple: Cancer Gene Census (CGC) genes versus non-CGC genes; yellow: Chromatin regulation factors (CRFs) versus non-CRFs; green: Essential genes (Essential) versus non-essential genes (non-essential); blue: DNA repair genes versus non-DNA repair genes. **(B)** Box plots of gene average gravitation (aveG) score for five gene sets in COAD. **(C)** Distribution of average gravitation (aveG) score for cancer driver genes, essential genes, and all genes across 23 human chromosomes in COAD.