

Figure S1. TRIM44 overexpression induces cisplatin resistance in LUAD cells. (A–B) TRIM44 expression was determined using qRT–PCR (A) and Western blotting (B) in TRIM44-overexpressing clones (TRIM44) and a control-expressing clone (Ctrl) derived from A549 cells. **(C)** The effect of TRIM44 overexpression on the viability of A549 cells in the presence of cisplatin. **(D–E)** Plate colony formation (D) and EdU (E) assays were performed to evaluate the proliferation capacity of Ctrl and TRIM44 cells derived from A549 cells exposed to cisplatin. **(F)** Evaluation of cisplatin-induced apoptosis in the designated cells using flow cytometry. **(G)** Expression of apoptosis-

related markers after TRIM44 overexpression in A549 cells. Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.), $**P < 0.01$, and $***P < 0.001$.

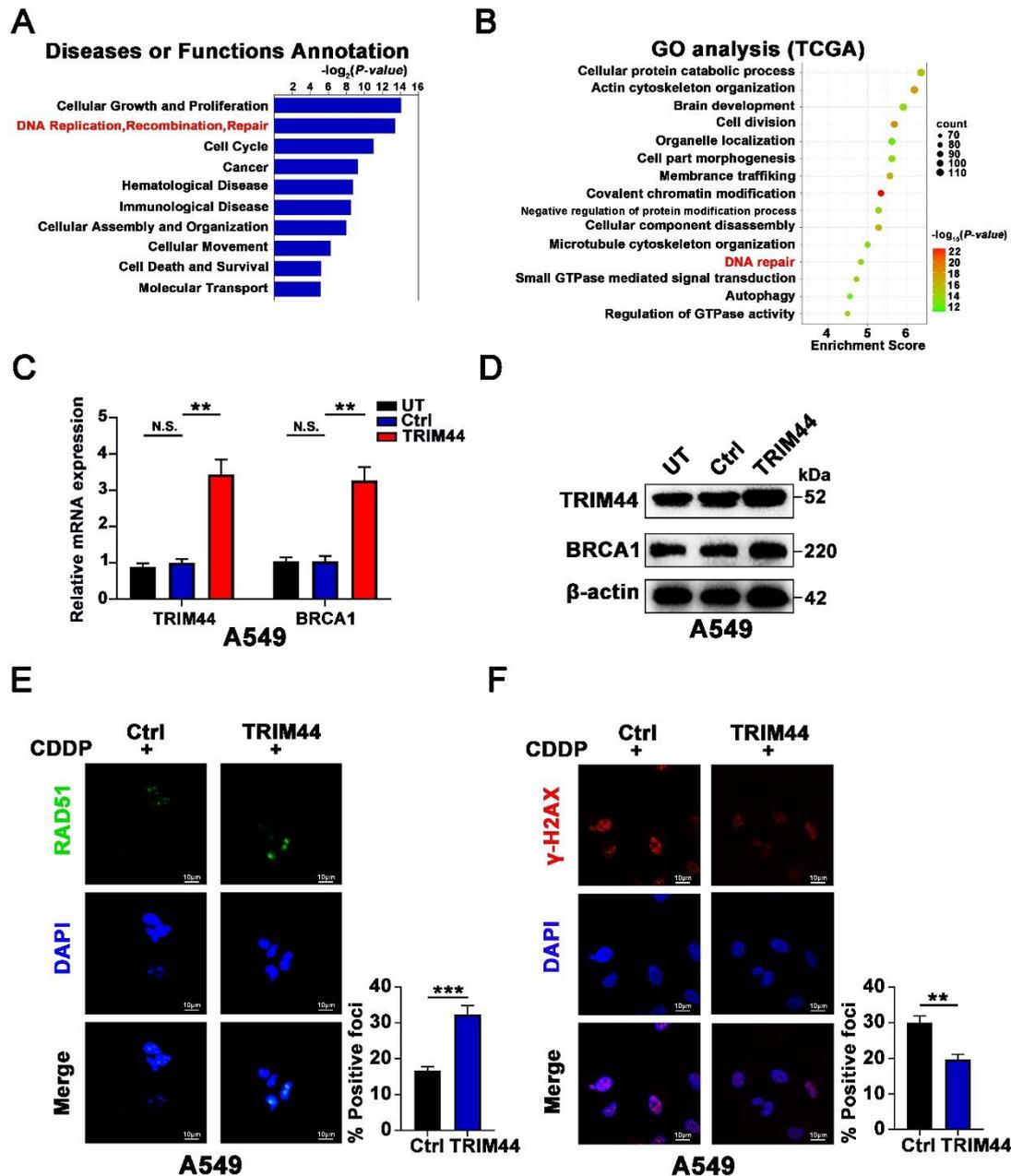


Figure S2. TRIM44 overexpression promotes BRCA1 expression and the effect of BRCA1 on HR. (A) The “Disease or Functions Annotation” of the IPA software was performed to summarize the enrichment of differential genes between NC or shTRIM44.

All functions were sorted by the $-\text{Log}_2$ (*P* value). **(B)** The putative biological role of TRIM44 was investigated using gene ontology (GO) enrichment analysis. **(C-D)** TRIM44 overexpression promoted BRCA1 mRNA (C) and protein (D) expression. **(E-F)** A549-TRIM44 cells exhibited more RAD51 foci (E) and fewer γ -H2AX foci (F) than that of A549-Ctrl cells when treated with cisplatin. (E) Representative immunofluorescence images showing RAD51 foci (left panel) and bar graphs showing the statistical analysis (right panel). (F) Representative immunofluorescence images showing γ -H2AX foci (left panel) and bar graphs showing the statistical analysis (right panel). Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.), $**P < 0.01$, and $***P < 0.001$.

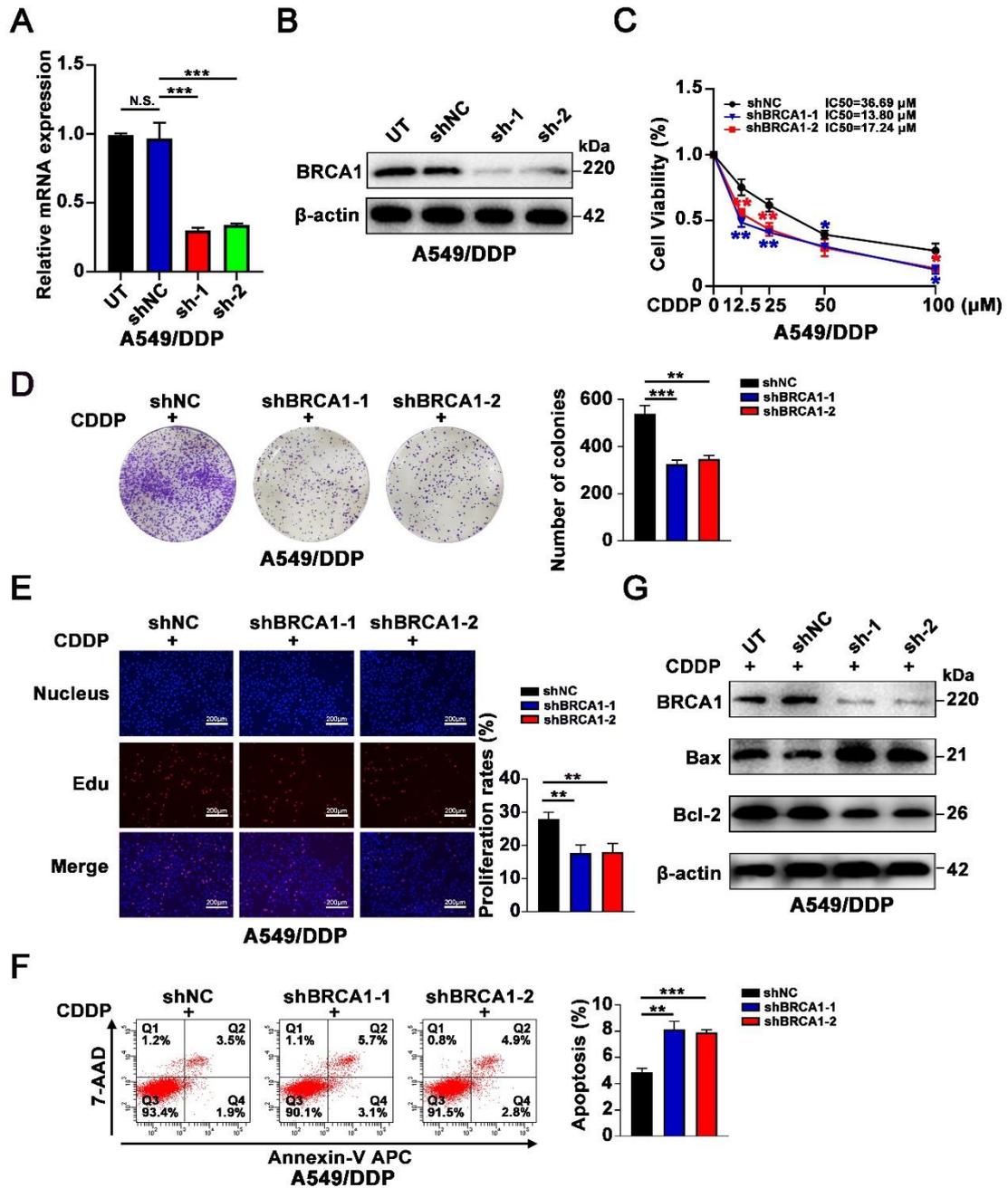


Figure S3. BRCA1 knockdown makes cisplatin-resistant LUAD cells susceptible to cisplatin. (A-B) BRCA1 expression in A549/DDP cells transfected with shNC, shBRCA1-1, or shBRCA1-2 was determined by qRT-PCR (A) and Western blotting (B). (C) CCK-8 analysis showed the viability of shNC, shBRCA1-1 and shBRCA1-2 derived by A549/DDP cells after being treated for 48 h with cisplatin. (D) The indicated cells were treated with cisplatin for 14 days at a dosage of 10 μ M. Colonies were stained

with crystal violet (left panel). The bar graphs show the statistical analysis of the number of colonies (right panel). **(E)** EdU assay of A549/DDP cells transfected with shNC or BRCA1 shRNAs in the presence of cisplatin (10 μ M). **(F-G)** Apoptosis analysis of the indicated A549/DDP-derived cells treated with cisplatin was performed by flow cytometric analysis (F) and Western blotting (G). Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.), $*P < 0.05$, $**P < 0.01$ and $***P < 0.001$.

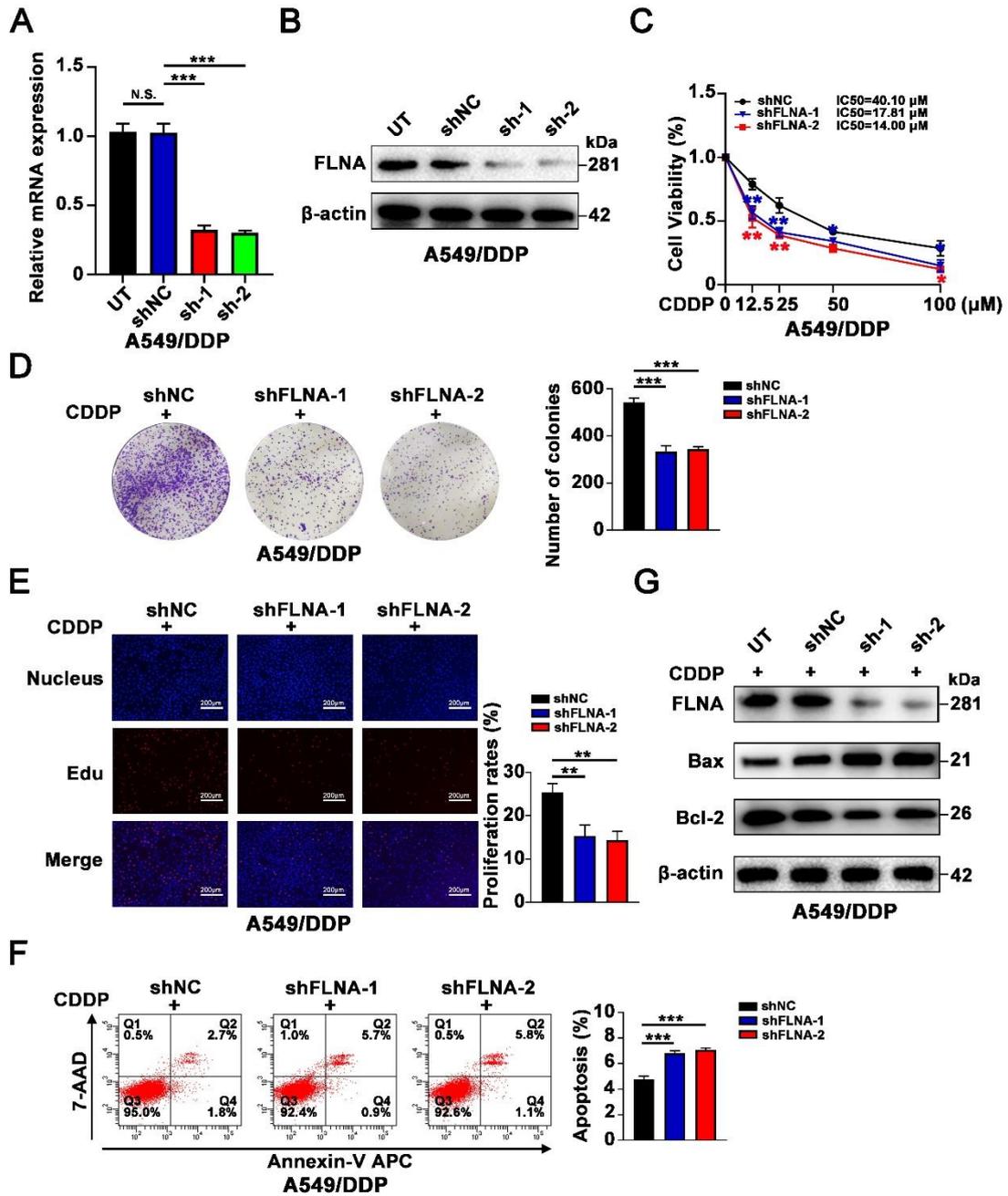


Figure S4. FLNA depletion makes cisplatin-resistant LUAD cells susceptible to cisplatin. (A-B) FLNA expression in A549/DDP cells transfected with shNC, shFLNA-1, or shFLNA-2 was determined by qRT-PCR (A) and Western blotting (B). (C-E) The influence of FLNA silencing on the viability (C), colony formation (D), and proliferation (E) of A549/DDP cells following treatment with cisplatin. (F-G) The effect of FLNA knockdown on cisplatin-induced apoptosis was assessed by flow

cytometry (F) and Western blotting for the apoptosis-related markers (G). Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.), $*P < 0.05$, $**P < 0.01$ and $***P < 0.001$.

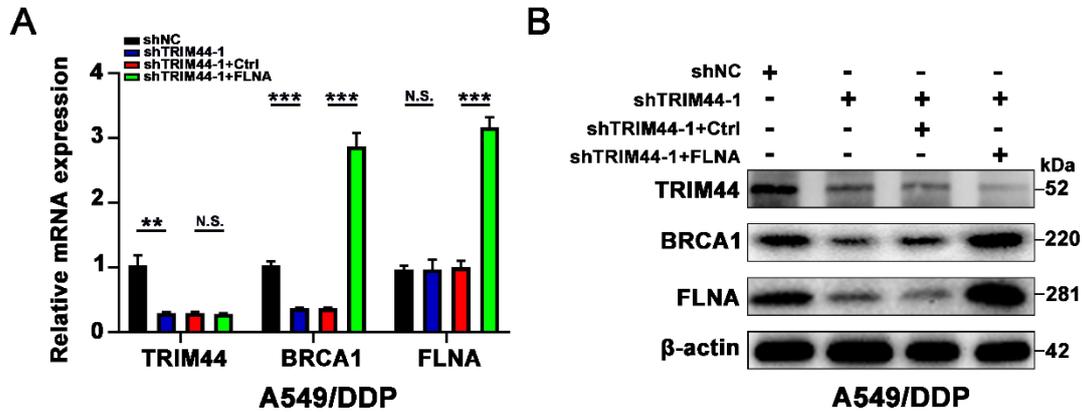


Figure S5. FLNA is required for TRIM44 knockdown inhibiting BRCA1 expression. A549 cells were transfected with lentivirus expressing either NC, shTRIM44-1, shTRIM44-1+Ctrl, or shTRIM44-1+FLNA. (A-B) The expression of BRCA1 was reduced following FLNA transfection into TRIM44-knockdown A549/DDP cells, according to qRT-PCR (A) and Western blotting (B) analysis. Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.), $**P < 0.01$, and $***P < 0.001$.

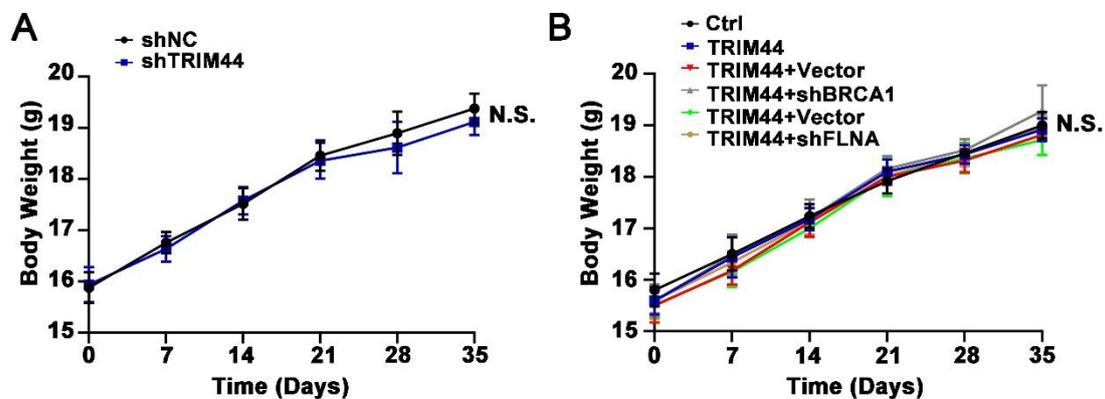


Figure S6. The average body weights of the mice. (A) The average body weights of

mice in the NC and shTRIM44 groups were statistically analyzed. **(B)** The average body weights of the mice in the different groups were statistically analyzed. Data are shown as the mean \pm SD. $P > 0.05$ was considered not significant (N.S.).