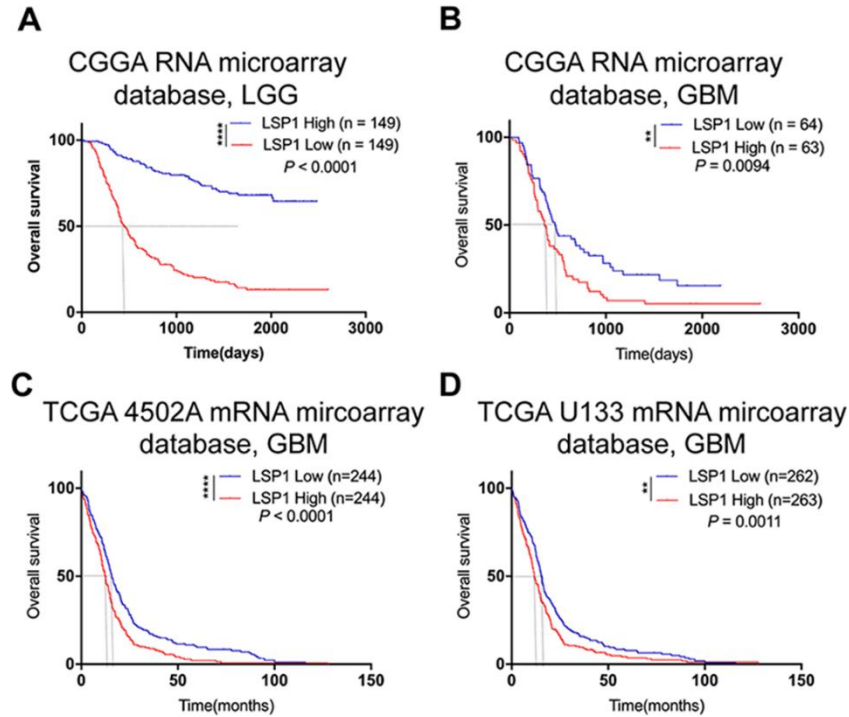
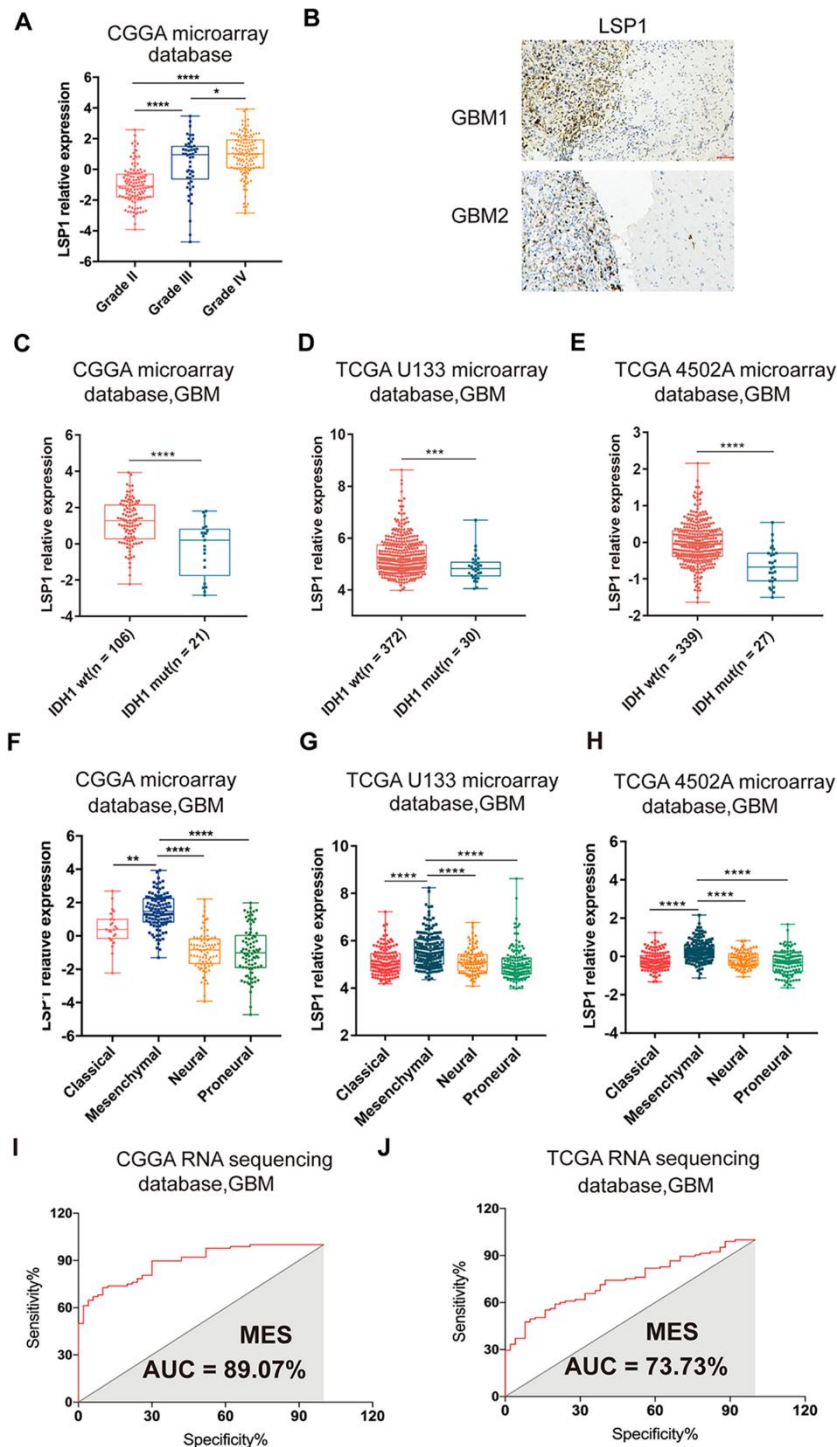


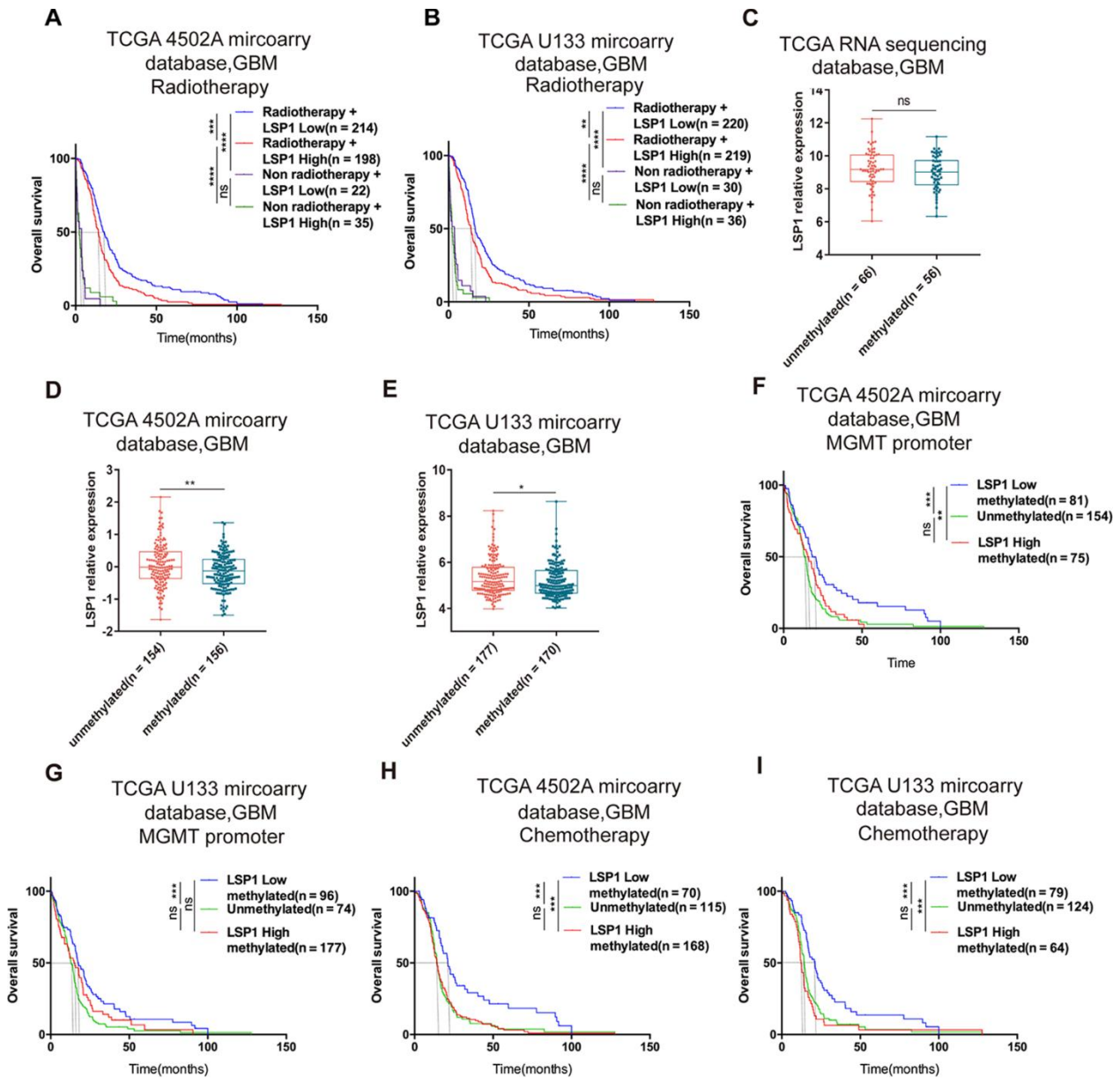
## SUPPLEMENTARY FIGURES



**Supplementary Figure 1. High level of *LSP1* expression correlates with the unfavorable prognosis in glioma.** (A–D) Kaplan-Meier plots revealed an association between high *LSP1* expression and unfavorable outcomes in LGG (A, CGGA mRNA microarray; with log-rank test) and GBM patients; B, CGGA mRNA microarray; C, TCGA-4502A mRNA microarray; D, TCGA-U133 mRNA microarray; with log-rank test). \*\*, and \*\*\*\* indicate  $P < 0.01$ , and  $P < 0.0001$ , respectively. LGG, lower-grade glioma; GBM, glioblastoma multiforme.

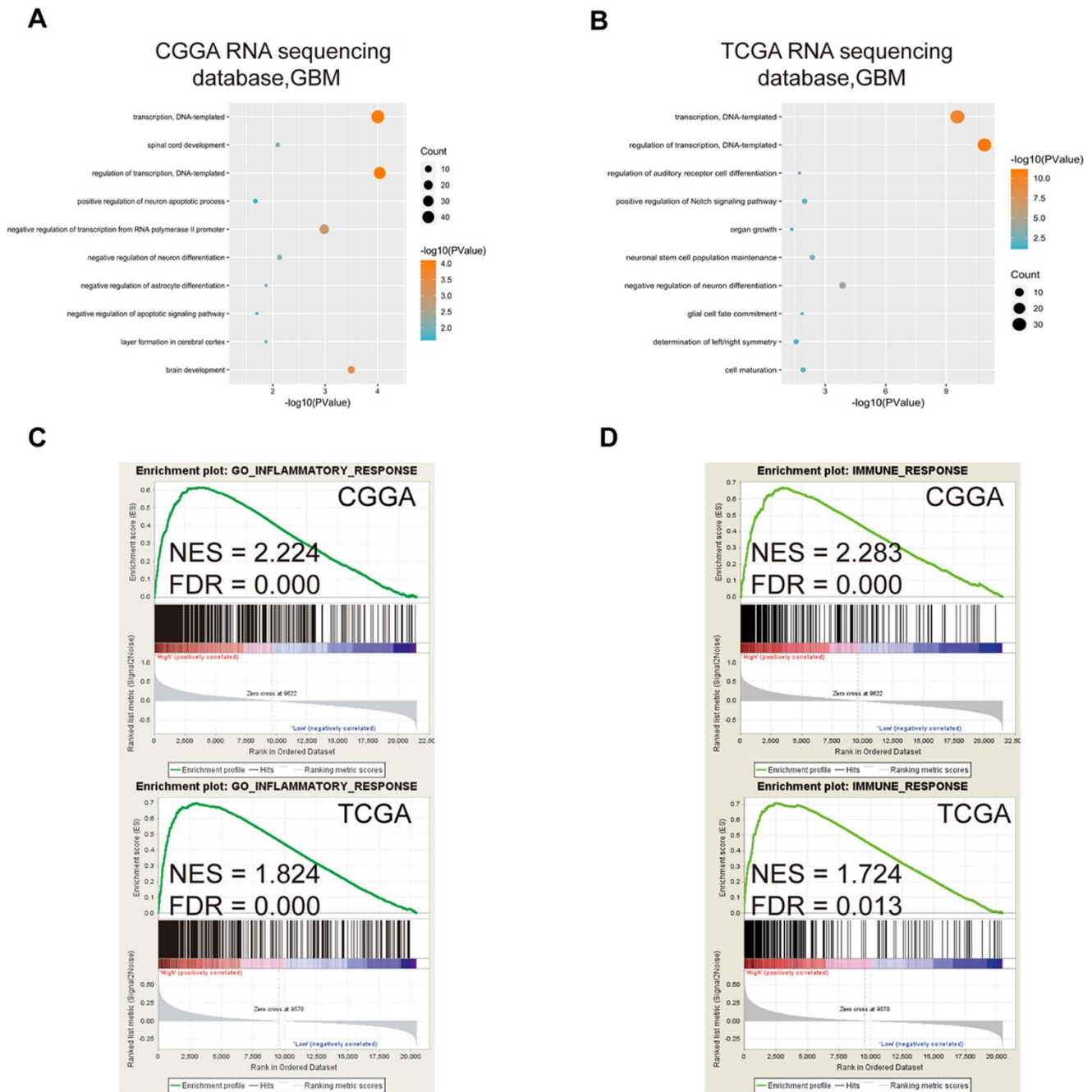


**Supplementary Figure 2. *LSP1* expression was upregulated in GBM, especially mesenchymal subtype.** (A) *LSP1* expression was significantly higher in GBM than in grade II and III samples (Grade II n = 121, Grade III n = 50, Grade IV n = 127; with one-way ANOVA). (B) A representative image of *LSP1* staining in GBM tissue including the benign tissue around tumor (200X, scale bar = 50 $\mu$ m). (C–E) *LSP1* was significantly upregulated in *IDH1* wild type gliomas of CGGA and TCGA datasets, GBM (C, CGGA mRNA microarray; D, TCGA-U133 mRNA microarray; E, TCGA-4502A mRNA microarray; with *t* test). (F–H) The expression pattern of *LSP1* in four subtypes of GBM (F, CGGA mRNA microarray, Classical n = 23, Mesenchymal n = 108, Neural n = 81, Proneural n = 86; G, TCGA-U133 mRNA microarray, Classical n = 144, Mesenchymal n = 156, Neural n = 88, Proneural n = 137; H, TCGA-4502A mRNA microarray, Classical n = 130, Mesenchymal n = 147, Neural n = 84, Proneural n = 127 ; with one-way ANOVA). (I, J) The sensitivity and specificity of *LSP1* as a molecule for mesenchymal GBM (I, CGGA RNA sequencing dataset, n = 138; J, TCGA RNA sequencing dataset, n = 155; with ROC curve). \*, \*\*, \*\*\* and \*\*\*\* indicate  $P < 0.05$ ,  $P < 0.01$ ,  $P < 0.001$ , and  $P < 0.0001$ , respectively. GBM, glioblastoma multiforme; MES, mesenchymal subtype.

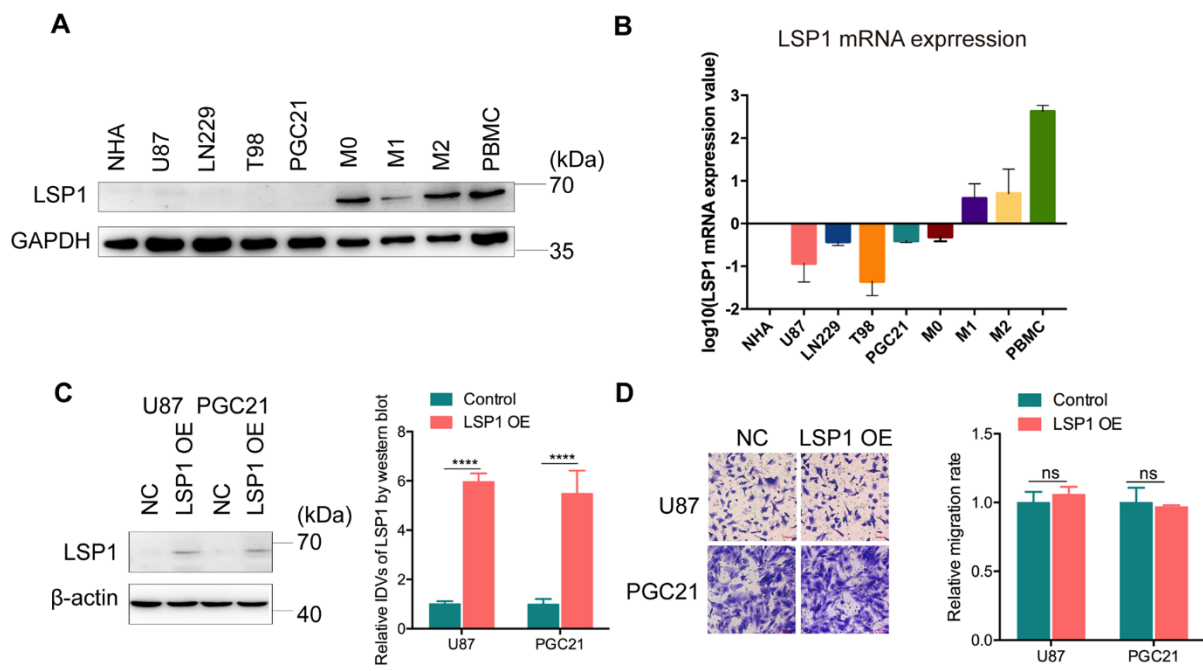


**Supplementary Figure 3. The value of high *LSP1* expression in the response prediction to radio- and chemotherapy in GBM.**

(A and B) Kaplan-Meier curves described the association between *LSP1* expression and the survival of GBM patients treated with or without radiotherapy (A, TCGA-4502A mRNA microarray; B, TCGA-U133 mRNA microarray; with log-rank test). (C–E) The comparison of *LSP1* expression analyzed in GBM with or without *MGMT* promoter methylation patients (C, TCGA RNA sequencing dataset; D, TCGA 4502A microarray; E, TCGA U133 microarray; with *t* test). (F and G) Kaplan-Meier curves describing the correlation between *LSP1* expression and the survival of GBM patients with different *MGMT* promoter status (F, TCGA 4502A microarray; G TCGA U133 microarray; with log-rank test). (H and I) Kaplan-Meier curves described the correlation between *LSP1* expression and the survival of GBM patients receiving chemotherapy (H, TCGA 4502A microarray; I, TCGA U133 microarray; with log-rank test). ns, \*, \*\*, \*\*\*, and \*\*\*\* indicate no significance,  $P < 0.05$ ,  $P < 0.01$ ,  $P < 0.001$ , and  $P < 0.0001$ , respectively. GBM, glioblastoma multiforme; MGMT, O<sup>6</sup>-methylguanine-DNA methyltransferase.



**Supplementary Figure 4. Functional enrichment analysis revealing the association of LSP1 with immunologic events.** (A and B) Bubble chart described the biological processes associated with *LSP1*-negative-correlated genes by GO analysis in GBM (A, CGGA RNA sequencing dataset; B, TCGA RNA sequencing dataset). Bubble diameter: enrichment gene counts; abscissa:  $-\log_{10} P$ -value  $P < 0.05$ . (C and D) GSEA indicated a significantly enhanced immune response and inflammatory response in GBM patients with high *LSP1* expression (C, CGGA RNA sequencing dataset; D, TCGA RNA sequencing dataset).  $P < 0.05$  and FDR  $< 0.01$ . GBM, glioblastoma multiforme.



**Supplementary Figure 5. Knockdown or overexpression of LSP1 didn't change the migration abilities of glioma cells. (A)** Representative western blot image of LSP1 protein expression in indicated cell lines. **(B)** Quantitative RT-PCR analysis of LSP1 mRNA expression in indicated cell lines. **(C)** Representative western blot image (left panel) and analysis (right panel) of LSP1 expression in indicated glioma cells. **(D)** Transwell assay showing LSP1 knockdown or overexpression didn't affect the migration of indicated glioma cells. \*, \*\*\*, and \*\*\*\* indicate  $P < 0.05$ ,  $P < 0.001$ , and  $P < 0.0001$ , respectively.