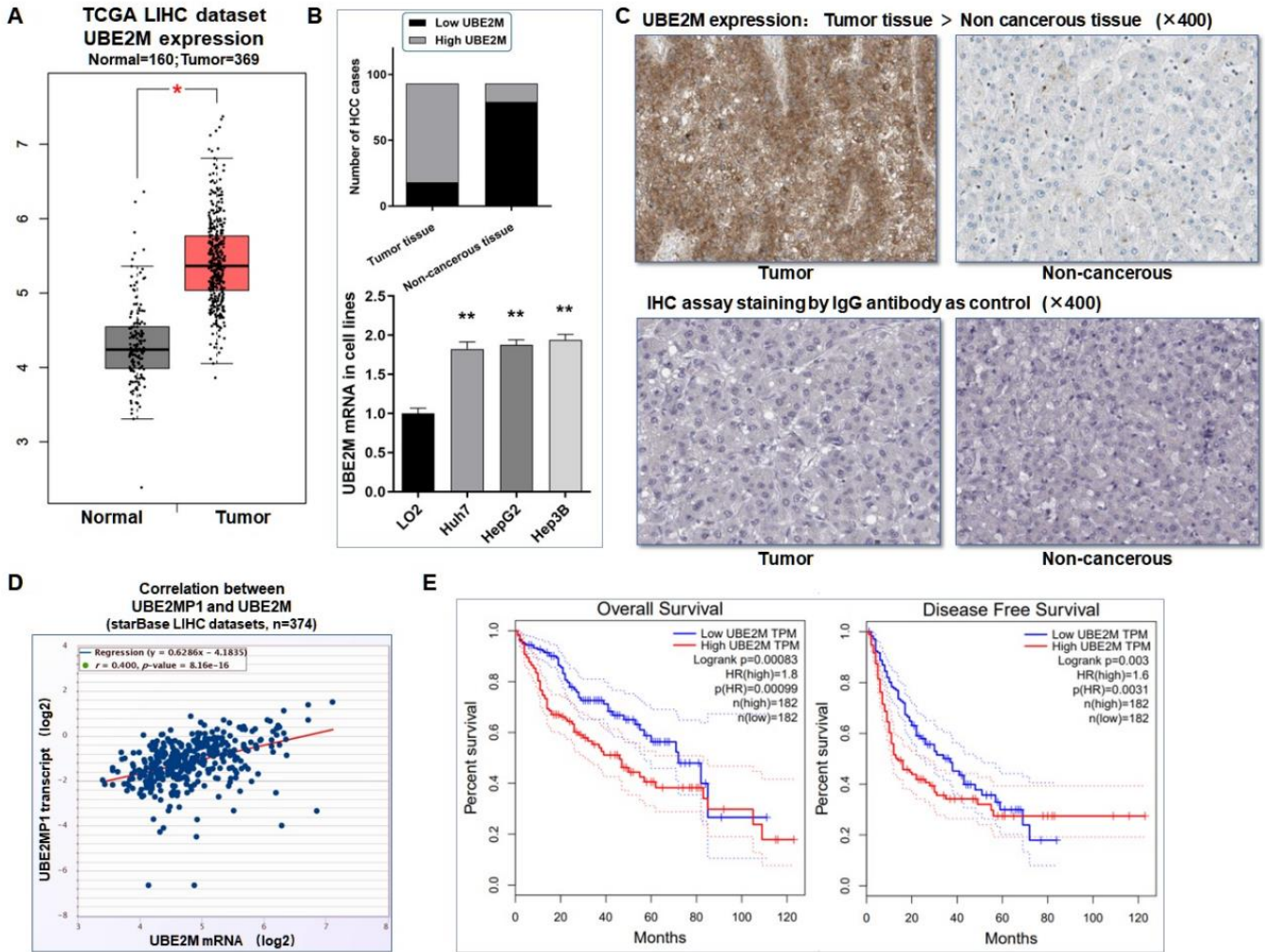
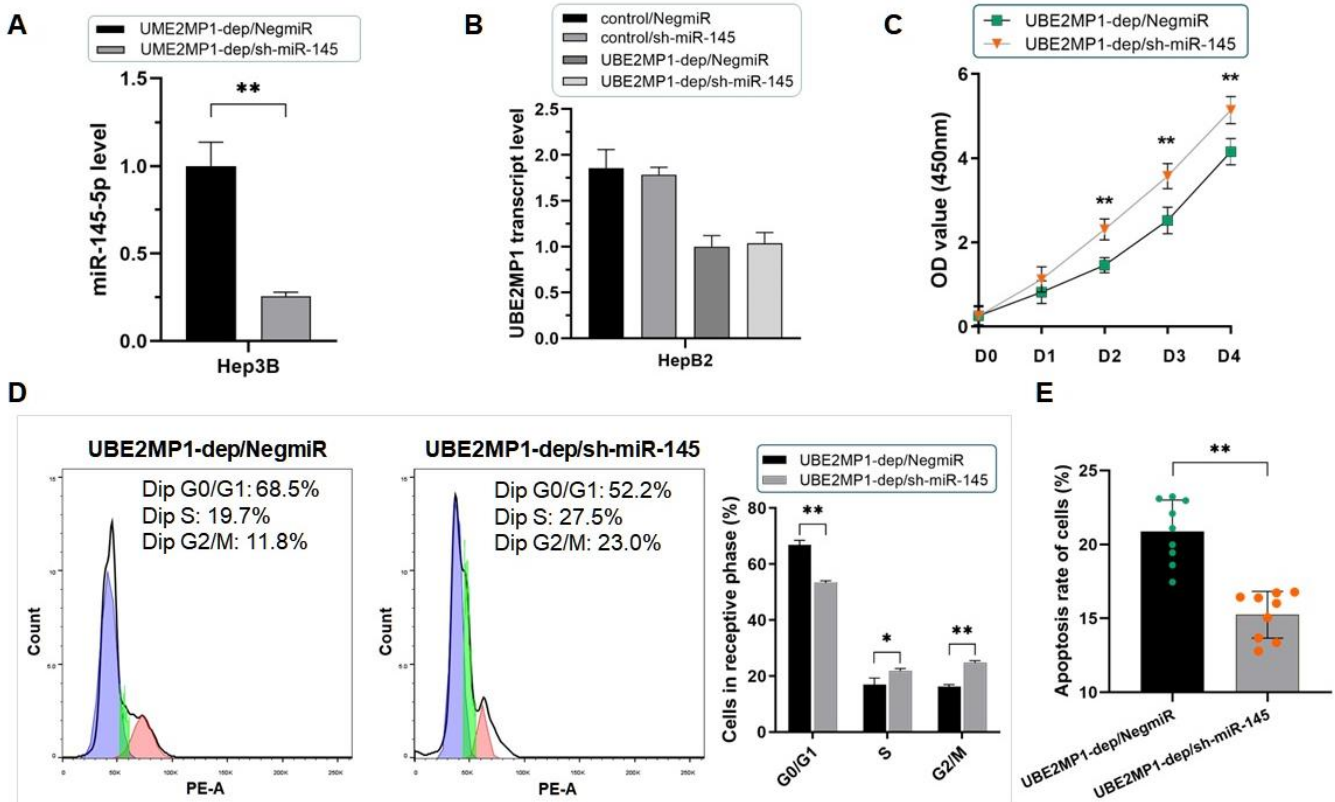


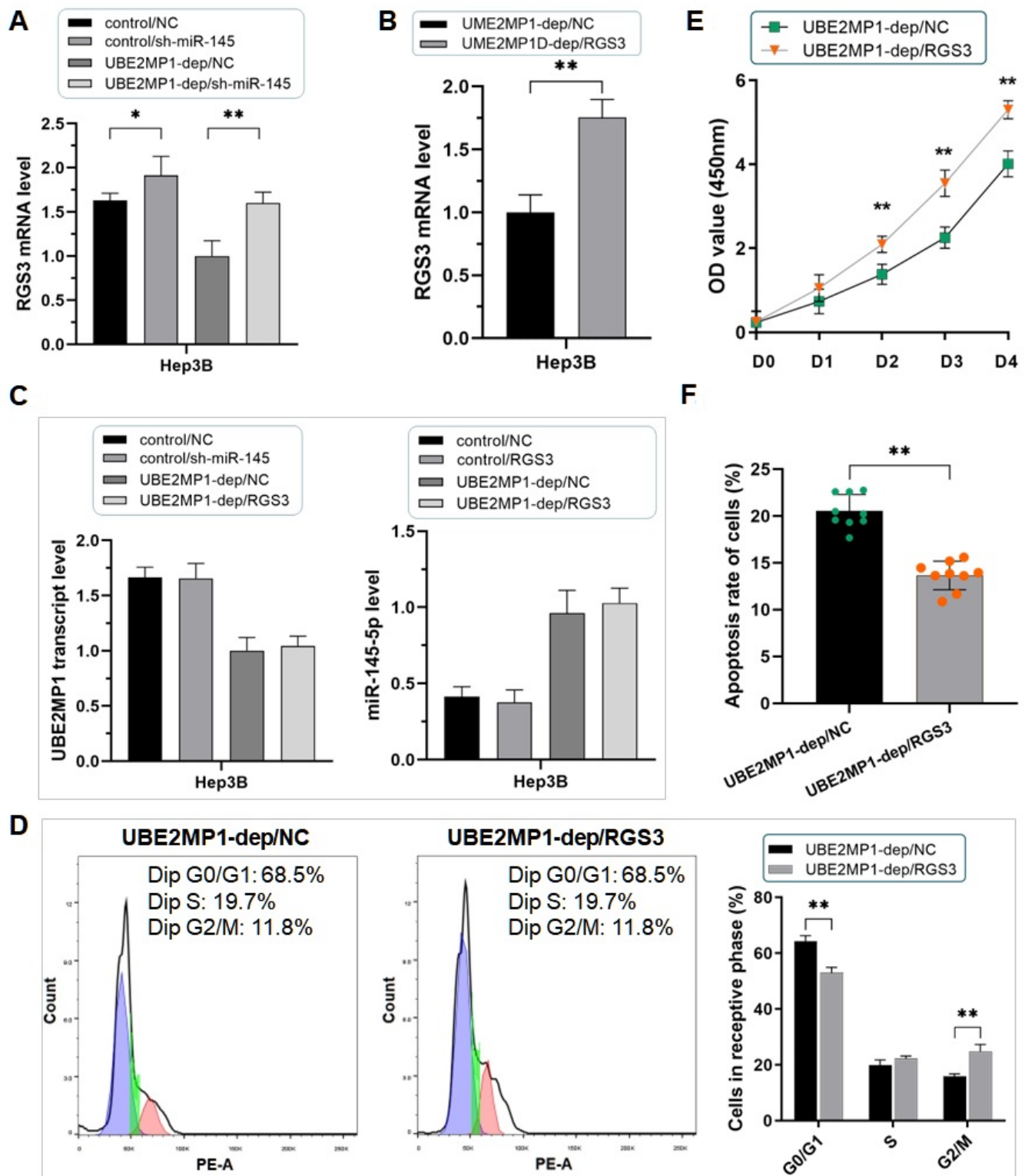
SUPPLEMENTARY FIGURES



Supplementary Figure 1. The expression profile of the parental gene UBE2M in HCC. (A) UBE2M expression profile in HCC from the TCGA database (* $P < 0.05$). (B) UBE2M was significantly highly expressed in HCC tissues and cell lines (** $P < 0.01$). (C) Representative graph of immunohistochemistry analysis (400×) of the HCC cases. UBE2M expression in tumor specimens was significantly higher than in adjacent non-cancerous tissues. (D) UBE2M and the pseudogene UBE2MP1 are correlated in expression with high significance. (E) High expression of UBE2M in tumor tissues is related to shortened overall survival (OS) and disease-free survival (DFS) in HCC patients.



Supplementary Figure 2. Depletion of miR-145-5p in Hep3B cells rescued the phenotype induced by UBE2MP1 depletion. (A) The RT-qPCR assay validated the effect of knocking out miR-145-5p in Hep3B cells (** $P < 0.01$). (B) No significant change was induced on the UBE2MP1 transcript by miR-145-5p depleting. (C) The suppressed cell proliferation was significantly recovered by depleting miR-145-5p (** $P < 0.01$). (D) The arrested cell cycle induced by UBE2MP1 depletion in Hep3B cells was reversed when miR-145-5p was depleted. The percentage of cells in the G0/G1 phase decreased from 66.80% to 53.37% ($P < 0.01$). The percentage decrease was observed in the S phase (from 16.97% to 21.80%, $P < 0.05$) and the G2/M phase (from 16.23% to 24.83%, $P < 0.01$). (E) The number of apoptotic cells was decreased in Hep3B cells with UBE2MP1 depletion when RGS3 was elevated (declined from 20.52% to 13.65%, ** $P < 0.01$).



Supplementary Figure 3. Re-introducing RGS3 in Hep3B cells rescued the phenotype induced by UBE2MP1 depletion. (A) Depletion of miR-145-5p significantly increases the expression of RGS3 in Hep3B cells ($*P<0.05$, $**P<0.01$). (B) Validation of the re-introduction of RGS3 in Hep3B cells treated with UBE2MP1 depletion ($**P<0.01$). (C) No significant changes were induced on miR-145-5p and UBE2MP1 transcript expression by re-introducing RGS3. (D, E). The suppressed cell proliferation was significantly recovered along with the escape of the G0/G1 stage arrest by re-introducing RGS3 ($*P<0.05$, $**P<0.01$). (F) The increased number of apoptotic cells declined in Hep3B cells with UBE2MP1 depletion when RGS3 was re-introduced ($**P<0.01$).