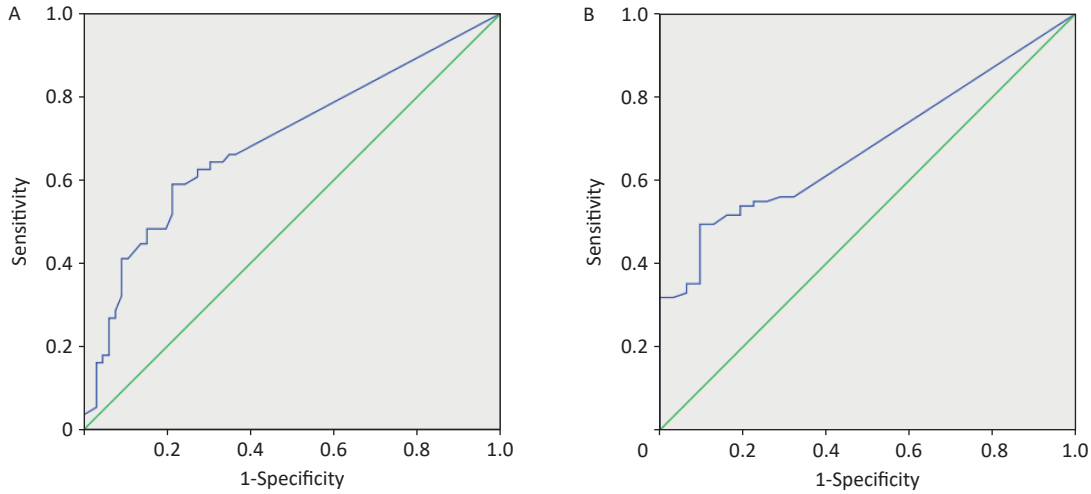
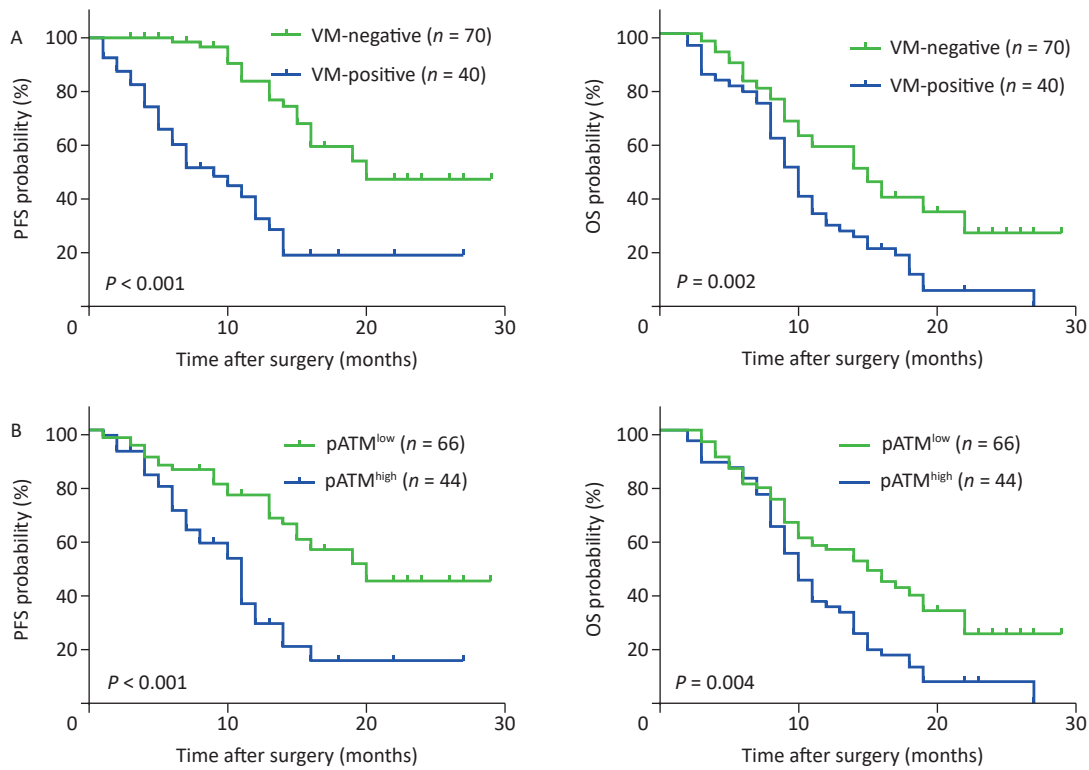
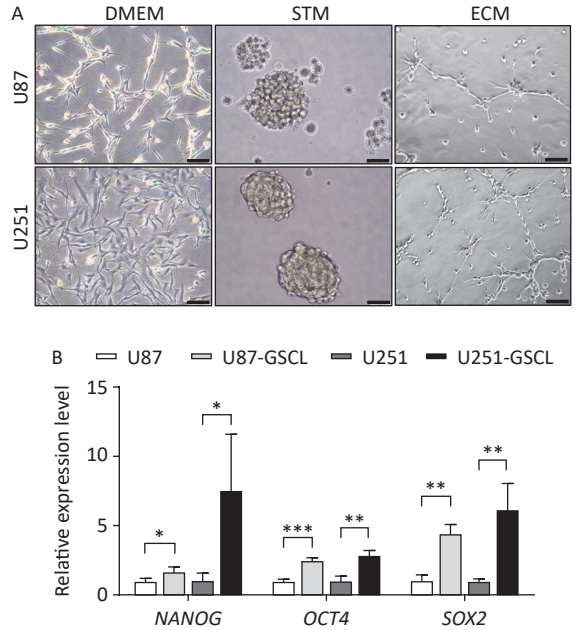


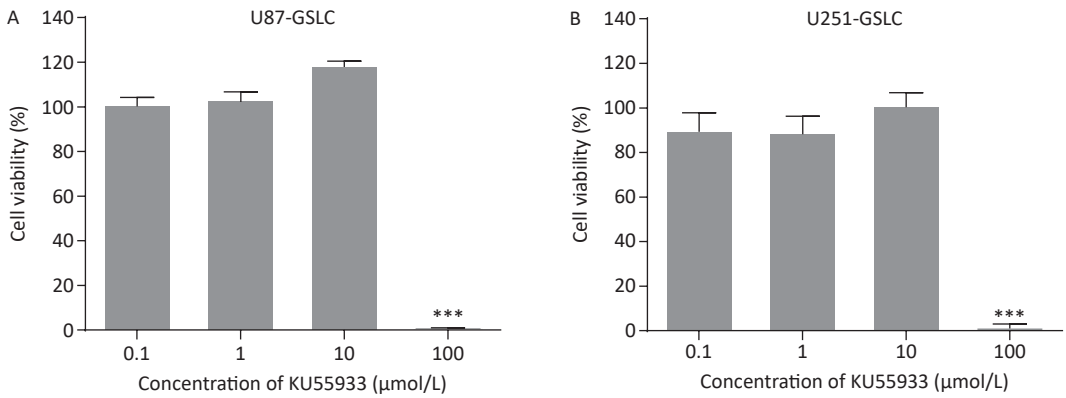
Supplementary Figure S1. Receiver operating characteristic (ROC) analysis of vasculogenic mimicry (VM) ratio for predicting progression-free survival (PFS) and overall survival (OS). (A–B) Area under the curve (AUC) was 0.693 ($P < 0.001$) for PFS (A) and 0.681 ($P = 0.003$) for OS (B).



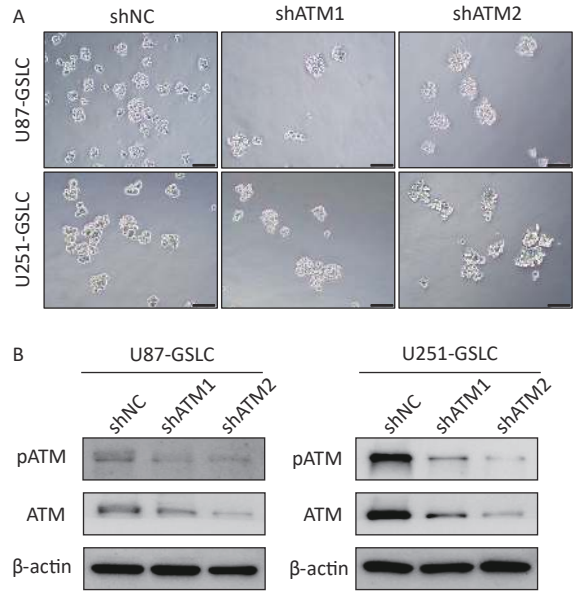
Supplementary Figure S2. Vasculogenic mimicry (VM) formation and high expression of phosphorylated ataxia-telangiectasia mutated (pATM) in glioblastoma (GBM) patients, excluding recurrent cases, negatively correlated with progression-free survival (PFS) and overall survival (OS). Kaplan–Meier curves analyzing PFS (left) and OS (right) based on VM status (A; VM-negative, $n = 70$; VM-positive, $n = 40$) and pATM expression (B; low pATM, $n = 66$; high pATM, $n = 44$). Presence of VM formation and high pATM expression were associated with reduced PFS and OS ($P < 0.05$ for all comparisons).



Supplementary Figure S3. Characterization of parental U87 and U251 glioblastoma (GBM) cell lines cultured in Dulbecco's Modified Eagle's Medium (DMEM), stem cell medium (STM) (representing glioma stem-like cells (GSLCs) verified by qRT-PCR analysis showing enhanced expression of stemness markers), and endothelial cell medium (ECM) respectively. (A) Representative phase contrast images showing parental U87 and U251 GBM cell lines cultured in DMEM (left, 200× magnification, scale bar = 100 µm) compared to U87- and U251-derived GSLCs grown as suspended spheroids in STM (middle) (400× magnification, scale bar = 50 µm) and parental U87 and U251 GBM cell lines cultured in ECM on Matrigel (right, 200× magnification, scale bar = 100 µm). (B) GSLCs derived from GBM cell lines showed increased expression of *NANOG, OCT4 and SOX2* compared to parental cells.



Supplementary Figure S4. Cell viability of glioma stem-like cells (GSLCs) treated with phosphorylated ataxia-telangiectasia mutated (pATM) inhibitor KU55933. (A–B) Cell viability assay of U87- (A) and U251- (B) GSLCs treated with varying KU55933 concentrations. We found that 10 µmol/L was optimal with no significant cytotoxicity. $^{***}P < 0.001$.



Supplementary Figure S5. Characterization of glioma stem-like cells (GSLCs) with stable ataxia-telangiectasia mutated (ATM) knockdown. (A) Representative images of U87- (above) and U251- (below) GSLCs stably expressing non-targeting control shRNA (shNT) or ATM-targeting shRNA (shATM) (100× magnification, scale bar = 200 μm). (B) Western blot showing efficient ATM knockdown in shATM GSLCs compared to shNT controls.