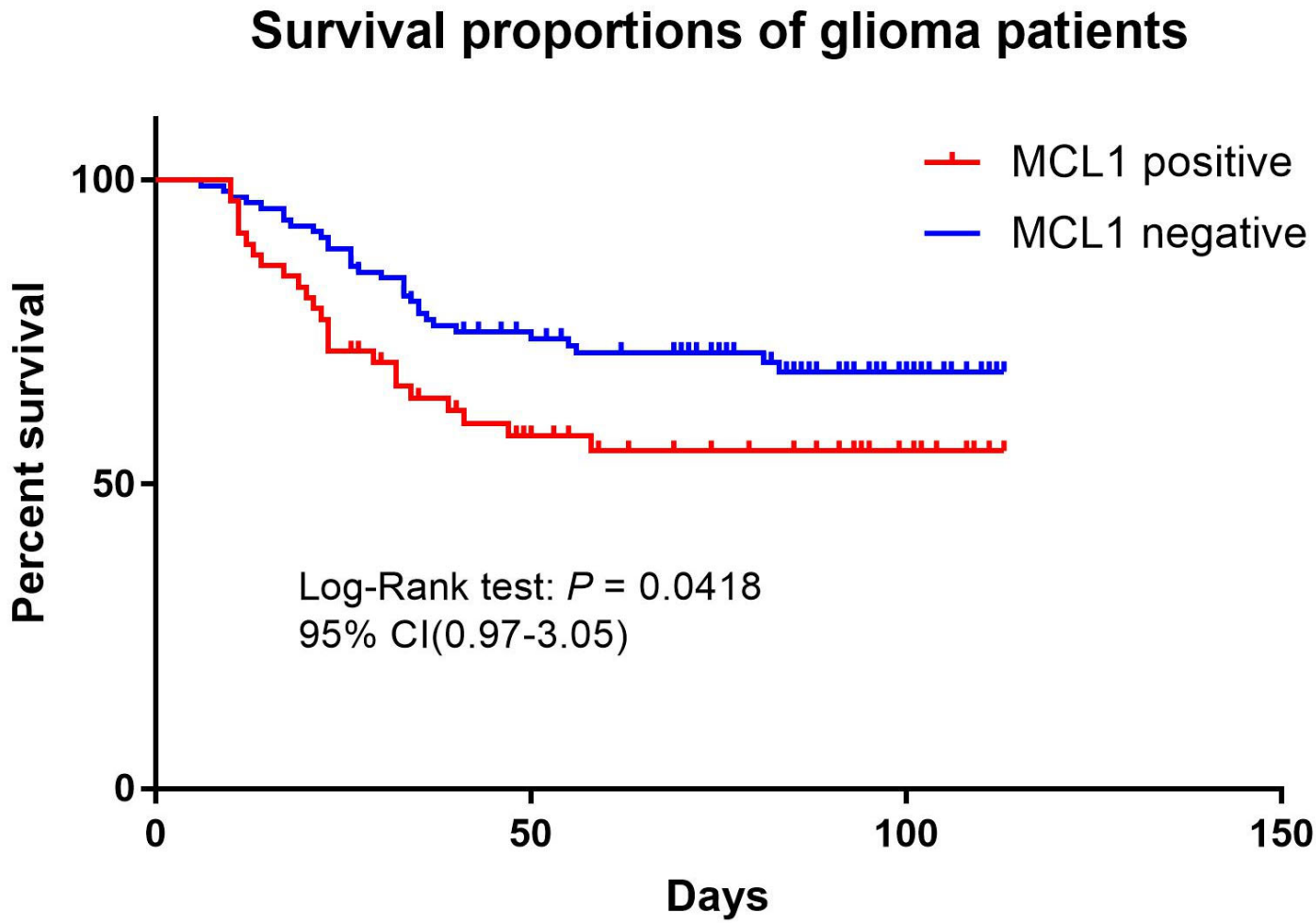


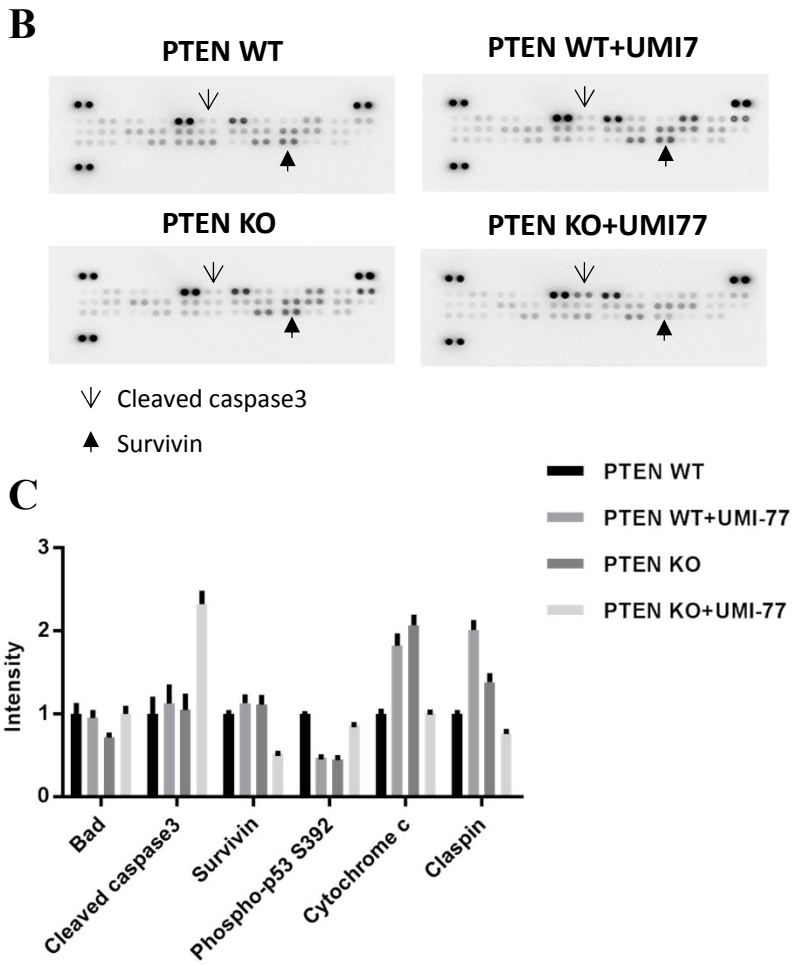
Supplemental Figure 1. Kaplan-Meier survival curves of glioma patients with positive or negative MCL1 expression (*P* value by log-rank test).

Proteome Profiler™ Array

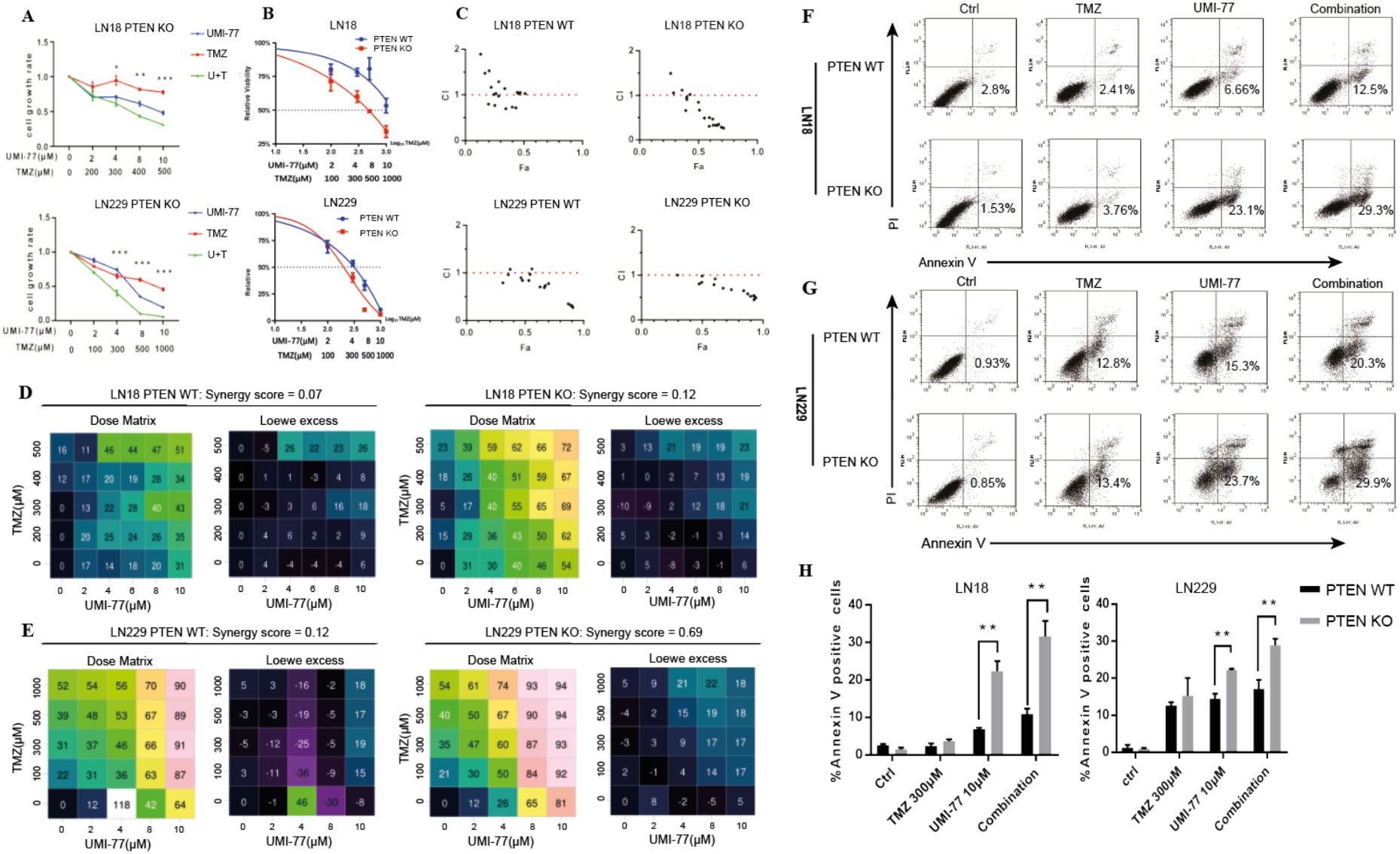
Human Apoptosis Array Kit

A

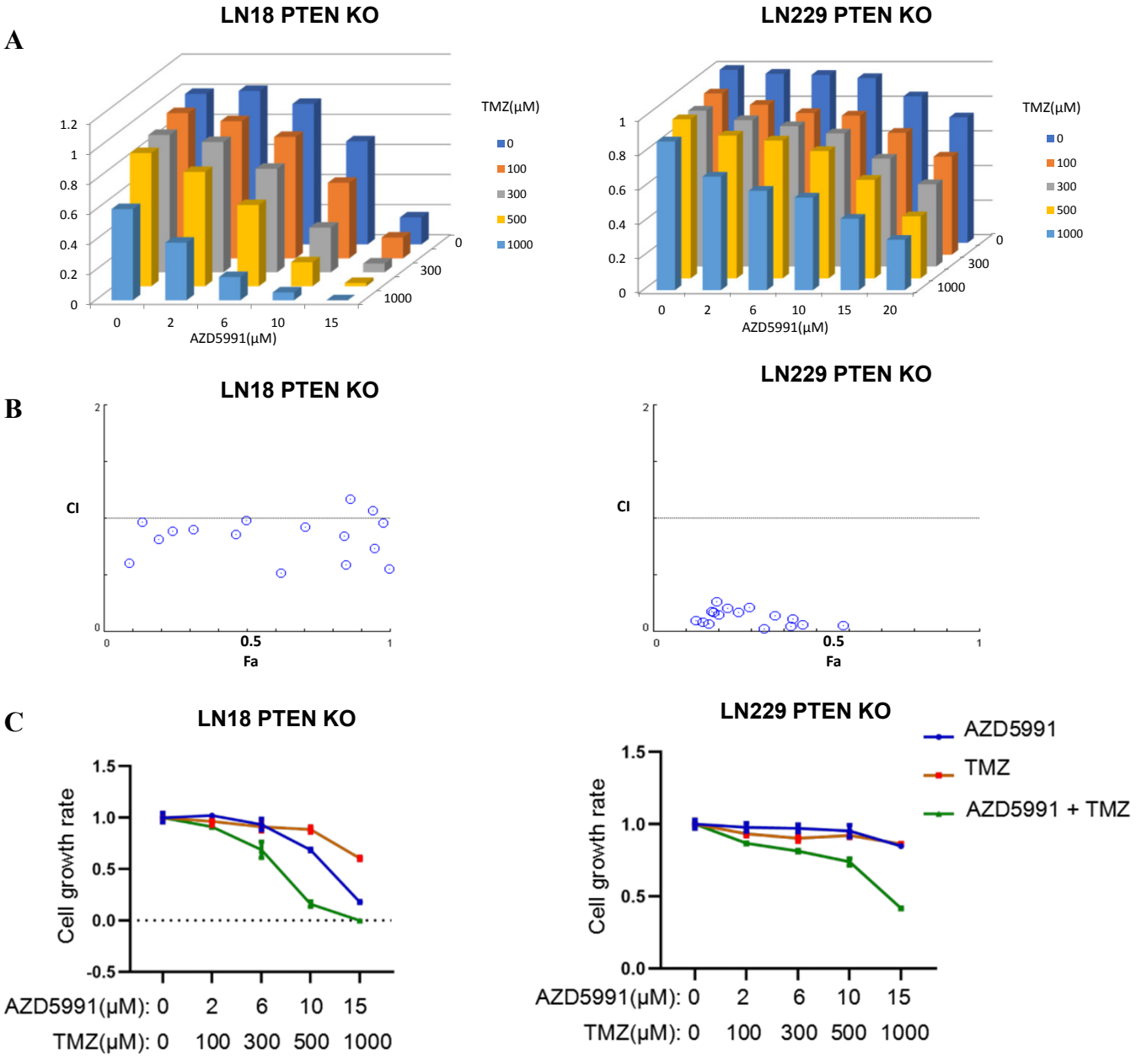
Coordinate	Target/Control	Coodinate	Target/Control
A1, A2	Reference Spots	C13, C14	HO-2/HMOX2
A23, A24	Reference Spots	C15, C16	HSP27
B1, B2	Bad	C17, C18	HSP60
B3, B4	Bax	C19, C20	HSP70
B5, B6	Bcl-2	C21, C22	HTRA2/Omi
B7, B8	Bcl-x	C23, C24	Livin
B9, B10	Pro-Caspase-3	D1, D2	PON2
B11, B12	Cleaved Caspase-3	D3, D4	p21/CIP1/CDKN1A
B13, B14	Catalase	D5, D6	p27/Kip1
B15, B16	cIAP-1	D7, D8	Phospho-p53 (S15)
B17, B18	cIAP-2	D9, D10	Phospho-p53 (S46)
B19, B20	Claspin	D11, D12	Phospho-p53 (S392)
B21, B22	Clusterin	D13, D14	Phospho-Rad17 (S635)
B23, B24	Cytochrome c	D15, D16	SMAC/Diablo
C1, C2	TRAIL R1/DR4	D17, D18	Survivin
C3, C4	TRAIL R2/DR5	D19, D20	TNF RI/TNFRSF1A
C5, C6	FADD	D21, D22	XIAP
C7, C8	Fas/TNFRSF6/CD95	D23, D24	PBS (Negative Control)
C9, C10	HIF-1α	E1, E2	Reference Spots
C11, C12	HO-1/HMOX1/HSP32		



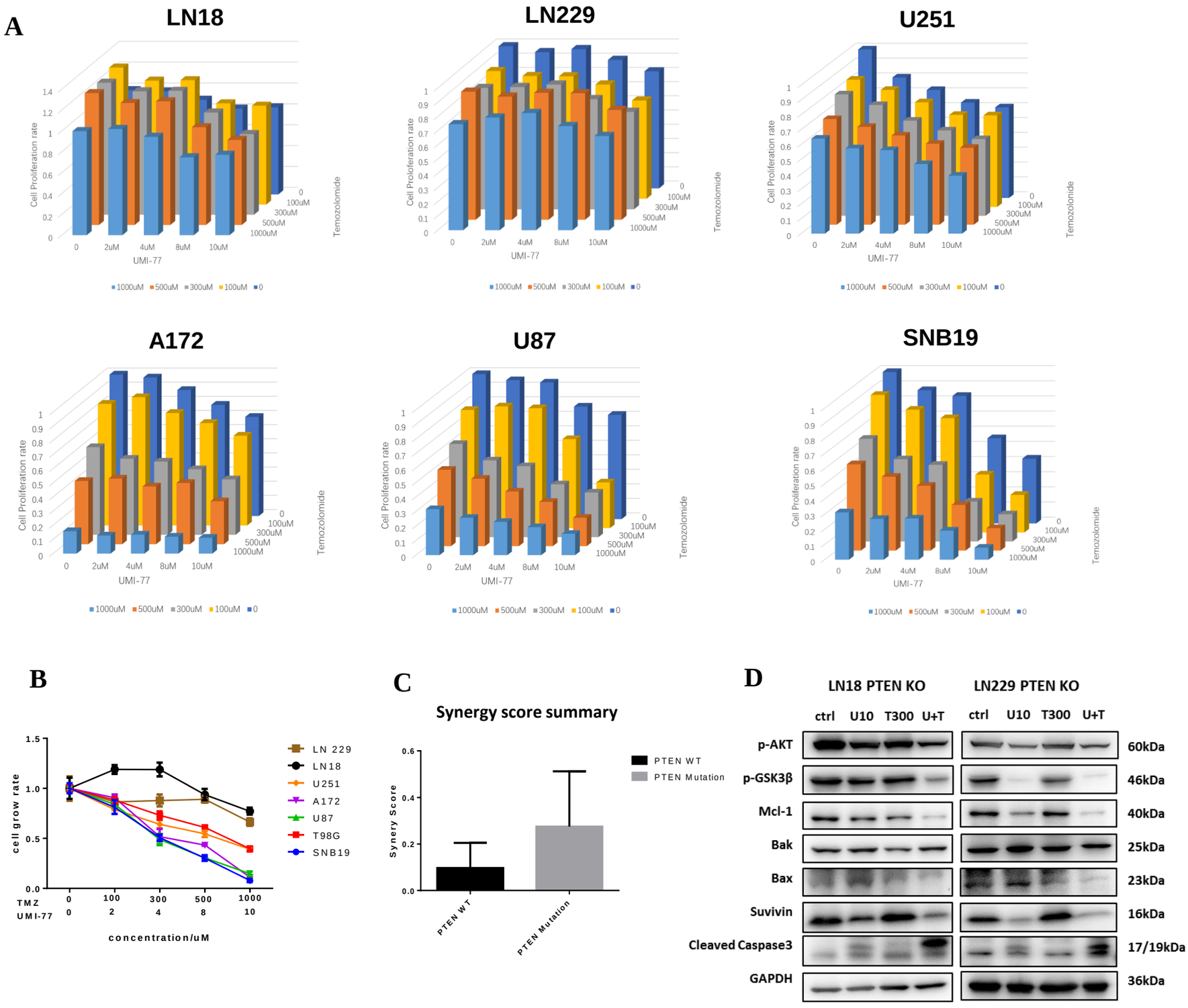
Supplemental Figure 2. Layout of apoptotic antibody array and results analysis. (A) The layout of 37 apoptosis associated antibodies in the apoptotic array. (B) Experimental results of immunoblots across four samples from PTEN WT±UMI-77 and PTEN KO±UMI-77 LN18 cells. Downward arrows and upward arrows indicated the positions of antibodies of cleaved caspase-3 and survivin (in duplicate), respectively. (C) Quantification of the expression levels of six apoptotic proteins that were significantly altered across four samples.



Supplemental Figure 3. Evaluation of the anti-GBM effect of the combined treatment of UMI-77 and temozolomide (U+T). (A) Inhibition of the proliferation of PTEN KO LN18 cells by UMI-77, temozolomide and U+T. (B) Comparison of the antiproliferation-proliferation fitting curves of U+T between PTEN WT and KO cells. (C) Isobologram and combination index analysis of the proliferation inhibition in PTEN WT/KO LN18 and LN229 cells treated with the U+T. CI<1 indicates a synergistic effect. (D-E) Growth Inhibitioninhibition values (left matrix), and Loewe eExcess values (right matrix) of PTEN WT/KO LN18 and LN229 cells that received U+T at different concentrations. Synergy score (top)>0 indicates a synergistic effect. (F-G) Flow cytometry analysis of apoptotic cells of PTEN WT/KO LN18 and LN229 cells that received no treatment, temozolomide, UMI-77, and U+T. (H) Quantification of the apoptotic faction of cells in each sample.



Supplemental Figure 4. Combination treatment of temozolomide (TMZ) and a second generation MCL1 selective inhibitor AZD5991 in PTEN KO GBM cell lines. (A) Evaluation of the anti-proliferation effects of combination of temozolomide and AZD5991 in LN18 and LN229 cell lines. (B) Isobologram and combination index analysis of the proliferation inhibition in PTEN KO LN18 and LN229 cells treated with the TMZ and AZD5991. CI<1 indicates a synergistic effect. (C) Growth inhibition curves of PTEN KO LN18 and LN229 cells received TMZ and AZD5991 combination treatment.



Supplemental Figure 4. Combination treatment of temozolomide and UMI-77 in established GBM cell lines. (A) Evaluation of the anti-proliferation effects of combination of temozolomide and UMI-77 in all GBM cell lines. (B) Growth inhibition curves of GBM cell lines received TMZ and UMI-77 combination treatment. (C) Mean of the synergy scores calculated by Horizon's proprietary Chalice™ software between PTEN WT and PTEN mutated GBM cell lines. (D) Immunoblots of PI3K pathway and apoptosis associated proteins in PTEN KO LN18 and LN229 cells that received no treatment, UMI-77 (10 μM), temozolomide (300 μM) or a combination of both.