

Figure S1. The survival rate of HEK-293 cells at different concentrations of MgCl<sub>2</sub> for 24 h.

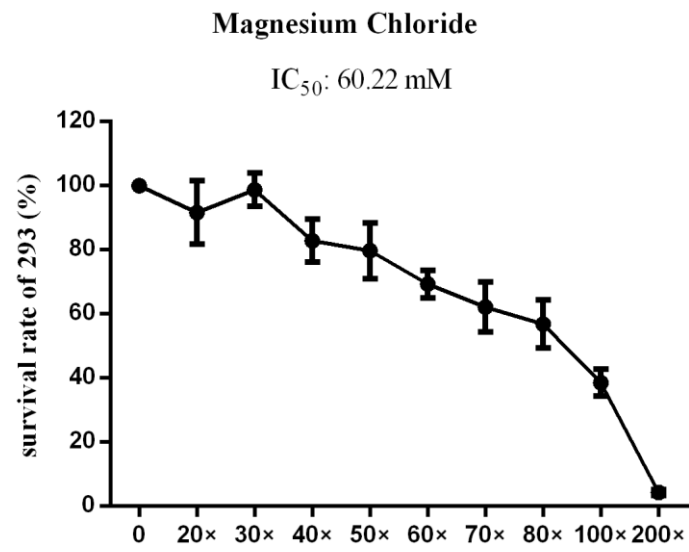


Figure S2. (A-D) Protein expression in MgCl<sub>2</sub> (42.5 mM) treated UC5 cells as revealed by Western blot analysis. (E) acH4K5 abundance in MgCl<sub>2</sub> (42.5 mM) treated UC3 cells as revealed by Western blot analysis.

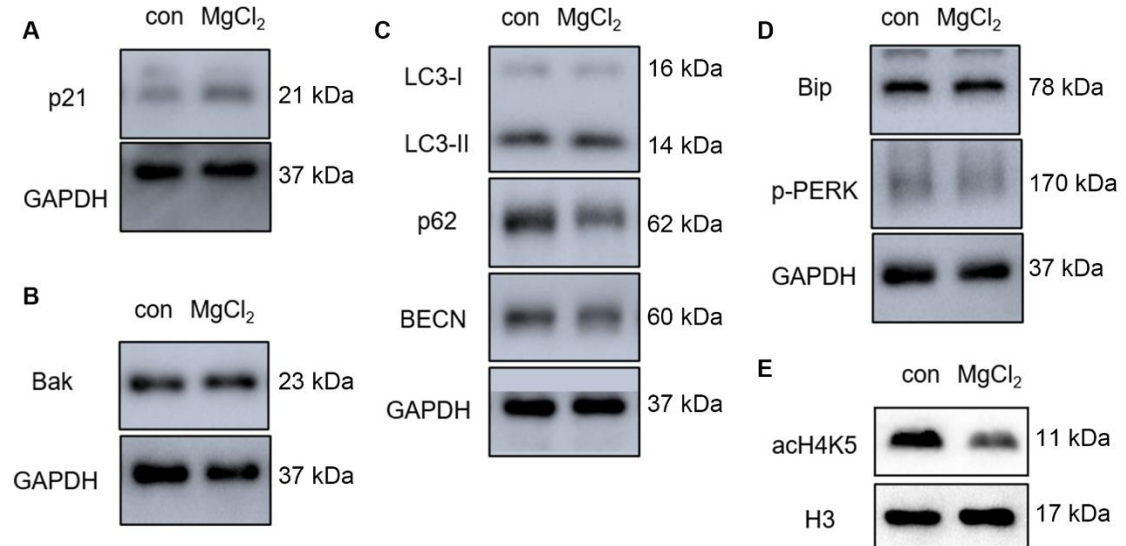


Figure S3. U0126 attenuated  $MgCl_2$  (42.5 mM) induced apoptosis in UC3 bladder cancer cells. Cytosolic and mitochondrial protein fractions were collected using a Cell Mitochondria Isolation Kit (Beyotime, Shanghai, China). Western blot analysis was applied to detect apoptosis-related gene expression in cytosolic (A) and mitochondria (B) protein.

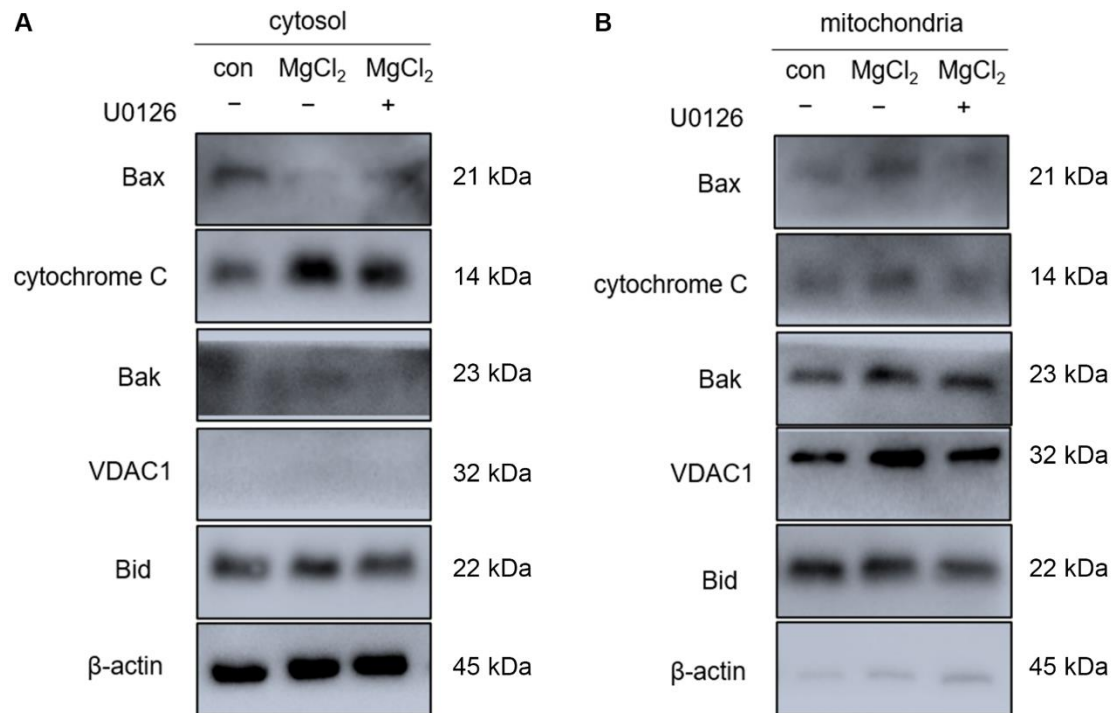


Figure S4. (A) The survival rate of UC5 cells with combination treatment as determined by CCK-8 assay. (B-D) Protein expression in UC5 cells with combinatorial treatment  $MgCl_2$  (42.5 mM) and VPA (5 mM) as revealed by Western blot analysis.

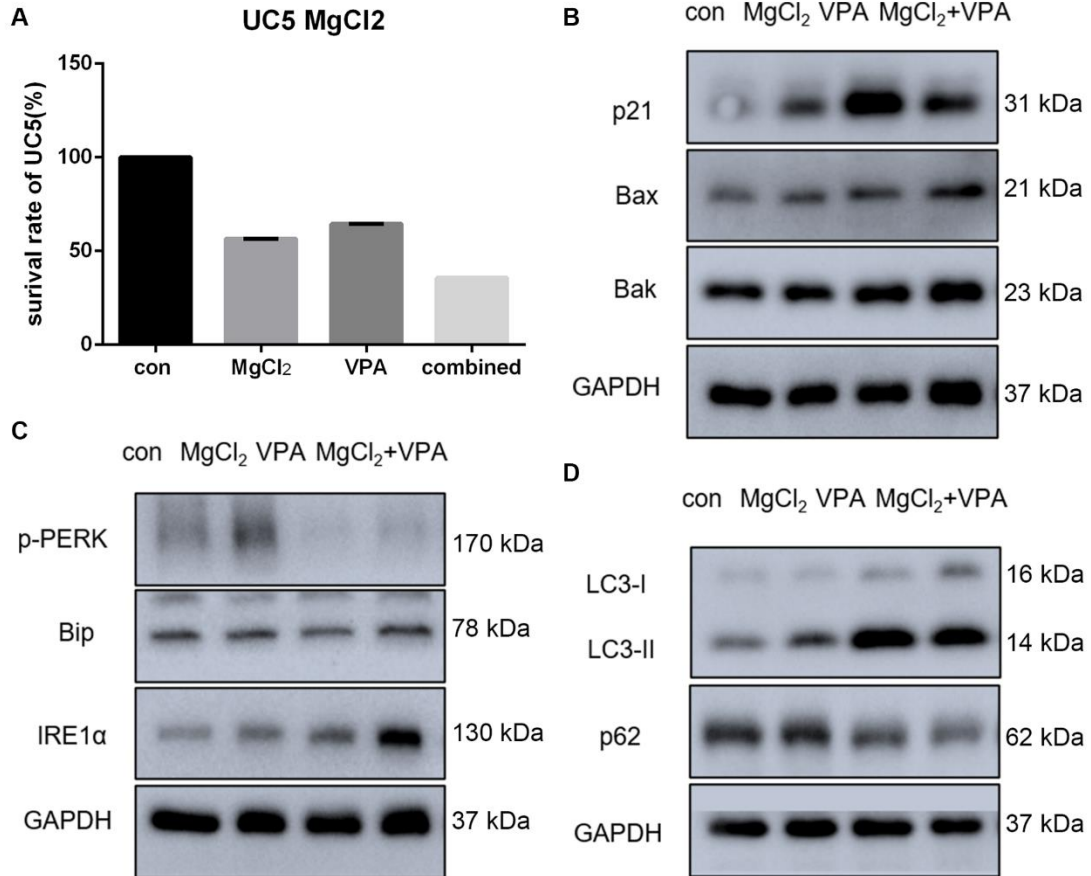


Figure S5. mRNA expression UC3 cells with combinatorial treatment as determined by qRT-PCR. 42.5 mM MgCl<sub>2</sub>, 5 mM VPA and 0.05 mM STF083010 were applied for cell treatment. The differences among multiple groups were assessed using the Analysis of variance (ANOVA). \* $p < 0.05$  versus control, and \*\* $p < 0.01$  versus control.

