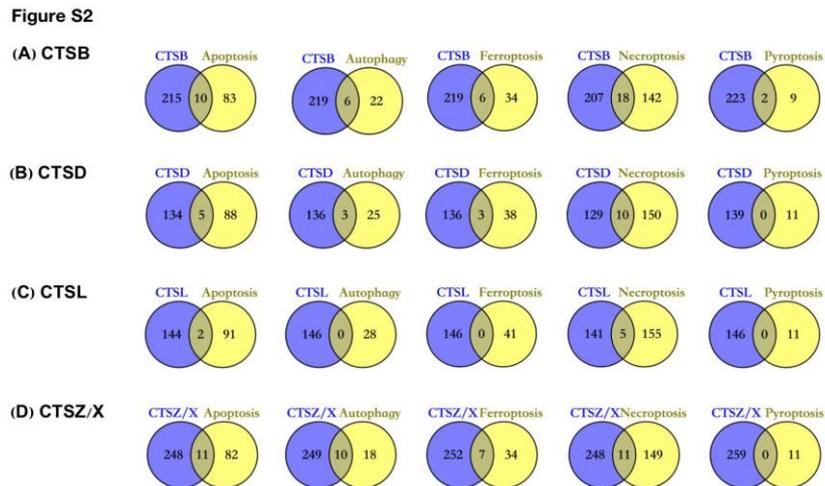


**Supplementary Figure1.** The relationship between cathepsins and different functional states of GBM was explored based on the CancerSEA database. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Bar graphs show the number of datasets where cathepsins are significantly associated with the corresponding state. Red indicates positive correlation, blue indicates negative correlation.



**Supplementary Figure2.** Intersection of interacting proteins of CTSE, CTSD, CTSL and CTSZ/X with cell death-related genes.