

Figure S1. HepG2 and MHCC97-H cell lines were selected for a series of *in vitro* assays. Using qPCR, we found that compared to the normal live cell line LO2, ADAMTS9-AS1 was highly expressed in four HCC cell lines, obviously in HepG2 and MHCC97-H cells. ADAMTS9-AS1, ADAMTS9 antisense RNA 1; NC, negative control; si, short interfering RNA. ***, P < 0.001.



Figure S2. The transfection efficacy of ADAMTS9-AS1 was identified in HCC cells. A, B. ADAMTS9-AS1 expression was raised in cells transfected with pcDNA3.1-AS1 than that of the control group in HepG2 and MHCC97-H cell lines. C, D. ADAMTS9-AS1 expression was reduced in cells transfected with si1-AS1 or si2-AS1 compared with the control group in HepG2 and MHCC97-H cell lines. ADAMTS9-AS1, ADAMTS9 antisense RNA 1; NC, negative control; si, short interfering RNA. **, P < 0.01, ***, P < 0.001.



Figure S3. The correlation between of ADAMTS9-AS1 and PI3K/AKT/mTOR using GEO database. A. The distribution of gene expression data was observed, and the differences between samples were acceptable. GSE121711 could meet the conditions of analysis. B. The heat map was shown between ADAMTS9-AS1 and PI3, and their correlation coefficient was -0.17 from correlation map. C. The heat map was shown between ADAMTS9-AS1 and mTOR, and their correlation coefficient was -0.07 from correlation map. D. The heat map was shown between ADAMTS9-AS1 and AKT1, and their correlation coefficient was 0.15 from correlation map. E. The heat map was shown between ADAMTS9-AS1 and AKT2, and their correlation coefficient was 0.49 from correlation map. F. The heat map was shown between ADAMTS9-AS1 and AKT3, and their correlation coefficient was 0.94 from correlation map. In the correlation coefficient maps, red represents positive correlation and blue represents negative correlation. The higher the absolute value of the correlation coefficient, the stronger the correlation. ADAMTS9-AS1, ADAMTS9 antisense RNA 1.