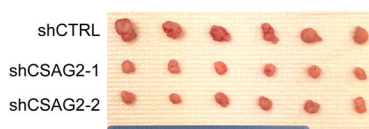
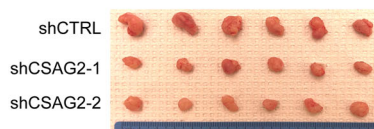
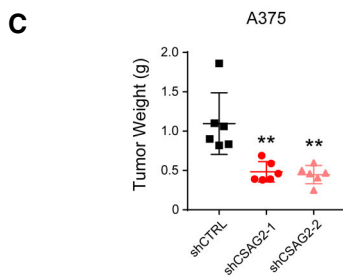
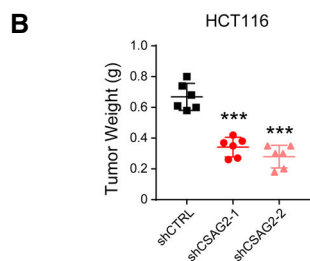
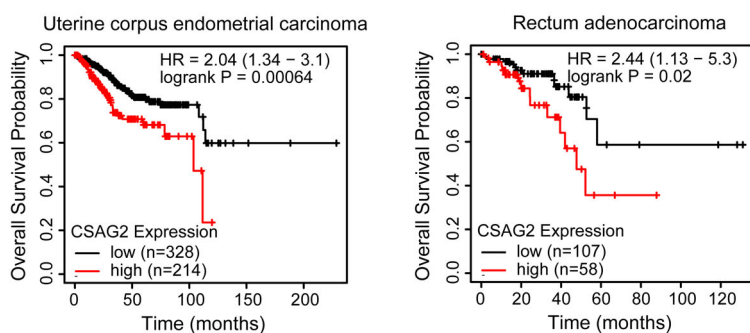
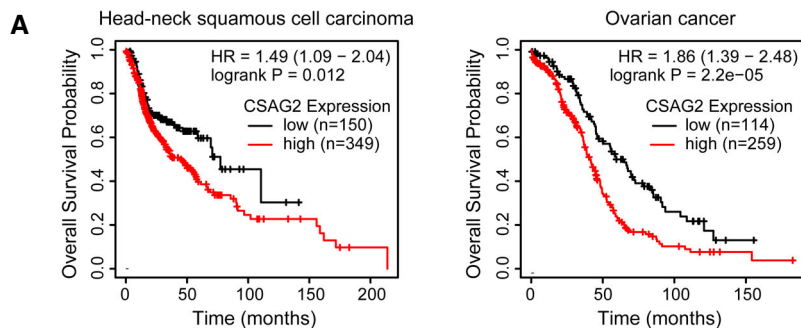


## Expanded View Figures



**Figure EV1. Knockdown of CSAG2 impairs xenograft tumor growth.**

A Expression of CSAG2 in patients from indicated cancer types correlates with poor overall survival. Data are from TCGA and visualized by kmploater.

B, C Knockdown of CSAG2 in HCT116 (B) or A375 (C) cells decreases xenograft tumor growth in mice. Tumor weights ( $n = 6$  for each group) are shown.  $**P < 0.01$ ;  $***P < 0.0001$ ; unpaired, two-tailed Student's *t*-test.

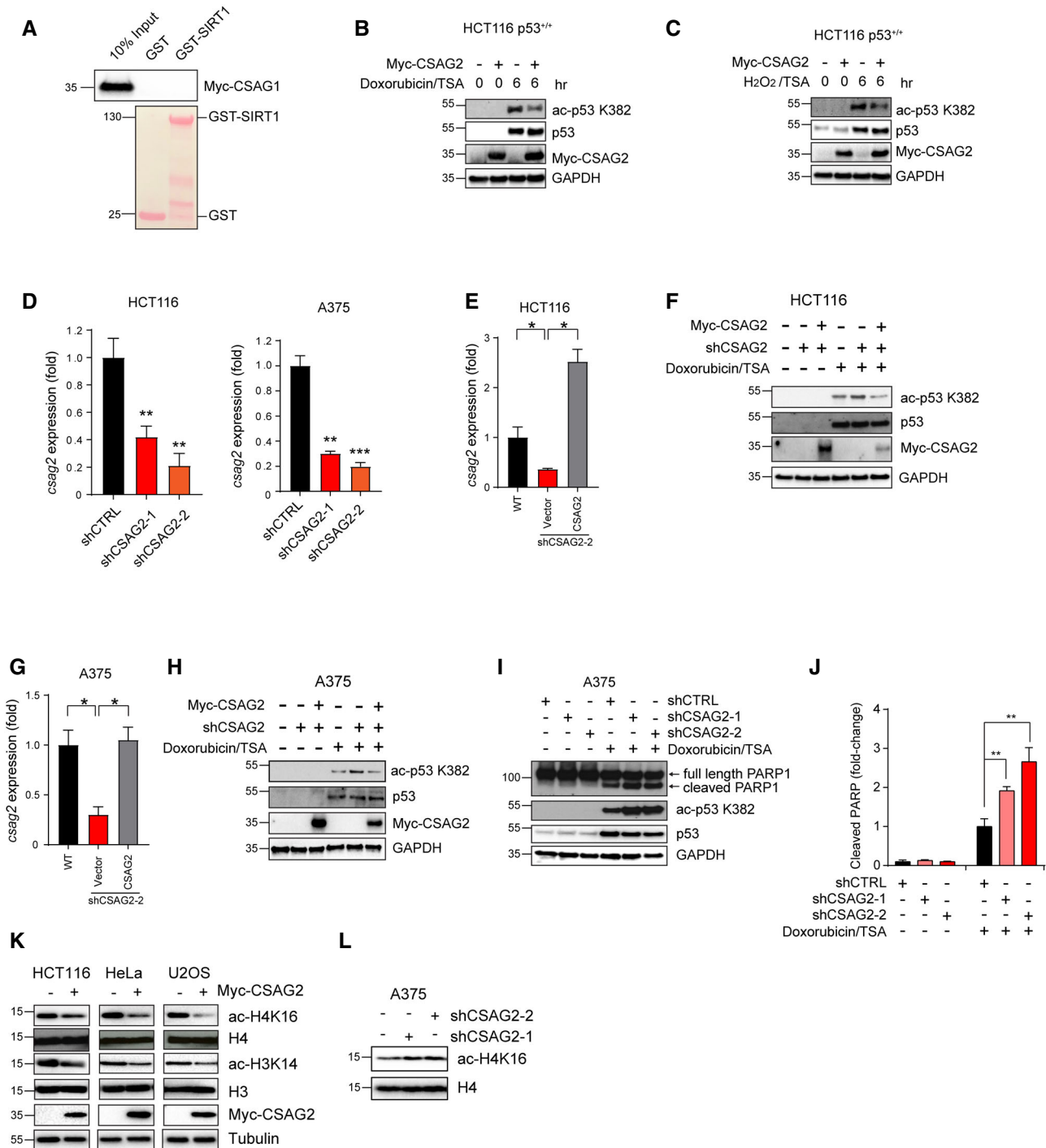


Figure EV2.

**Figure EV2. CSAG2 promotes p53 and H3/4 deacetylation.**

- A CSAG1 does not bind SIRT1 *in vitro*. Myc-tagged CSAG1 was *in vitro* translated followed by *in vitro* binding assays with recombinant GST or GST-SIRT1, SDS-PAGE, and immunoblotting for anti-Myc.
- B, C Expression of CSAG2 decreased p53 ac-K382 levels in HCT116 cells. Cells were treated with either 1  $\mu$ M Doxorubicin (B) or 1 mM H<sub>2</sub>O<sub>2</sub> (C) and 0.4  $\mu$ M TSA for indicated times. Cells were then harvested and blotted for the indicated proteins.
- D CSAG2 mRNA levels were determined by qRT-PCR ( $n = 3$  biological replicates) in the indicated cell types.
- E–H Re-expression of CSAG2 rescued p53 ac-K382 levels in CSAG2 knockdown stable cell lines. Myc-CSAG2 was transfected in HCT116 (E–F) or A375 (G–H) CSAG2 knockdown stable cell lines. CSAG2 mRNA levels were determined by qRT-PCR ( $n = 3$  biological replicates) (E and G). Cells were treated with 1  $\mu$ M doxorubicin/0.4  $\mu$ M TSA for 6 h and then blotted for the indicated proteins (F and H).
- I, J A375 cells were transiently transfected with the indicated shRNAs for 48 h before treatment with 1  $\mu$ M doxorubicin/0.4  $\mu$ M TSA for 6 h. Cell lysates were collected and blotted for the indicated proteins (I). Quantitation ( $n = 3$  biological replicates) of normalized cleaved PARP levels is shown (J).
- K HeLa, U2OS, or HCT116 cells were transfected with Myc-Vector (–) or Myc-CSAG2 (+) for 48 h. Cell lysates were blotted for the indicated proteins.
- L Knockdown of endogenous CSAG2 in A375 cells increased ac-H4K16 levels. Cell lysates were blotted for the indicated proteins.

Data information: Data are represented as the mean  $\pm$  SD. \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ ; unpaired, two-tailed Student's *t*-test. Source data are available online for this figure.