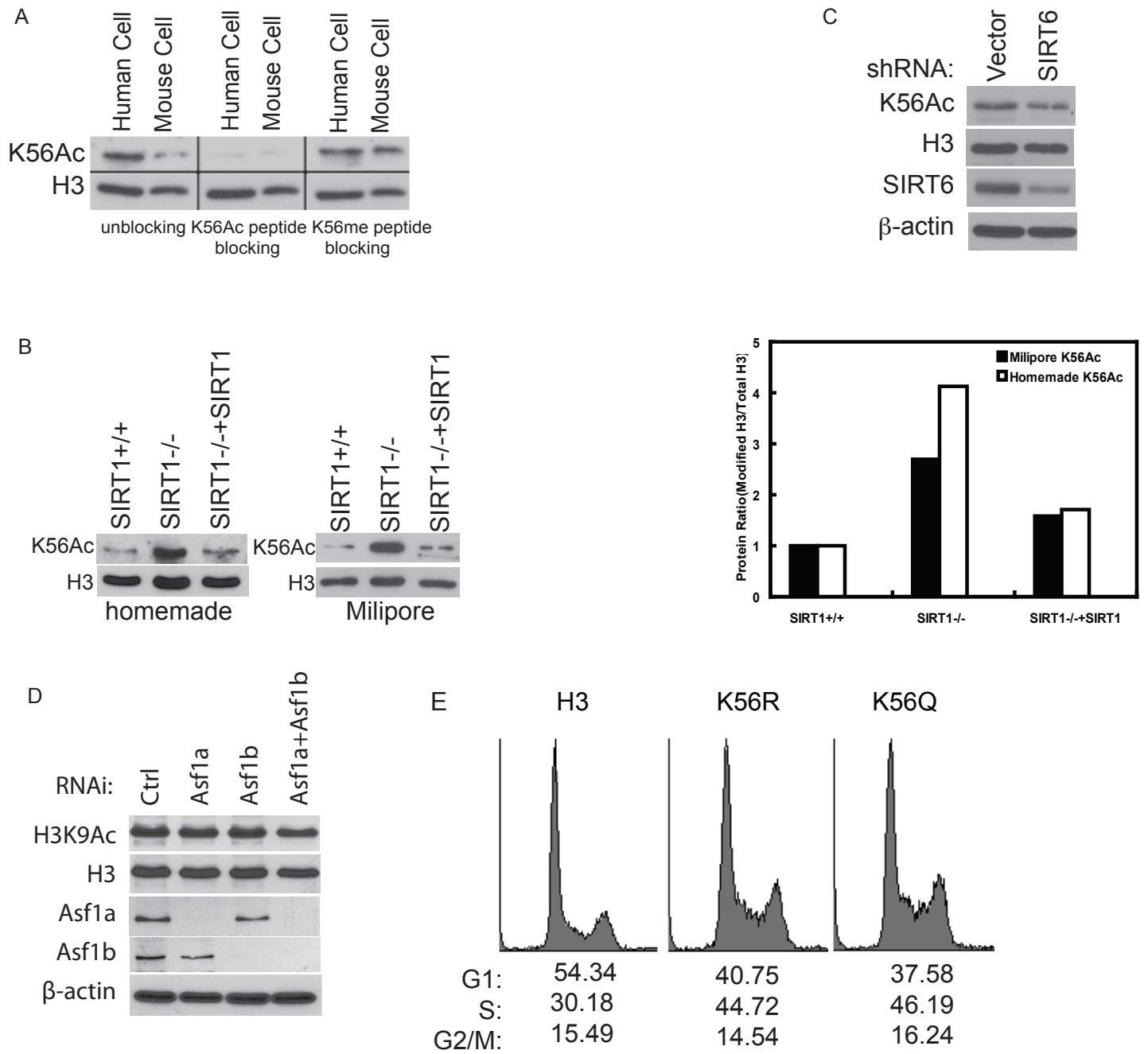
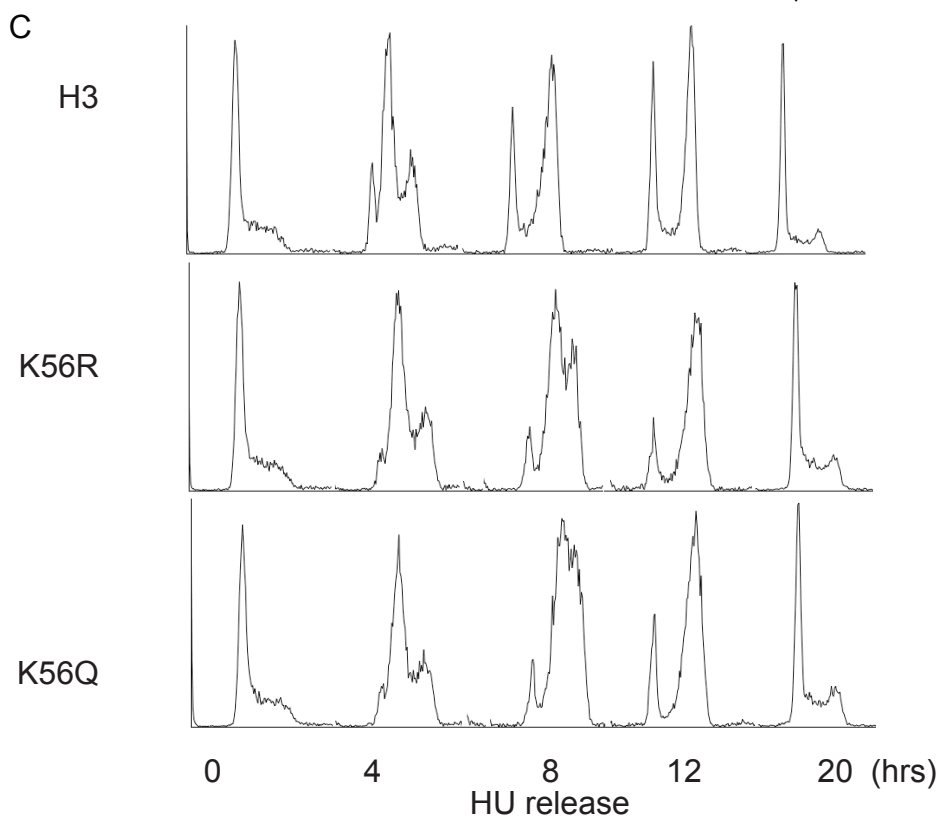
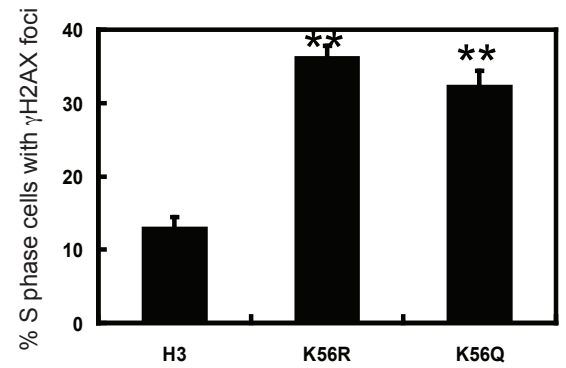
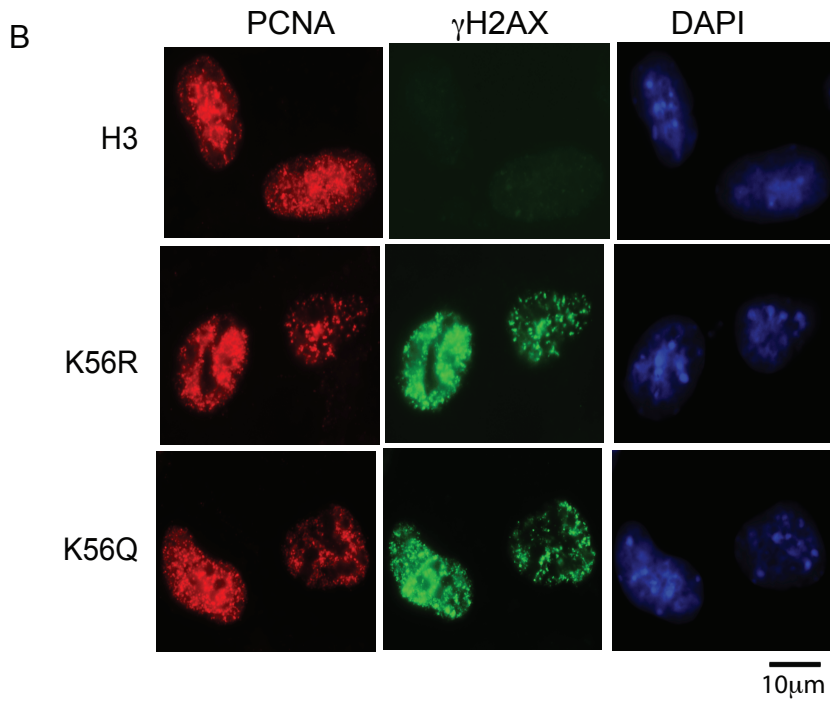
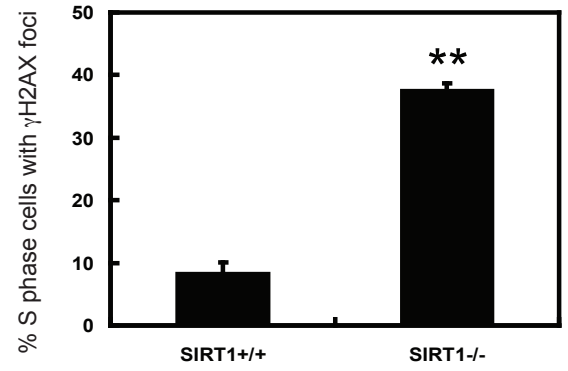
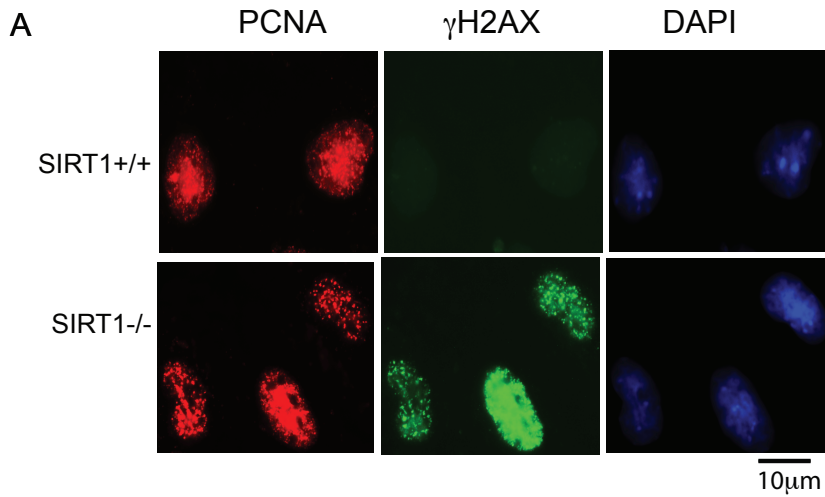


Supplementary Figure 1



Supplementary Figure 2



## Supplementary Figure Legends

Fig 1.(A). H1299 (Human) and mouse embryonic fibroblast (Mouse) cells were lysed and cell lysates were blotted with H3K56Ac antibody, H3K56Ac antibody blocked with H3K56Ac peptides, and H3K56Ac antibody blocked with H3K56me peptides. (B). Cell lysates from SIRT1<sup>+/+</sup>, SIRT1<sup>-/-</sup> or SIRT1<sup>-/-</sup> MEFs expressing WT SIRT1 were blotted with H3K56Ac1(homemade) and H3K56Ac2 (purchased from Millipore). Right panel is the quantification of H3K56Ac levels normalized to H3. (C). SIRT6 was knocked down in HeLa cells for 72hr. Cells were lysed and cell lysates were analyzed for H3K56Ac by Western blot. (D). Asf1a and Asf1b were knocked down separately or together in HeLa cells for 72hr. Cells were lysed and cell lysates were analyzed for H3K9Ac by Western blot. (E). Cells from Fig 4A were fixed and examined for cell cycle distribution by FACS.

Fig2. (A). SIRT1<sup>+/+</sup> and SIRT1<sup>-/-</sup> MEFs were fixed and stained with indicated antibodies and DAPI. The right panel represented percentage of S phase cells (identified by PCNA foci) that also had  $\gamma$ -H2Ax foci. Error bars represent the SEM from three independent experiments, with 100 cells per sample counted. \*\*, P < 0.01; Bars, 10  $\mu$ m. (B). Cells from Fig 4A were fixed and stained with indicated antibody and DAPI. The right panel represented percentage of S phase cells (identified by PCNA foci) that also had  $\gamma$ -H2Ax foci. Error bars represent the SEM from three independent experiments, with 100 cells per sample counted. \*\*, P < 0.01. Bars, 10  $\mu$ m. (C). Cell cycle profile of Figure 4E.