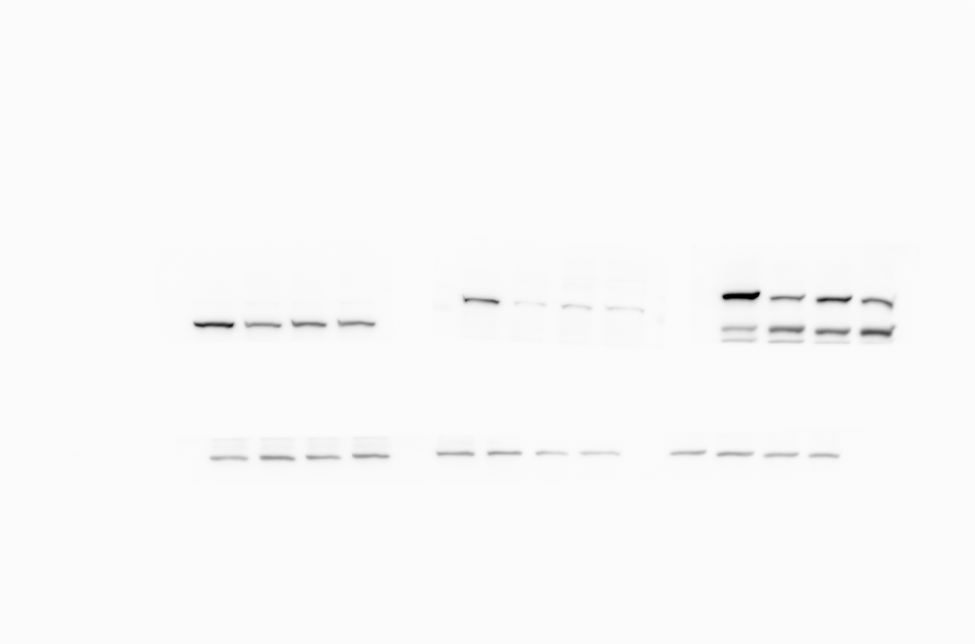
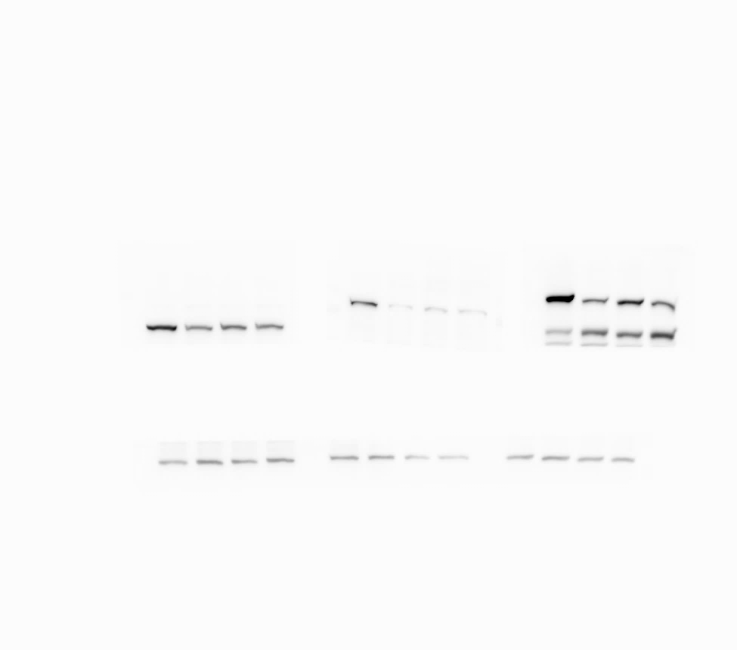
**Figure 1- figure supplement 1**

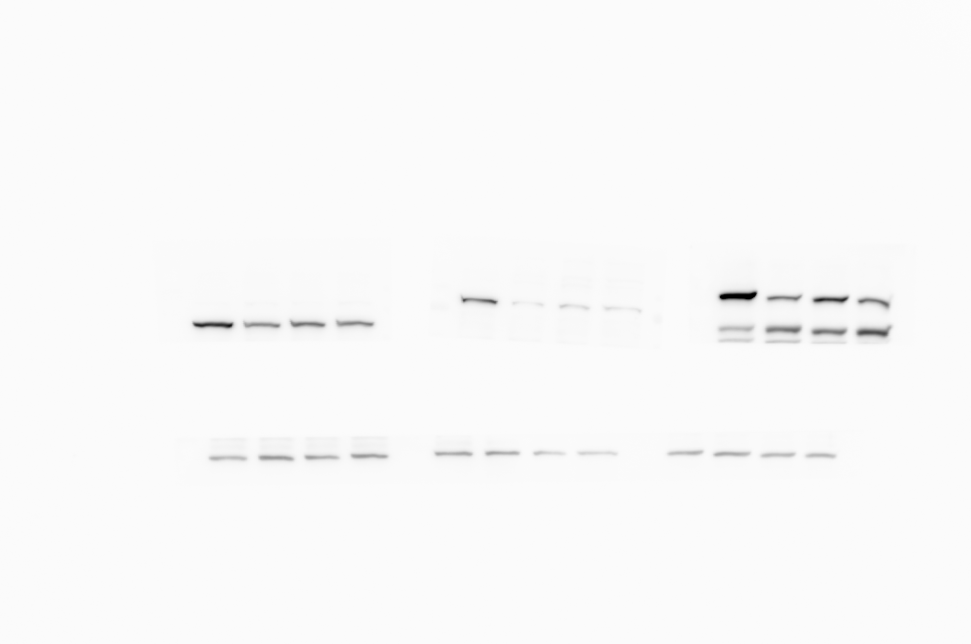
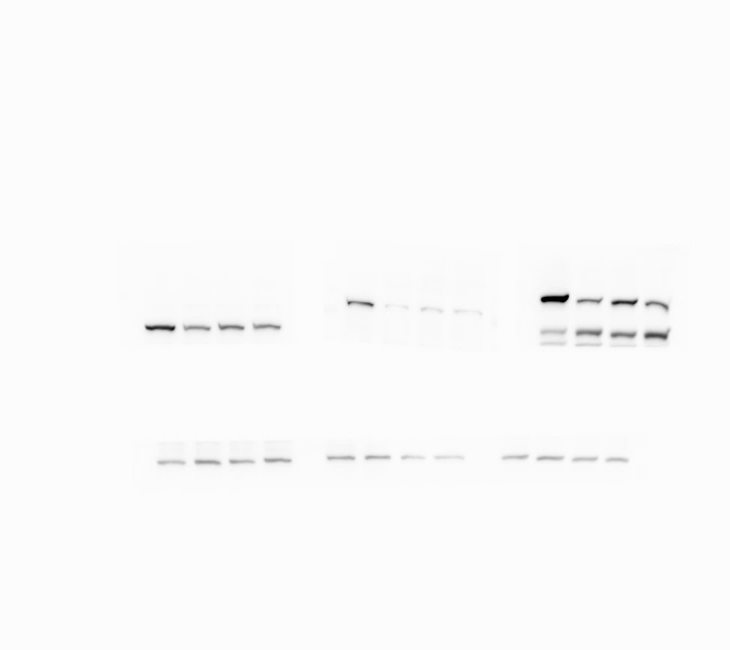


**Ku80**

**Tubulin**

**shControl**

**shKU80**



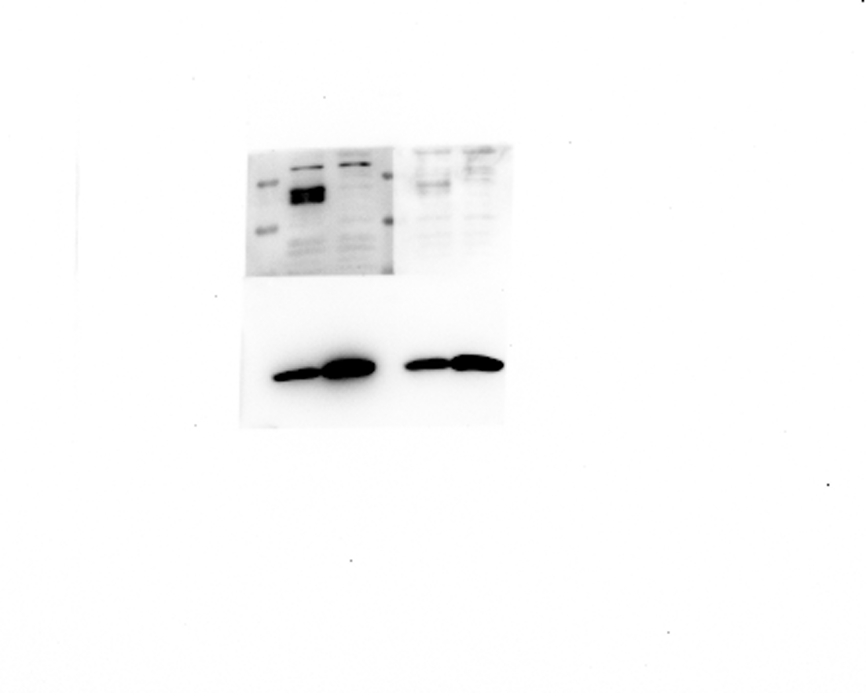
**shControl**

**shMRE11**

**MRE11**

**Tubulin**

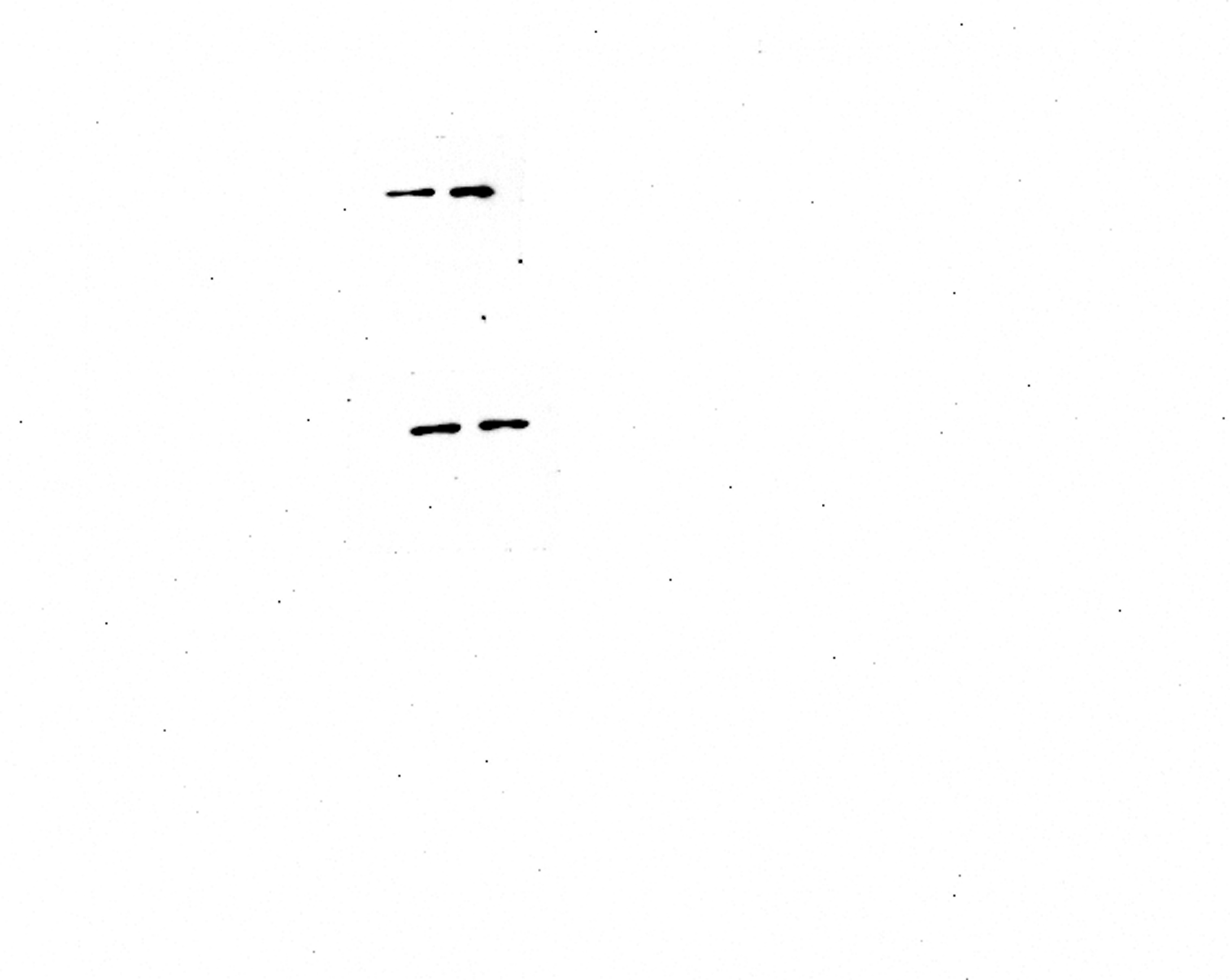
**SIRT6KO**



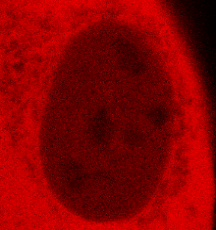
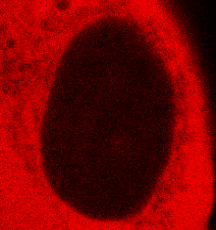
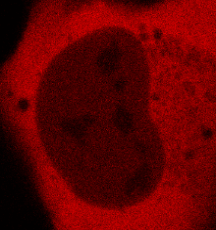
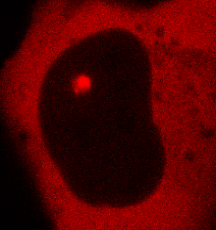
**SIRT6**

**H3K56ac**

**WT**



**HSC70**



pre UV

post UV

pre UV

post UV

**- Olaparib**

**+ Olaparib**

**Macro-mKate2**



**D.**

**G.**

**F.**

**I.**

**E.**

**H.**

**A.**

**B.**

**C.**

**J.**

**Figure 1- figure supplement 1**

**(A-B)** LID for Macro-domain mKate2 in U2OS +/- Olaparib. (n[+Ola]=10, n[-Ola]=10). **(C)** Average AUC of Macro-mKat2 in U2OS +/- Olaparib, 3 experiments +/-SEM (n[+Ola]=25, n[-Ola]=25, p<0.0005). **(D)** Blot of shControl and shMRE11 Hela cells. **(E)** LID for NBS1-Cherry in shControl (n=10) and shMRE11 Hela cells (n=10). **(F)** AUC, 3 experiments +/-SEM (n[shControl]=29, n[shMRE11]=30, p<0.005)). **(G)** Protein blot of shControl and shKu80 Hela cells. **(H)** LID of Ku70-GFP in shControl (n=10) and shKu80 Hela cells (n=10). **(I)** AUC, 3 experiments +/-SEM (n[shControl]=33, n[shKu80]=31, p<0.0001).