

LEGENDS FOR SUPPLEMENTAL MOVIES

Movie S1

The oncogene ALC1 promotes the rapid decompaction of human chromatin structure upon laser-induced DNA damage activation. The sample movie was taken from the quantitative analysis already reported in our previous collaborative publication (7). Imaging was conducted with U2OS cells expressing a photo-activatable histone H2B protein (H2B-PATag KFP). The movie shows a time course before and after DNA damage induction of U2OS cells with endogenous levels of ALC1 enzyme (*left*; only expressing GFP) and with U2OS cells that overexpress wild-type ALC1 (*right*; expressing GFP-ALC1).

Movie S2

Acute DNA damage and PARP1 activation by UV laser induced DNA damage triggers the release of the ALC1 ATPase module from an ALC1 macrodomain tethered to a LacO array. The movie shows the loss of interaction of the ALC1 ATPase (top movie) co-localized with the tethered macrodomain (dot at the top of each of the two nuclei in the top movie) upon laser-induced DNA damage. Notice the change of localization of the ATPase domain upon UV-laser induced DNA damage induction and PARP1 activation, as shown in the still images of Figure 2A.

Movie S3

Gain of interaction between full-length ALC1 and full length PARP1 upon DNA damage induction. Initially, prior to H₂O₂-triggered DNA damage induction and PARP1 activation, PARP1 interacts very mildly with full length ALC1 tethered to the LacO array. Upon DNA damage induced, PARylation promotes the interaction, as seen by the increased localization of PARP1 on the LacO array (dot in the bottom left, which appears over time).