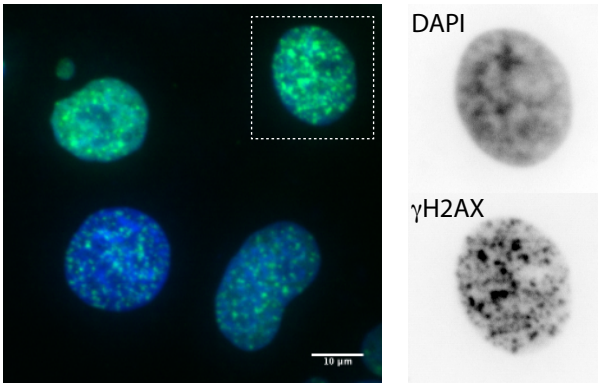
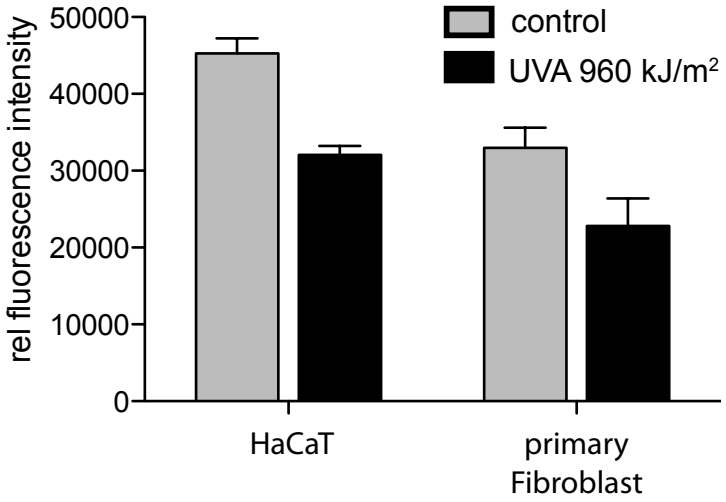
Supplementary Information S1



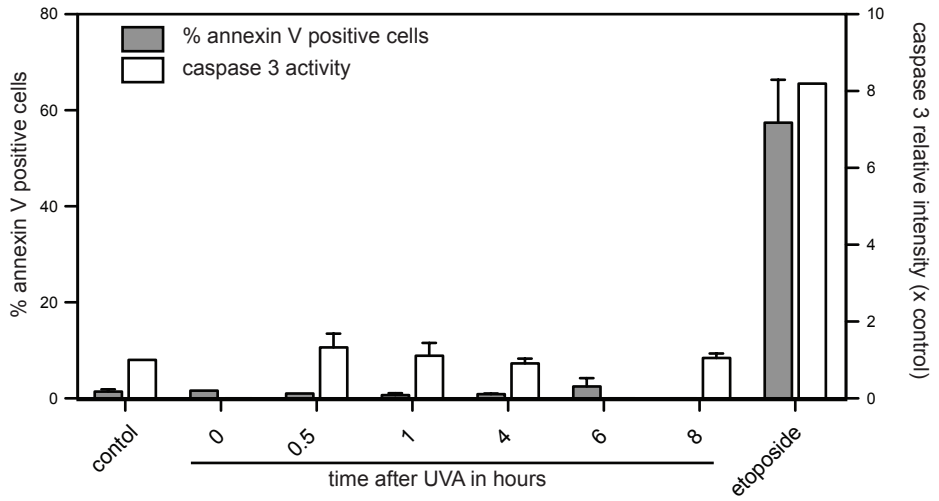
S1: Control of the γH2AX immuno assay. Cells were exposed to 1 Gy X-rax and subjected to the same staining protocol as in figure 1.

Supplementary Information S2



S2: Glutathione level in unirradiated and UVA exposed cells. $5x10^6$ cells were lysed and asayed with the ApoAlert Glutathione assay kit (Clontech) according to the manufacturer. Fluorescence intensity of monochlorobimane was measured in a Victor plate reader (Perkin Elmer) with exitation at 355 nm and emmission 460 nm longpath. Fluorescence readings were normalized to the total protein amount in the sample.

Supplementary Information S3



S3: Apoptosis detected in HaCaT cells exposed to 900 kJ/m^2 UVA and postincubated in normal growth medium for the indicated time. The number of apoptotic cells was determined either by annexin V staining followed by fluorescence microscopy or by the measuring the Caspase 3 activity using the the caspase 3 colorimetric kit from R&D Systems. UVA expsore does not induce significant levels of apoptosis in the first 8 hours post irradiation and thus should not influence the dsb detection as discussed in the main text.