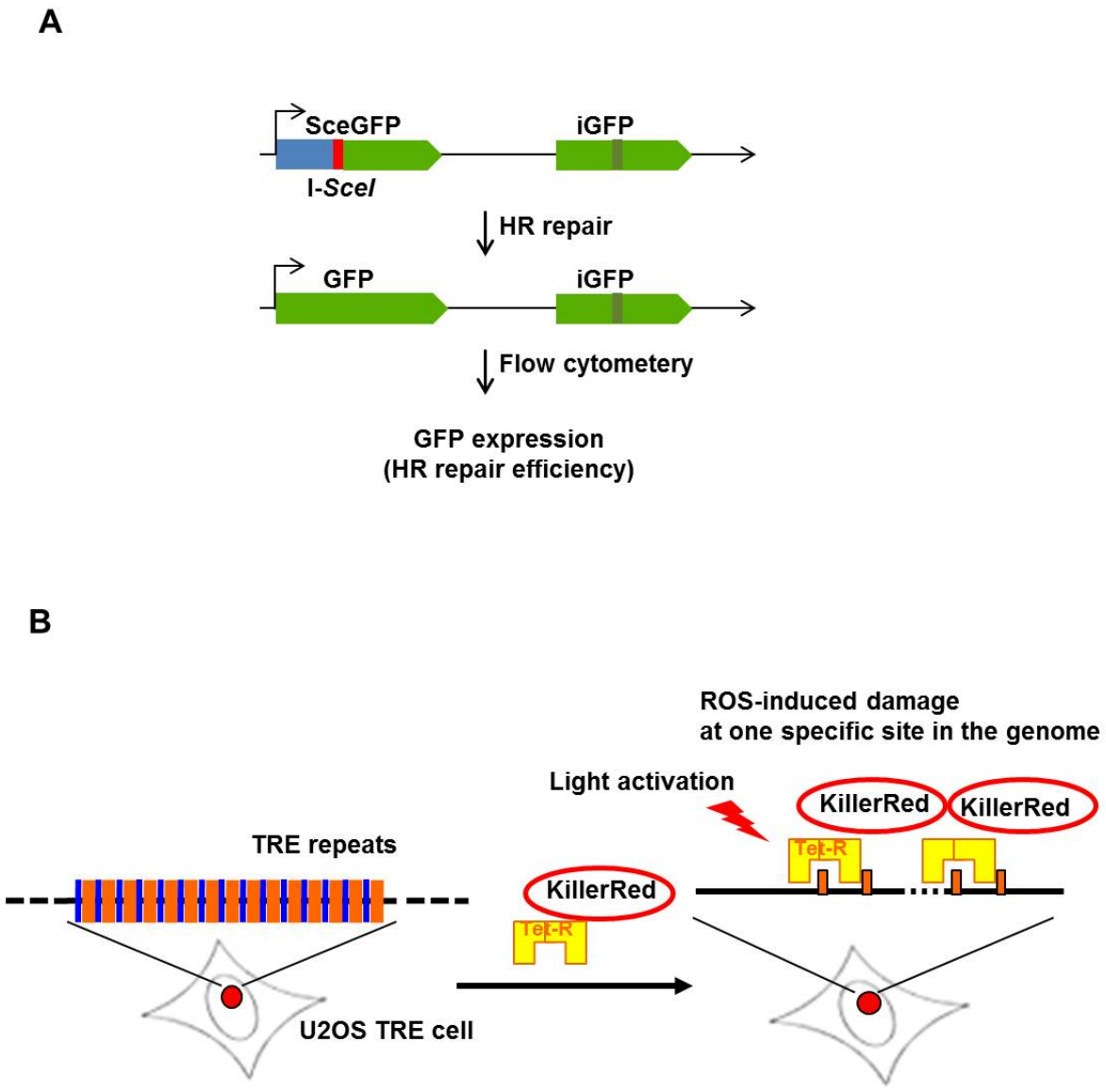

Supplementary information, Figure S2. Schematic of DR-GFP reporter integrated in U2OS cell and schematic of the KillerRed system in U2OS TRE cells. **(A)** Full-length GFP expression DNA was truncated by I-*SceI* restriction enzyme recognition sequence (marked as red). With exogenous I-*SceI* expression-induced DNA DSB, homologous recombination efficiency can be determined by full-length GFP expression by using flow cytometry. **(B)** KillerRed is a light-stimulated ROS-inducer fused to a tet-repressor (tetR-KR), which binds to a TRE cassette (~ 90

kb) integrated at a defined genomic locus in U2OS cells (U2OS TRE cell line)[1, 2]. KR facilitates the formation of oxygen radicals and superoxide through the excited chromophore[3, 4] to induce DNA damage. By targeting the expression of KR to one specific genome site, we can visualize the recruitment of proteins at genetic loci.