Supporting Information

Excision of Oxidatively Generated Guanine Lesions by Competing Base and Nucleotide Excision Repair Mechanisms in Human Cells

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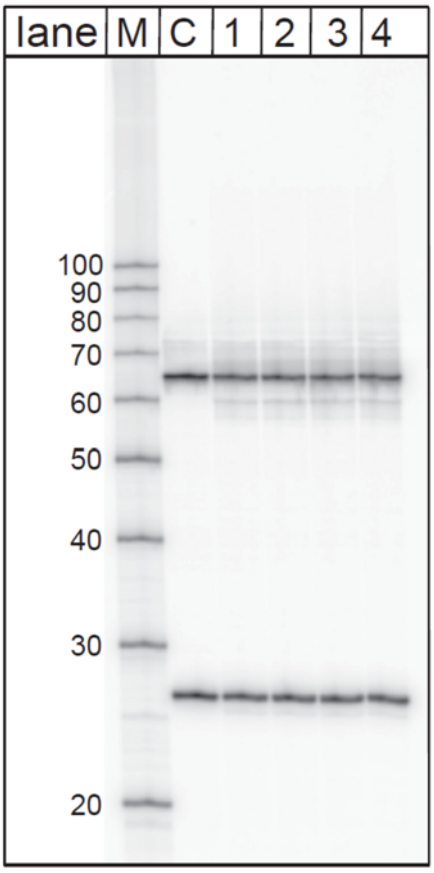

Figure S1. Recovery of unmodified oligonucleotides after incubation in intact HeLa cells. The denaturing gel illustrates the yields of recovery of ^{32}P-labeled oligonucleotides 28 nt and 65 nt in lengths transfected into and incubated in HeLa cells. Lanes 1 – 4: Oligonucleotides recovered after a 2 h incubation periods in four independent samples of ~4×10^6 HeLa cells transfected with equal aliquots of oligonucleotide mixtures (final DNA concentrations: ~30 pM in 3.5 mL of medium). Lane C: Control experiment; the oligonucleotides were not transfected into the cells and were directly loaded onto the gel. Lane M: oligonucleotide size markers. The averaged ratios of the recovered yields of the 65 nt and 28 nt oligonucleotides (Y65/Y28) were calculated by integration the histograms derived from the denaturing gel autoradiographs shown. The results obtained by denaturing 12% PAGE analysis of the oligonucleotide mixtures recovered from the eight independent samples of the transfected HeLa cells exhibited the following yields (Y).

Control mixture (not incubated in HeLa cells): Y65/Y28 = 1.40 ± 0.05.

Recovered mixtures after incubation in HeLa cells for 2 hours: Y65/Y28 = 1.50 ± 0.09.

These values are within ~ 10±7 % of one another which is within the range of the experimental error bars of the actual experiments depicted in the main text.

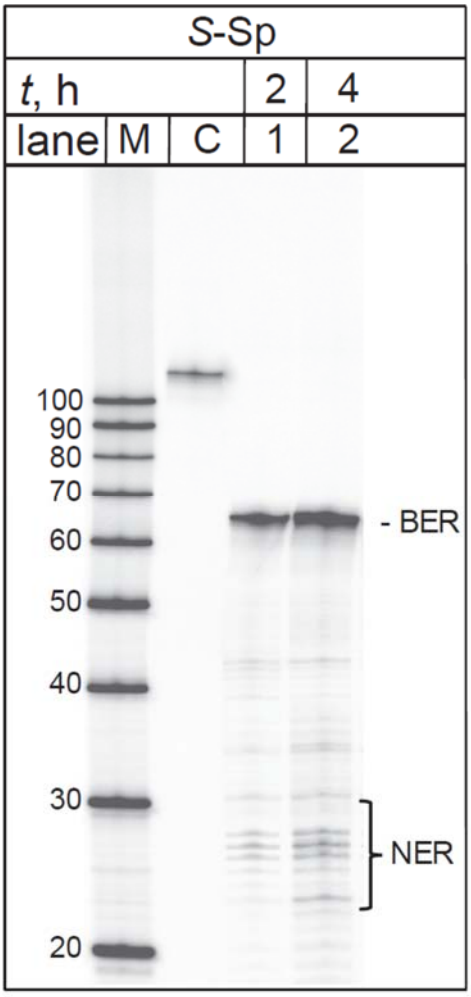

Figure S2. Denaturing gel showing the complete cleavage of hairpins harboring *S*-Sp lesions by the combined BER and NER activities in HeLa cells. Concentrations of the ^{32}P-internally labeled *S*-Sp-modified hairpins used in the transfection of HeLa cells were reduced from ~30 pM (Figure 5) to ~10 pM in this figure. Other details are described in the METHODS section. Lane M: oligonucleotide size markers. Lane C: Control experiment: the Sp-containing hairpins were not transfected into the cells, but were otherwise subjected to the same treatments.