Supporting Information For:

UV damage in DNA promotes nucleosome unwrapping

By

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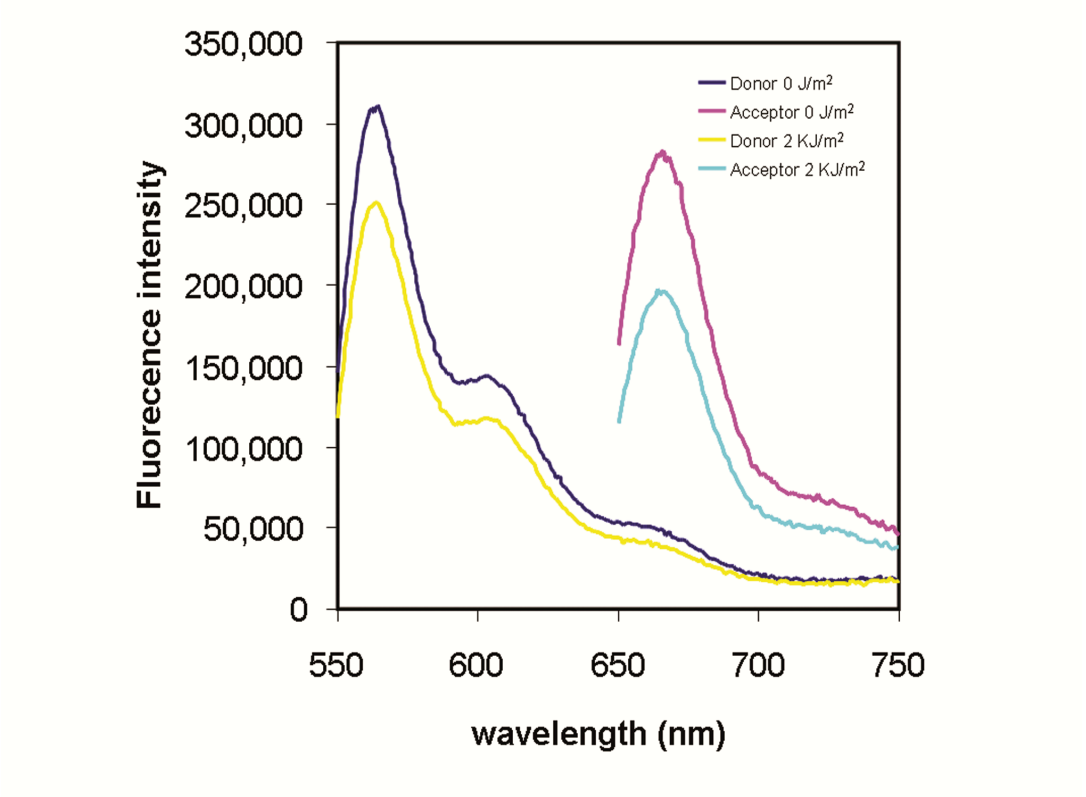

Figure S1. Photobleaching of Cy3 and Cy5 upon UV irradiation. Fluorescence spectra of naked DNA labeled with either donor (Cy3) or acceptor (Cy5) dyes. The donor (Cy3) was excited at 515 nm and the emission spectra were recorded from 550-750 nm (blue and yellow curves). The acceptor (Cy5) was excited at 615 nm and emission spectra were recorded from 550-700 nm (magenta and aqua curves). Emission spectra were collected before (blue and magenta curves) and after (yellow and aqua curves) 2 kJ/m^2 UV irradiation.

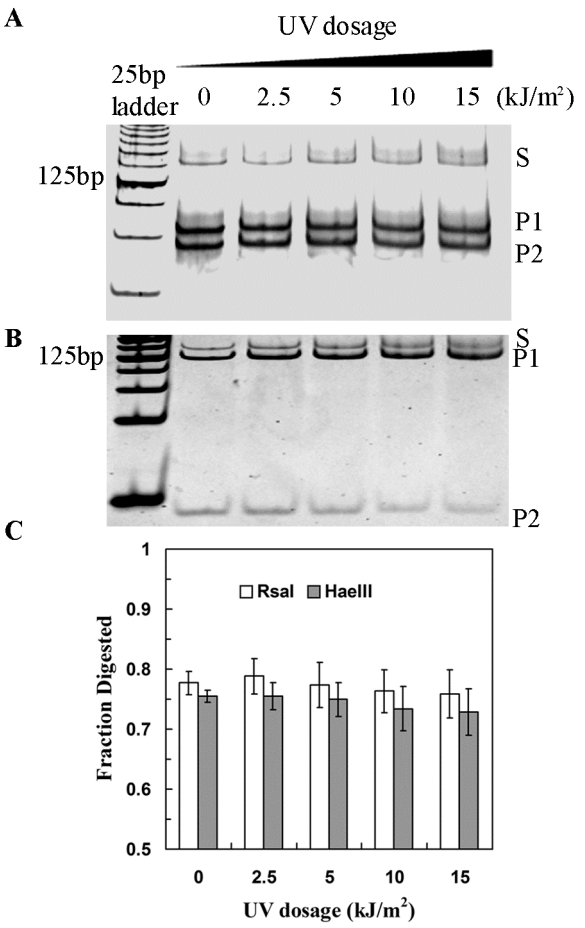

Figure S2. Restriction enzyme digestion of undamaged and UV-damaged DNA. A. *Rsa*I digestion of naked DNA following different extents of UV irradiation. At the right of the gel, S denotes approximate position of the undigested fragment, and P1 and P2 denote the approximate positions of the two digestion products (79 bp, P1, and 70 bp, P2). The digestion products were separated on a 16% native polyacrylamide gel and stained with SYBR Gold. The gels were scanned on a STORM 840 fluorimager (GE healthcare). B. *Hae*III digestion of naked DNA. Letters on the right are the same as in A (125 bp, P1, and 24 bp, P2). C. Quantitative analysis of the digestion of naked UV damaged DNA. The fraction digested was defined as (counts in P1+P2) / (counts in S+P1+P2).

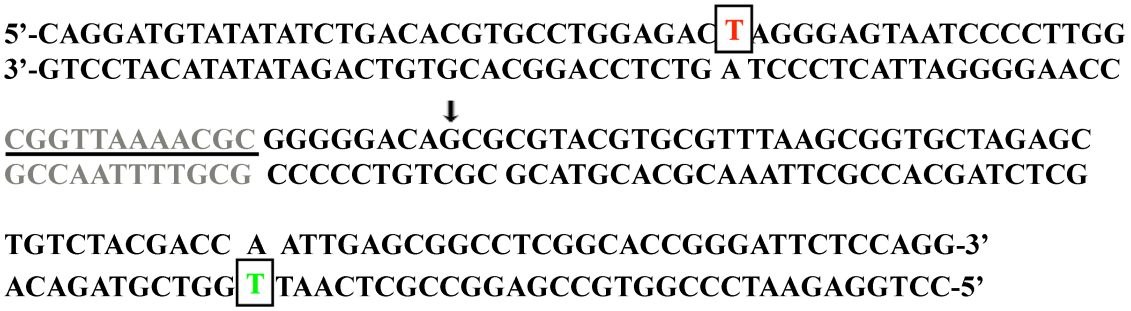

Figure S3. 601 nucleosome positioning sequence. The arrow indicates the dyad center, the boxed red base (T, position 34 from 5’ end) indicates the position of Cy5 and the boxed green base (T, position 33 from 5’ end) indicates the position of Cy3. The position of the damaged fragment (DF) is shown in grey and underlined. For some experiments, a single CPD or 6-4PP was incorporated at position 58 from the 5’ end.

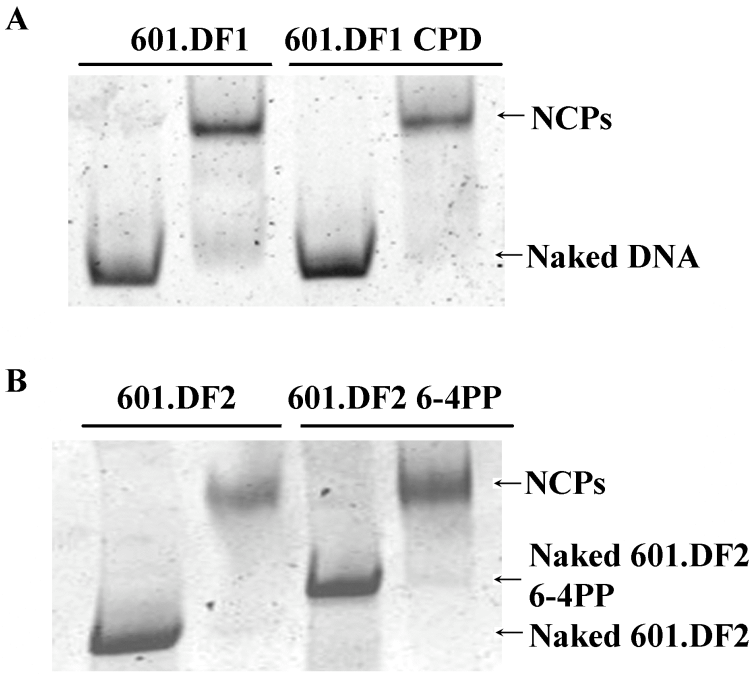

Figure S4. Incorporation of a single UV photoproduct at position 58 of the 601 sequence does not affect NCP reconstitution. A. NCP reconstitution using sequence 601.DF1 with or without a single CPD. The naked DNA and NCPs were run on a 5% polyacrylamide gel and stained with SYBR Gold. B. NCP reconstitution using 601.DF2 with or without a single 6-4PP, and samples separated by electrophoresis as in A. Note, we observed a small shift (retardation) in the migration of naked DNA containing the 6-4PP.