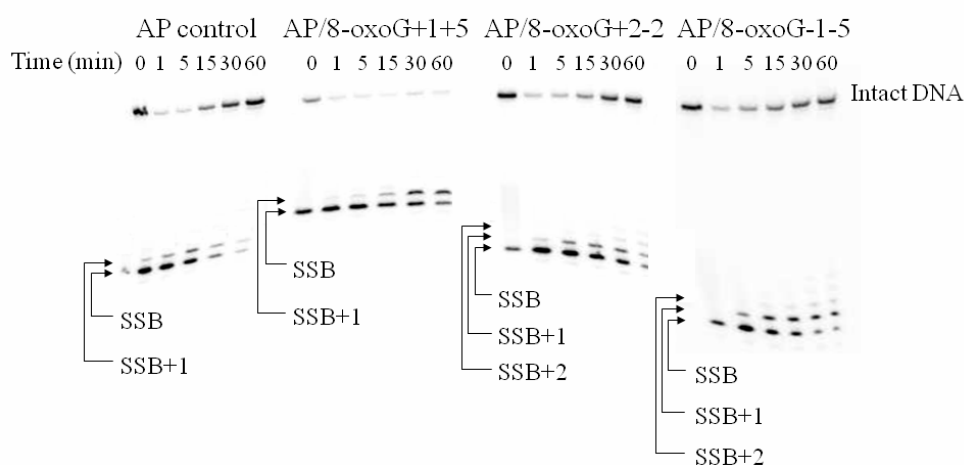
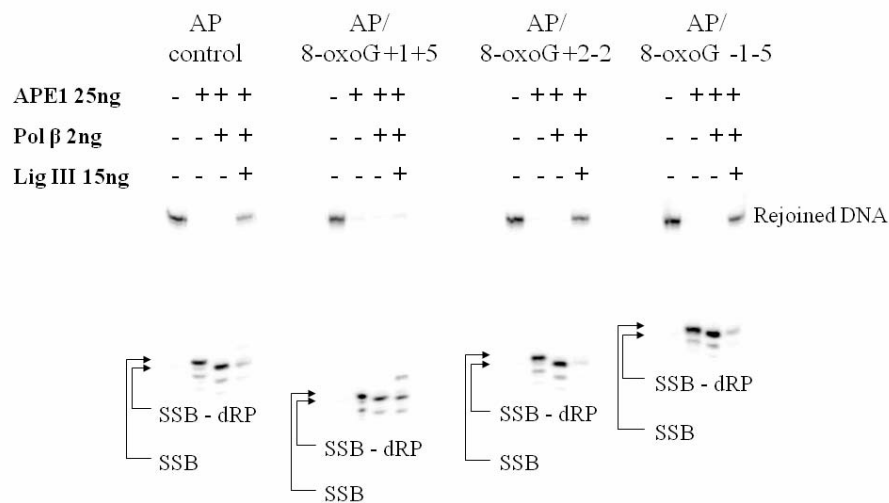


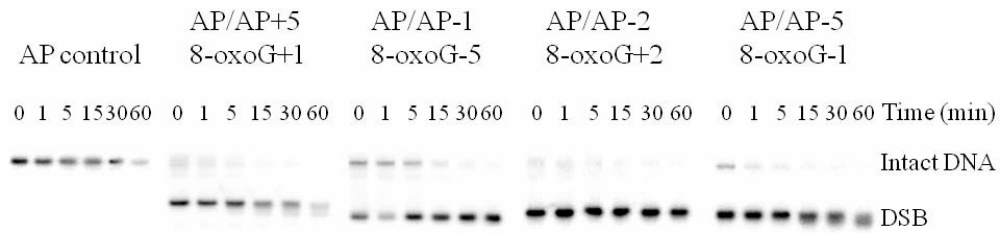
Supplementary figures



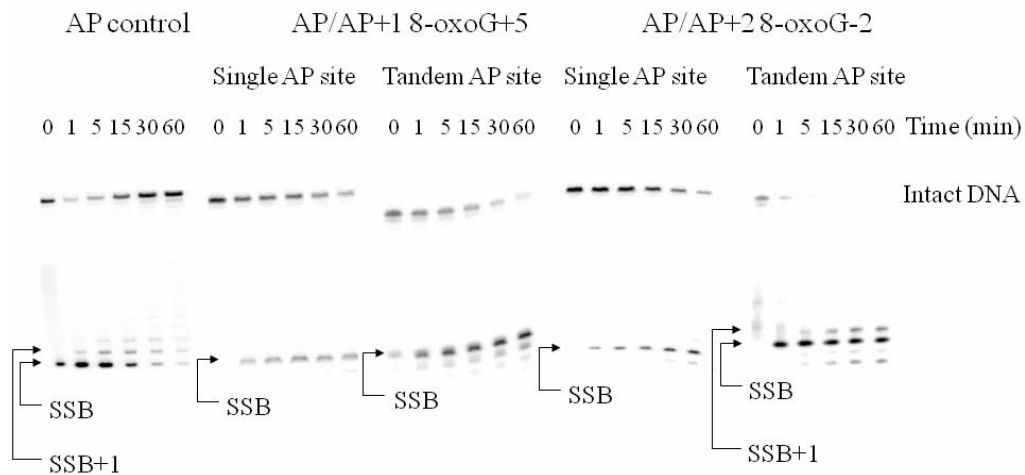
Supplementary Figure 1. Representative scan of a denaturing polyacrylamide gel showing the repair of an AP site in the absence (control) and the presence of two tandem 8-oxoG lesions in the three clustered damaged sites; AP/8-oxoG +1+5, AP/8-oxoG +2-2 and AP/8-oxoG -1-5. The oligonucleotide containing the single AP site was 5'-end-labelled with ^{32}P and incubated with CHO-K1 nuclear extract for the times specified. The SSB band represents the DNA that has been cleaved at the AP site by APE1. The SSB+1 and SSB+2 bands represent the addition of one or two bases into the SSB before the nick is sealed by ligation, represented by the intact DNA band.



Supplementary Figure 2. Representative scan of a denaturing polyacrylamide gel showing the dRPase activity of pol β. APE1 first cleaves the DNA to result in the SSB band followed by enzymatic processing of the break termini by pol β to remove the dRP residue, shown by the SSB – dRP band. DNA that was able to be ligated by ligase III is shown by the rejoined DNA band. The oligonucleotide containing the AP site was 3'-end-labelled with ³²P and incubated with the appropriate purified BER proteins, as indicated above, for 30 min.



Supplementary Figure 3. Representative scan of a native polyacrylamide gel showing the formation of DSBs in the absence (control) and the presence of a second AP site and an 8-oxoG lesion in the three clustered damaged sites; AP/AP-5 8-oxoG-1, AP/AP+5 8-oxoG+1, AP/AP-1 8-oxoG-5. The oligonucleotide containing the single AP site was 5'-end-labelled with ^{32}P and incubated with CHO-K1 nuclear extract for the times specified. The DSB band represents the DNA that has been cleaved at both AP sites by AP endonuclease.



Supplementary Figure 4. Representative scan of a denaturing polyacrylamide gel showing the repair of an AP site in the absence (control) and the presence of a second AP site and an 8-oxoG lesion in the two clustered damaged sites; AP/AP+1 8-oxoG+5 and AP/AP+2 8-oxoG-2. Either the oligonucleotide containing the single AP site or the oligonucleotide containing an AP site in tandem with 8-oxoG was 5'-end-labelled with ^{32}P and incubated with CHO-K1 nuclear extract for the times specified. The SSB band represents the DNA that has been cleaved at the AP site by APE1. The SSB+1 band represents the addition of one base into the SSB before the nick is sealed by ligation, represented by the intact DNA band.