

Supplementary Figure 1:

Depicted is the model of the Arg32-DNA sugar phosphate backbone contact in the presence of (A) the F36A mutation being present in both subunits of MutS and (B) the regular protein-DNA interaction of the wild type protein with the Arg-DNA interaction intact. The structure of the single mutant looks identical (data not shown). Both structures are derived from the complex with the cisplatinated DNA.

As shown, while the arginine residue provides two significant interactions with the sugar-phosphate backbone in the complex of wild type protein (and single mutant) with cisplatinated DNA, this interaction is entirely removed and the residues are too far dislocated to form any interactions. Given that this interaction is one of the most important interactions with the sugar-phosphate backbone, this structural change might significantly contribute to the inability of the double mutant to contact any type of DNA.

Supplementary Figure 2:

Shown are the binding curves for wild type and E38A mutant MutS to various DNA substrates. These binding curves were used to determine the dissociation constants shown in Table 3.