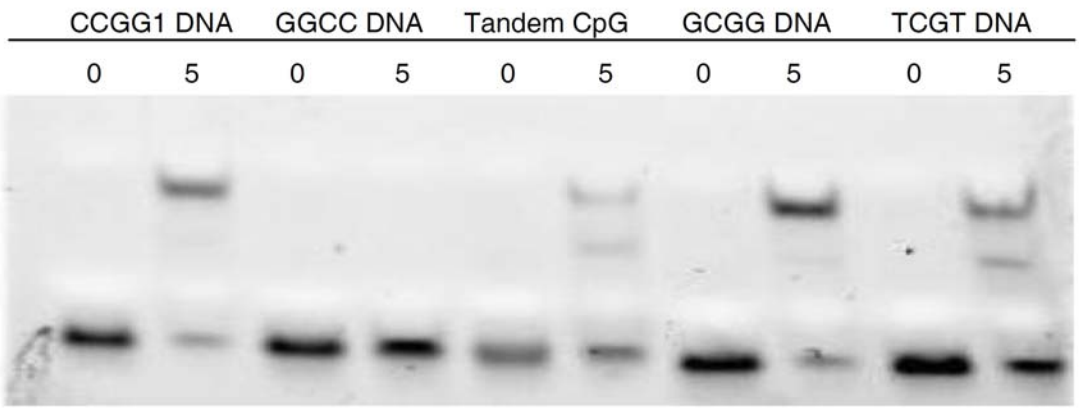
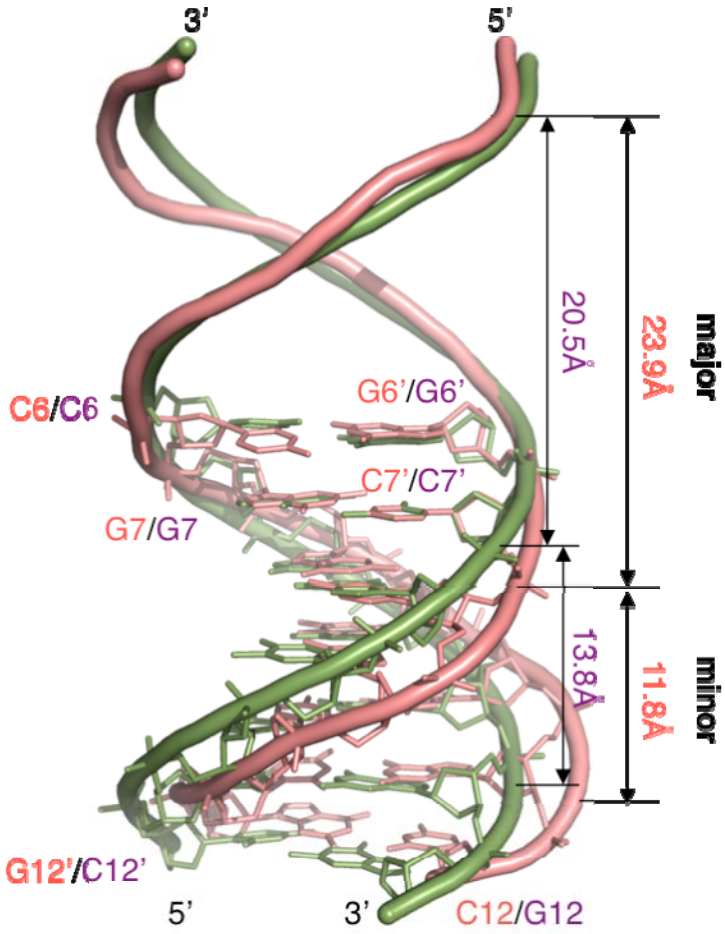
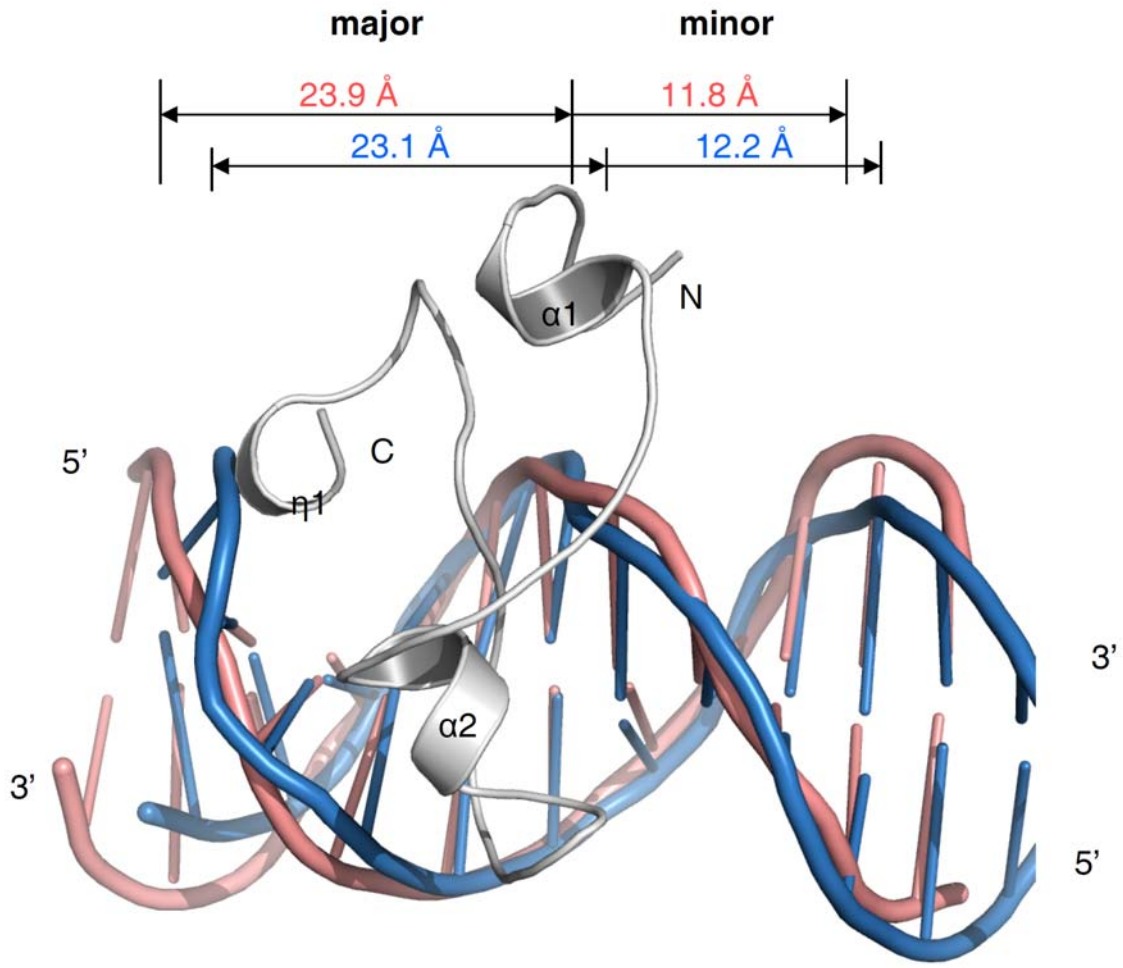


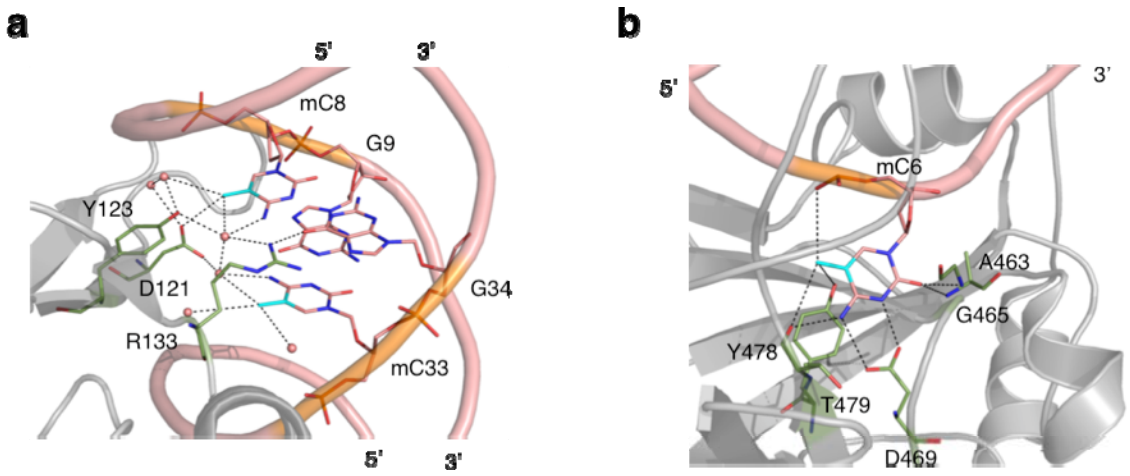
Supplementary Figure S1 Electrophoretic mobility shift assay of the CFP1 (aa 161-222) binding to different CpG DNAs. Lanes from left to right: CCGG1 DNA (5'-GCCA**CCGG**TGGC-3') and CCGG1-CFP1 mixture in a ration of 5:1 (protein: DNA); GGCC DNA (5'-GCCA**GGCC**TGGC-3') and GGCC-CFP1 mixture in a ration of 5:1 (protein: DNA); GGCC DNA (5'-GCCAGGCCTGGC-3') and GGCC-CFP1 mixture in a ration of 5:1 (protein: DNA); Tandem CpG DNA (5'-GCCA**CGCG**TGGC-3') and its mixture with CFP1 in a ratio of 5:1 (protein : DNA); GCGG DNA (5'-GCCA**GCGG**TGGC-3') and its mixture with CFP1 in a ratio of 5:1 (protein : DNA); TCGT DNA (5'-GCCA**TCGT**TGGC-3') and its mixture with CFP1 in a ratio of 5:1 (protein : DNA).



Supplementary Figure S2. Comparison of the DNAs in CFP1-DNA and MLL-DNA complexes. The CpG DNAs in these two complexes are superimposed and proteins are omitted to highlight the DNA deviation. The dsDNA in CFP1 complex is colored in salmon, and the dsDNA in MLL complex is colored in green. C6-G6' and G7-C7' are the CpG dinucleotide. The dimensions of the major grooves and minor grooves of both dsDNAs are shown in red (CFP1) and purple (MLL) numbers, respectively.



Supplementary Figure S3. **Detailed comparison of the CpG DNAs in CFP1 (CCGG1) (red) and human DNMT1 (PDB: 3PTA) (blue) complexes.** The CpG dinucleostides are superimposed and DNMT1 is omitted to show the DNAs more clearly. CFP1 is shown in gray cartoon. The CpG dsDNAs are displayed in red (CFP1) and blue (DNMT1), respectively.



Supplementary Figure S4. Detailed CpG interactions in MECP2-mCpG and UHRF1-hemi-mCpG complexes. (a) Detailed interactions involving CpG dinucleotides in MECP2-meCpG complex. (b) Detailed interactions involving CpG dinucleotides in UHRF1-hemimethylated CpG complex. DNAs and proteins are colored in salmon and grey cartoon representations, respectively. Protein residues and DNA bases involved in specific mCpG and hemi-CpG interactions are shown in green sticks and salmon sticks, respectively. All hydrogen bonds are shown in black dash lines. The methyl group of the 5-methylcytosine is colored in cyan.