

**Figure S1.** Similarity between BenM-DBD and other DNA-binding proteins: interaction of the recognition helix with DNA. Protein-DNA complexes were aligned with the amino acid back bone atoms of BenM-DBD (residues 29-34 of chain B) and residues 6-9 of chain E and residues 17-20 of chain F using the align function of PyMol version 1.3. Panel A, RovA, (PDB ID 4AIJ); panel B, P22 (PDB ID 2R1J); panel C, Cro repressor (PDB ID3Cro); and panel D, MosR (PDB ID 4FX4). Carbon atoms from the BenM-DBD/LH-DNA complex are grey, while carbon atoms of the aligned proteins are colored dark cyan (RovA), light green (P22), dark green (Cro), and yellow (MosR). Residues in the text are identified by nearby labels colored using the same color scheme as the carbon atoms.