

Genomes are composed of both protein-coding and nonprotein-coding DNA sequences. Cells have the remarkable ability to decipher the information that is incorporated in both types of sequences. Biologists, on the other hand, are currently unable to do what the cell does to interpret nonprotein-coding DNA sequences. An important step toward achieving this goal is to have a better understanding of protein-DNA recognition mechanisms. Traditionally, the analysis of noncoding DNA sequences has treated DNA as a linear string of nucleotides, which does not take into account the three-dimensional structure of DNA. We try to provide a new perspective on the problem of protein-DNA recognition, one that emphasizes the three-dimensional structures of both the DNA and the protein.