



Review

Intrinsically bent DNA in replication origins and gene promoters

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ABSTRACT. Intrinsically bent DNA is an alternative conformation of the DNA molecule caused by the presence of dA/dT tracts, 2 to 6 bp long, in a helical turn phase DNA or with multiple intervals of 10 to 11 bp. Other than flexibility, intrinsic bending sites induce DNA curvature in particular chromosome regions such as replication origins and promoters. Intrinsically bent DNA sites are important in initiating DNA replication, and are sometimes found near to regions associated with the nuclear matrix. Many methods have been developed to localize bent sites, for example, circular permutation, computational analysis, and atomic force microscopy. This review discusses intrinsically bent DNA sites associated with replication origins and gene promoter regions in prokaryote and eukaryote cells. We also describe methods for identifying bent DNA sites for circular permutation and computational analysis.

Key words: Intrinsically bent DNA; Replication origin; Promoters; Prokaryotes; Eukaryotes