Role of DNA sequence dependent structural properties in gene expression

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Abstract

Sequence dependent structural properties of DNA sequence have been extensively studied in the promoter regions of different domains of life (prokaryotes and eukaryotes). In current work we have studied various structural features, such as stability, bendability (using both DNase I sensitivity and Nucleosomal positioning preference models) and curvature in the promoter regions of *Anabena* sp. PCC7120 and *Helicobacter pylori* 26695. We find that genes with high expression and low expression differ in terms of their structural features. Highly expressed genes are less stable, less bendable and more curved as compared to lowly expressed genes. The finding suggests that promoter annotation using structural properties can provide insights about the strength of the promoter.