

A Review of Peptide Nucleic Acid

ABSTRACT

Peptide Nucleic Acid (PNA) is a nucleobase oligomer in which the whole backbone is mainly replaced by N-(2- aminoethyl) glycine units. PNA is considered as DNA with a neutral peptide backbone due to negative charged sugar–phosphate backbone. It is chemically stable and resistant to hydrolytic cleavage. PNA can be categorized specific sequences of DNA and RNA according to Watson–Crick hydrogen bonding structure. Hybridization process showed high thermal stability and unique ionic strength effects. It is formed a stable PNA/DNA/PNA triplex with a looped-out DNA strand. PNA hybridization technology is promptly developed within in situ hybridization. In our review paper was elaborated the PNA superior hybridization characteristics, importance's of PNA and major applications of PNA in the diagnostic and pharmaceutical fields. And also PNA could be replaced DNA in uses as a probe for many investigation purposes. PNAs antisense activities have found in nerve cells and even in rats upon injection into the brain, and in *Escherichia coli*.