Properties of DNA

Created: Monday, 18 July 2011 09:21 | Published: Monday, 18 July 2011 09:21 | Written by Super User | Print

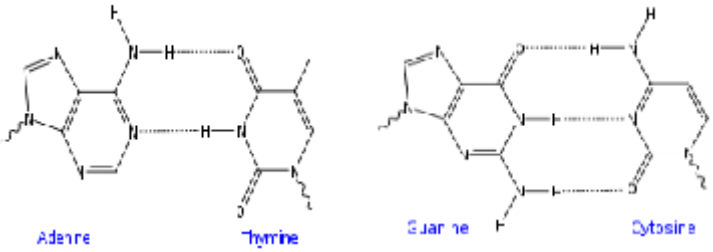
DNA Properties

DNA consists of many physical and chemical properties which are crucial for its functioning and structure.

Physical properties of DNA:

The DNA double helix is connected the nitrogenous bases which are attached with the two strands byhydrogen bonds. The 4 bases adenine (A),cytosine (C),guanine (G) andthymine (T) attached to the sugar or phosphate and form the complete nucleotide. Adenine and guanine are calledpurines, and the cytosine and thymine are calledpyrimidines.

DNA Base Pairing



It is an important property of DNA because bases are having specific nature. The purines always pairs with pyrimidine only. For example adenine base pairs with a thymine base and cytosine always pairs with guanine base. . Even though it is significant for DNA it is very simple in process. It is also named as complementary base pairing.

DNA Grooves

The two kinds of grooves (Major & Minor) of DNA play many important roles in its functioning. The necessary proteins, i.e., transcription factors can contact with bases through these groove only. These proteins take important role in the cell – cell communication and the development of cells.

The central property of DNA

Super coiling of DNA

DNA can be in a relaxed state or coiled state. But this unique coiling property allows the very long strands of DNA to pack into the very minute cells of the bodies by making use of space it fits into the cell properly.

Conformations

Conformations interact with enzymes and are also involved in many aspects such as DNA repair.

Sense and Antisense

The sequence in DNA strand is a‘sense’ and the opposite sequence in the opposite strand is termed as ‘anti-sense’. Both of these can be present somewhere in the same strand. DNA holds the codons to make RNA, and holds the codons for the amino acids to make proteins. DNA is the antisense strand which carries information to make proteins by binding to the RNA. But the sense strand does not code for RNA.

Chemical Properties

Base modifications

Chromatin is the packed DNA in chromosomes. Base modifications can be involved in this packaging.

Damage

Mutagens damage the DNA and can change the DNA sequence. This is known asmutation.

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Reference Links:

- http://en.wikipedia.org/wiki/DNA
- http://www.youtube.com/watch?v=N5zFOScowqo
- http://www.exploredna.co.uk/the-properties-dna.html
- http://www.stanford.edu/group/blocklab/DNARNA.html

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