

Nucleic Acids

Biomolecule of heredity

proteom - whole protein in all living things

Nitrogenous Base
Sugar Moiety
Phosphate

STRUCTURES

Nitrogenous Base

Sugar Moiety

Pyrimidine

2-Deoxyribose

Cytosine

Ribose

Uracil

Thymine

Purine

Adenine

Guanine

FORMS OF DNA

B-DNA

A-DNA

Z-DNA

10 bp

11 bp

12 bp

Right handed

Right handed

Left handed

major & minor groove

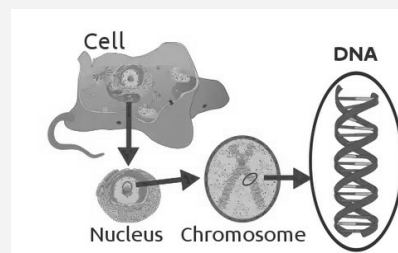
alternating G-C sequence in alcohol or high salt solution

Anti parallel

Chargaff's rule

-for double stranded, %A = %T and %G = %C

DNA Location



Structure of DNA

DNA is long polymer of nucleotides

Phosphodiester linkage between 3' and 5'

Hbond of nitrogenous base

Anti-Parallel

DNA ORGANIZATION

Nucleosome

-Fundamental Unit

- (+) Histone and (-) DNA

Histone

-present in quantities that their total mass in chromatin

-high proportion of positively charged AA

NUCLEOSOMES : BEADS ON A STRING

Arrangement

Nucleosome

-basic structural unit of chromatin

Chromatin Fiber

-coiled and condensed to form chromosomes

Loops

-chromatin fiber folded into loops

Chromosome

-H2A, H2B, H3, H4

BASE PAIRING

A = T

Apple in Tree

C = G

Car in Garage

A- Adenine
T- Thymine
C- Cytosine
G- Guanine

Bases of DNA and RNA

DNA

RNA

Adenine , Thymine

Adenine , Uracil

Cytosine , Guanine

Guanine , Cytosine

This is **Complementary Bases**

A-T has 2 Hbonds

C-G has 3 Hbonds

TYPES OF RNA

mRNA

-messenger RNA

-premature, code for proteins

-blueprint

rRNA

-ribosomal RNA

-most abundant , basic structure of ribosome

tRNA

-transfer RNAs

-adaptor between mRNA and AA

snRNA

-small nuclear RNA

-splicing of pre-mRNA

snoRNA

-small nucleolar RNA

-modify rRNA

other noncoding RNA

-e.g. telomere synthesis

-X chromosome inactivation

-transport of proteins into ER