Nucleic Acids

Biomolecule of *heredity*	proteom - whole protein in all living things

Nitrogenous Base
Sugar Moiety
Phosphate

STRUCTURES

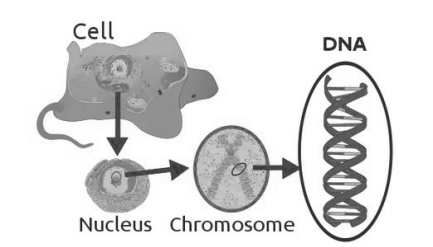
Nitrogenous Base	Sugar Moiety
Pyrimidine	2-Deoxyribose
Cytosine	Ribose
Uracil	
Thymine	
Purine	
Adenine	
Guanine	

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* -spilicing of pre-mRNA
snoRNA	-*small nucleolar RNA* -modify rRNA
other noncoding RNA	-e.g. telemore synthesis -X chromosome inactivation -transport of proteins into ER

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