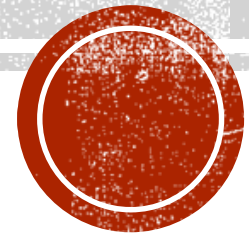


NUCLEIC ACIDS

Benilda Ramos-Butron



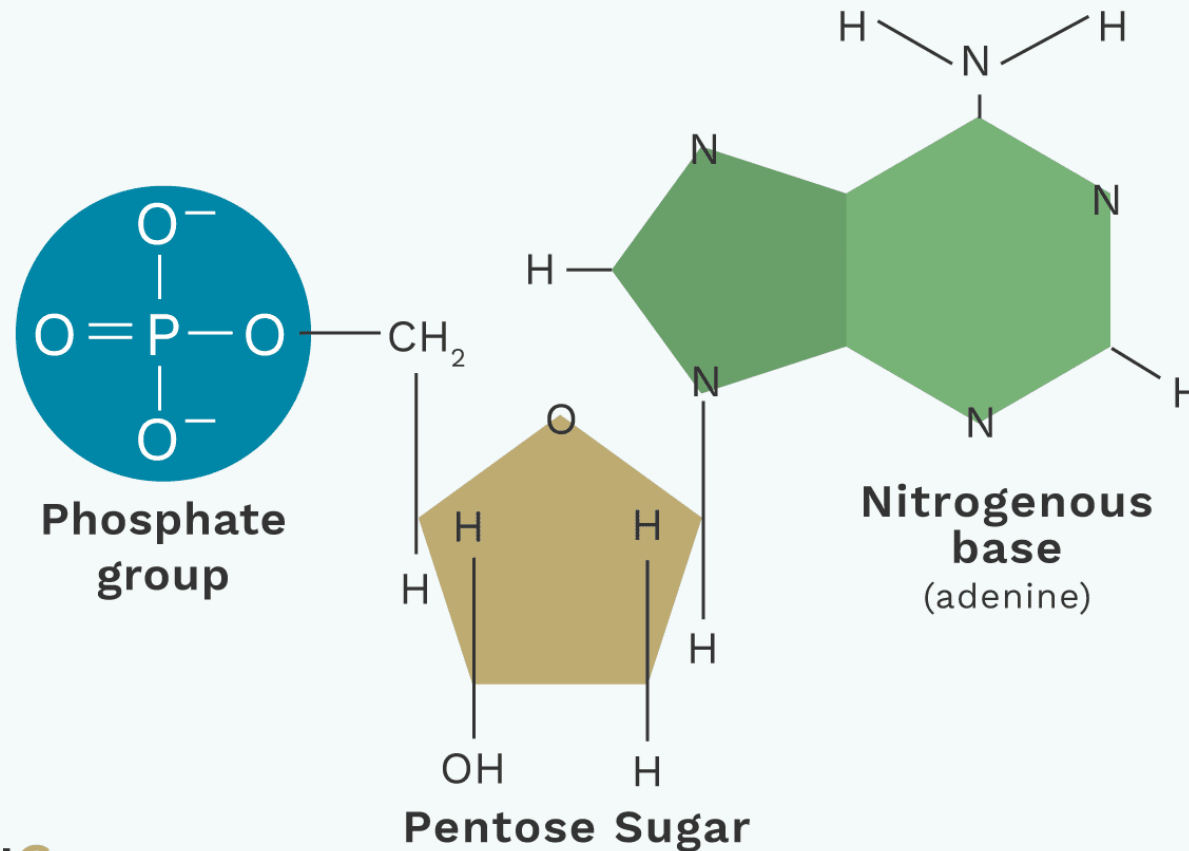
FUNCTION OF THE NUCLEIC ACIDS

Nucleic Acid	Function
Deoxyribonucleic acid (DNA)	Storage of information
Ribonucleic acid (RNA)	Synthesis of protein by carrying the messenger instructions from DNA

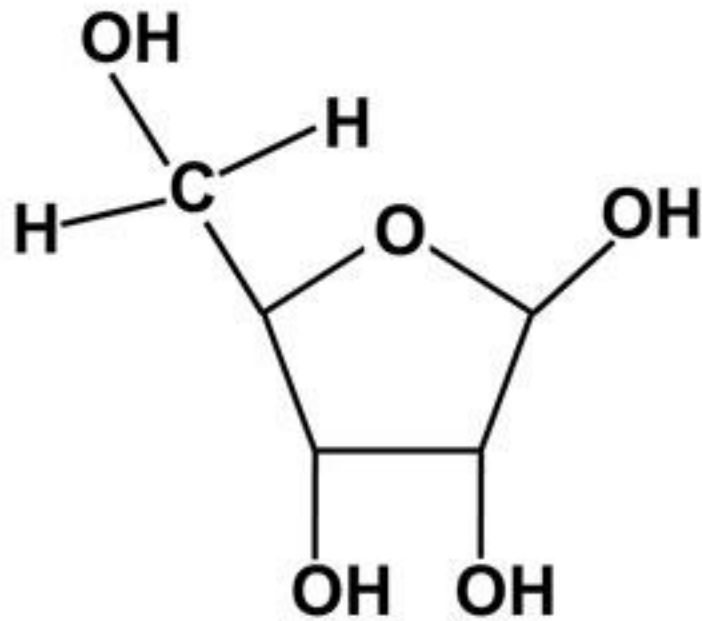


STRUCTURE OF THE NUCLEOTIDE

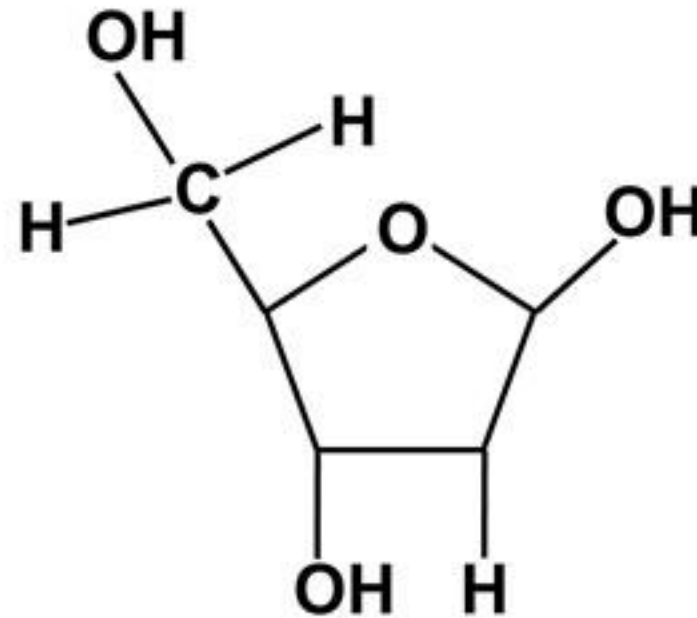
3 Parts of a Nucleotide



RIBOSE VS. DEOXYRIBOSE



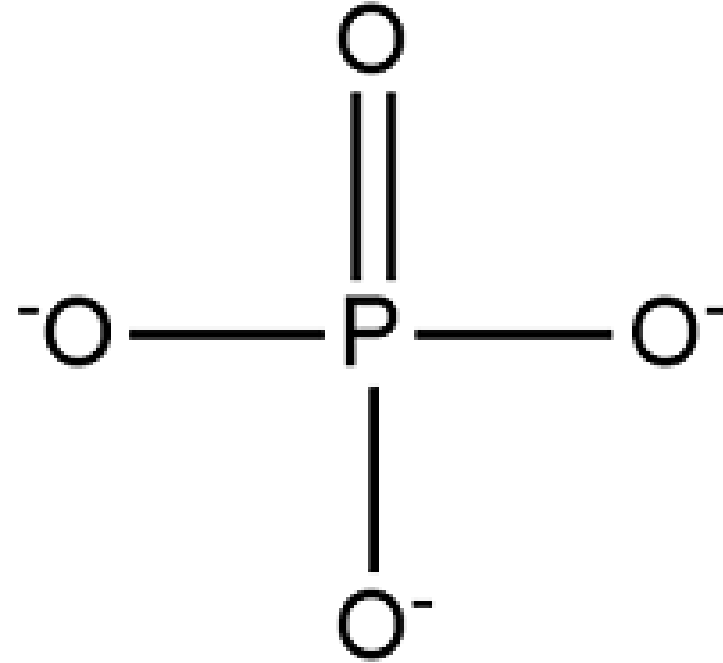
Ribose



Deoxyribose



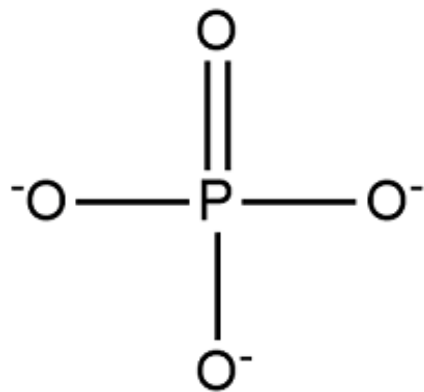
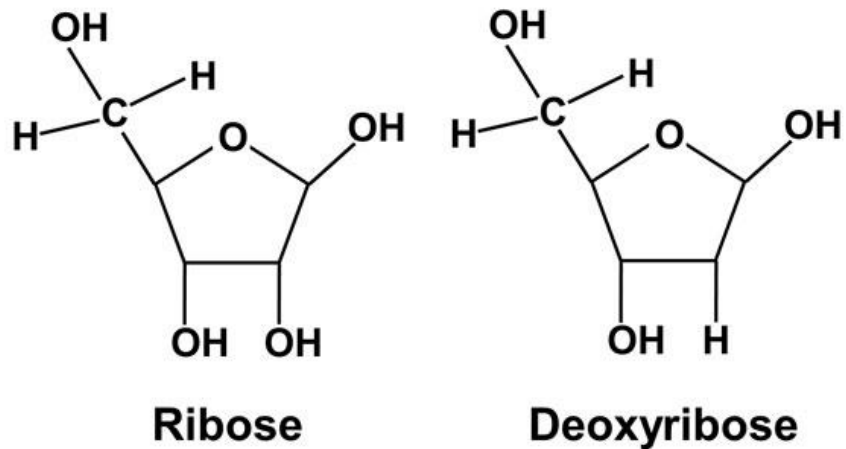
PHOSPHATE MOLECULE



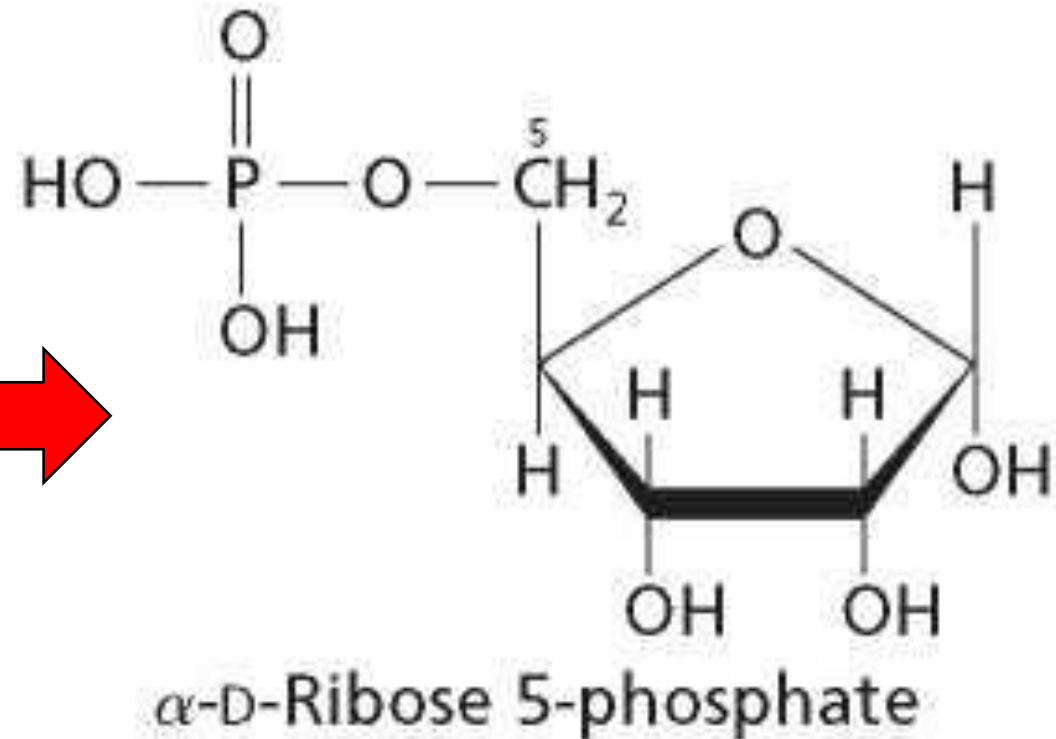
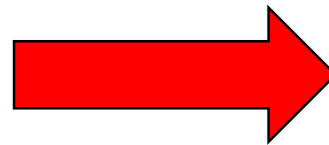
Phosphate



SUGAR AND PHOSPHATE

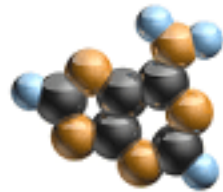


Phosphate

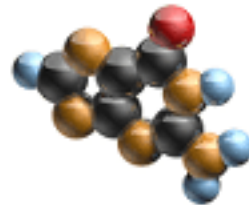
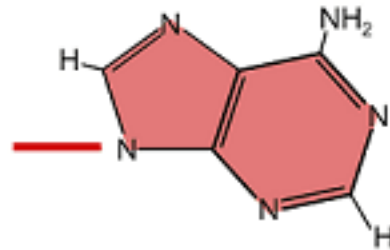


NUCLEOBASES

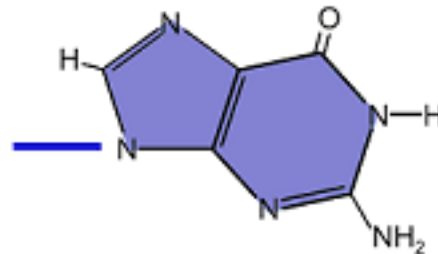
Purine



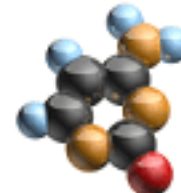
Adenine



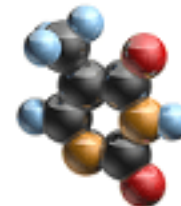
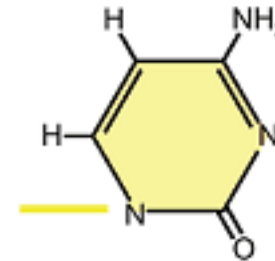
Guanine



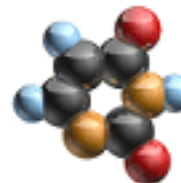
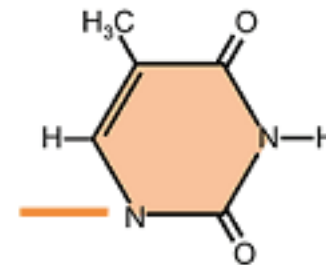
Pyrimidine



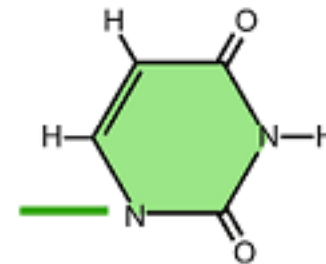
Cytosine



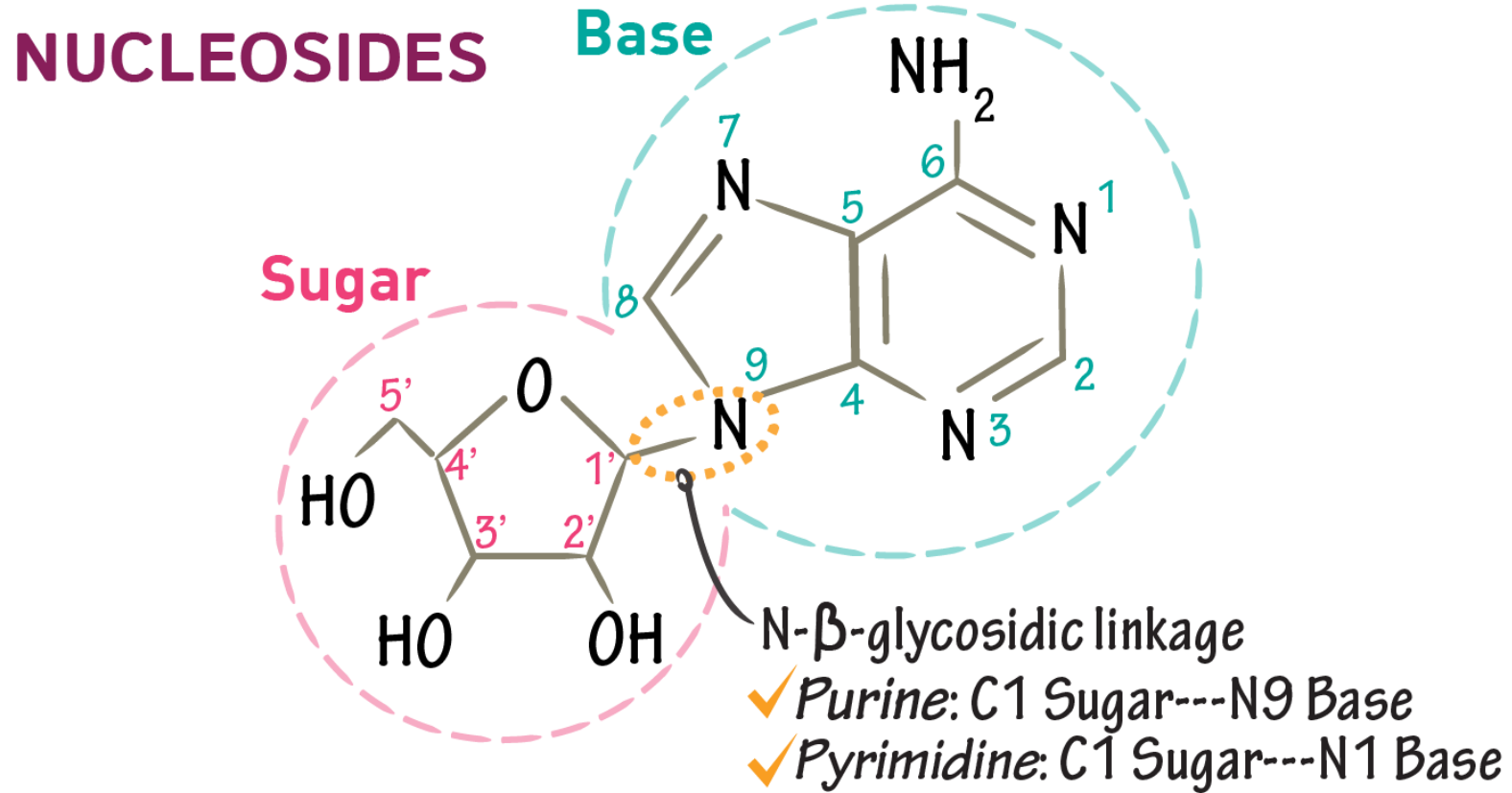
Thymine
(DNA)



Uracil
(RNA)

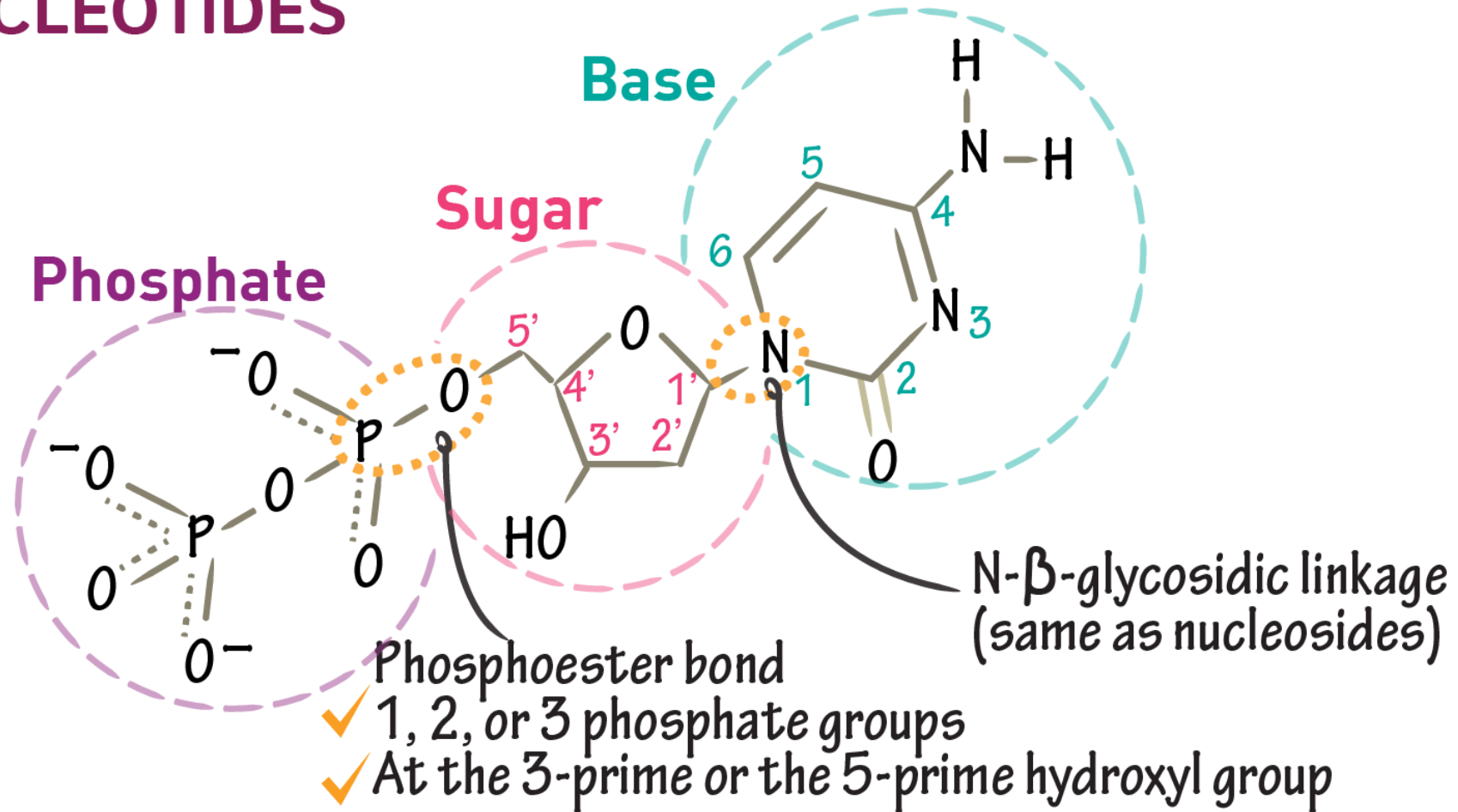


NUCLEOSIDE



NUCLEOTIDE

NUCLEOTIDES



CHARGAFF'S RULE

Erwin Chargaff (1953)
 $\%G = \%C$ and $\%A = \%T$

Source	%A	%T	%G	%C	%G+C
Virus Phage T2	33	33	18	17	35
Bacteria <i>E. coli</i>	26	24	25	25	50
Fungi <i>S. cerevisiae</i>	32	33	18	17	35
Higher Eukaryote human	30	30	20	20	40

$\%A = \%T$

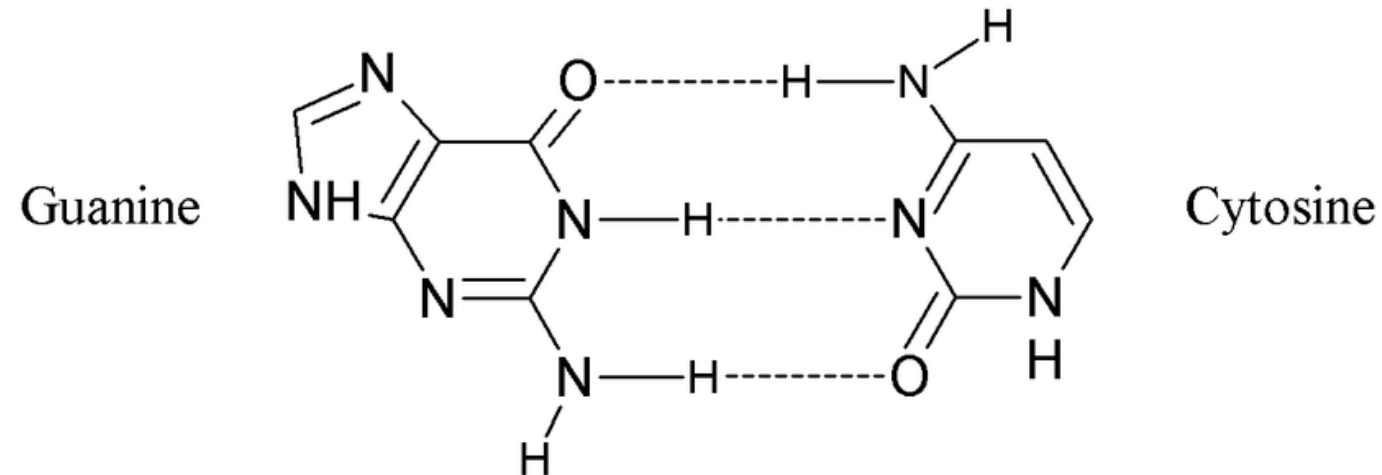
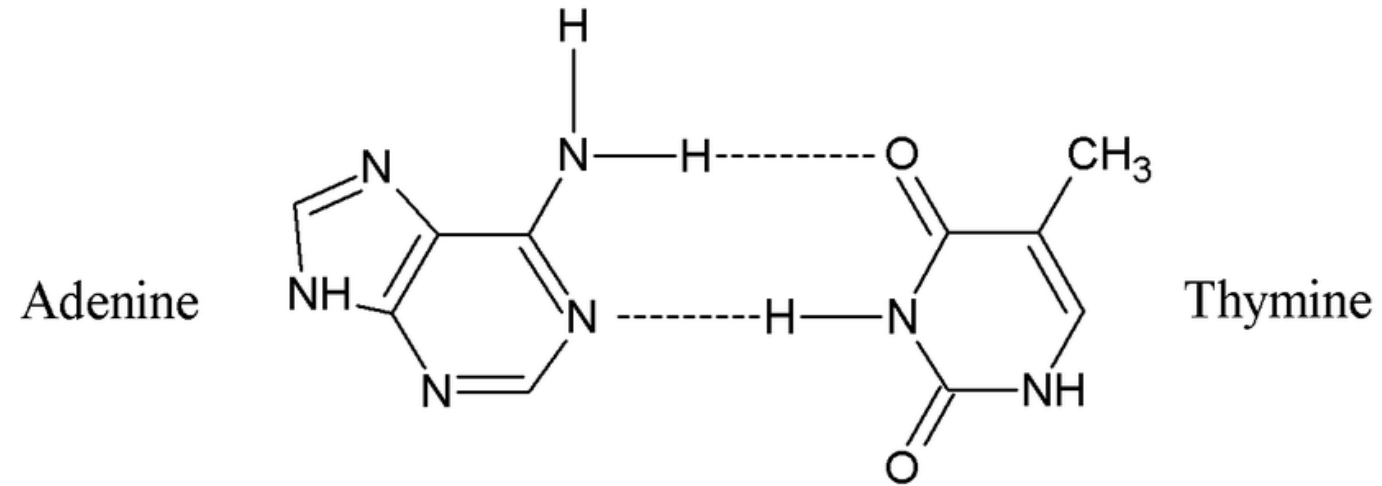
$\%G = \%C$

↑
variable

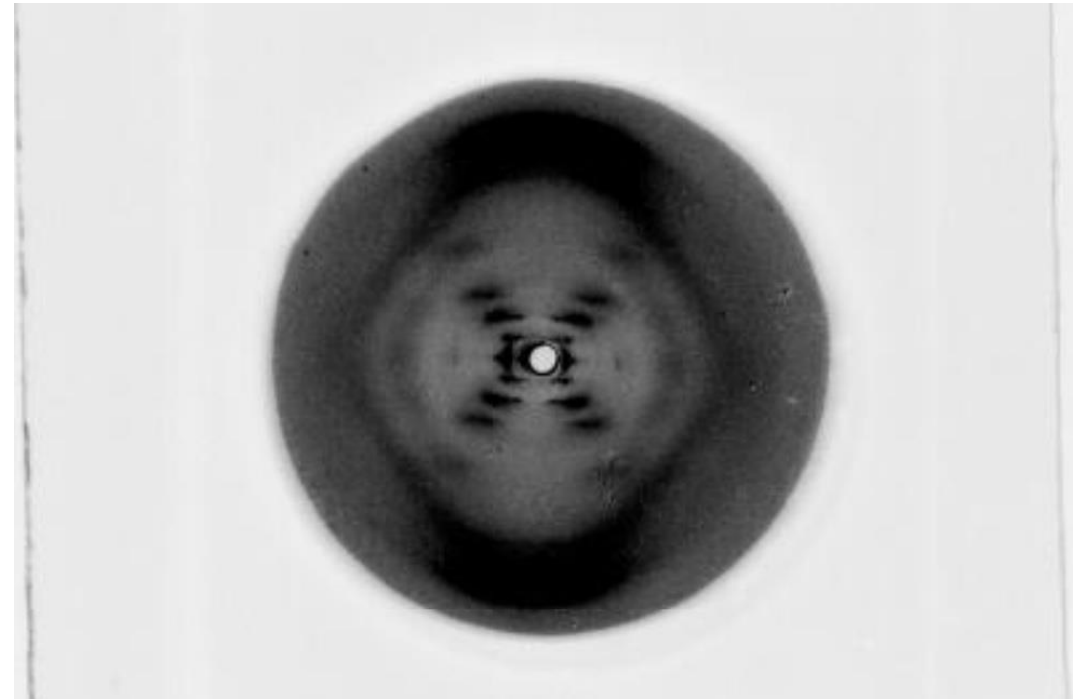
A + G = T + C
purines = pyrimidines



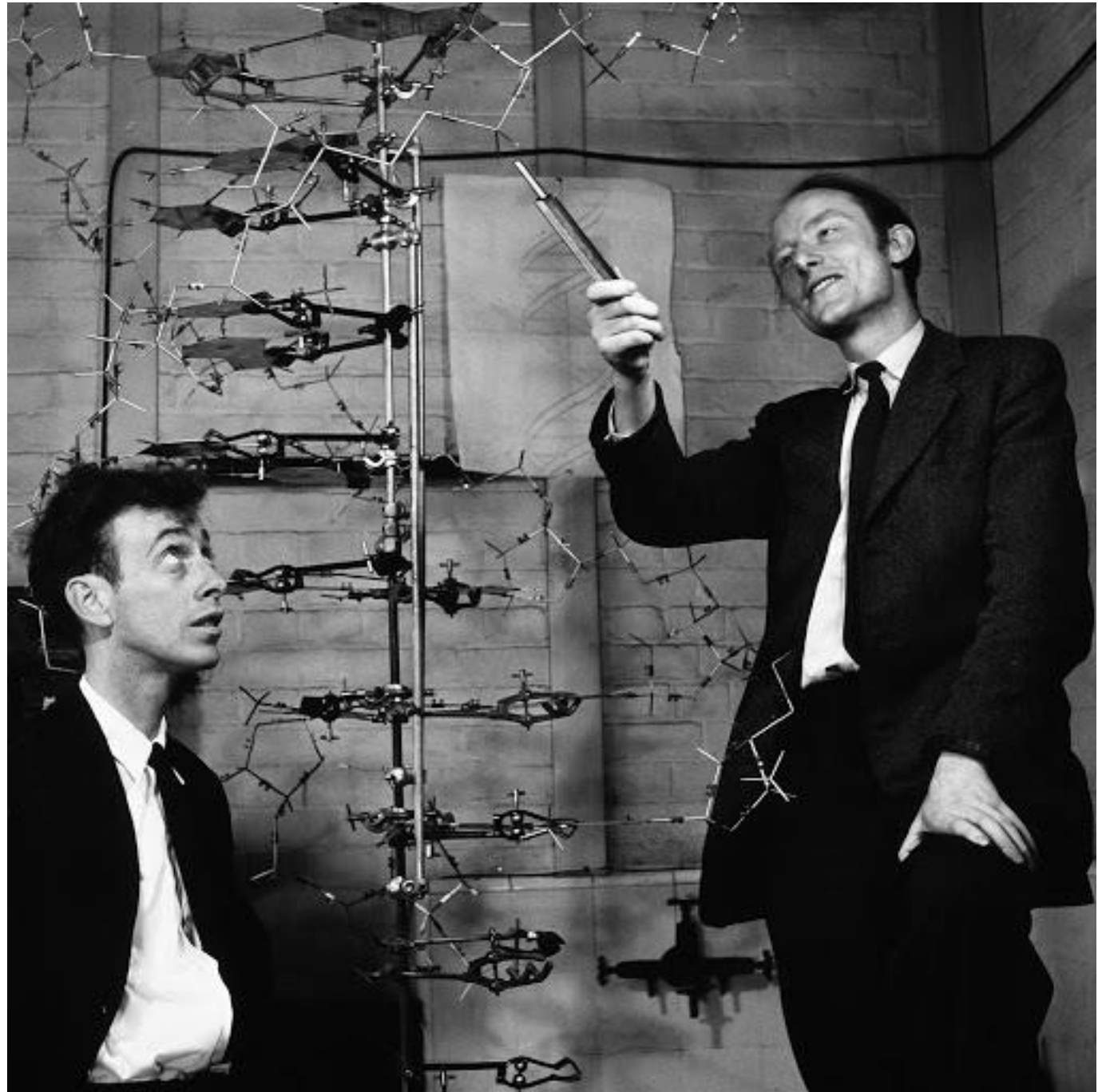
BASE PAIRING



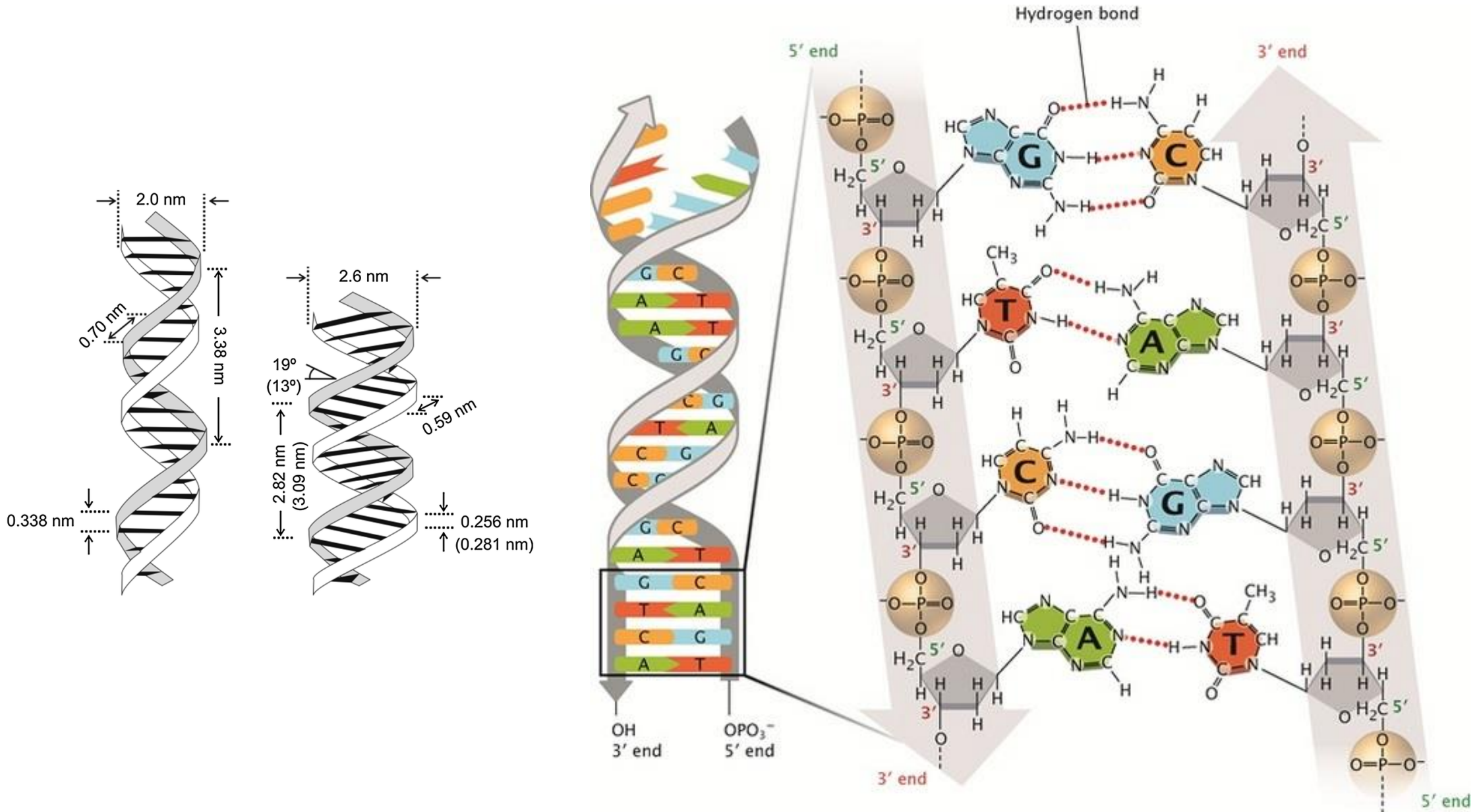
PHOTOGRAPH 51 OF ROSALIND FRANKLIN



DNA MODEL

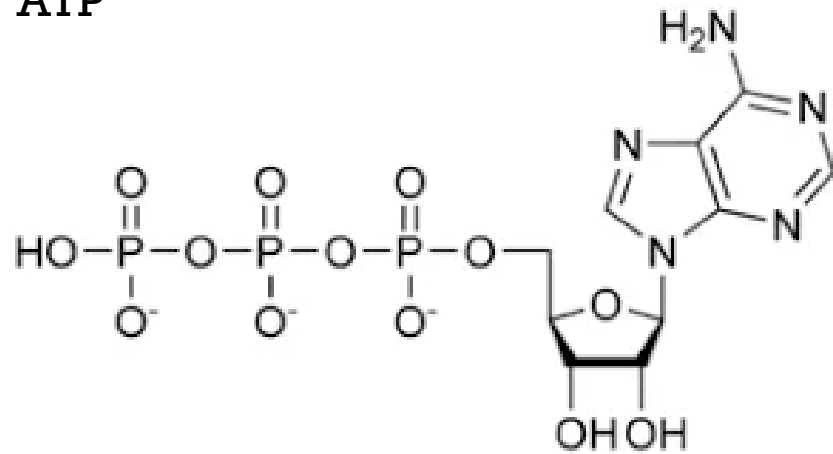


DNA DOUBLE HELIX

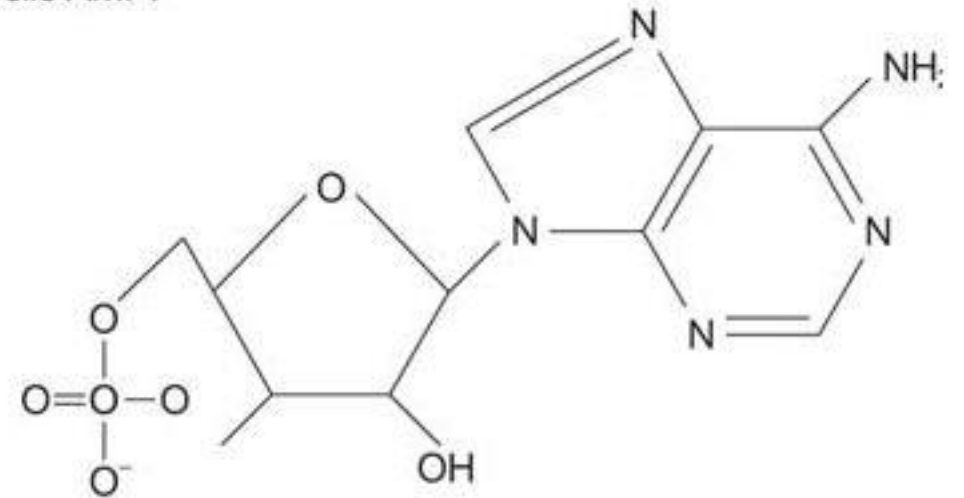


OTHER NUCLEOTIDES

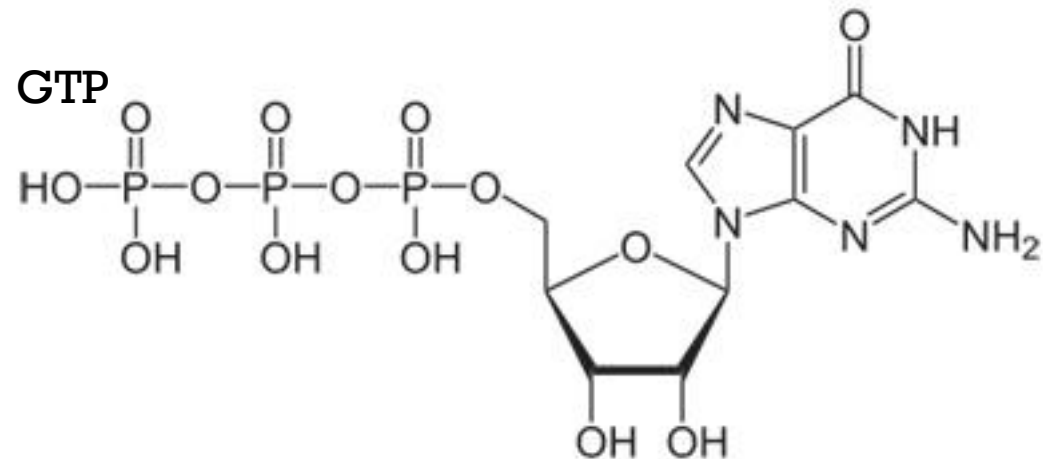
ATP



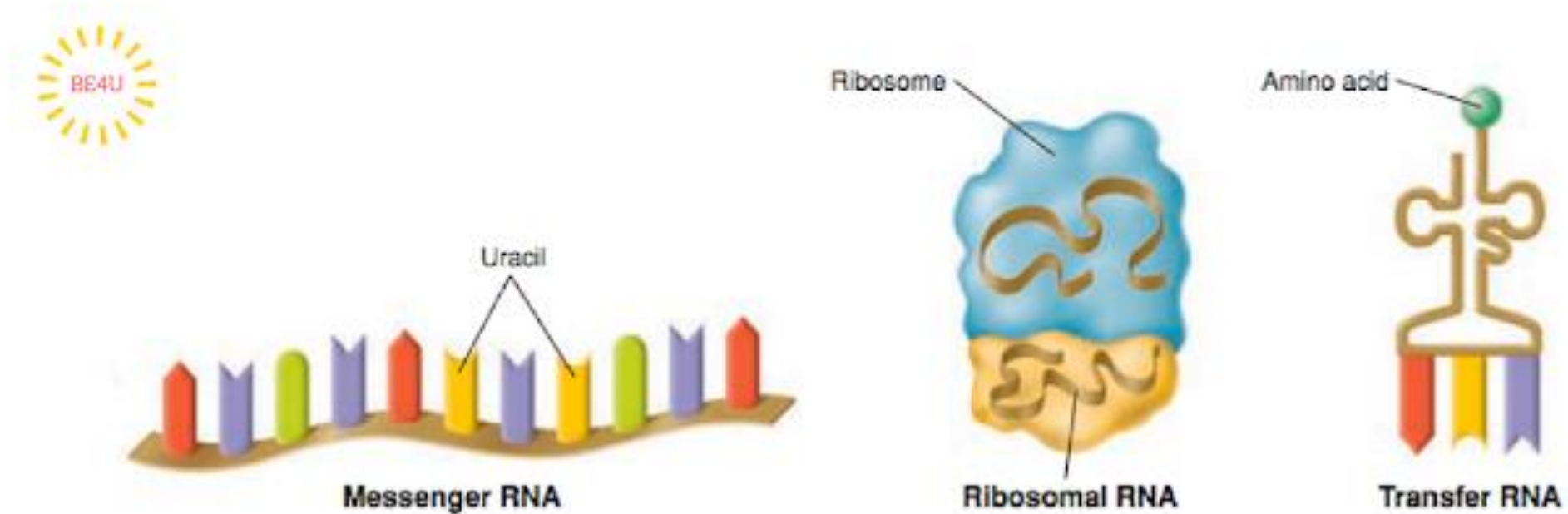
Cyclic AMP:



GTP

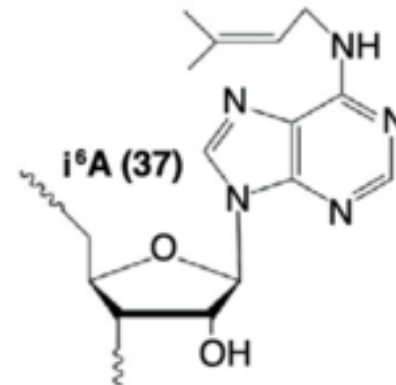
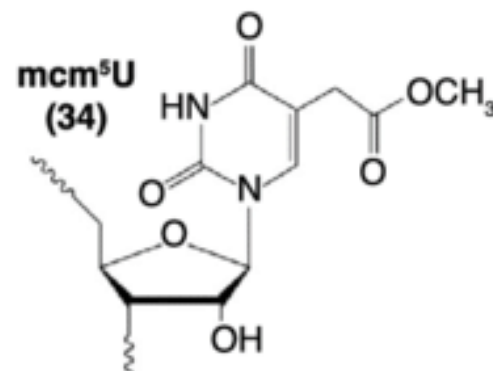
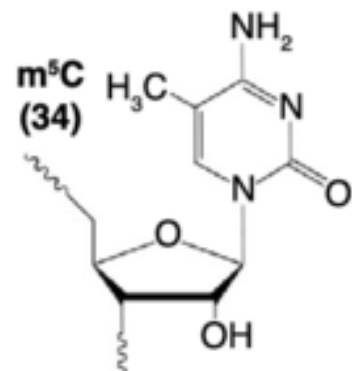
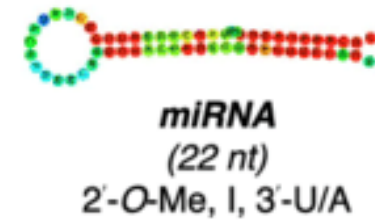
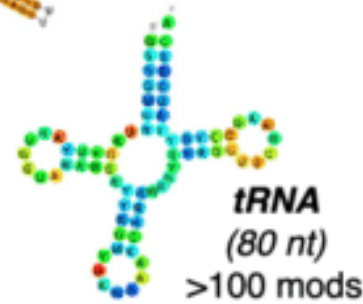
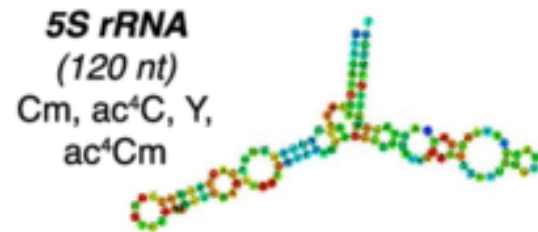
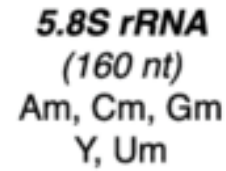
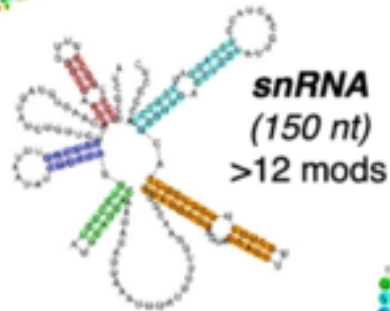
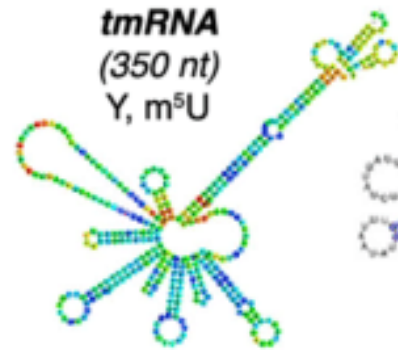
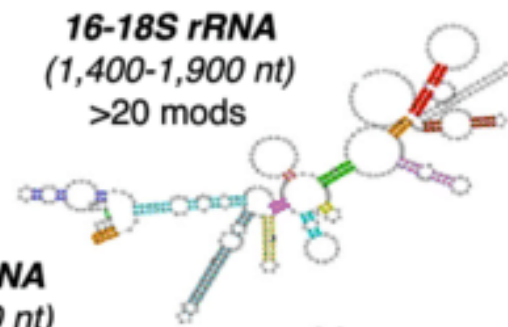
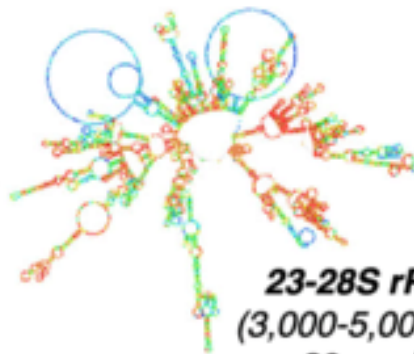
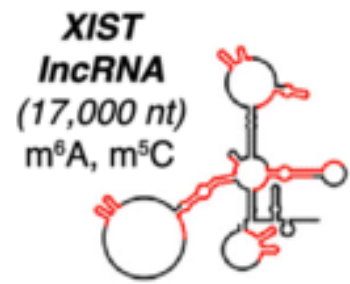


TYPES OF RNA



WWW.BIOLOGYEXAMS4U.COM

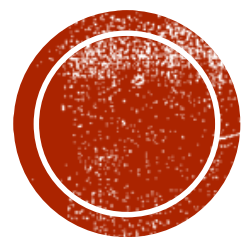




OTHER TYPES OF RNA

RNA	Function
snRNA (small nuclear RNA)	Forms snRNP which is involved in mRNA processing by removing introns
snoRNA (small nucleolar RNA)	Forms snRNPs involved in maturation and assembly of rRNA
siRNA (small interfering RNA)	Involved in RNA interference where rRNA is degraded
hnRNA (heteronuclear RNA)	High molecular weight RNAs
Catalytic RNA (ribozymes)	Includes peptidyl transferase, spliceosome, etc
Telomerase RNA	Acts as a template for the addition of nucleotides to the 3' end of the duplicating strand
gRNA	Guides RNA needed for RNA editing
tmRNA (transfer-messenger RNA)	Bacterial RNA molecule with dual properties





END OF LECTURE