Nucleic Acids → DNA + RNA

- Polymers of Nucleotides
- Linear & Unbranched
- F. miescher (1869) → Pus cell (2n), Fish Sperm cell (n)
- 1920 → Nucleic Acid

→ Nucleic Acids are present in all living things

Virus (DNA / RNA) ⟷ Man (DNA + RNA)

DNA → Deoxy Ribo Nucleic Acid

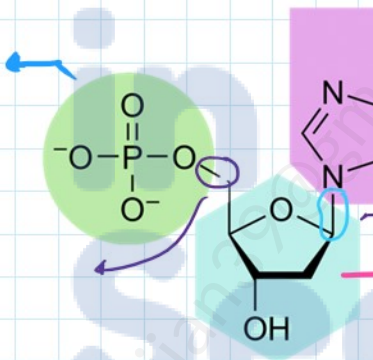
RNA → Ribo Nucleic Acid

Free Form → Cytoplasm

Attached Form →
- Chromatin (DNA + Histone)
- Ribosome (RNA + Protein)

NUCLEOTIDE → (Nucleoside + Phosphate)

- NUCLEOSIDE (Pentose Sugar + N. Bases)



PHOSPHATE GROUP

Ester linkage

→ NITROGENOUS BASES
- → Purines (A + G)
- → Pyrimidines (T, C, U)

N_1 (Pyrimidines)

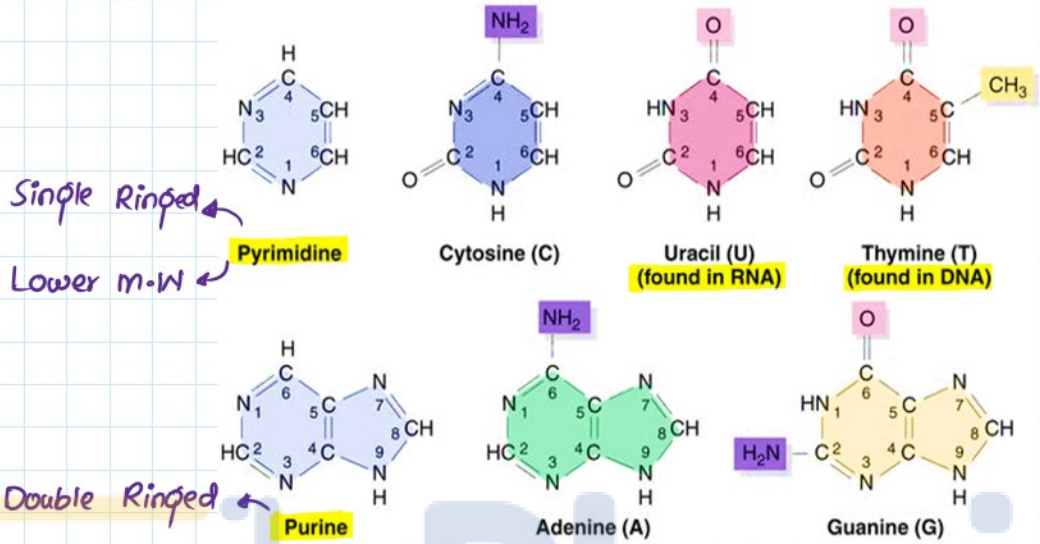
C_1–N, N_9 (Purines)

PENTOSE SUGAR
- Deoxy Ribose Sugar → DNA
- Ribose Sugar → RNA

PHOSPHODIESTER LINKAGE → Dinucleotide (only 1)

ESTER LINKAGE → (n × 2) + 1

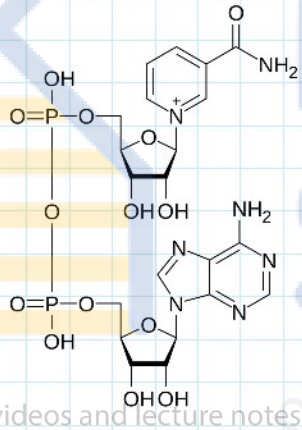
= (1 × 2) + 1 = 3 Ester linkage



- Pyrimidines form C_1-N_1 (1→1) glycosidic link.
- Purines form C_1-N_9 (1→9) glycosidic link.

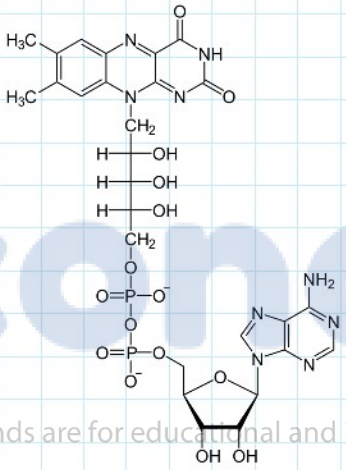
NAD = Nicotinamide Adenine Dinucleotide

Niacin

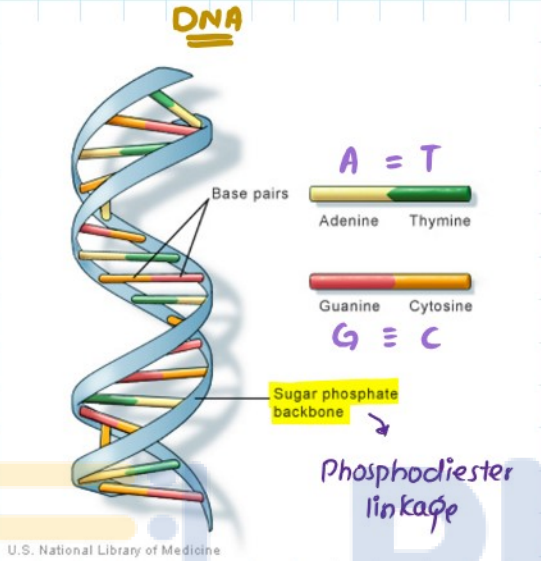


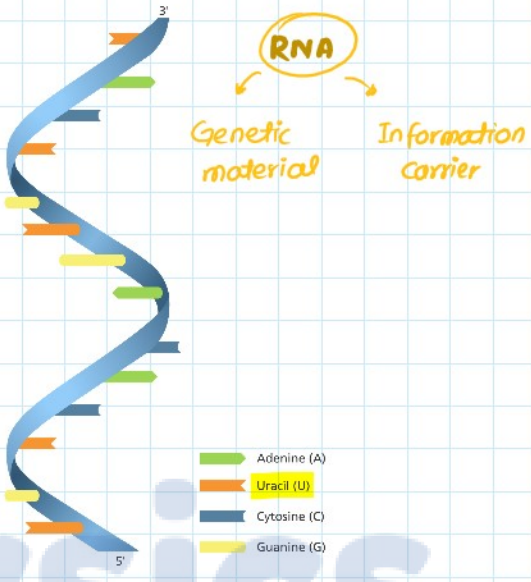
FAD = Flavin Adenine Dinucleotide

(Vitamin B_2)



POLYNUCLEOTIDES





RNA

Genetic material — Information carrier

RNA TYPES

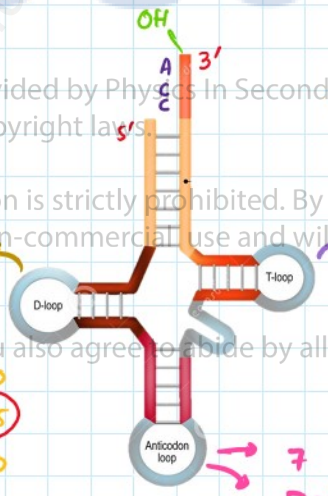
All RNA formed by "Transcription"

m RNA
- Variable length
- 3-4%
- DNA → Ribosome
- Translation

t RNA
- 75-90 Nucleotides
- 10-20%.
- Carry Amino Acid at the site of translation

r RNA
↗ Has Catalytic Activity
- Largest RNA
- 80%
- Ribosome formation
- Amino Acid polymerization.

- $\frac{3000}{3}$ Nucleotides → mRNA
- 1000 Amino Acid → Protein



"CLOVER LEAF STRUCTURE"

Recognition of Activation Enzyme

Ribosomal Binding site

t RNA
- identified → 60
- Different → 45
- A. Acid → 20

7 Nucleotide
Detect codon site