

## \* RNA (Ribonucleic acid) :-

- It is a single stranded structure
- Polymer of nucleotides without base pairing
- In RNA, its ribose sugar has -OH in 3' position & its base is uracil (U) instead of thymine (T)

## \* DNA v/s RNA

- DNA is the predominant genetic material, whereas RNA performs dynamic functions of messenger (mRNA) and adapter has to be found bet<sup>n</sup> chemical structures of 2 nucleic acids (tRNA)
- However, in some viruses (like influenza, coronavirus) has RNA which is the genetic material for that virus whereas in most living organisms, DNA is the genetic material

Q. Why DNA is stable and RNA is unstable?

Soln: Following ~~three~~ the reasons for it:-

- DNA: No free OH group at 2' C position  
RNA: Free OH group at 2' C position makes RNA chemically reactive and prone to hydrolysis
- DNA: Mutate at slow rate  
RNA: Mutate at very fast rate as its highly reactive



## Properties of RNA:-

- It is the 1<sup>st</sup> **nucleic acid** to be discovered
- All essential processes like metabolism, translation, splicing etc evolved around RNA
- RNA acts as genetic material & catalyst (reactive & unstable)  
(in certain viruses) &
- ④ • For storage of genetic material → DNA preferred (stable)  
For transmission of genetic info → RNA preferred (unstable)

## Types of RNA:-

- 1) Messenger RNA (mRNA):- ~~carries genetic~~
  - carries genetic information from **DNA** to **ribosomes**
  - mRNA is the blueprint for construction of protein
- 2) Ribosomal RNA (rRNA):-
  - rRNA along with proteins (**rRNA + protein**) = ribosomes
  - construction site where protein is made
- 3) Transfer RNA (tRNA):-
  - transports amino acids to ribosomes for **protein synthesis**
  - truck delivering **proper amino acid** to the site at the right time