RNA

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Ribonucleic Acid

RNA is an important molecule consists of a long chain ofnucleotide units. Each nucleotide is made up of nitrogenous base, aribose sugar, and aphosphate.

RNA Vs DNA

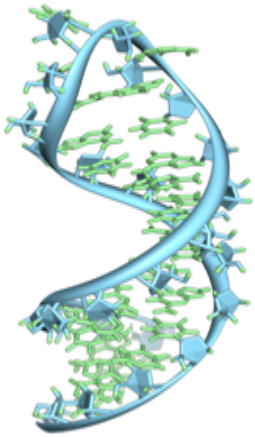
RNA is as like as aDNA, but has few different structural details.

RNA:

- Is usually single-stranded
- RNA nucleotides contain ribose sugar.
- RNA has the base uracil.
- Bases are A U G C
- RNA is transcribed from DNA
- RNA polymerases help in transcription process
- RNA is central to protein synthesis.
- There are 3 types of RNA: mRNA, tRNA & rRNA.

DNA:

- Is usually double-stranded
- DNA contains deoxyribose (lacks one oxygen atom
- DNA has the base Thymine
- Bases are A T G C



mRNA is a type of RNA (messenger RNA). Information from DNA will be carried toribosomes through mRNA. RNAs involves with other roles of gene regulation, gene expression etc.

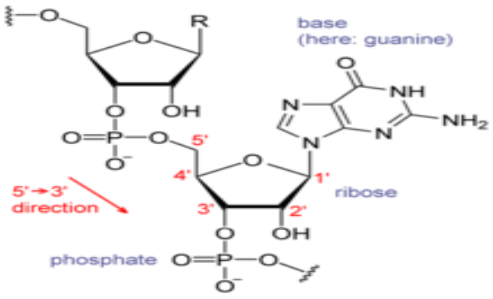
Lets summarize it briefly like below.

- Both are nucleic acids, but differ in three main ways.

1. Unlike double stranded DNA, RNA is a single-stranded molecule while DNA contains deoxyribose, RNA contains ribose
2. RNA is unstable or less stable when compared to DNA. WHY? Because it is more prone to hydrolysis.
3. The complementary base toadenine is notthymine like DNA, but it isuracil. Uracil is the unmethylated form of Thymine.

Types of RNA includemRNA,tRNA,rRNA, snRNAs and other non-coding RNAs. Non coding RNAs allow to fold and they binds and form a double stranded like structure.

Structure of RNA



- Each nucleotide in RNA has a ribose sugar
- Adenine and guanine are purines
- cytosine and uracil are pyrimidines
- A phosphate group is attached to the 3' position of one ribose and the 5' position of the next
- Hydrogen bonds formed between cytosine and guanine and between adenine and uracil and between guanine and uracil

Types of RNA

mRNA (Messenger RNA) - carries information from DNA of the structural gene to the ribosome.

tRNA (Transfer RNA) - carries amino acids to mRNA at the ribosome to assembly the protein being made

#**rRNA** (Ribosomal RNA) - Important structural component of the ribosome where protein synthesis occurs.

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Reference Links:

- http://en.wikipedia.org/wiki/RNA
- http://www.diffen.com/difference/DNA_vs_RNA
- http://www.elmhurst.edu/~chm/vchembook/583rnatypes.html
- http://www.youtube.com/watch?v=NJxobgkPEAo

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