DNA vs RNA- Differences/Similarities

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RNA stands for ribonucleic acid while DNA stands for deoxyribonucleic acid. They are similar in a way as they both carry genetic information however, there are several differences as well. RNA encompasses sugar ribose while DNA encompasses sugar deoxyribose (Saladin, 2017). DNA is double-stranded while RNA is a single-stranded molecule. Typically, DNA consists of a long chain of nucleotides. In contrast, RNA consists of shorter chains of nucleotide. Another important feature of DNA is that it has the ability to self-replicate while RNA is synthesized from the DNA and does not contain the self-replicating properties.

While discussing the alkaline conditions, DNA is stable in the alkaline conditions but RNA is not stable. As mentioned earlier, RNA and DNA both contain genetic information but they do have different functions in humans. It is the responsibility of DNA to store and transfer genetic information. In contrast, it is the responsibility of RNA to code for amino acids that act as a messenger between ribosomes and DNA (Saladin, 2017).

Specifically discussing the base-pairing, there is a slight difference between RNA and DNA. The three nitrogenous bases that are adenine, guanine and cytosine are present in both DNA and RNA. However, there is also a slight difference between the bases of DNA and RNA. RNA contains uracil while DNA is comprised of thymine (Li & Cheung, 2011). The difference between uracil and thymine is that thymine does not contain a methyl group on its ring.

In the context of stability, DNA is more stable as compared to RNA. This is because DNA contains the C-H bond. Also, the enzymes that may attack DNA are destroyed by the body itself. As the ribose of RNA is made from the O-H bond, it is more reactive than DNA, yet lacks stability and is more prone to enzyme attacks (Li & Cheung, 2011). Moreover, RNA is a bit resistant to UV damage as compared to DNA.

**References**

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