I am not sure (just follow the guideline)

Science, Biology

Comparison between the Lay Article and Peer Review Article DNA Replication: An Engineering Marvel Summary The of this newspaper article reviews the process of DNA replication considering its basics and importance to life. Several complex and sophisticated processes facilitate the replication of DNA. It is noteworthy that the author incorporated some peer-reviewed articles for purposes of providing an overview of DNA replication (Jonathan, 2013).

The process of DNA replication is semi-conservative. At the beginning of replication, two helical strands of DNA unzip; thus, providing two DNA strands that act as a template for the replication process. The biosynthesis of a new daughter strand occurs through the incorporation of nucleotide bases along the template strand. Ultimately, a new double helix structure consisting of the old and new daughter strand develops (Mott & Berger, 2007).

The formation of the replication fork is necessary for DNA replication. The replication fork is the structure formed when a DNA double helix opens up to facilitate this process. Replication starts at sites referred to as origins of replication where nucleotides are attached to the newly growing strand. It is noteworthy that DNA replication occurs in both directions of the bubble; hence, making the replication process fast (Mott & Berger, 2007).

The initiation phase is the first stage of DNA replication. During this state, the DNA double helix structure unwinds to expose each complementary strand. Specialized enzymes and protein complexes act in combination, to facilitate the process. At first, helicases are used to unwind the double helix structure. After the unwinding process, protein complexes attach to each

strand for the incorporation of new nucleotide bases. DNA polymerase is responsible for the biosynthesis of new strands (Mott & Berger, 2007).

The elongation phase is the next step after the initiation phase. During this stage, new daughter strands are copied from the template strand and the process is facilitated by the replication mechanism. The enzyme DNA polymerase is responsible for this elongation process of progressing along the template strand, as new nucleotide bases join up to form new daughter strands. It is noteworthy that DNA replication takes place in the 5’ to 3’ direction. The synthesis of new daughter strands requires an RNA primer, which is synthesized by the primase enzyme. The primer has a 3’ end where the first nucleotide is added with the aid of DNA polymerase. Ultimately, the RNA primer is replaced by DNA molecules when synthesis of the daughter strand is complete (Parkhomchuk et al., 2009).

Leading and lagging strands are a common feature in DNA replication. The leading strand experiences the continuous addition of nucleotides whereas it is discontinuous in the lagging strand. Therefore, short DNA fragments referred to as Okazaki fragments are synthesized then added to the lagging strand by an enzyme called DNA ligase. Termination of DNA replication occurs when two replications meet indicating that the synthesis of a new daughter strand is complete (Parkhomchuk et al., 2009).

Analysis of Lay Article

The peer review article adequately supports all the information incorporated in the lay article. As evident from the article, complex systems are involved in the DNA replication. The summary represents a brief description of the actual process, which is complex and sophisticated. However, the peer

review article contains detailed information compared to the lay article. The lay article provides citations from several peer review articles from where the information is sourced. It is worth noting that the author of the newspaper article has tried as much as possible to incorporate all the essential information given that the peer review articles are quite lengthy.

Conclusions

The analysis of this lay article indicates that the author has done an excellent job to provide an educative piece for the readers. Personally, I would have provided the same information, but with the use of graphical information to explain the replication process. Additionally, a brief description of the terminologies is necessary to provide a better understanding.

References

Jonathan, M. (2013). DNA Replication: An Engineering Marvel. Retrieved from: http://www. evolutionnews. org/2013/01/dna_replication068061. html

Mott, M. & Berger, J. (2007). DNA replication initiation: mechanisms and regulation in bacteria. Nature Reviews Microbiology, 5, 343-354.

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