Special Issue

DNA Replication, Damage and Repair in Repeat Instability: Their Role from Bacteria to Genetic Disorders in Humans

Message from the Guest Editor

Repeated DNA sequences in tandem are found across the genomes of many different species, from bacteria to humans. They are frequently highly conserved, as tandem repeats are often found within genes or regulatory regions, suggesting they have an important function. These sequences are prone to high mutation rates, consisting of gain or loss of repeat units, which makes them highly unstable, and, for this reason, the instability of DNA repeats is believed to be a key driver of genome evolution, as they are a source of phenotypic variability. In humans, the instability of trinucleotide repeats leads to large expansions that can interfere with gene expression, protein function, or RNA processing, leading to disease.

The Special Issue aims to highlight our current understanding of the molecular mechanisms underlying DNA repeat instability, exploring insights gained from in vitro model systems, bacterial and eukaryotic genetic assays, and examining how these mechanisms generate the observed repeat variability.

Guest Editor

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The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

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