

Special Issue

Microsatellite Instability: From Molecular Mechanisms to Repeat Expansion Diseases

Message from the Guest Editor

Microsatellites are simple repetitive DNA sequences present in prokaryotic and eukaryotic genomes. Due to their high instability, consisting of the addition or deletion of repeated units, they have been referred to as dynamic mutations. Although they have been classically used as molecular markers, microsatellite instability is assumed to play a relevant role in the evolution of genomes. Moreover, the instability of repeated sequences can be a source of phenotypic variation in bacterial pathogens, be linked to neurodegenerative diseases in humans, or be a major feature in certain types of cancer. Large expansions of trinucleotide repeats, as observed in more than 50 repeat expansion diseases including Huntington's disease, multiple spinocerebellar ataxias or fragile X syndrome, and are not uniquely explained by the DNA slippage model but more complex mechanisms including the formation of R-loops. This Special issue welcomes manuscripts including the molecular mechanistic details of DNA microsatellite instability from in vitro model systems to Bacteria and Eukaryotes, their role as biomarkers and their relationship to Repeat Expansion Diseases.

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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