Special Issue

Mechanisms of DNA Replication Fork Progression, Stalling, and Rescue

Message from the Guest Editor

The DNA replication fork is an essential structure in DNA metabolism. In the absence of impediments, it is moved from the origin to the terminus by dynamic, multi-subunit replisome complexes. When replication fork progress is impeded by obstacles or discontinuities in one or both strands of the DNA duplex, there are dramatic consequences for the cell. These range from checkpoints to cell death or cancer in multicellular organisms when replication fails to restart. Consequently, significant cellular resources are reserved to ensure DNA replication fork progress ranging from unexpected behavior attributed to replisome components, proteins to stabilize fork structures, and multiple types of enzymes to regress, repair, and restore fork structures. Furthermore, the structure of the fork itself plays an important role in facilitating the interactions of both replication and repair proteins with itself. The protein and nucleic acid components work together to ensure that DNA replication is completed with minimal errors in the genome.

Guest Editor

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