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DNA Replication Timing: Where, When, How and Why?

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Message from the Guest Editor

The study of DNA replication timing has proven particularly challenging, with many fundamental questions remaining largely unresolved.

While the biochemistry of replication initiation has been studied in great detail, it remains largely unknown how regulation of DNA replication timing is carried out. A fundamental question that remains incompletely resolved is: why do cells have a DNA replication timing program? Is it important that certain genomic regions replicate earlier than others? Does replication timing influence genome regulation and cellular and organismal physiology?

Exciting new approaches are being utilized to explore these questions and have established or revealed new links between replication timing and gene regulation, chromatin structure, chromosome conformation, mutational processes, inheritance and diseases. These discoveries are leading to a revived and expanded interest in DNA replication timing, and are sure to bring a new level of understanding of this important process in the forthcoming years.

This special issue addresses DNA replication timing in various species from all of these different aspects: causes, consequences, properties, and mechanisms.









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Message from the Editor-in-Chief

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