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DNA Replication Timing: From Basic Mechanisms to Biological Functions

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Message from the Guest Editors

DNA replication is a fundamental biological process required for copying genetic and epigenetic material prior to cell division. In prokaryotes, DNA replication occurs at well-defined loci known as replication origins. The situation, however, is more complex in eukaryotes due to the differences in genome size, and genomic contents, such as repeat load. It is estimated that there could be tens of thousands of putative replication origins in the eukaryotic genome that fire stochastically in the S phase. Eukaryotic replication origins are also regulated in a strict temporal manner, with some origins firing early and others firing late. By labeling proliferating cells with thymidine analogs such as BrdU (Bromodeoxyuridine, 5-bromo-2'-deoxyuridine) or EdU (5-Ethynyl-2´-deoxyuridine), it has become possible to map the replication timing of the genome into early, mid or late replicating regions. These studies have revealed that in higher eukaryotes, e.g., mammals, replication domains are intricately linked with large genomic compartments known as TADs (topologically-associating domains) and LADs (lamina-associated domains).

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Message from the Editorial Board

Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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