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Chromatin Replication and Epigenome Maintenance

Fariba Dehghanian ,Majid Motovali bashi*, Atefe Akbari

Department of Genetics, Faculty of Science, University of Isfahan, Isfahan

Abstract

The eukaryotic replisome is a multi-component complex that drives DNA replication with a speed of approximately 2 to 3 kb per min. This implies that chromatin is disrupted at a rate of around 10 to 15 nucleosomes every minute a head of each active replisome. To reproduce a similar chromatin environment on new DNA, histones and other chromatin-bound factors are transferred from the parental strand to the daughter strands. In addition, new histones are incorporated to maintain nucleosome density, and their modification signature should be assimilated to nearby old histones in the local chromatin environment. In general interaction between the components of the replisome and chromatin proteins can help to understand the proper way of improving the replication fork and its relationship to chromatin. In this study, the regulatory mechanism of chromatin replication and epigenome maintenance are evaluated.

Keywords: nucleosome, nucleosome assembly and disassembly, chromatin proteins, replication fork

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Department of Genetics, Faculty of Science, University of Isfahan, Isfahan

mbashi@sci.ui.ac.ir