

MECHANIZMY INICJACJI REPLIKACJI GENOMU BAKTERIOFAGA T4

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1. Wprowadzenie. 2. Matryca DNA. 3. Modyfikacje polimerazy RNA *E. coli* istotne w procesie inicjacji replikacji. 4. Lokalizacja *origin* i mechanizmy przekształcania mRNA w starter nici wiodącej. 4.1. *OriF* (*uvsY*) i *oriA*. 4.2. *OriE*. 5. Powstawanie kompleksu replikacyjnego oraz mechanizmy syntezy starterów nici opóźnionej. 6. Replikacja rekombinacyjna. 7. Enzymologia biosyntezy prekursorów DNA. 8. Podsumowanie

Mechanisms initiation of Bacteriophage T4 genome replication

Abstract: Bacteriophage T4, one of the largest bacteriophages, encodes most, if not all, of the proteins required for replication and recombination of its DNA. One of the most interesting aspects of T4 replication initiation is the close coupling of replication end recombination. In any infecting chromosome, leading strand can be primed from pre-replication transcripts, independent of primase activity, at one of several *origins*. Replication from T4 *origins* creates single-stranded genome ends which can invade homologous region of coinfecting phage genome and thereby lead to recombinant phage. The initiation of T4 DNA replication after wild type infection requires assembly of the DSC (deoxyribonucleoside synthesising complex) and formation of dNTPs. The final proof of direct coupling and dNTP transfer lies in functionally combining for isolated DSC and DNA replication system.

1. Introduction. 2. DNA matrix. 3. Modification of *E. coli* RNA polymerase essential in initiation of *origin* dependent replication. 4. Localization of particular *origins* and mechanisms of conversion mRNA into primer for leading DNA strand synthesis. 4.1. *OriF* (*uvsY*) and *oriA*. 4.2. *OriE*. 5. Formation of the replication complex and mechanisms of initiation of lagging DNA strand synthesis. 6. Recombination dependent replication. 7. Enzymology of DNA precursors biosynthesis. 8. Summary