

## 大肠杆菌中整合的F'质粒带动细菌染色体复制需要recA基因

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**摘要** 大肠杆菌的dnaA46突变能被F'质粒整合抑制。整合抑制的菌株(Sin菌株)在通过转导引入了recA56突变后又变得不能在40℃中生长。标记转移、吖啶橙敏感性、F'质粒消除和mini-染色体质粒转化等实验说明, Sin菌株中F'质粒始终处于整合状态, 并且在40℃中细菌染色体的复制由整合状态的F'质粒所带动。比较了Sin recA<sup>+</sup>和Sin recA<sup>-</sup>菌株在不同温度中的DNA、蛋白质的生物合成情况。实验结果说明recA基因在DNA复制过程中起作用。前人的工作证明了recA基因的DNA重组和DNA损伤应急修复(SOS)过程中是一个关键的基因。本文的工作为recA基因的功能提供了新的认识。

**关键词** [大肠杆菌recA](#), [染色体复制](#), [整合抑制](#)

分类号

## Dependence of the recA Gene for the Replication of the Bacterial Chromosome Initiated by the Integrated F' Plasmid in Escherichia coli

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### Abstract

Mutant strain dnaA46 of Escherichia coli can be integratively suppressed by the F' plasmid. Upon introducing the recA56 mutation through transduction the suppressive integration strain (Sin) becomes unable to grow at 40°C. By means of experiments of marker transfer, acridine orange sensitivity test, F' curing and mini-chromosome transformation it is concluded that the F' plasmid is always in an integrated state in the Sin strains and that the initiation of the replication of the bacterial chromosome is carried on by the integrated F' plasmid. The biosyntheses of DNA and protein of the Sin recA<sup>+</sup> and Sin recA<sup>-</sup> strains at different temperatures were compared. It is concluded from the experimental results that the recA gene functions at the level of DNA replication. The recA gene is known to be the key gene in DNA recombination and SOS repair of DNA damage. The works reported here throw some light on the understanding of the function of the recA gene.

**Key words** [E.coli](#) [recA](#) [Chromosome replication](#) [Suppressive integration](#)

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