

## Location of *pinO*, a New Gene Located between *tufA* and *rpsJ*, on the Physical Map of the *Escherichia coli* Chromosome

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We have recently found that an open reading frame located upstream of the S10 ribosomal protein operon, between *tufA* and *rpsJ* (4), at min 73 on the *Escherichia coli* genetic map (1), might be translated into an 11-kDa protein required for the initiation of chromosome replication (2). We call this gene *pinO*. An oligonucleotide probe of 26 nucleotides with a sequence corresponding to the coding sequence of *pinO* was synthesized. This oligomer was labeled at its 5' end with <sup>32</sup>P and hybridized to phage DNA prepared from the λ miniset phages 626 (3F8) and 627 (9H3) (3) and to plasmid pNO2019, a mini-ColE1 plasmid containing 500 bp including *pinO* (4), as a positive control. We found hybridization only to phage 627 and to the plasmid. The exact position of *pinO* within the insert was determined by restriction with *EcoRI* and Southern analysis. We unambiguously locate this sequence in the 1.4-kb *EcoRI* fragment which includes kb 4260 on the Kohara physical map (3).

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### REFERENCES

1. Bachmann, B. J. 1990. Linkage map of *Escherichia coli* K-12, edition 8. *Microbiol. Rev.* **54**:130-197.
2. Guzmán, E. C., and A. Jiménez-Sánchez. 1991. A calcium binding protein that may be required for the initiation of chromosome replication in *Escherichia coli*. *Res. Microbiol.* **142**:137-140.
3. Kohara, Y., K. Akiyama, and K. Isono. 1987. The physical map of the whole *E. coli* chromosome: application of a new strategy for rapid analysis and sorting of a large genomic library. *Cell* **50**:495-508.
4. Olins, P. O., and M. Nomura. 1981. Regulation of the S10 ribosomal protein operon in *E. coli*: nucleotide sequence at the start of the operon. *Cell* **26**:205-211.