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E. COLI MAP†

Location of the *dcp* Gene on the Physical Map of *Escherichia coli*

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The *Escherichia coli dcp* gene, which encodes dipeptidylcarboxypeptidase II (EC 3.4.15.3), was cloned and sequenced (data will be published elsewhere). The recombinant plasmid pBS20 was obtained from a *Sau*3A partial library of chromosomal *E. coli* K-12 DNA, inserted into a *Bam*HI site in the low-copy vector pLG339 (6). It was selected on the basis of its ability to confer growth to a *dcp his*::Tn*10* strain of *E. coli* K-12 with hippuryl-L-histidyl-L-leucine as a source of histidine. This requires an active dipeptidylcarboxypeptidase, which hydrolyzes the substituted tripeptide into *N*-benzoylglycine and L-histidyl-L-leucine which is subsequently cleaved into the constituent amino acids by one or more of peptidases A, B, D, and N (1, 5).

A restriction map of the 13-kb inserted fragment from pBS20 was constructed. Comparison with the corresponding region on the Kohara restriction map of *E. coli* DNA (1) revealed that *dcp* might be located near 34 min. To test this, a 1.2-kb *Pvu*II-*Pst*I DNA fragment (Fig. 1) encoding part of Dcp was labeled nonradioactively with digoxigenin. It was hybridized to the cloned insert of lambda miniset phages 2B2 and 9E12 from the Kohara library (4). Positive results in plaque hybridization for *dcp* were found with clone 2B2, but not with clone 9E12. This is consistent with a position for the *dcp* gene at 1642 to 1645 kb on the *E. coli* physical map. The transcriptional direction was determined by sequence data. Finally it should be noted that the F-prime plasmids 123 and 126 will complement mutations in *dcp* (2).

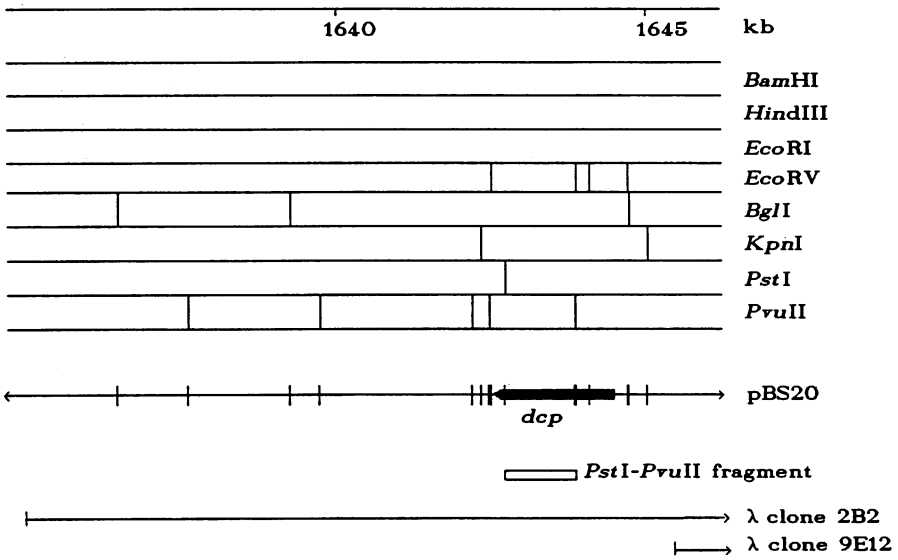

FIG. 1. Restriction map of the cloned fragment from pBS20 with the *dcp* locus (the arrow indicates the orientation) and the flanking region of *E. coli* K-12. The map is shown in the format of Kohara et al. (4). Our restriction sites based on nucleotide sequencing data differ from the Kohara map in that the *Hin*dIII site is absent and the *Pvu*II site at 1642 kb and the *Eco*RV sites, not determined by Kohara, have been added. It was also found that the size of the clone 9E12 has changed. These data are in agreement with the corrected version of the Kohara map (3). The *Pst*I-*Pvu*II fragment of the cloned gene used in the hybridization with the phages is indicated.

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