

## Physical Locations of *bglA* and *serA* on the *Escherichia coli* K-12 Chromosome

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We determined that the *bglA7* mutation was linked by P1 transduction to *serA*, which is located at 63 min on the *Escherichia coli* genetic map (details to be presented elsewhere). Previously *bglA*, which encodes phospho- $\beta$ -glucosidase A, was mapped to 84 min (1, 3). The gene product of *serA* is phosphoglycerate dehydrogenase and is required for serine synthesis (4). The Kohara phages (2) were used in complementation-recombination tests to determine the physical locations of *bglA* and *serA* (Table 1).

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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. 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.

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TABLE 1. Physical mapping of *bglA* and *serA*

Mutation	Physical map location <sup>a</sup>	Phages <sup>b</sup>		Strain <sup>c</sup>
		Tested	Positive <sup>d</sup>	
<i>bglA7</i>	3050-3060	465-474	468, 469	JL630
<i>serA27</i>	3068-3073	465-474	470, 471	JL628

<sup>a</sup> The physical map locations are in kilobase pairs and were derived by using reference 2.

<sup>b</sup> The Miniset names of the Kohara phages have been used; they are listed in reference 2a.

<sup>c</sup> Strains JL628 (*bglR67 bglB:: $\lambda$ lacZ bglA::Tn10 serA27*) and JL630 (*bglR67 bglB:: $\lambda$ lacZ bglA7*) are derived from laboratory strain RV (*F<sup>-</sup>  $\Delta$ lacX74 thi*).

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- 2a. Komine, Y., T. Adachi, H. Inokuchi, and H. Ozeki. 1990. Genomic organization and physical mapping of the transfer RNA genes in *Escherichia coli* K12. *J. Mol. Biol.* **212**:579-598.
3. Prasad, I., and S. Schaeffer. 1974. Regulation of the  $\beta$ -glucosidase system in *Escherichia coli* K-12. *J. Bacteriol.* **120**:638-650.
4. Umbarger, H. E., M. A. Umbarger, and P. M. L. Siu. 1963. Biosynthesis of serine in *Escherichia coli* and *Salmonella typhimurium*. *J. Bacteriol.* **85**:1431-1439.