ISOLATION FROM *E. COLI* OF A URIDINE NUCLEOTIDE CONTAINING DIAMINOPIMELIC ACID. J. L. Strominger, S. S. Scott* and R. H. Threnn*. Dept. of Pharmacology, Washington Univ. School of Medicine, St. Louis.

A DAP requiring mutant of *E. coli* (kindly given by J. Lederberg) contains a high steady state concentration of a uridine nucleotide whose structure has been determined and may be represented as UDPAG-Lact-(L)ala-(D)glu-(meso) DAP-(D)ala-(D)ala. This compound is the analogue of an intermediate in cell wall synthesis isolated from *S. aureus*, UDPAG-Lact-(L)ala-(D)glu-(L)lys-(D)ala-(D)ala. The sequence and rotation of amino acids in the two nucleotides has recently been determined and data in support of the indicated structures will be presented. When the *E. coli* mutant is deprived of DAP, the DAP-containing nucleotide disappears, and immediately prior to lysis, another uridine nucleotide, UDPAG-Lact-(L)ala-(D)glu, accumulates. An identical compound accumulates in *S. aureus* deprived of lysine (Strominger, Threnn and Mathenson, *J. Pharm. Exp. Ther.*, 122:73A, 1958). These data provide evidence that the "basal structure" of the cell wall of *E. coli* is synthesized from intermediates similar to those found in *S. aureus*. Data presented elsewhere (Mathenson and Strominger, these Proceedings) provide evidence that penicillin inhibits DAP incorporation and cell wall synthesis in *E. coli* in a manner analogous to inhibition of lysine incorporation and cell wall synthesis in *S. aureus*.

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