Q29

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Note for MGB

BIOTIN REQUIREMENT OF CULTURES DERIVED FROM E. COLI K-12 Strain 58.

E. L. Tatum (1945, Proc. Nat. Acad. Sci., 31:215) isolated a number of diauxotrophic mutants from the previously isolated biotin-dependent, strain 58. These included strain 58-161, which originally required biotin and methionine (B- M-), and which has been an important parental stock in recombination studies. Subsequently, the biotin requirement appears to have been lost, apparently by reverse mutation. (Miss Phyllis M. Fried failed to obtain any B- recombinants in outcrosses, and we have observed no effect on segregation ratios of the addition of biotin to plating media for crosses.) Probably most extant strains of "58-161" are B+M-. We have designated this reversion of 58-161 as W-6, to distinguish it from the original B-M-. Fortunately, through the courtesy of Mrs. Miriam Bonner, we have secured lyophil tubes of early cultures of these derivatives, and have been able to reisolate B-M- components from them. The following are now available:

58-161	B-M-	W-6	B+M-
Y-40	B-M-V_1^r	W-13	B+M-V_1^r
Y-87	B-M-V_1^r Lac-	W-14	B+M-V_1^r Lac-

The "Y-87" described by E. M. Lederberg (1952, Genetics 37:469) was doubtless B+M- since the B-M- form fails to papillate and produces small colonies on EMB lactose agar (unless extra biotin is added) while a newly reisolated B+M- reversion agrees with the published description of Y-87 as a lactose-mutable strain. The B- allele does not appear to be unusually unstable, but remarkably enough our stock nutrient and EMB agar media appear to be relatively deficient in biotin (or may contain biotin antagonists) so that B+ reversions are eventually selected out.

The cultures noted are available on request. Other workers who have received these cultures are urged to check their nutrition, if relevant to local needs, and give them the indicated designations. Since the M- marker itself appears to be absolutely stable, the B- mutation may be of only incidental importance in most work.

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