Perkins, D. D. Response of thi-5 and thi-1 to vitamin pyrimidine.

The mutant 50005 was listed as a thiamine auxotroph by Houlahan, Beadle and Calhoun (1949 Genetics 34:493), who showed that it was not allelic with thi-1, thi-2, thi-3, or thi-4. It was designated thi-5 when mapped near pan-1 in linkage group IV (Perkins et al. 1962 Can. J. Genet. Cytol. 4: 187). Specific growth responses were not reported, and thi-5 was not included by Tatum and Bell (1946 Am. J. Botany 33:15) or by Eberhart and Tatum (1959 J. Gen. Microbiol. 20:43; 1961 Am. J. Botany 48:702; 1963 Arch. Biochem. Biophys. 101:378) in their studies of thiamine biosynthesis in Neurospora.

When thi-5 is tested auxanographically, a clear response is obtained to vitamin pyrimidine (2-methyl-4-amino-5-aminomethyl pyrimidine, Nutritional Biochemicals). Of the other thiamine mutants, thi-1, -3 and -4 (9185, 18558, and 85902) do not respond when tested in the same way. But thi-1 resembles thi-5 in showing a strong response to 2-methyl-4-amino-5-aminomethyl pyrimidine, and this is true of both thi-1 strains 56501 and 17084. Our auxanographic tests were mode at 34°C in minimal medium containing the antagonist pyrithiamine (0.01 µg/ml; Calbiochem) to reduce background growth. Visibly turbid suspensions of conidio from fresh cultures were plated in molten agar, and the test substance was added at a marked position on each plate as soon as the agar hod solidified.

Eberhart and Tatum (1959) reported no response of thi-1 (56501) to vitamin pyrimidine in flask assays where vitamin pyrimidine was added to liquid medium at concentrations of 0.25 and 1 µg/ml. It may be significant that the vitamin pyrimidine used by Tatum and Bell and by Eberhart and Tatum was 5-ethoxymethyl rather than 5-aminomethyl. Another possible explation for the difference in response, suggested by B. M. Eberhart, is that pyrimidine may be antagonizing the antagonist and restoring background growth in the *auxanographic* tests.

Neither our laboratory nor those of Eberhart or Tatum expect to pursue this problem further. - - - Department of Biological Sciences, Stanford University, Stanford, California 94305.