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Prototroph frequencies from crosses between pyridoxine auxotrophs

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Prototroph frequencies from crosses between pyridoxine auxotrophs

Abstract

Crosses between pyridoxine auxotrophs

Radford, A. Prototroph frequencies from crosses between pyridoxine auxotrophs.

ascus, being assigned to a separate but closely linked locus, pdx-2. Four other pyridoxine auxotrophs, plus a fifth subsequently lost, were reported but not assigned to a locus (Tatum et al. 1950 Am. J. Botany 37: 38).

Allele	Prototrophs/10 ⁵ spores
37803	1.1, 2.0*
39106	181
39706	110,44*
44204	46, 109*
44502	65. 46*
46904	13
Y2329	1.2
Y 12274	very poor fertility
Y30978	none in 40,000
Y3 1393	none in 12,000

• Results of crosses between alternate strains of these alleles

At present there are eleven pyridoxine auxotrophs of Neurospora crassa (see Stock Lists in NN's #9 and 10). Seven of these have been previously described (Barratt et al. 1954 Adv. Genet. 6:1), six being classified as pdx-1 and the seventh, on the basis of one recombinant

The crossing of pdx-1 allele 35405 to all the other pyridoxine auxotrophs gave the prototroph frequencies indicated in the Table.

It seems clear from these results that the initial assignment of allele 44204 to a second locus was incorrect. This allele, in addition to its behavior in recombination, also shows complementation behavior consistent with its being an integral part of the pdx-1 locus (Radford 1966 Can. J. Genet. Cytol. 8:672). Strains Y2329, Y30978 and Y31393 also show the low prototroph frequencies with 35405 which would be expected from alleles of pdx-1. Strain Y12274 has so far given insufficient spores, when crossed to 35405, for satisfactory analysis. It does show fairly close linkage to me-1 and col-4 on linkage group IV, and is therefore located in the region of pdx-1. - - - Department of Biological Sciences, Stanford University, Stanford, California 94305.