

Mapping a tyrosinaseless mutant of *Neurospora*

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Abstract

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Crosses were made between ty-l stock 91383A, supplied by Dr. N. H. Horowitz of the California Institute of Technology, and three other mutant

strains: inos (inositol-less) 8960la; sc (scumbo) 580IR10a (both also supplied by Dr. Horowitz); and tyr-l (tyrosine-less) Y6994a (supplied by the Neurospora Stock Center, Dartmouth College). No linkage was observed with inos (linkage group V), but linkage was clearly demonstrated between tyr-l and sc (linkage group III), with a cross-over percentage of about 37% in the 248 unordered tetrads studied (W. N. Strickland, J. Gen. Microb., 22: 583-588, 1960). The choice of the tyr mutant was made for two reasons: (a) Barratt et al. (R. W. Barratt, D. Newmeyer, D. D. Perkins, and L. Garnjobst, Advances in Genetics, 6: 1-93, 1954) and Perkins and Ishitani (D. D. Perkins and C. Ishitani, Genetics, 44: (6, pt. 2) 1209-1213, 1959) had shown the tyr gene to be located about 32.3 map units to the right of the centromere (which is located just to the left of the sc locus) and thus the tyr gene could be close to ty-l; (b) it seemed that ty-l and tyr might conceivably prove to be closely linked since both are involved with tyrosine metabolism.

This cross (ty-l x tyr) proved to be the least fertile of the three crosses studied, with only about 56.5% germination of the isolated ascospores; however, on the basis of the 130 unordered tetrads obtained, a cross-over percentage of approximately 6% is indicated. Thus, ty-l and tyr, although they lie close to each other in linkage group III, do not seem to be allelic.

The order of the three genes investigated in linkage group III seems, therefore, to be: sc (0.9)---tyr (32.5)---ty-l (37⁺). Furthermore, the gene ty-l appears to be the most distally located of any gene yet investigated on the right arm of this chromosome. ---Biology Division, California Institute of Technology, Pasadena, California, U.S.A.