

Genetic basis for an aberrant ascus in *N. crassa*

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Abstract

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Srb, Adrian M. Genetic basis for an aberrant ascus in N. crassa.

J. C. Murray and Adrian M. Srb have reported a gene, peak (pk), that appears to act as a recessive to its wild allele in determination of

aberrant asci characterized by nonlinear spore arrangements (Proceedings IX International Botanical Congress). That is, when zygotes are +/+ or +/pk normal asci are formed, but pk/pk zygotes give aberrant asci. The interpretation might have been strengthened or altered had reciprocal crosses been possible between wild and peak strains. Although peak is clearly a gene mapable on linkage group 5 and is not an extrachromosomal factor, the possibility remained that protoperithecia homocaryotic for peak would give aberrant asci irrespective of the genotype of a conidial parent. More recently conditions have been found under which peak strains produce both protoperithecia and conidia, and reciprocal crosses between wild and peak have been made. The wild strains were the standard St. Lawrence strains 74A and 77a. The peak strains carried allele pk-2, isolated in this laboratory. In the results given below, the protoperithecial parent is designated first, the conidial parent second. Crosses 74A x 77a, 77a x 74A, 74A x pk-2a, pk-2a x 74A, 77a x pk-2A, pk-2A x 77a all gave linear asci. Crosses pk-2A x pk-2a and pk-2a x pk-2A gave aberrant asci. Therefore, it appears that the genotype of the zygote rather than the genotype of "maternal tissue" determines normal or aberrant asci in these crosses. With reference to the condition of the ascus, the interpretation that peak acts as a zygote recessive is strengthened. D. Perkins has pointed out to us that peak is probably allelic to biscuit. Results of crosses made in our laboratory confirm the suggestion.