

A method for detection of suppressor genes closely linked to the suppressed locus

M. Allison

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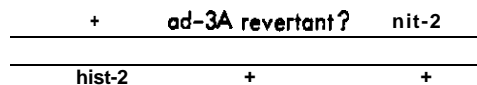
Abstract

Detection of closely linked suppressor genes

Allison, M. A method for detection of suppressor genes closely linked to the **suppressed** locus.

Diepoxybutane-induced reversions to adenine independence at the **odeninc-34** locus (allele 38701) of *N. crassa* were examined for closely linked suppressor mutations. The scheme used screened against parental type ascospores, allowing only crossovers in a small region surrounding the **ad-3A** locus to germinate in the selective medium.

The revertant was buck-crossed to an **od-3A (38701)**, **nic-2 (43002)** strain and homocaryotic **ad-3A** revertant, **nit-2** progeny were isolated. The **nis-2** locus, approximately 3 map units distal to **ad-3A**, provided one closely-m marker. The adenine-independent, **nit-2** strain was then crossed to a strain carrying the mutant allele **hist-2 (Y152M14)** which is approximately 2 map units proximal to the **ad-3A** locus. The progeny were plated on a medium supplemented with adenine only. Consequently the only survivors were the products of crossovers between the **hist-2** and **nit-2** loci.



Around 10,000 spores were tested from one such cross. 27 of the 259 crossovers recovered proved to be adenine-requiring. One adenine-requirer isolated from this revertant showed the very strong mutational response to diepoxybutane which is specific for **adenine-3A (38701)**. The results suggest that there is a suppressor gene located approximately 0.54 map units distal to the **ad-3A** locus.

In 1955, Kølmark and Giles found no evidence for suppressors of **ad-3A (38701)**. Since, however, they examined only about 100 ascospores from each revertant, they could not exclude closely linked suppressors. - - - Institute of Animal Genetics, University of Edinburgh, West Mains Road, Edinburgh 9, Scotland.