Use of a helper strain in *Neurospora crassa* to maintain stocks of uvs-4 and uvs-5, which deteriorate unless sheltered in heterokaryons

David D. Perkins
Stanford University

Follow this and additional works at: <https://newprairiepress.org/fgr>

This work is licensed under a [Creative Commons Attribution-Share Alike 4.0 License](https://creativecommons.org/licenses/by-sa/4.0/).

Recommended Citation

Perkins, D. D. (1993) "Use of a helper strain in *Neurospora crassa* to maintain stocks of uvs-4 and uvs-5, which deteriorate unless sheltered in heterokaryons," *Fungal Genetics Reports*: Vol. 40, Article 26.
<https://doi.org/10.4148/1941-4765.1417>

This Regular Paper is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Fungal Genetics Reports by an authorized administrator of New Prairie Press. For more information, please contact cads@k-state.edu.

Use of a helper strain in *Neurospora crassa* to maintain stocks of uvs-4 and uvs-5, which deteriorate unless sheltered in heterokaryons

Abstract

Strains of the mutagen sensitive mutants uvs-4 and uvs-5 that originate from ascospores may initially grow at wild type rate. However, growth becomes slower and progressively more abnormal following vegetative growth (Schroeder 1970 Mol. Gen. Genet. 107:291-304; Newmeyer 1984 Curr. Genet. 9:65-74 and personal communication).

Use of a helper strain in *Neurospora crassa* to maintain stocks of *uvs-4* and *uvs-5*, which deteriorate unless sheltered in heterokaryons.

D. D. Perkins - Department of Biological Sciences, Stanford University, Stanford CA 94305-5020

Strains of the mutagen sensitive mutants *uvs-4* and *uvs-5* that originate from ascospores may initially grow at wild type rate. However, growth becomes slower and progressively more abnormal following vegetative growth (Schroeder 1970 Mol. Gen. Genet. 107:291-304; Newmeyer 1984 Curr. Genet. 9:65-74 and personal communication). This makes experimentation difficult, and the illness may be terminal. Deterioration and loss of stocks can be avoided by sheltering in a heterokaryon. Both mutations are recessive. To ensure that the heterokaryotic condition is maintained, a recessive marker should be present in the mutagen-sensitive component of the heterokaryon.

The inactive mating-type helper strain *aml ad-3B cyh-1* (FGSC 4564; Griffiths and DeLange 1978 Genetics 88:239-254) is recommended as a second component of the heterokaryons. This *aml* helper has been used for maintaining stocks of poorly viable, unstable, infertile, or otherwise disadvantaged strains in which the genetic defect is recessive. (For examples, see Perkins 1984 Neurospora Newsl. 31:41-42; Barry 1992 Genetics 132:403-412; FGSC Neurospora Stock List). The tester is fully compatible with both mating types, but the heterokaryon-incompatibility genotype of the sheltered strain must be that of Oak Ridge wild types (*het-C het-d; het-e*).

FGSC now carries stocks of *uvs-4* and *uvs-5* that are sheltered in heterokaryons with the *aml* helper:

Heterokaryon	FGSC No.
(<i>acr-2 uvs-4 leu-1 A + aml ad-3B cyh-1</i>)	7445
(<i>acr-2 uvs-4 leu-1 a + aml ad-3B cyh-1</i>)	7446
(<i>uvs-5 al-3 inl A + aml ad-3B cyh-1</i>)	7316
(<i>uvs-5 al-3 inl a + aml ad-3B cyh-1</i>)	7317