

Allelism of the mutants ovc and cut of *Neurospora crassa*

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Recommended Citation

Banks, C. W., S.N. Bennett, and W.A. Krissinger (1997) "Allelism of the mutants ovc and cut of *Neurospora crassa*," *Fungal Genetics Reports*: Vol. 44, Article 4. <https://doi.org/10.4148/1941-4765.1272>

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Abstract

The mutant overaccumulator of carotenoids, *ovc*, which we obtained from the Fungal Genetics Stock Center, had been reported by Harding, *et al.* (1984 *Neurospora* Newsl. 31:23-25) to be in the right arm of LG IV between *col-4* and *met-5*. Examination of *ovc* in our laboratory revealed that in addition to having increased pigmentation, *ovc* was also osmotic sensitive and allelic to *cut*.

Allelism of the mutants *ovc* and *cut* of *Neurospora crassa*

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During a study of pigmentation mutants of *Neurospora crassa*, we obtained cultures of the mutant, overaccumulator of carotenoids, *ovc* (S20-16), from the Fungal Genetics Stock Center. Because our laboratory is also interested in osmotic-sensitive mutants which fail to grow on medium with elevated concentrations of NaCl, we make it a practice to test all strains we are working with for the osmotic-sensitive trait. When growth tested on Westergaard-Mitchell medium supplemented with 6% NaCl [W-M (6% NaCl)], *ovc* failed to grow, indicating that in addition to increased pigmentation, it was also osmotic sensitive.

The *ovc* locus was reported (Harding, *et al.* 1984 *Neurospora Newsl.* **31**:23-25) to be in the right arm of LG IV between *col-4* (about 10% recombination) and *met-5* (about 14% recombination). Since the osmotic-sensitive mutant, *os-2*, is also in LG IV near the reported locus of *ovc*, we next carried out a complementation test with *ovc* and *os-2* on the salt-supplemented medium. The observation of growth indicated complementation and non-allelism of the two mutants.

Another osmotic-sensitive mutant, *cut*, is in LG IV, but in the left arm. In addition to being osmotic-sensitive, this mutant also exhibits increased pigmentation and an altered morphology with the aerial hyphae all ending at the same level in the culture tube, hence, the designation *cut*. Visually, cultures of *ovc* were found to be indistinguishable from those of *cut*. Complementation tests carried out between *ovc* and *cut* were negative, consistent with allelism of the two mutants.

Ascospores from a cross of *ovc* to *cut* were picked individually and the resulting 171 progeny were subcultured onto W-M (6% NaCl). None of the progeny grew on the salt medium and thus, no wild-type recombinants were recovered. Ascospores from the same cross were also mass plated directly onto W-M (6% NaCl) in order to allow the recovery of larger numbers of wild-type recombinants. No such recombinants were recovered from the approximately 24,712 ascospores plated. These results support allelism of *ovc* and *cut*. Since *cut* is in the left arm of LG IV, these mapping data differ from those of Harding, *et al.* (1984) which placed *ovc* in the right arm of LG IV. In light of these more recent data, we suggest that the map position of *ovc* be changed to the left arm of LG IV, allelic to the *cut* locus.

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