Additional special purpose stocks

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Abstract
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This new mutants and stocks is available in Fungal Genetics Reports: https://newprairiepress.org/fgr/vol26/iss1/4
A new, highly fertile microconidiating combination, dingy, fluffy.

The double mutant peach fluffy has long been used as a source of microconidia in situations where exclusively uninucleate cells are required (Barrott and Garnjobst 1949 Genetics 34). The usefulness of pe fl has been limited by two disadvantages — low viability of microconidia, and low fertility and productivity of homoygous crosses. Improvements in viability have been reported (Barrott 1964 Neurospora Newsl. 6; Munkres 1977 Neurospora Newsl. 24). Sufficient ascospores can be obtained from pe fl homoygous crosses to do extensive analyses (e.g. D.A. Smith 1974 Genetics 76), but such crosses require special effort and are slow to mature.

When the linkage group IV marker dingy (38502d, Mitchell and Mitchell 1954 PNAS 40) is substituted for peach, the double mutant dn; fl resembles pe fl phenotypically, producing no macroconidia and abundant grey, uninucleate microconidia. Unlike pe fl, the new combination is highly fertile in homozygous crosses and as a female parent. Perithecia and ascospores are produced as quickly and abundantly as in crosses between wild types or fluffy strains. The new genotype thus appears promising as a substitute for pe fl, especially where microconidiating strains are to be intercrossed.

Stocks are available from FGSC (dn; fl A, No. 3517; dn; fl a, No. 3518). = = = Department of Biological Sciences, Stanford University, Stanford, CA 94305.

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Additional special purpose stocks.


Linkage testers

\[ \text{alcoy; csp-2 A, a} \quad \text{FGSC Nos. 3433, 3434} \]

Conidial-separation-2 (UCLA101) marks VII, the only linkage group not previously marked in alcoy. \( \text{alcoy is described in Genetics 40: 249-252, 1969. See also Neurospora Newsl. 19: 30, 1972). Addition of csp-2 increases efficiency for detecting linkage without any sacrifice of fertility or scoreability of the other markers. csp-2 is readily scored using a "tap test" to show whether conidia fall free (Selitrennikoff et al., Genetics 78, 1974).} \]

Tester stocks with distal markers

\[ \begin{align*}
\text{ro-7 rip, } & \text{ IIR, IIR} \\
\text{rip; dqw; trp-2 A, } & \text{ IIR, IIR, V I R} \\
\text{IIL, IIR} & \text{ FGSC Nos. 3467, 3468} \\
\text{3313, 3314} &
\end{align*} \]

The temperature-sensitive mutant rip (ribosomal protein defective; Isolation No. 4M. Loo, Neurospora Newsl. 22, 1975) has been mapped at the extreme right end of II, near but not allelic to un-15. It is readily scoreable on lightly inoculated slants at 34o (no growth) vs. 25o (normal growth). As a IIR marker, rip seems superior to un-15, which it excels in vigor, growth rate, and fertility. It has therefore been substituted for un-15 in various tester strains.

The morphological mutant ro-7 (ropy; Isolation No. R2470) mops at the left end of II very near pi, to which it may be preferred as a IIR marker, since ro-7 conidiaates and grows more vigorously. ro-7 is female-fertile.

\[ \text{cys-10 mat A, } \text{ N L, R} \quad \text{FGSC Nos. 2615, 2616} \]

Although the morphological mutant mat is not as far right as vys-2, it may be more convenient for scoring in some marker combinations.

\[ \begin{align*}
\text{chol-2 ylo-1 ws-1 A, } & \text{ VII, L, R} \\
\text{FGSC Nos. 3519, 3520} &
\end{align*} \]

Because \( \text{ws-1 is the most distal gene marker in VIR, well right of trp-2, this combination may be preferable to chol-2 ylo-1 trp-2.} \) Linkage is scored among the progeny from black ascospores, which are mostly ws+. Efficiency is decreased slightly because a few percent of m-I ascospores darken on aging so as to resemble ws+ and be capable of germinating.

(Note: In Neurospora Newsl. 20, 1973, ocr-7 was listed incorrectly as a distal VIR marker. The supposed linkage in VI could not be confirmed, and map location of ocr-7 is still unknown.)
Microconidiating strains

fl; dn A, a

pe fl A, a

IIR; TVR

FGSC Nor. 3517, 3518

3072, 3073

Substituting dingy for peach results in full fertility (see note by Perkins in this issue). The listed pe fl stocks are the improved strains described by Munkres in Neurospora Newsl. 24, 1977.

Strains with macroconidia that don't become airborne

csp-2 A, a

(UCLA101) VII

FGSC Nor. 2525, 2526

2554, 2555

2960, 2961

csp-1 A, a

eas A, a

Our data show it to be left of centromere, based on coverage by duplications from T(II→III)39311. Selitrennikoff et al. mapped csp-2 left of wc in VII. Our data show O/l8 recombination with thi-3 in VIII. Linkage of eas (easily wettable) in IIR has been confirmed; it is near fl, trp-3 and rip. The failure of ear conidia to become airborne, and their wettablity, are related to a complete absence of rodlets (Beever and Dempsey, Nature 272, 1978).

We find that all crosses where eas is heterozygous or homozygous produce a class of sick progeny that grow slowly or barely germinate. Cause of the abnormality is not known; there is no evidence of aneuploidy or chromosome aberration.

Another autonomous armspore-color mutant

cyr-3 A, a

[NM27(f)]

FGSC Nor. 2292.1272

mutants, including asco.

fl; per-l al-3 A, a

(per-l = AR174)

FGSC Nor. 3119, 3120

3311, 3312

3309.3310

fl; per-l A, a

(per-l = PBJ1)

per-l A, a

(per-l = PBJ1)

Fl; per-l strains above have been made for this purpose. The per- perithecia are seen in greater contrast when the female parent has albino mycelia. Standard fluffy testers (FGSC #3249,3250), wild types (#2489,2490), or various albinos are all suitable for use as per" parents.

Improved fluffy testers

fl A, a

(allele P)

FGSC Nor. 3249,3250

These fluffy strains were obtained by O. M. Mylyk by at least seven recurrent backcrosses to the new isogenic OR wild types described by Mylyk et al. (Neurospora Newsl. 1974 21: 24, FGSC Nor. 2489, 2490). There stocks are all uniform in rate of growth and protoperithecial formation, female fertility, and sex-linked resistance to triphenyl-tetrazolium chloride, and all have the same heterokaryon compatibility genotype. Some of the previously used fl and wild type stocks, listed in Neurospora Newsl., 19, 1972, differed with respect to these traits. **Department of Biological Sciences, Stanford University, Stanford, CA 94305.**