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eas strains of Neurospora for the classroom.

Both Selitrenikoff (1976 NN 23:23) and Perkins (NN 26:9) have heralded the discovery of eas as a potent weapon for combating the reputation of Neurospora as a noxious contaminant in the classroom. To exploit this discovery, we have been assembling a collection of double mutant strains containing eas and markers that are useful in the classroom environment. We note here the deposition of this collection in the FGSC and briefly describe the rationale for the strains being used in our undergraduate genetics laboratory course.

As a basic set of strains with minimal contamination problems fl (4317/4347) and eas (2960/2961) are extensively utilized. csp-1 (2554/2555) and csp-2 (2521/2522) are also used occasionally. Numbers in parentheses refer to the A and a FGSC numbers, respectively.

For routine crosses involving the scoring of random ascospores or unordered tetrads, we favor ad-3, cot-2 or trp-4 (Table I) because the progeny may be scored at 3 days without additional manipulation, e.g., testing for nutritional requirements. ad-3 produces a purple pigment on media with intermediate levels of adenine-HCl 50 µg/ml); cot-2 is colonial at **34°C**; and trp-4 grown on 10 µg/ml indole produces a compound that fluoresces in the blue when stimulated by long-wavelength UV.

The carotenoid mutants provide another set of markers that is extremely useful for the basic Mendelian crosses. Several different colors (Table I) involving 5 different genes on 3 separate chromosomes allow the instructor to prepare an excellent collection of unknowns that is not only practical, but aesthetically stimulating to the students.

For experiments involving nutritional requirements and biochemical pathways, we utilize (Table I} ad-3A, inl, pan-2, trp-4 and several of the tight arg mutants deposited in the FGSC by R.N. Davis (1979 Genetics 93:557). The arg mutants are especially valuable in demonstrating the pathway concept in that the readily available and soluble ornithine, citrulline and arginine can be used to differentiate the mutants and define the pathway.

With respect to abnormalities in-sexual development, we have found al-3,fl,per-3 (3960/3120), Ban (2989/2990), Fsp-1 (2991/2992) and R (4022/4023) to be reliable and interesting unknowns for the students. These mutants easily challenge the student's powers of observation. cys-3 (Table I) works very nicely as an autonomous color marker for centromere distance experiments as noted by Perkins (1979 NN 26:9) and Graham (1984 NN 31:46),

For rhythm experiments we use bd,csp-1 (2948/4547) and clock (1166). And finally, eas strains containing [Poky] and [mi-3] (Table 1) have been constructed for demonstrating cytoplasmic inheritance through progeny testing of unordered tetrads.

We are still in the process of: a) isolating the missing mating types for some combinations; b) identifying additional markers that would be useful in the classroom; c) identifying alternative alleles that would be tighter or yield a more pronounced phenotype; d) crossing-out modifiers picked up from eas that produce less than optimum growth; and e) developing strains for 3-point linkage testing, allelism tests and complementation testing. Comments and suggestions would, therefore, be greatly appreciated. In this regard, it may be noted that the presence of eas markedly complicates the production of conidia and color by sorbose inhibited colonies on plates being used for allelism testing of carotenoid mutants.

All crosses, and progeny isolation and testing, were done by standard techniques. The students in our Experimental Genetics laboratory course (G & D 313) during the fall semesters of 1980, 1982 and 1983 made many of the initial crosses, and started the progeny isolation and testing. The final crosses, testing and evaluation were accomplished through the patient effort of 3 undergraduate assistants, Laurene Goergen, Carrie Turkot and Susan Yoon.

Table I

eas strains of Neurospora crassa useful in the classroom[a]

locus	allele	Stock no.(FGSC) mating type A	a
Easily scorable			
ad-3A	38701	4651	4642
cot-2	Rl006(t)	4663	4654
trp-4	Y2198	4655	4656
Color mutants			
White			
al-2	JP45-2	4657	4658
al-2	Y254M165	4659	4660
al-3	P7775	4661	4662
Aurescent			
aur (al-l)	34508	4663	4664
Yellow			
al-l (pale)	80-96	4665	4666
al-l (lemon)	RWT-ylo	4667	4668
ylo-1	P1193	4669	4670
ylo-2	Y256M230*	4671	4672
Rosy			
al-2	NM58p	4673	4674
al-3[ros]	Y234M470	4676	4676
Nutritional mutants			
arg-1	B369	4677	4678
arg-2	CD80	4679	4680
arg-5	CD6	4681	4682
arg-6	CD25	4683	4684
inl	37401	4686	4686
pan-2	B2(Yl53M66)	4687	4688
Sexual development			
cys-3	NM27(t)	4689	4690
Cytoplasmic inheritance			
[mi-3]	3754	4691	4692
[poky]	3627-4	4693	4694

[a]All strains contain eas (UCLA191)

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