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Three new p-fluorophenylalanine resistant (fpr) mutants

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Three new p-fluorophenylalanine resistant (*fpr*) mutants

Abstract

Three new *fpr* mutants

Kinsey, J.A. Three new p-fluorophenylalanine resistant (fpr) mutants.

in on su(mtr) background, fpr-3 in su(mtr) (18-11) and fpr-4 in su(mtr) (17-2). fpr-5 was isolated in the wild type strain 74-OR23-1A background. All three mutants are characterized by resistance to FPA on solid media at a concentration of 10 $\mu\text{g/ml}$, which is completely inhibitory to wild type. Table 1 compares the growth of the three new mutants with that of fpr-1, mtr (1d) and 74-OR23-1A on various media.

fpr-3 is on linkage group III, close to the trp-1 locus. Spores that did not require tryptophan were isolated from a cross of trp-1 (10575) x fpr-3 and tested for recombination between trp-1 and fpr-3. From these tests fpr-3 appears to be 0.35 centimorgans from trp-1 (568 trp⁺ spores tested; germination 96%. Segregation for trp-1 and fpr-3 in 100 random spores was normal).

fpr-4 is on linkage group V. Linkage was estimated by a plating technique. fpr-4 and inl appear to be 11 centimorgans apart. On the basis of the segregation of an unselected marker (pob-1) in recombinants, fpr-4 appears to be distal to inl.

fpr-5 is on linkage group I. Two crosses of fpr-5 to al-2 were analyzed, with 28% recombination in one cross (total of 60 random spores tested; 87% germination) and 22.5% recombination (80 spores; 96% germination). Segregation of a third marker (arg-6) indicated that fpr-5 is proximal to al-2.

fpr-3 has normal amino acid uptake through both System I and System II. (Systems defined by Pall (1969 *Biochim. Biophys. Acta* 173: 113)). Amino acid uptake of fpr-4 and fpr-5 has not been tested.

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Three previously unreported fpr mutants have been isolated in my laboratory. fpr-3 and fpr-4 were isolated as p-fluorophenylalanine (FPA) resistant mutants

Table 1. Growth response of fpr mutants

	Minimal	indole	indole FPA	FPA	4MT
wild type	+	+	0	0	-
<u>mtr</u> (16)	+	+	+	+	+
<u>fpr-1</u>	+	+	+	+	+
<u>fpr-3</u>		+	0	+	0
<u>fpr-4</u>	+	+	+	+	+
<u>fpr-5</u>	+	+	+	+	+

All growth tests were performed on Vogel's Medium N agar with 1.5% sorbose, 0.1% glycerol and 0.1% glucose. The concentration of FPA was 10 $\mu\text{g/ml}$; indole was 50 $\mu\text{g/ml}$ and 4-methyltryptophan (4MT) was 60 $\mu\text{g/ml}$. Good growth is scored +; poor growth -; no growth 0.