

## New markers and linkage data

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### Abstract

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## LINKAGE DATA

Perkins, D.D. and N.E. Murray. New markers and linkage data.

The following mutants that were previously unassigned to linkage groups have now been located:

- K7    cys-4 : cysteine-4 (IV R). U V; Y8743. cf. Murray 1960.
- C124    me-9 : methionine-9 (VII). U V; Abb4 X 25a. Extracted from 44303. Responds to methionine only (G. R. Dubes 1953), whereas me-7 responds to cystathionine, homocysteine, or methionine. 0/341 recombinants with me-7 (K79).
- Y154M37    ad-9 : adenine-9 (I R). X-ray; 74A. Blocked between GAR and FGAR (N. J. Nelson and M. E. Case).
- 20705    ad(-2) : adenine (III R). X-ray; LA X La. 0/29 recombinants with ad-2 (70004t).
- 33026    val : valine (V). U V; 1A X 19a. 0/45 recombinants with val (45201), which is close to iv-1.
- 35001    cys-5 : cysteine-5 (I L). U V; 1A X 25a. Both 35001 and cys (85518) respond to sulfite, and N. H. Horowitz (unpublished) had previously shown that cys (85518) is linked to mating type. 0/111 recombinants from an intercross of 35001 X 85518.
- T (III; VI) 1: First ~~translocation~~ between III and VI. Recovered by P. St. Lawrence from a cross 74A X rg cr a; apparently spontaneous.
- 47904    T (V; VI), inos. Translocation between V and VI, not separated from inos requirement allelic with inos (V). (N. H. Giles, 1951)

hist (P143h) was reported as a possible second hist-4 allele (Murray and Glassey, NN. #1). Recent data confirm a location distal to pan-1. Chromatographic studies of the accumulation products of single and double mutants show that P143h differs from hist-4 (C141) only in that it is temperature sensitive. At 25° P143h is not stimulated by histidine and no imidazole accumulation products were detected; at 34° P143h is leaky but the imidazole products accumulated were characteristic of the hist-4 allele, C141. Three-point data are tabulated on the following page using the conventions of Perkins et al. (1962, *Canad. J. Genet. Cytol.* 4:192; 1959, *Genetics* 44:1191). Cross numbers prefixed S designate data of the second author.

Cross No.	Zygote Genotype and Recombination %	Parental Combinations	Recombinations			Total; per cent Germination; Linkage Groups	Marker Isolation Numbers
			Singles Region 1	Singles Region 2	Doubles Regions 1 and 2		
S667	$\frac{+ \text{ cys-5 } A}{\text{leu-3 } + a}$ 7.8      5.2	40    27	2    4	1    3	0    0	77 83% I	47313 35001 sex
1646	$\frac{+ \quad + \quad \text{ad-9}}{\text{thi-1} \quad \text{csh} \quad +}$ 12.2      5.4	34    27	4    5	4    0	0    0	74 74% I	56501 STL8 Y154M37
1684	$\frac{+ \quad + \quad \text{me-6}}{\text{nit-1} \quad \text{ad-9} \quad +}$ 7.0      3.5	51    -	-    4	2    -	-    0	57 (ad <sup>+</sup> only) 89% I	34547 Y154M37 35809
S504	$\frac{+ \quad \text{ad-4} \quad \text{leu-1}}{\text{me-8} \quad + \quad +}$ 1.4      1.4	122    155	3    1	0    4	0    0	285 71% III	P53 44206t 33757
S574	$\frac{+ \quad + \quad \text{cys-4}}{\text{pan-1} \quad \text{mat} \quad +}$ 11.5      918	48    41	6    7	5    6	0    0	113 75% IV	5531 B57 K7
S531	$\frac{+ \quad + \quad \text{hist-4}}{\text{me-2} \quad \text{pan-1} \quad +}$ 4.6      1.7	79    82	4    4	2    1	0    0	172 86% IV	H98 5531 P143ht
1649	$\frac{+ \quad \text{pab-2} \quad \text{pl}}{\text{leu-5} \quad + \quad +}$ 28.3      7.9	43    40	19    15	3    5	1    1 C=0.7	127 84% V	45208t H193 B118
1682	$\frac{+ \quad \text{bis} \quad +}{\text{leu-5} \quad + \quad \text{pab-2}}$ 29.9      7.2	34    29	14    13	4    1	1    1 C=1.0	97 98% V	45208t B6 H193
1669	$\frac{+ \quad T \quad +}{\text{ylo} \quad + \quad \text{thi-4}}$ 3.9      32.5	29    22	0    1	8    15	1    1 C=2.1	77 81% III;V	Y30539y T(III;VI)1 85902
1713	$\frac{+ \quad + \quad (T)\text{ylo}}{\text{leu-1} \text{ tryp-1 } \cdot (+)+}$ 20.2      31.0	30    34	10    15	22    17	0    1 C=0.1	129 78% III;V	33757 10575 T(III;VI)1 Y30539y
1680	$\frac{+ \quad \text{inos } T \quad +}{\text{chol-2} \quad + \quad \text{tryp-1}}$ 0      36.2	30    30	0    0	22    12	0    0	94 94% V;VI	47904 T(V;VI)46802 10575
1705	$\frac{+ \quad \text{inos } T \quad +}{\text{chol-2} \quad + \quad \text{ad-8}}$ 6.2      6.2	27    30	2    2	2    2	0    0	65 88% V;VI	47904 T(V;VI)46802 Y226M58

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