

Voelker, R.A. North Carolina State University, Raleigh, N.C. On the possible identity of the factor(s) giving rise to male recombination and to unique chromosome aberrations in *Drosophila melanogaster*.

Hiraizumi reported that 20% or more of the second chromosomes extracted from a Harlingen, Texas population of *Drosophila melanogaster* exhibited male recombination. Further work (in MS) by Hiraizumi has revealed that this phenomenon is associated with the following features: (a) clustering of recombinants; (b) relatively

high frequency of recombination around the centromere; (c) mosaics among flies carrying this factor, and (d) a comparable amount of recombination in the third chromosome.

Mettler (in preparation) has reported "unique" chromosome aberrations (found once or only a few times in a given locality, but not in other localities) which were discovered while surveying the salivary gland inversion polymorphism in *Drosophila melanogaster* populations from various localities, among them a Jacksonville, Florida sample in which second and third chromosomes were simultaneously extracted.

Since both of these phenomena could be the end products of some type of chromosome breakage, the following experiment was conducted to determine if male recombination could be detected in lines in which unique inversions had been observed. Males simultaneously heterozygous for the extracted Jacksonville chromosomes and triply marked second and third chromosomes (+ + + / a l b s p ; + + + / v e s t c a) were derived and backcrossed to a l b s p ; v e s t c a females and their progeny were scored for recombinants. Five such matings were prepared from each of six Jacksonville lines in which "unique" inversions had been observed. Because of low fertility, very few progeny and no recombinants were recovered from line 5; thus it is omitted from the following table.

Table 1. Recombinants recovered from lines in which "unique" inversions had been observed.

Line	II		III	
	al-b	b-sp	ve-st	st-ca
1	1	6	4	9
2	0	5	2	7
3	1	0	1	12
4	0	15	1	18
6	2	1	1	3
TOTALS	4	27	9	49

Since parental type totals were not scored, the frequency of recombination cannot be computed, but it appeared to be of the same order of magnitude as that reported by Hiraizumi (Ca 0.5 - 1.0%). In both the second and third chromosomes, there is a tendency for the greater number of crossovers to have occurred in the region which included the centromere. This and the tendency for recombinants to occur in clusters are in agreement with Hiraizumi's results. Thus, it appears that male recombination and the occurrence of unique aberrations may be different manifestations of the same or, at least, related events.

Attempts were made to extract recombinant chromosomes by mating recombinant males to females carrying appropriate balancer chromosomes. Approximately half of these recombinant males exhibited slight fertility or sterility, such as is frequently associated with deficiencies. This suggests that the mechanism of exchange may be rather imprecise. Such an imprecise exchange mechanism may explain the unequal recovery of recombinant classes and the clustering of recombinants around the centromere found by Hiraizumi. Duplications for a given region may survive while their corresponding deficiencies may not; moreover, larger duplications and larger deficiencies may survive if they involve the centric heterochromatin. Salivary gland chromosomes of recombinant males which were fertile are being examined for the presence of duplications or deficiencies.

Baker, B.S. University of Washington, Seattle, Washington. "Suppressors" of the Minute phenotype.

The following observations suggest that some balancer chromosomes may carry suppressors of, or duplications for, the + allele of specific Minute mutants. (1) In crosses of  $M(2)1^2/+$  by  $SM5/+$  no  $SM5$  phenotypically Minute progeny could

be obtained. However, from pair matings of the progeny of this cross, stocks could be established that were  $SM5/? \times SM5/?$ , non-Minute, and which bred true. Outcrosses of males of these stocks to Canton-S females gave only  $SM5$  (197) and Minute (102) progeny. (2) a stock of  $M(2)e^S/In(2L+2R)Cy, In(2R)bw$  was obtained from the Pasadena Stock Center and found to contain all  $Cy$  non-Minute flies. Outcrosses of this stock to Canton-S gave only  $Cy$  and a few (ca. 1%) extremely Minute flies that were too sterile to test further.