Tedeschi, Maria Valéria* and Luiz Edmundo de Magalhães. Universidade de São Paulo, São Paulo, Brasil. Analysis on the recombination between chromosomes bearing lethal genes in D. melanogaster.

Chromosomes derived from females bearing two different lethals (l_1/l_2), one in each second chromosome, are put in homozygosity by the usual method, with the aid of Cy/Pu balanced lethals strain. They are also tested for allelism with each one of the lethals present in the parent female. Following this scheme, we analyzed two different pairs of lethals (l_1 = 23, l_2 = 30 and l_1 = 88, l_2 = 53); results are shown in table I. We can observe that the frequency in class 3 for the second pair of lethals analyzed (l_1=88/l_2 = 53) is too high in comparison with the complementary class 4. It could be explained if we assume that the chromosome 88 bears two different lethals instead of only one.

TABLE I

Class number	Homozygosity	Allelism test with l_1	Allelism test with l_2	Observed frequency I l_1 = 23 n	Observed frequency I l_2 = 30 %	Observed frequency II l_1 = 88 n	Observed frequency II l_2 = 53 %
1	+	+	-	28	36.36	43	41.74
2	+	-	+	26	33.76	36	34.95
3	+	+	+	10	12.98	19	18.44
4	-	-	-	10	12.98	0	0.00
5	-	+	-	1	1.29	1	0.97
6	-	-	+	2	2.59	1	0.97
7	+	-	-	0	0.00	3	2.91
TOTAL				77		103	

n = number of chromosomes analyzed.
+ = lethal phenotype; - = non-lethal phenotype.

That groups of genes located in a chromosome may act as lethals is not yet a fact very well established, at least in D. melanogaster. Beside the classes 1 to 4, expected as if each lethal chromosome had normal behavior in the recombination, we got three more classes, 5 to 7, which do not fit in the theory of crossing-over recombination between single lethal loci. They can be interpreted as if some lethals depend on more than one single locus.

Chromosomes in the classes 5 and 6 can be interpreted as recombinants bearing the original lethal plus a recessive suppressor system. Chromosomes in the class 7 behave as if the new lethals are synthetized by recombination once they do not show allelism with any of the original lethals.

Further analysis to clarify exactly the nature of the unexpected recombinant chromosomes are underway.

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Shiomi, T. Nagasaki University, Japan. The mutagenic effectiveness of 14.1 Mev neutrons in post-meiotic germ cells of D. melanogaster.

24 hr old adult males of Canton-S isogenic strain were irradiated with doses of 500, 1280 and 2000 rad. of 14.1 Mev neutrons and germ cells irradiated at post-meiotic stages were tested in five successive one day broods for the presence of sex-linked recessive lethals and autosomal translocations (2;3) crossing with a dual purpose stock females (y sc^{S1} In49 sc^{8} ; bw ; st p^{p}). Each male was crossed to five virgin females.

Differ from the results obtained with X-ray irradiation, present results demonstrated no difference between the mutation rates in 1st and 2nd day broods. However, it became clear that the mutation rates were not constant even during the first 24 hr with the mating sequence after neutron exposure. The RBE of 14.1 Mev neutrons as compared with X-rays was demonstrated to be lower for recessive lethals than for translocations at all stages of spermatogenesis tested.