Suzuki, D. T. University of British Columbia, Vancouver, Canada. The effects of mitomycin C on crossing over in Drosophila melanogaster males.

It has been demonstrated that the antibiotic, mitomycin C (MC) increases mitotic crossing over in Ustilago and Saccharomyces (Holliday, Genetics 50:323, 1964), in öogonia of Drosophila (Suzuki, Genetics 51:635, 1965) and somatic cells of Drosophila (E. B. Lewis - personal communication). It was felt that crossing over in spermatogonia of Drosophila males might be induced by injection of MC.

Males, 24 to 48 hours after eclosion, were injected in the gonadal area with an MC (100 µg/ml) or saline (0.7N) solution. Each male was mated separately with four virgin females and transferred, without etherization, to fresh vials with four virgins at two-day intervals for sixteen days. Each set of inseminated females was transferred to fresh vials twice at four-day intervals to ensure maximal recovery of treated cells. The markers used were ru, h, st, p^p, ss, e^s on chromosome 3. The results are shown in the following table:

		BROOD NUMBER							
		1	2	3	4	5	6	7	8
MC	Total	2,822	5,306	5,995	7,308	6,646	5,513	2,649	2,145
	aver/male	108.5	212.2	239.8	292.3	265.8	220.5	120.4	126.2
	Crossovers	0	0	0	1*	0	0	0	0
NaCl	Total	2,929	3,629	3.160	2,835	2,724	2,296	1,742	715
	aver/male	195.3	241.9	210.7	189.0	227.0	176.6	134.0	71.5
	Crossovers	0	0	0	0	0	0	0	0

* in the region ss-e^s

The absence of effect of MC at a concentration known to be mutagenic in Drosophila males (Mukherjee, Genetics 51:947, 1965) and recombinogenic in females (Suzuki, 1965) might indicate that the nature of induced gonial exchanges in males is different from that in females. (This research was supported by N.R.C. grant A-1764 and USAEC grant AT(45-1)-1924.)

Di Pasquale, A. and L. Zambruni. University of Milan, Italy. Localization of the "brown spots" character of Drosophila melanogaster.

As previous investigations have shown, the inheritance of the brown spots character (whose phenotypical manifestation appears in the females only after copulation, see DIS 37), is bound to the 2nd chromosome (see DIS 33-34). A new investigation has been brought about to find its localization in the chromosome. Using as markers b (48,5), cn (57,5), vg (67,0), experiments were made with the aim of revealing cases of recombination with bsp; to avoid errors of classification, since bsp has not a 100% penetrance, it was preferred to use another method which permitted the recovery of each chromosome, recombined or not, in isogenic condition and therefore in stable lines. As bsp females mated with males of different stocks show typical spots with significant differences according to the genotype of the copulating male, the classification of the individual lines (i.e. of the single chromosomes) as bsp or + was done on the basis of observations made on females mated with bsp males.

88 chromosomes were analyzed: according to the results obtained, bsp must be located ± 7 units to the left of b, being the frequencies of recombination 7.9% ± 2.87 bsp-b, 19% ± 4.10 bsp-cn, 46.0% ± 5.12 bsp-vg.

Differences in the frequency of brown spots manifestation have been found in lines of different genotype which can be explained with the presence of modifiers also located on the 2nd chromosome.