isochromatid breaks (both sister chromatids broken at the same point) is the most represented, but interestingly this genetic combination also shows an excess of chromosome translocations. It is long known that mutated BLM protein in man typically induces an increase in sister chromatid exchanges (Schroeder and German, 1974). Accordingly, we hypothesize that the high number of isochromatid breaks is due to the initiation and subsequent failure of the recombination-mediated repair of single chromatid breaks, which indeed have a frequency comparable to controls. The scored excess of chromosome translocations (> 300× compared to control) further support this idea.

As shown in Table 2, the exchanges scored are not equally distributed among all categories. There is an enrichment in the class of X-type exchanges versus U-type ones. Moreover, X-type symmetric exchanges involve only the inverted chromosome and its homologue (Figure 2B). It is intriguing to conjecture that, because of the imperfect pairing of the two homologues, the inverted chromosome is detected by the cell as something 'unusual'; this in turn would activate the recombination-mediated repair machinery, inducing a high level of somatic recombination between these homologues. The failure to resolve this somatic recombination in a *mus309* mutated background would lead to the over-production of both isochromatid breaks and X-type symmetric exchanges scored.

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A new mutation in *Drosophila parabipectinata.*

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D. parabipectinata was described by Bock in 1971 and is one of the members of the *D. bipectinata* complex, which is comprised of four closely related and morphologically very similar species: *D. bipectinata*, *D. parabipectinata*, *D. malerkotliana*, and *D. pseudoananassae*. This complex is part of the *ananassae* subgroup of the large *melanogaster* species group (Bock and Wheeler, 1972) of the subgenus *Sophophora*. These species occur throughout Southeast Asia, extending into north eastern Australia, the Indian subcontinent and South Pacific. However, *D. parabipectinata* has restricted geographical distribution as compared to the other three species of the complex. All the four species are sympatric over most of their geographic ranges. All the four species hybridize with each other in the laboratory, and hybrid females are fertile but males are sterile (Mishra and Singh, 2006). *D. parabipectinata* shows incomplete sexual isolation with other members of the *bipectinata* complex (Bock, 1978; Singh *et al*., 1981; Banerjee and Singh, 2012). It shows asymmetrical sexual isolation with *D. bipectinata* and *D. malerkotliana* (Banerjee and Singh, 2012). Results based on interspecific crosses and behavioral studies provide evidence that *D. bipectinata* and *D. parabipectinata* are very closely related species (Bock, 1978; Hegde and Krishnamurthy; 1979, Crossley, 1986; Singh and Singh, 2013, 2014).

A large number of stocks of *D. parabipectinata* established from flies collected from different geographical localities are being maintained in our laboratory. This note describes an x-ray induced mutation in *D. parabipectinata*. For irradiation experiments, the males were taken from a wild type stock collected from Mysore, India, and reared for numerous generations in the laboratory. The newly hatched and two days old wild type males were collected, and these males were kept in a gelatine capsule and were exposed to X-rays under following conditions:-

Target distance – 50 cm
KVP – 120 KVP
Dose rate – 450 r per minute
Total dose received approximately - 1800 r in 4 min.

In each experiment, 50 males were irradiated under similar conditions. The newly-hatched wild irradiated males were allowed to grow for at least 2 to 3 days and were then mated for four days with a first set of 40 virgins (wild type). Similarly 2 day old irradiated males were immediately mated with 50 four day old virgin females. After four days these males were separated and mated with another set of 40 wild virgins. Again after four days, these males were separated and mated again with another set of 40 wild type virgin females. After 12-16 days, F_1 progeny were collected from all the bottles and observed for any variant. Pair mating was made from these F_1 flies. F_2 progeny from vials were carefully examined for any variations from the wild type.

Six males were obtained in one of the vials which showed brownish eye color appearance that resembles *garnet* eye colour sex linked recessive mutation of *D. malerkotliana* (Singh and Singh, 2013). They were crossed with wild type virgin females. Next generation progeny were normal and, when they were pair mated, some of the male progeny showed *garnet* eye color. By making pair matings from these flies, mutant females and males were obtained and a separate stock of garnet eye color could be established. In order to confirm the inheritance pattern, virgin *garnet* eye color females of *D. parabipectinata* were collected from the stock and were mated with wild type virgin males. All the F_1 males showed *garnet* (*g*) eye color phenotype (Figure 1) showing sex linked inheritance. This is the first report of phenotypic marker in this species.

The garnet eye color of *D. parabipectina* shows resemblance with that of garnet eye color mutation of *D. malerkotliana* (Singh and Singh, 2013). Since both the species belong to the *bipectinata* species complex and are closely related and same mutation has been induced by X-rays, the loci may be very susceptible to X-rays in both the species.

Figure 1. Garnet eye color phenotype in *Drosophila parabipectinata*.

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A new mutation of PDA synthase, *sepia,* isolated from wild *Drosophila melanogaster*.

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